

## ORIGINAL ARTICLE

# Use of the Internet as a source of health information amongst participants of antenatal classes

Patricia Lima-Pereira, Clara Bermúdez-Tamayo and Grazyna Jasienska

**Aim.** To describe the pattern of use of the Internet as a source of health information by participants of antenatal classes.

**Background.** There is a lack of information about the frequency of Internet use amongst expectant mothers and fathers who attend antenatal classes.

**Design.** A cross-sectional descriptive study.

**Methods.** Women ( $n = 114$ ) and men ( $n = 21$ ) were recruited. Data were collected anonymously using a self-administered questionnaire, containing questions about Internet use, the frequency of that use, sources of information about pregnancy, preference over other non-Internet sources, positive and negative feelings generated due to the use of the Internet and willingness to receive instructions on Internet use.

**Results.** The average age of participants was 31.4 (SD 6.1) and their stage of pregnancy ranged from 24–38 weeks. 83.5% were expecting their first child. 93.5% reported that they used the Internet on a regular basis and no significant difference was found between men and women. Amongst Internet users, 97.7% sought, at some point, information on pregnancy on the Internet and 26.9% had done so in the last 24 hours. The Internet was the most popular source of information on pregnancy topics (18.5% of women and 25.8% of men used it as their primary source of information) after a physician. Commercial websites were more frequently used by people looking for information on pregnancy than sites maintained by not-for-profit organisations or professional unions.

**Conclusions.** The Internet is widely used as a source of information amongst participants of antenatal classes, both male and female. Approximately 95% have used it at some point to find information during pregnancy, but the majority (approximately 90%) had no knowledge of websites run by not-for-profit organisations and preferred commercial websites.

**Relevance to clinical practice.** Instead of disregarding the use of the Internet as a source of information during pregnancy, midwives should keep up to date and give their patients links to high-quality sites.

**Key words:** education, Internet, nurses, nursing, parents, patient information, World Wide Web

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## Introduction

Numerous websites offer information about pregnancy, childbirth and motherhood. This increasing offer seems to indicate that couples expecting a baby are broadly choosing

the internet for addressing their doubts (Plantin & Daneback 2009). Nevertheless there is yet a lack of information about the frequency of Internet use amongst this expectant mothers and fathers.

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Several authors have suggested that motivating patients to seek information, managing this information and exchanging that information during medical consultations may enhance their empowerment, increase their health literacy and improve shared clinical decision-making (Diaz *et al.* 2002, D'Alessandro *et al.* 2004, Akesson *et al.* 2007, Sommerhalder *et al.* 2009). However, most of the interventions that have been carried out have focused on chronic, elderly patients, who are less accustomed to using the Internet (Wetzels *et al.* 2007, Leveille *et al.* 2009). The purpose of this article is to describe the pattern of use of the Internet as a source of health information by participants of antenatal classes.

## Background

### Frequency of use of the Internet as a source of health information

The Internet is widely used as a source of health information by both women and men of reproductive age and particularly by those expecting a child (Fox 2006, INE 2007, Declercq *et al.* 2008, Sz wajcer *et al.* 2009). In developed countries, more than 90% of pregnant women have access to the Internet and more than 80% use it frequently as a source of health information, especially in the early stages of pregnancy (Larsson 2009). In the USA, 11% of primiparous mothers and 7% of those who already have children cite the Internet as their first source of information on the topic of childcare issues (Declercq *et al.* 2008).

In terms of frequency of Internet use, it has been found that some pregnant women access the web more than once a day (Larsson 2009). A study reported that pregnant women spend a median of six hours per month looking for information about childcare (Declercq *et al.* 2008). The mean frequency amongst primiparous mothers is twice that, as they spend 12 hours a month browsing the web.

Numerous websites offer information about pregnancy, childbirth and motherhood, but most users are not qualified to assess their quality and reliability (Edwards & Davies 2009). Some of the top searches related to pregnancy are topics dealing with fetal development, nutrition during pregnancy (Sz wajcer 2005), complications and stages of labour, pain relief and stories about motherhood. Other topics include the sale of products for mother and child and breastfeeding (Larsson 2009).

The data regarding the impact of Internet use on pregnancy and childbirth are limited (Romano 2007). In Spain, no data are available about how pregnant women seek health information. Amongst the population as a whole, use of the Internet is more common amongst women (47%

of women report having done so in the last three months) than men (36%). There seems to be a positive correlation between use of the Internet and age: 31.9% of women and men between 16–24 years of age have searched for health topics online. This frequency increased to 41% for 25- to 34-year-olds and reached 48.5% amongst 35- to 44-year-olds (INE 2007).

### The antenatal education context

Despite the fact that many people have some difficulty interpreting information on the Internet (O'Grady *et al.* 2008), they often avoid talking with their health caregivers about the information they have found online. Nevertheless, research seems to show that the majority of people would appreciate it if their physician or nurse gave them suggestions of relevant websites and helped them to assess the quality of information available on the Internet (Diaz *et al.* 2002, D'Alessandro *et al.* 2004, Larsson 2009).

Many authors suggest that rather than ignoring women's interest and their current use of the Internet, the Internet should be used strategically, to reinforce the content covered in antenatal classes and to enhance the relationship between the patient and the healthcare provider (Diaz *et al.* 2002, Sommerhalder *et al.* 2009). Furthermore, it has been suggested that educators should encourage women to use the Internet, to provide links to high-quality sites and access criteria (Fox 2006, O'Grady *et al.* 2008, van Zutphen *et al.* 2009). In Spain, the antenatal monitoring process is run by midwives (García Calvante 1996, pp. 94–96) and this could provide the perfect setting for developing health literacy strategies (Renkert & Nutbeam 2001) by taking advantage of the Internet as a source of health information.

Thus, the aim of this study is to describe the pattern and frequency of usage of the Internet as a source of health information amongst participants of antenatal classes. Taking into account the continuous challenge that the emergence of new communication technologies represents for public health in general and for relationships between caregivers and patients in particular, the results of this study prove that the Internet is used frequently by pregnant Spanish women and suggest that midwives, instead of ignoring this fact, could turn it into an opportunity to educate pregnant women further.

## Methods

A cross-sectional, descriptive study was carried out amongst women and men who attended antenatal classes at health centers run by the Andalusian Health Service in Granada

(Spain) between May–September 2009. Data were collected anonymously using a self-administered questionnaire created by the authors, based on a review of previous questionnaires used to assess Internet use amongst physicians (Bermudez Tamayo *et al.* 2008), the general population (Fox 2006) and pregnant women (Larsson 2009). A pilot trial of the questionnaire was conducted between 26–28 May 2009 in three health centers and involved 32 participants (30 women and two men). The comprehensibility of the questions, frequency of endorsement and the time required to fill out the questionnaire were assessed. No further work was carried out with this sample group of respondents.

The questions addressed a variety of topics related to patients' use of the Internet for gathering health information. The following variables were included in the questionnaire:

- Gender, age, number of pregnancies, level of education, health center assigned
- Use of the Internet (in general), frequency of its use, place of access to the Internet
- Use of the Internet as a source of information about pregnancy
- Preference over other sources of information
- Recent history of use, searched topics, websites visited, search strategy
- Positive and negative feelings generated when browsing the Internet
- Willingness to receive instruction (advice, guidance, suggestions) on Internet use from a midwife.

A total of nine websites were included in the questionnaire. These websites were selected based on the following criteria: (1) Four commercial websites were selected because they were the ones retrieved most frequently when searching for pregnancy-related topics in Spanish using Google; (2) Two non-commercial websites were selected because they were the ones usually recommended by midwives in charge of antenatal education in Spain; (3) The Medline website designed for the general population and Nacer Sano.org were included because they best fit the criteria for the high quality medical website proposed in the literature (Bermudez Tamayo *et al.* 2008). A brief description of the purposes of each website are included as an annex. A commercial website is one that is sponsored and funded by a pharmaceutical company or other pregnancy-related brand (food, personal hygiene, cosmetics, clothes, publisher, amongst others).

### Data management and statistical analysis

Firstly, the distribution of all the quantitative variables was examined using the Shapiro–Wilk test to determine if they were normally distributed and the Levene Test to check the

homogeneity of variances. We used chi-square and *t*-tests for independent samples to compare differences in demographic and other study variables.

### Ethical considerations

Prior to any data being gathered, ethical approval from the Health District of Granada was obtained. Additionally, all participants were informed about the study and signed a consent form.

## Results

### Recruitment

A total of 139 people filled out the questionnaire (114 women, 21 men and four people who did not report their gender). The survey was conducted amongst 10 separate groups in six centers in the city of Granada between 29 May–27 August 2009. The distribution between the different centers was as follows: Gran Capitán (one group, 26 subjects, 18.7%), Gongora-Mirasierra (one group, 27 subjects, 19.4%), Chana (one group, 28 subjects, 20.1%), Zaidín (two groups, 35 subjects, 25.2%), Montijo (two groups, 10 subjects, 7.2%) and Cartuja-Almanjazar (two groups, 13 subjects, 9.4%). These classes represent all the public antenatal classes that were offered during the three-month period during which the study was conducted.

The self-administered questionnaires were completed at the beginning of the class. It took participants approximately 15–20 minutes to fill out the questionnaire. The total number of women who attended the courses on the days when this research was conducted was 117. A total of 15 participants who had arrived late at classes or were not able to read in Spanish did not fill out the questionnaire and did not participate in the study. The response rate for women was 87.2%. An additional 12 questionnaires filled out by participants of antenatal classes outside the period of the study (in September) were also included in this study. Those people took part in an intervention study (PLP, CBT and GJ, in progress), but they were not present when the intervention was carried out. Therefore, because they filled out a questionnaire, we decided to include them in the analyses.

### Demographic and clinical characteristics

Eighty-two per cent of women ( $n = 114$ ) and 15.1% of men ( $n = 21$ ) participated in the study. The average age of participants was 31.4 (SD 6.1) and the median age was

32 years old. The mean age of female respondents was 31.2 (SD 6.1, min. 15 and max. 42). The mean age of male respondents was 32.2 (SD 6.1, min. 20 and max. 44). The stage of pregnancy amongst participants ranged from 24–38 weeks (the mode was 30 weeks and the median was 32 weeks). With regard to the number of antenatal classes attended, 15.1% had not yet attended any classes at the time of the survey (12.7% of women and 30% of men), 19.2% had attended 1 or 2 classes, 36.2% had attended 3 or 4 classes and 19.3% had attended 5 classes or more: 83.5% (116 people) were expecting their first child. Amongst those who already had children, 82.4% (14 people) were expecting their second child, 11.8% (two people) their third and 5.9% (one person) their fourth child. Participants had the following level of education: 7.2% of respondents (10 people) had a level of education equivalent to complete primary education or lower. 33.8% (47 people) had completed secondary education and 55.4% (77 people) had studied at college or graduate level. Five people did not report their level of education. No significant difference in level of education was found between men and women (chi-square test,  $p = 0.67$ ).

### Use of the Internet as a source of health information

#### Frequency and ability of use

The Internet appeared as a frequent source of information amongst participants of antenatal classes in Granada. 93.5% (130 people) reported that they used the Internet on a regular basis (Fig. 1). It was widely used by both men and women. No significant difference was found between genders (chi squared test,  $p = 0.95$ ).

Amongst Internet users, 97.7% (127 people) had, at some point, sought information about pregnancy online. One in four participants (26.9%) had sought information in the 24 hours immediately prior to the survey; 64.6% of respondents had sought information in the course of the previous week and 86.2% had done so in the last month. Internet use was common, regardless of level of education (Chi squared test,  $p = 0.79$ , Fig. 2); 85.8% of Internet users self-assessed their ability to use the Internet as good or very good, 12.5% as average and 1.7% as bad.

#### Place and means of use

Internet users usually accessed it at home (86.2% 112 people). Amongst the 13.8% (18 people) that did not have access to the Internet at home, 39% (seven participants) used it at work, 50% at a relative's home (nine participants) and 28% (five participants) in a public place (library, university, Internet café).

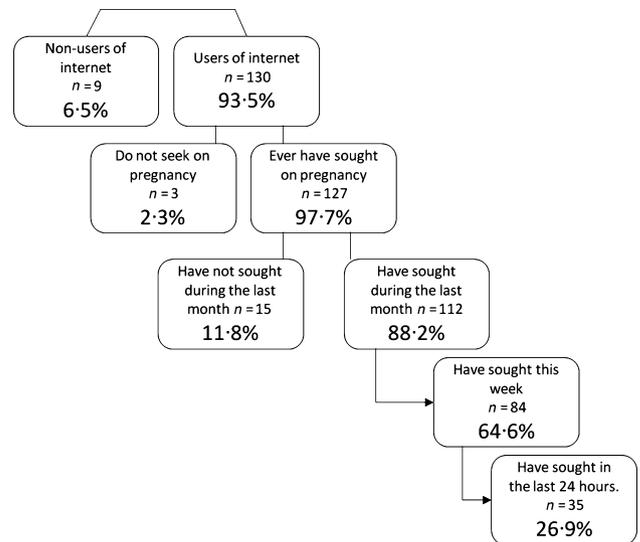


Figure 1 Frequency of use of the Internet as a source of information amongst future parents.

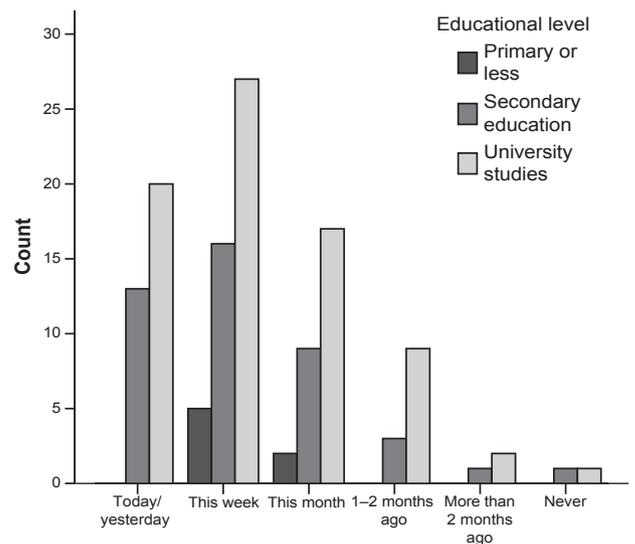


Figure 2 Time from the last use of the Internet as a source of information amongst future parents.

The most common way to start browsing the Internet was using a search engine (Google). 93% (121 people) reported using this method for searching for information about pregnancy. Moreover, 25.4% (33 respondents) of participants of antenatal classes visited websites that were recommended by the media, 18.5% visited those recommended by their midwife and 16.2% visited those suggested by someone else; 48.5% of respondents said that they would like to receive guidance on how to find information on the Internet, 42.3% replied ‘perhaps’ and 8.5% said that they were not

interested in receiving such guidance (8.5% of Internet users and 42.9% of non-users).

#### Topics and websites of interest

The six pregnancy-related topics most frequently searched for by both women and men were: fetal development, stages of pregnancy and changes that take place, nutrition during pregnancy, stages of childbirth, baby names and the zodiac and breastfeeding. Men reported more frequent searches on topics such as: childbirth without pain (43% more than women), information about healthcare (38% more than women), care of women after childbirth (37% more than women), relationships/sexuality/emotional support (12% more than women), baby names and stages of childbirth (Table 1). Women reported more frequent searches on topics related to the purchase of products (18% more than men). However, none of the differences between men and women were statistically significant.

People looking for information on pregnancy most frequently used commercial websites. In this study, we gave participants a list of eight pregnancy-related websites, written in Spanish and asked them to state whether they had visited them. The four commercial pages were visited by 39.2% (Ser Padres), 37.7% (BabyCenter), 33% (Baby Sitio) and 28.5% (El Embarazo) of the participants. Two websites launched by health organisations (El Parto es Nuestro and Matronas de Úbeda) were visited by 18.3% and 16.7%, respectively. Finally, the two websites developed by state or not-for-profit organisations were visited by just 14.3% (Nacer Sano.org) and 6.3% (Medline) of participants (Table 2).

#### First sources of information

Male respondents (83.3%) cited their family doctor as one of their first three sources of information about pregnancy, 64.5% cited the Internet, 51.6% magazines, 51% their midwife, 41.4% relatives and 22.2% friends. 80.3% of female

respondents cited their doctor as one of their first three sources of information. The following sources were cited most frequently within the first three options by women: midwives (63.7%), followed by magazines (52.3%), the Internet (47.3%), relatives (45.2%) and friends (26.6%). Physicians were selected most frequently as the first source of information: 54.8% of women and 53.3% of men chose their doctor as their first source of information, 15.3% of women and 16.7% of men as their second and 10.2% of women and 13.3% of men as their third source. After their physician, the Internet was the most frequently selected first choice as a source of information on pregnancy-related topics. It was used as the first source of information by 18.5% of women and 25.8% of men.

Furthermore, 13.9% of women and 16.1% of men named it as a second source. 14.6% of women and 22.6% of men use it as a third source of information. 25.8% of women and 16% of men said that the Internet was the last source of information they would choose.

Women (14.4%) and 13.8% of men chose their nurse or midwife as their first source of information, 34.2% of women and 31% of men as their second source and 15.1% of women and 6.9% of men as their third source; 5.5% of women and 17.2% of men chose the family as their first source of information, 15.8% of women and 13.8% of men chose it as their second and 24% of women and 10.3% of men as their third.

Magazines, books and brochures were used by 12.6% of women and 3.2% of men as their first source of information, by 17.9% of women and 22.6% of men as their second source and by 21.9% of women and 25.8% of men as their third source. Friends were preferred by 4.9% of women and 0% of men as their primary source of information. 7% of women and 7.4% of men select them as their second source of information and 14.7% of women and 14.8% of men as their third source (Figs 3 and 4).

**Table 1.** Topics of interest amongst future parents and differences between men and women. None of these differences are statistically significant.

Topic	Percentage of participants who reported those topics			Ratio men/women	Difference (in %)
	Total	Women	Men		
Childbirth without pain (analgesia, breastfeeding, stories)	28.6	27	38.7	1.43	43.33
Information on health services	17.3	16.4	22.6	1.38	37.80
Care of women postpartum	22.2	21.1	29.0	1.37	37.44
Purchase of products	42.2	43.4	35.5	0.82	-18.20
Life as a couple/ sexuality/ emotional support	31.9	31.6	35.5	1.12	12.34
Baby names, zodiac, advice	50.3	49.3	54.8	1.11	11.16
Stages of labour	54.1	52.6	58.1	1.10	10.46

**Table 2** Frequency of access to different websites by study participants

Website name	Type	Yes (%)	No (%)	Don't remember (%)
SerPadres.es	Commercial	41.5	52.8	5.7
BabyCenter.es	Commercial	39.8	50.4	9.8
Babysitio.com	Commercial	35.0	58.5	6.5
El embarazo.net	Commercial	28.5	61.0	10.6
El parto es nuestro	Corporate	18.7	73.2	8.1
Matronas de Úbeda	Corporate	17.1	75.6	7.3
Nacer sano.org	Organizational	14.6	74	11.4
Medline	Organizational	6.5	83.7	9.8
Other sites*:		36.6%		
None of those sites:		13.5%		

**\*Other sites cited more than once:**

Dodot.es, Mamilactancia, Mi bebe y yo, Natalben, Bebes y mas, Foros, Planeta mama.com, Embarazada.com, pubmed, Aqui mama, Embarazo sano, El embarazo semana a semana.es, mother care, enfemenino, mi bebe, gutenberg.com.

Brief description of the selected websites:

• SerPadres.es

An online and printed publication produced by European publishing group Gruner + Jahr (G+J), a company set up in 1965 to produce themed publications (on motoring, telecommunications, consumer electronics, lifestyle, sport and leisure). The site includes direct product advertising.

• BabyCenter.es

An Internet site intended for future parents. It contains practical advice from gynaecologists, midwives and specialists and is funded by pharmaceutical company Johnsons. There are 21 similar sites funded by Johnsons in different countries. The site contains direct product advertising.

• Babysitio.com

This website aims to provide information for couples who want to get pregnant, are already pregnant or already have a baby. It has its own team of doctors and provides information and useful advice. The site includes direct product advertising.

• El embarazo.net

A comprehensive guide to clear up any doubts for future mothers, by providing information that is easy to understand. It is aimed at the Spanish market. The project is directed by digital content company Summon Press S.L. and the site is written by a team of journalists and communicators. The site also has its own team of medical specialists and includes direct product advertising.

• El parto es nuestro

A not-for-profit association set up by consumers and professionals to improve healthcare in Spain for mothers and children during pregnancy, labour and after birth. Its activities are subsidized entirely by contributions from site members and private donations. It is used as a reference and recommended by the majority of those in charge of ante-natal education.

• Matronas de Úbeda

This is a personal webpage, developed by a professional midwife from the municipality of Ubeda, Spain. The website brings together information and scientific articles for Spanish professionals. It is used as a reference and recommended by the majority of midwives in charge of ante-natal education.

• Nacer sano.org

Developed by American not-for-profit organization March of Dimes. Its mission is to improve the health of babies by preventing birth defects, premature birth and infant mortality.

• Medline Plus

MedlinePlus is the National Institutes of Health's website for patients and their families and friends. Produced by the National Library of Medicine, it provides information about diseases, conditions and wellness issues in accessible language.

*Positive and negative feelings generated when browsing the Internet*

Browsing the Internet generated positive feelings amongst users; 77.7% fully or partially agreed that it made them feel calmer, 67.4% said that they trusted the information found 57.2% felt satisfied with what they had found and 80.2% reported a willingness to share the information they had found. Nevertheless, 9.8% did not feel satisfied with what

they found on the Internet, 4.3% did not trust the information found and 2.7% did not want to share their information.

Internet searches also produced some negative feelings. 56.5% agreed that they felt somewhat overwhelmed by the amount of information available, 29.1% felt frustrated about not finding what they were looking for, 45.3% felt confused and 54.4% felt slightly frightened by the information they found on the Internet.

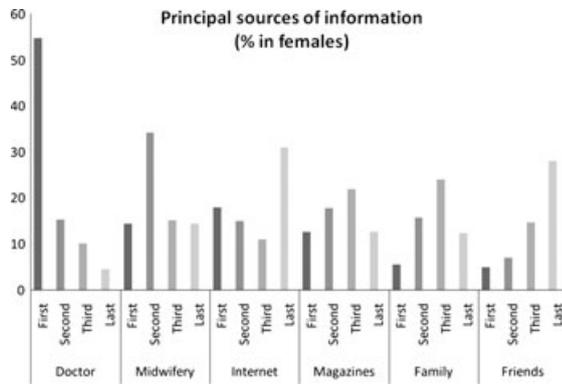


Figure 3 Main sources of information about pregnancy amongst women ( $n = 114$ ).

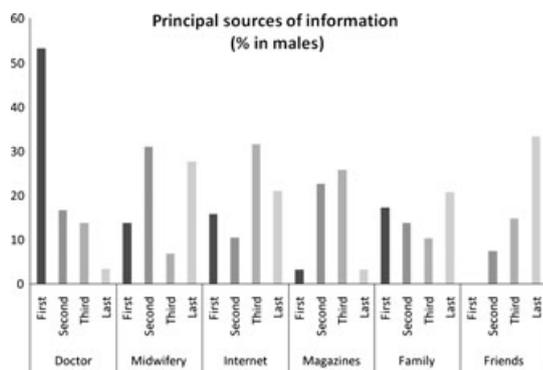


Figure 4 Main sources of information about pregnancy amongst men ( $n = 21$ ).

## Discussion

This study provides a comprehensive overview of the use of the Internet as a source of information during pregnancy amongst a specific group of pregnant women and their partners; 98% of the Internet users in our sample had sought information on pregnancy at some point and three in five had done so during the previous week. These percentages were slightly higher than those obtained from surveys about Internet search behaviour amongst the general population. It has been estimated that the percentage of the population that has used the Internet for health purposes increased from 42.3% in 2005–52.2% in 2007 (Kummervold *et al.* 2008). Other studies in developed countries found similar rates of use, generally higher than 50% (Iverson *et al.* 2008, Atkinson *et al.* 2009, Santana 2009, Carlsson 2009, Shinchuk *et al.* 2010). Only one study, in Atlanta, found a prevalence of Internet use to seek medical information amongst the general population of less than 20% (Weaver *et al.* 2009).

The high frequency of Internet use to find health information in our sample is similar to that found in other studies conducted amongst pregnant women (Larsson 2009, Shieh 2009). Data indicate that couples expecting a baby often choose the Internet to seek information about pregnancy-related issues, regardless of their gender, age or level of education (Plantin & Daneback 2009).

We are aware that our study has a number of constraints and that our results are of limited relevance for the general population, because this specific group does not even represent all of the parents expecting a child in the city of Granada. Just 46% of pregnant women attend antenatal classes (Garcia Calvente 1996, pp. 94–96). To assess how representative this group of participants was of a group of women and men of childbearing age in general, we made comparisons with the total population of women of reproductive age in Andalusia (INE 2007). The level of education in our sample was higher than the tertiary enrolment rate recorded in Spain. If we consider only women over 29 years old ( $n = 70$ ), in our sample 71.4% of them had college education. This is almost twice as high as the national recorded rate of tertiary education. In Spain, according to the National Institute of Statistics (INE 2007), only 38% of women between 30–44 years of age have studied to tertiary level. Women with the lowest level of education are probably less inclined to participate in antenatal group education. Further research should be carried out to assess if resources and effort are being directed into preparing only specific, well-educated groups of women for motherhood, thus excluding women with lower levels of education who would need it the most. Overall, we believe that our sample was representative of the women and men who are normally reached by antenatal education in Granada.

## Conclusion

The Internet is widely used as a source of information amongst participants of antenatal classes, both male and female. More than 95% have used it at some point during their pregnancy to find information. One in five women and one in four men preferred the Internet and used it as their first source of information. Around the world, midwives are aware of the increasing use of the Internet amongst pregnant women and most of them take into account the need to keep up to date with the latest knowledge (Lagan *et al.* 2009). The fact that the Internet is so frequently used could be an asset for midwives who are in charge of antenatal classes. By providing people with a list of reliable Internet sites, with valuable and up-to-date information about pregnancy, midwives could help to enrich and extend education of pregnant women beyond the classroom.

## Relevance to clinical practice

Several authors have suggested that maternal education classes could constitute an optimal environment for developing strategies aimed at health literacy (Renkert & Nutbeam 2001, Romano 2007, van Zutphen *et al.* 2009). Instead of disregarding the use of the Internet as a source of information during pregnancy, midwives should keep up to date and give their patients links to high-quality sites.

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study. We also want to thank the staff of the Europublichealth Consortium and professors José Luis Morales, Jacer Klich and Maciej Górkiewicz.

## Contributions

Study design: PLP, CBT; data collection and analysis: PLP, GJ and manuscript preparation: PLP, GJ, CBT.

## Conflicts of interest

This study was carried out as part of the dissertation submitted (by PLP) in partial fulfilment of the requirements for the degree of European Master in Public Health (Europublichealth), supported by the European Commission, supervised by CBT and GJ. The authors declare that they have no competing interests.

## References

- Akesson KM, Saveman BI & Nilsson G (2007) Health care consumers' experiences of information communication technology – a summary of literature. *International Journal of Medical Informatics* **76**, 633–645.
- Atkinson NL, Saperstein SL & Pleis J (2009) Using the Internet for health-related activities: findings from a national probability sample. *Journal of Medical Internet Research* **11**, e4.
- Bermúdez Tamayo C, García Mochón L, Corpas Nogales E & Moya Garrido MN (2008) *Selección y evaluación de sitios web dirigidos a pacientes referidos al campo de la salud 2.0*. Agencia de Evaluación de Tecnologías Sanitarias de Andalucía, Granada.
- Carlsson ME (2009) Cancer patients seeking information from sources outside the health care system: change over a decade. *European Journal of Oncology Nursing* **13**, 304–305.
- D'Alessandro DM, Kreiter CD, Kinzer S & Peterson MW (2004) A randomized controlled trial of an information prescription for pediatric patient education on the Internet. *Archives of Pediatrics & Adolescent Medicine* **158**, 857–862.
- Declercq ER, Sakala C, Corry MP & Applebaum S (2008) *New Mothers Speak Out: National Survey Results Highlight Women's Postpartum Experiences*. Childbirth Connection, New York.
- Diaz A, Griffith R, Reinert S, Friedmann P & Moulton A (2002) Patients' use of the Internet for medical information. *Journal of General Internal Medicine* **17**, 180–185.
- Edwards M & Davies M (2009) Review: What are the external influences on information exchange and shared decision-making in healthcare consultations: A meta-synthesis of the literature. *Patient Education and Counseling* **75**, 37–52.
- Fox S (2006) Online health search 2006. Pew Internet & American Life Project. [Document online] 2006. [Cited: 30 April 2009.] Available from: [http://www.pewInternet.org/PPF/r/190/report\\_display.asp](http://www.pewInternet.org/PPF/r/190/report_display.asp).
- García Calvante MM (1996) *Evaluación de programas de salud materno infantil Andalucía 1984–1994*. Junta de Andalucía - Escuela Andaluza de Salud Pública, Granada, pp. 94–96.
- Instituto Nacional de Estadística (INE) (2007) Encuesta sobre equipamiento y uso de tecnologías de la información y comunicación en los hogares. [Online table generator]. [Cited: 26 March 2009]. Available from: <http://www.ine.es/jaxi/tabla.do>. Archived at: <http://www.webcitation.org/5riaxiVIJ>.
- Iverson SA, Howard KB & Penney BK (2008) Impact of Internet use on health-related behaviors and the patient-physician relationship: a survey-based study and review. *Journal of the American Osteopathic Association* **108**, 699–711.
- Kummervold PE, Chronaki CE, Lausen B, Prokosch HU, Rasmussen J, Santana S, Staniszewski A & Wangberg SC (2008) eHealth trends in Europe 2005–2007: a population-based survey. *Journal of Medical Internet Research* **10**, e42.
- Larsson M (2009) A descriptive study of the use of the Internet by women seeking pregnancy-related information. *Midwifery* **25**, 14–20.
- Leveille SG, Huang A, Tsai SB, Allen M, Weingart SN & Iezzoni LI (2009) Health coaching via an Internet portal for primary care patients with chronic conditions: A randomized controlled trial. *Medical Care* **47**, 41–47.
- O'Grady L, Wittman H & Wathen N (2008) The experiential health information processing model: supporting collaborative web-based patient education. *BMC Medical Informatics and Decision Making* **8**, 58.
- Plantin L & Daneback K (2009) Parenthood, information and support on the Internet. A literature review of

- research on parents and professionals online. *BMC Family Practice* 10, 1–12.
- Renkert S & Nutbeam D (2001) Opportunities to improve maternal health literacy through antenatal education: an exploratory study. *Health Promotion International* 16, 381–388.
- Romano A (2007) A changing landscape: implications of pregnant women's Internet use for childbirth educators. *Journal of Perinatal Education* 16, 18–24.
- Santana S (2009) Tendências na utilização da Internet para questões de saúde e doença em Portugal. 2005-2007. *Acta Médica Portuguesa* 22, 5–14.
- Shieh C, McDaniel A & Ke I (2009) Information-seeking and its predictors in low-income pregnant women. *Journal of Midwifery & Women's Health* 54, 364–372.
- Shinchuk LM, Chiou P, Czarnowski V & Meleger AL (2010) Demographics and attitudes of chronic-pain patients who seek online pain-related medical information: implications for healthcare providers. *American Journal of Physical Medicine & Rehabilitation* 89, 141–146.
- Sommerhalder K, Abraham A, Zufferey MC, Barth J & Abel T (2009) Internet information and medical consultations: Experiences from patients' and physicians' perspectives. *Patient Education and Counseling* 77, 266–271.
- Szwajcer EM, Hiddink GJ, Koelen MA & van Woerkum CM (2009) Written nutrition communication in midwifery practice: What purpose does it serve? *Midwifery* 25, 509–517.
- Szwajcer EM, Hiddink GJ, Koelen MA & van Woerkum CM (2005) Nutrition-related information-seeking behaviours before and throughout the course of pregnancy: consequences for nutrition communication. *European Journal of Clinical Nutrition* 59, S57–S65.
- van Zutphen M, Milder I & Bemelmans W (2009) Integrating an eHealth program for pregnant women in midwifery care: a feasibility study among midwives and program users. *Journal of Medical Internet Research* 11, e7.
- Weaver JB, Mays D, Lindner G, Eroglu D, Fridinger F & Bernhardt JM (2009) Profiling characteristics of Internet medical information users. *Journal of the American Medical Informatics Association* 16, 714–722.
- Wetzels R, Harmsen M, Van Weel C, Grol R & Wensing M (2007) Interventions for improving older patients' involvement in primary care episodes. *Cochrane Database Systematic Review* 1, CD004273.

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