

# What do popular Spanish women's magazines say about caesarean section? A 21-year survey

MR Torloni,<sup>a,b</sup> B Campos Mansilla,<sup>c</sup> M Meriardi,<sup>d</sup> AP Betrán<sup>d</sup>

<sup>a</sup> Brazilian Cochrane Centre, São Paulo, Brazil <sup>b</sup> Department of Internal Medicine, São Paulo Federal University, São Paulo, Brazil

<sup>c</sup> Federación Mujeres Jóvenes, Madrid, Spain <sup>d</sup> Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

Correspondence: Dr AP Betrán, Department of Reproductive Health and Research, World Health Organization, 20 Avenue Appia, CH-1211 Geneva, Switzerland. Email betrana@who.int

Accepted 1 October 2013. Published Online 28 January 2014.

**Objectives** Caesarean section (CS) rates are increasing worldwide and maternal request is cited as one of the main reasons for this trend. Women's preferences for route of delivery are influenced by popular media, including magazines. We assessed the information on CS presented in Spanish women's magazines.

**Design** Systematic review.

**Setting** Women's magazines printed from 1989 to 2009 with the largest national distribution.

**Sample** Articles with any information on CS.

**Methods** Articles were selected, read and abstracted in duplicate. Sources of information, scientific accuracy, comprehensiveness and women's testimonials were objectively extracted using a content analysis form designed for this study.

**Main outcome measures** Accuracy, comprehensiveness and sources of information.

**Results** Most (67%) of the 1223 selected articles presented exclusively personal opinion/birth stories, 12% reported the

potential benefits of CS, 26% mentioned the short-term and 10% mentioned the long-term maternal risks, and 6% highlighted the perinatal risks of CS. The most frequent short-term risks were the increased time for maternal recovery ( $n = 86$ ), frustration/feelings of failure ( $n = 83$ ) and increased post-surgical pain ( $n = 71$ ). The most frequently cited long-term risks were uterine rupture ( $n = 57$ ) and the need for another CS in any subsequent pregnancy ( $n = 42$ ). Less than 5% of the selected articles reported that CS could increase the risks of infection ( $n = 53$ ), haemorrhage ( $n = 31$ ) or placenta praevia/accreta in future pregnancies ( $n = 6$ ). The sources of information were not reported by 68% of the articles.

**Conclusions** The portrayal of CS in Spanish women's magazines is not sufficiently comprehensive and does not provide adequate important information to help the readership to understand the real benefits and risks of this route of delivery.

**Keywords** Caesarean section, medicine in literature, periodicals as topic, pregnancy, Spain.

Please cite this paper as: Torloni MR, Campos Mansilla B, Meriardi M, Betrán AP. What do popular Spanish women's magazines say about caesarean section? A 21-year survey. BJOG 2014;121:548–555.

## Introduction

In 1985, the World Health Organization (WHO) stated that there is no clinical justification for caesarean section (CS) rates to be over 15%.<sup>1</sup> Despite the controversies relating to this statement and the undeniable benefits of CS in certain medical scenarios,<sup>1–5</sup> a CS is a major surgical procedure and exposes the mother and fetus to risks. There is also a lack of sound scientific evidence to substantiate the maternal or perinatal benefits from increasing CS rates, and various publications have reported that high CS rates are associated with additional risks.<sup>6–10</sup>

Yet, the proportion of births by CS has been steadily escalating in most middle- and high-income countries over the

last four decades. The reasons for the increased use of CS are multiple and context specific. Health provider-related factors include fear of litigation, convenience and the reduced training and experience in operative vaginal delivery (VD).<sup>11–13</sup> One of the possible non-clinical factors fuelling this increase in CS is maternal request. Contemporary women are exposed to a wide range of information on childbirth which can influence their views and affect their decision-making process.<sup>13–15</sup> In addition, women's views and preferences on the type of delivery are being increasingly taken into account by healthcare providers.<sup>11,12</sup> Women's magazines are one of the most ubiquitous sources of information and can play a critical role in shaping women's opinions and influencing their decisions.<sup>14</sup>

To contribute to a better understanding of factors potentially involved in the increasing CS rates, WHO initiated an investigation of the information provided by women's magazines in countries in which CS rates have been increasing in an unprecedented manner. In an initial study, we analysed articles published in women's magazines over the last two decades in Brazil, and observed that the information presented in these magazines was incomplete and could lead the readership to underestimate the maternal and perinatal risks associated with CS, particularly the long-term risks.<sup>16</sup>

The rate of CS in Spain went from 12.9% in 1989 to 24.9% in 2009, a trend that is similar to that currently observed in most European countries.<sup>17</sup> We hypothesised that the quality of information provided in Spanish women's magazine articles would be superior to that published in Brazilian magazines.

The specific objectives of this review were to assess: (1) the accuracy and comprehensiveness of the information presented on CS; (2) the sources of the information published in women's magazines; and (3) the views, opinions or preferences on the route of delivery reported by actual women's testimonials regarding their own birth experiences.

## Methods

### Search strategy

The search was conducted for articles published in women's magazines with the largest circulation in Spain from January 1989 to December 2009. The selection of magazines was derived from the national media indexing yearbook, which reports on the annual circulation of national magazines categorised according to the type of publication.<sup>18</sup> Based on this source, the investigators identified and selected the women's magazines with the largest distribution (up to 10 magazines per year) for each of the 21 years of the study period. In this index, the 'women's' category includes three different types of magazine: (1) fashion/variety; (2) tabloids; and (3) those specialised in pregnancy/family life/childcare. All the issues of these top selling women's magazines for each of these 21 years were retrieved (in digital or paper versions) and hand searched by a team supervised by one of the authors (BCM). This team was trained by medical doctors specialised in reproductive health and experienced in this type of study (MRT, APB and MM). All articles that had any information on women's health, pregnancy or childbirth were photocopied, scanned or downloaded, and the full texts were assessed for possible inclusion in the review.

### Inclusion and exclusion criteria

All articles that mentioned information on CS were selected for full text reading and data extraction. This included

articles that presented any form of objective, scientific information or advice from healthcare professionals, as well as articles that presented the experiences, views, comments or opinions of patients, celebrities or journalists/writers regarding childbirth through CS. We excluded articles that only mentioned someone giving birth by CS, but without any additional information, comment or judgment regarding the route of delivery. Articles that reported on the use of CS exclusively for high-risk or selected populations (e.g. teenagers, older women, human immunodeficiency virus-positive patients or with other specific medical conditions) were also excluded.

### Data extraction process

A content analysis abstraction form was especially designed for this review to extract key information on CS in each included article. This form was designed by a panel of experts that included obstetricians, epidemiologists and professionals experienced in qualitative research and public health. The form was designed on the basis of a series of items discussed by Oxman et al.,<sup>19</sup> and retrieved information on the quality of the sources consulted by the authors of the articles, such as the expertise of healthcare professionals interviewed and any references to medical journals, hospitals, universities or internationally recognised authoritative organisations on this subject. The form also extracted information on the motives for why women or physicians would prefer a CS over a VD, and on the potential maternal and perinatal benefits, and short- and long-term risks associated with CS. These risks and benefits were derived from authoritative medical sources.<sup>20–23</sup> The form included a section for the testimonials from patients and another section for celebrities' experiences and their opinions on route of delivery to be recorded.

Two reviewers (BCM and APB) independently read and extracted the articles in duplicate. Differences were discussed until consensus was reached. Data from the content extraction forms were downloaded into an electronic spreadsheet and analysed descriptively.

The main characteristics of the articles published in Spanish women's magazines were compared with those in Brazilian women's magazines using two-sided chi-squared and Fisher's exact tests.  $P < 0.05$  was considered to be significant.

## Results

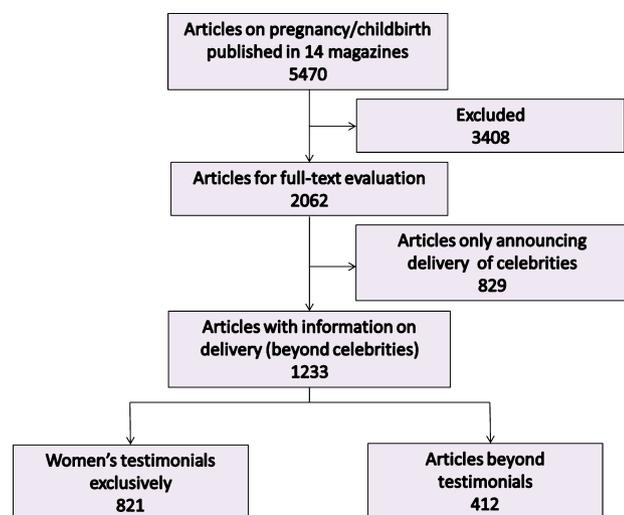
Fourteen different magazines were included in this review: six specialised in pregnancy/family life/childcare, four were classified as tabloids and four were dedicated to fashion/variety (Appendix S1, see Supporting information). In 2008, these 14 magazines together had a print circulation of 4 297 061 copies per month, ranging from approximately

19 000 copies per month (*Embarazo Sano*) to over 1 000 000 copies per month (*Mujer Hoy*).

During the 21-year period, these 14 magazines published a total of 5470 articles related to pregnancy and childbirth, 2062 of which were selected for full-text evaluation because they contained information on delivery in general and/or CS (Figure 1). Among these 2062 articles, 829 (40.2%) did not present any fact, view or opinion regarding CS, and simply informed that a celebrity had delivered a baby, reporting only the date and place of the birth, together with the baby's weight, gender and name. These 829 were not included in this article. We present the results of the analysis of the 1233 remaining articles which offered additional information on delivery by CS.

The majority of the included articles was printed on more than one page and included several illustrations (Table 1). Almost one-third of the articles were leads, i.e. occupied up to one page, whereas 69% were fillers (i.e. occupied more than one page), and over 80% had illustrations (average of four illustrations per article). Almost 70% of these articles did not mention the source of information. Twenty three per cent had consulted one or more health professionals, and 13% cited WHO, government agencies or medical societies as their main source of information (Table 1).

Two-thirds (821/1233) of the articles presented no objective medical facts or scientific information on CS, other than individual opinions, view points or birth stories. Three-hundred and one (24%) presented one or two medical facts and 111 (9%) presented three or more facts. The information provided to the readership regarding CS was on anaesthesia, medical indications for CS, current rates and statistics about CS and post-partum care after CS (Table 2).



**Figure 1.** Process of selection and inclusion of articles on cesarean delivery published in Spanish women's magazines, 1989–2009.

**Table 1.** Main characteristics and sources of information for articles on caesarean section published in Spanish women's magazines, 1989–2009

	Articles (N = 1233) n (%)
<b>Main focus of article</b>	
General information on pregnancy/delivery	586 (47.5)
Personal account of pregnancy/delivery	447 (36.3)
Social topic or other	132 (10.7)
Other general medical topic	57 (4.6)
Opinion on delivery	11 (0.9)
<b>Size and type of article</b>	
Number of pages per article, mean (SD)	2.4 (2.2)
Number of pages per issue, mean (SD)	90.7 (37.3)
Paragraph or short text (<1 page)	382 (31.0)
Number of articles with illustrations	1039 (84.3)
Number of illustrations per article, mean (SD)	4.1 (4.4)
<b>Sources of information*</b>	
Did not mention any reference	832 (67.5)
Individual health professional	282 (22.9)
Governments, World Health Organization or scientific societies	160 (13.0)
Medical journals and books	66 (5.4)
Other sources, non-governmental organisations	52 (4.2)
Hospitals, universities, research institutions	42 (3.4)

SD, standard deviation.

\*Several articles referred to more than one source of information.

**Table 2.** Completeness of information on caesarean section (CS) transmitted by articles published in Spanish women's magazines, 1989–2009

Indicator	Articles* (N = 1233)
Articles without any medical fact** on CS	821 (66.6)**
Articles with at least one medical fact on CS	412 (33.4)
<b>Specific scientific/objective information on caesarean section</b>	
Need for/effects of anaesthesia for CS	184 (14.9)
Main maternal and fetal indications for CS	167 (13.5)
Current CS rates and statistics (local or international)	115 (9.3)
Post-partum care after CS delivery	115 (9.3)
Duration of hospital stay for CS	77 (6.2)
WHO recommendations for CS rate (15%)	53 (4.3)
Differences in CS rates in private versus public hospitals	53 (4.3)
General maternal and perinatal risks of CS	53 (4.3)
Medical costs for CS versus vaginal delivery	8 (0.7)

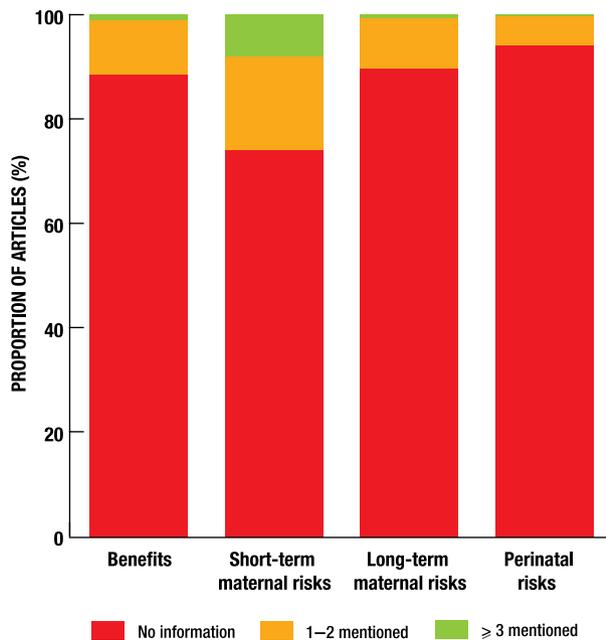
WHO, World Health Organization.

\*All values are numbers (percentages).

\*\*Any objective, scientific information on caesarean section other than individual opinion or point of view.

Figure 2 summarises the main findings with regard to the benefits and risks of CS reported by these 1233 articles (detailed information available in Appendix S2, see Supporting information). Only 11.6% of the included articles ( $n = 143$ ) reported one or more potential benefits of CS. These benefits are shown in Figure 3 (top right quadrant). The most frequently reported alleged benefits of CS were the reduction in fetal injury or risks (39 articles), reduction in maternal or perinatal mortality (30 articles) and shorter time to deliver (28 articles) (Appendix S2).

One-quarter of the selected articles ( $n = 319$ ) reported the short-term maternal risks related to CS (Figure 3; bottom right quadrant), whereas 10% ( $n = 126$ ) reported one or more long-term risks for the mother (Figure 3; bottom left quadrant) and 6% ( $n = 72$ ) pointed out the perinatal risks (Figure 3; top left quadrant). The four most frequently reported short-term maternal risks or inconveniences for CS were increased post-partum recovery time ( $n = 86$  articles), frustration, reduced feminine self-esteem, feelings of failure and psychological distress for not having had a VD ( $n = 83$ ), increased pain after delivery ( $n = 71$ ) and longer hospital stay ( $n = 57$ ). Less than 3% (31/1233) of the articles mentioned that delivery through CS exposed the woman to increased risk of haemorrhage or blood transfusions or to higher risk of maternal death (21/1233), or to the possibility of having serious circulatory complications, such as venous thrombosis or embolism (15/1233) or injury to the bladder, ureter or gastrointestinal tract (12/1233). The most frequently reported long-term maternal



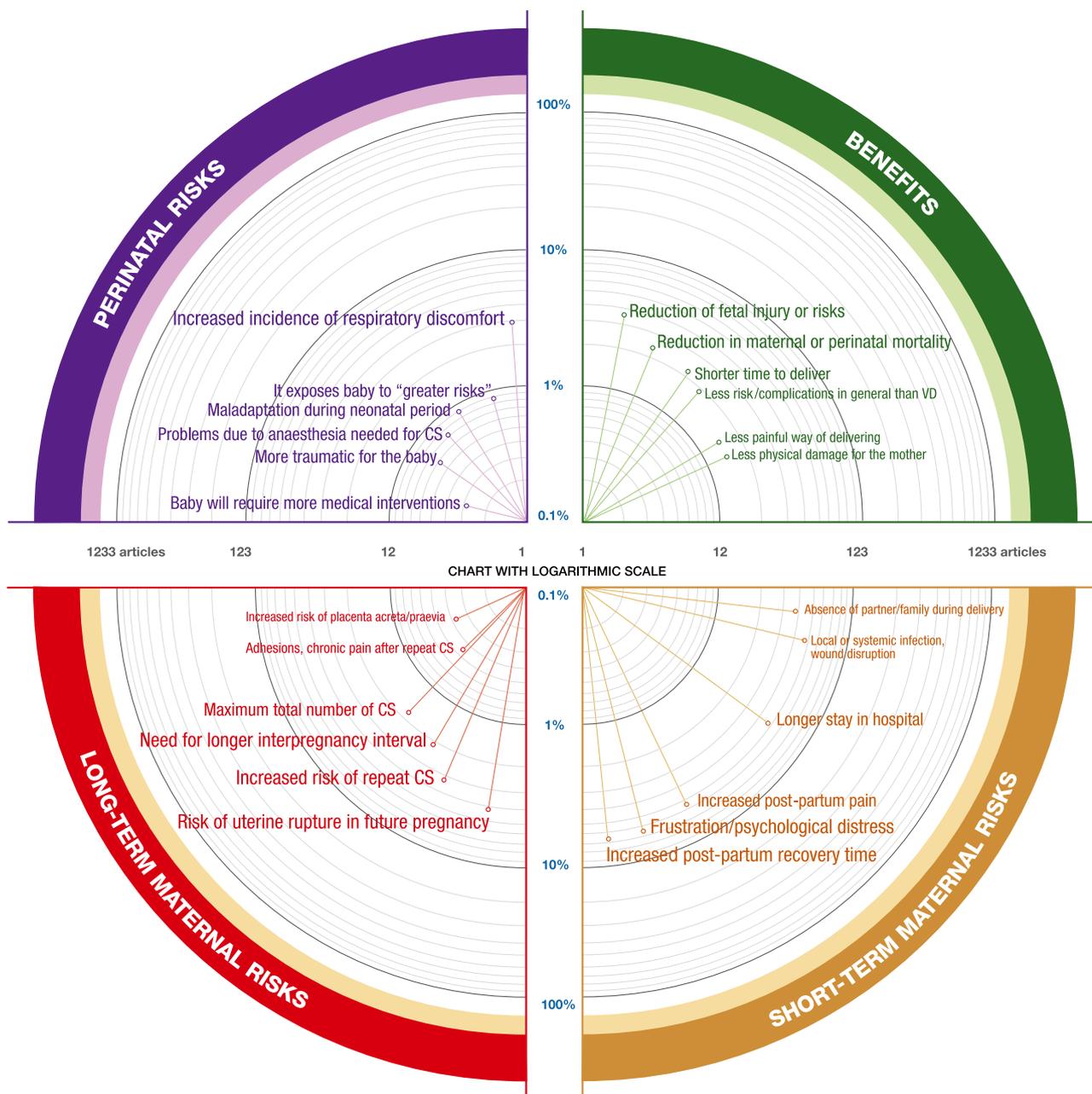
**Figure 2.** Information on caesarean section presented by articles published in Spanish women's magazines.

risks associated with CS were increased risk of uterine rupture in future pregnancies and delivery (57/1233), of needing another subsequent CS (42/1233), the need for a longer inter-pregnancy interval (34/1233) and the limited maximum number of advisable births by CS ( $n = 25$ ). The possible occurrence of adhesions or chronic pelvic pain (8/1233) and the risk of placenta praevia/accreta (6/1233) after repeated CS were mentioned by <1% of articles. The most frequently mentioned perinatal risks associated with CS were increased incidence of neonatal respiratory problems (3.1%, 38/1233), worse adaptation to the neonatal period (0.9%, 11/1233) and problems related to the anaesthetic agents used for CS (0.7%, 9/1233).

Table 3 compares the format and completeness of information presented in articles published in Spanish versus Brazilian women's magazines.<sup>16</sup> Although the number of articles published in Spanish women's magazines during the 20-year study period was over 10 times higher than that in Brazilian women's magazines (1233 × 118), 33% of the Spanish articles ( $n = 412$ ) presented at least one medical fact on CS, compared with 91% ( $n = 107$ ) of the Brazilian articles ( $P < 0.0001$ , Fisher's exact test, two-sided). We compared the content of the Spanish and Brazilian articles that presented at least one medical fact. The three most frequent topics presented in articles from both countries were the need/effects of anaesthesia for CS, indications for CS and current CS rates (Table 3). Potential risks and benefits of CS were mentioned by significantly fewer Spanish than Brazilian articles. Short-term maternal risks associated with CS were the most frequently cited risks mentioned by both Spanish and Brazilian women's magazines, followed by potential benefits of CS, whereas less than one-half of the articles in both countries mentioned potential long-term maternal or perinatal risks related to CS (Table 3).

Almost 42% (516) of the 1233 articles included in this review reported the personal testimonials of women on one or more deliveries. These 516 articles reported a total of 1456 deliveries, 75% (1100) of which were vaginal and 25% (356) were CS. The outcomes of these deliveries were mostly good, with 89% (978/1100) of the vaginal and 70% (260/356) of the CS ending with a healthy mother and/or baby (Figure 4).

A total of 49 articles presented the experiences and opinions of 41 different celebrities regarding their delivery through CS. Several of these articles were published simultaneously in different magazines, referring to the same birth of a famous person. These articles reported the birth experience and opinions of nine actresses, nine TV professionals, five singers, two journalists, one fashion model, one royalty member, one athlete, two women with other professions and 11 partners, ex-partners or other relatives of famous women. Of these 41 celebrities who delivered by CS, 31 (75.6%) expressed positive feelings or views



**Figure 3.** Information on benefits and risks of caesarean section (CS) transmitted in Spanish women's magazines.

regarding their birthing experience, whereas 10 (24.3%) made critical comments or expressed frustration or dissatisfaction with their route of delivery.

We aimed to abstract information on the overall tone or commentary of the articles regarding the route of delivery. In 54.2% of the 1233 articles, this was not possible because the article was either too short or presented too little information to allow this type of judgment; 24.5% depicted VD in a more positive tone than CS, 13.4% portrayed CS as being better than VD, and 8% had a neutral tone regarding the route of delivery (Appendix S2).

## Discussion

### Main findings

The vast majority of the over 1200 articles published about CS in Spanish women's magazines in the last 21 years present no scientific or objective facts about this route of delivery and do not reference the sources for the information presented. Only a minority of these articles present information that could help educate the readership on the benefits and risks of this route of delivery relative to VD. The few articles that reported any short-term maternal

**Table 3.** Main characteristics of articles on caesarean section (CS) published in popular Spanish (1989–2009) and Brazilian (1988–2008) women's magazines

Characteristics	Spanish N = 1233	Brazilian N = 118
<b>Sources of information****</b>		
Did not mention any reference	832 (67.5)	20 (16.9)
Individual health professional	282 (22.9)	92 (77.9)
Governments, WHO, NGOs or scientific societies	212 (17.2)	22 (18.6)
Medical journals and books	66 (5.4)	12 (10.2)
Hospitals, universities, research institutions	42 (3.4)	7 (5.9)
<b>Completeness of information</b>		
Articles without any medical fact***** on CS	821 (66.6)	11 (9.3)
Articles with ≥1 medical fact on CS	412 (33.4)	107 (90.7)
<b>Specific scientific/objective information on CS*****</b>		
Need for/effects of anaesthesia for CS	184 (44.7)	61 (57.0)*
Main maternal/fetal indications for CS	167 (40.5)	62 (57.9)**
Current CS rates and statistics	115 (27.9)	55 (51.4)***
Duration of hospital stay for CS	77 (18.7)	22 (20.6)
WHO recommendations for CS rate	53 (12.9)	37 (34.6)***
General maternal and perinatal risks of CS	53 (12.9)	50 (46.7)***
Medical costs CS versus VD	8 (1.9)	15 (14.0)***
<b>Potential benefits and risks of CS</b>		
Mention ≥1 benefits	133 (32.3)	84 (78.5)***
Mention >1 maternal short-term risk	319 (77.4)	97 (90.6)**
Mention ≥1 maternal long-term risk	126 (30.6)	40 (37.4)***
Mention ≥1 perinatal risk	72 (17.5)	41 (38.3)***

NGO, non-governmental organisation; VD, vaginal delivery; WHO, World Health Organization.

All figures presented a numbers (percentage).

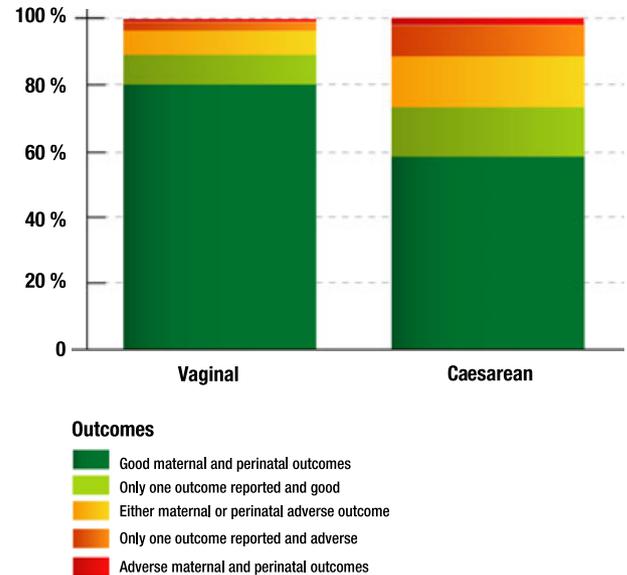
\* $P < 0.05$ , \*\* $P < 0.001$ , \*\*\* $P < 0.0001$ , two-sided chi-squared or Fisher's exact test.

\*\*\*\*Several articles referred to more than one source of information.

\*\*\*\*\*Any objective, scientific information on caesarean section other than individual opinion or point of view.

\*\*\*\*\*Percentages calculated over total number of articles with at least one medical fact on CS (Spanish women's magazines  $n = 412$ ; Brazilian women's magazines  $n = 107$ ).

disadvantages of CD concentrated mainly on the social or emotional issues, such as the need for a longer hospital stay, feelings of frustration and failure, or greater post-partum pain, whereas other potential medical risks related to CS, such as infection, haemorrhage, urinary or intestinal injuries, were completely neglected by over 70% of the articles. The possible long-term maternal consequences of CS, such as the risk of uterine rupture and placenta praevia/accreta in future pregnancies, were reported by only 5%, and the potential perinatal problems associated with this type of delivery were mentioned by <6% of the published

**Figure 4.** Outcomes of birth stories reported in Spanish women's magazines.

articles. Although the number of articles in Spanish women's magazines was substantially higher than in Brazilian women's magazines during the 20-year period analysed, the vast majority of the Spanish articles did not present any medical fact on CS and reported significantly less information than Brazilian articles on the potential benefits and risks of CS.

### Interpretation

The findings of the current study are similar to those reported previously. The much larger number of articles on CS published in Spanish relative to Brazilian magazines (1233 versus 118 articles) over the last two decades could be a direct reflection of the larger number of these magazines and/or their larger circulation in Spain. However, despite this plethora of articles, contrary to our original hypothesis, the quality of the information on CS presented in Spanish women's magazines was not better than that in Brazilian women's magazines,<sup>16</sup> and may have even be worse in some aspects. For example, the sources of information were not referenced in 67.5% of Spanish versus 16.9% of Brazilian articles. However, it should be noted that there were substantially more articles exclusively with women's testimonials in Spanish relative to Brazilian women's magazines (66.6% versus 9.3%, respectively). This may explain the difference in the observed proportion of articles with referenced information between Spanish and Brazilian magazines. The quality of the sources of information reported was also poor in both Spanish and Brazilian articles. Most of the authors of articles published in women's magazines seem to rely exclusively on individual

health professionals, instead of consulting more reliable sources of information, such as international or local health organisations or research institutes.

Most Spanish testimonials reported good maternal and perinatal outcomes and the majority of mothers were satisfied with their CS. This can lead readers to an over-optimistic view of CS. Birth stories can have an important impact on the decision of women on their preferred route of delivery. In-depth interviews with Canadian parturients who demanded a CS without medical indications revealed that socially circulated birth stories and cultural beliefs heavily influenced their attitudes towards the mode of delivery.<sup>24</sup>

Although over 90% of Brazilian and 77% of Spanish articles reported at least one short-term maternal risk associated with CS, in both settings, the most cited risks were not related to physical or medical outcomes (e.g. haemorrhage), but to psychological effects and inconveniences, such as increased recovery time. The majority of articles in both settings did not provide any information on the long-term maternal risks (62.6% in Brazil and 69.4% in Spain) or on perinatal risks (61.7% in Brazil and 82.5% in Spain) associated with CS. A possible interpretation of these findings is the notion that good medical outcomes are nowadays taken for granted in women undergoing CS; these women are more interested in the emotional or convenience issues surrounding this method of delivery.

Inaccurate information may induce women to opt for unnecessary medical procedures which could have serious consequences. The lack of information on the risks associated with CS can contribute to a false sense of safety and the banalisation of CS as a minor procedure instead of a major surgery. It can be argued that women's magazines do not have an educational role because their readership purchases this kind of literature for pleasure and distraction. Yet, the influence of the media, and popular magazines in particular, in shaping the opinions and views of their readers is undeniable.<sup>15,25–29</sup> Therefore the authors and editors of women's magazines should be aware of their responsibility to provide accurate information for their readership on this as well as other women's health topics.

Suboptimal information about other health topics is also common in popular magazines. For example, half of the reports on mental diseases and psychopharmacological drugs in German magazines were incomplete or negatively biased.<sup>30</sup> Similarly, cancer coverage in 309 issues of Canadian women's magazines did not reflect the contribution of cancer as a cause of death in Canadian women.<sup>25</sup>

### Strengths and limitations

The main strength of this study is its originality. To the best of our knowledge, this is the first study to assess the quality of information on CS in women's magazines from

a European country, and the largest study of its kind. The limitations of the study include the difficulty in objective interpretation of the content of the published articles. Despite the use of a standardised form specifically designed for this review, which was previously piloted in Brazil, and the training employed by the reviewers to achieve uniformity in data extraction, there is still the potential for subjectivity in the qualitative assessment. In addition, we also acknowledge that information on the risks and benefits of CS is continuously evolving over time, and this should be taken into consideration when interpreting the findings of this study. Another limitation of our study was its design, which targeted exclusively women's magazines. Other types of media, such as newspapers, TV or the Internet, which are also important sources of information on health-related issues and which can influence the opinion of women, were not assessed in our review. It should be stated that this study did not aim to investigate the influence of Spanish women's magazines in shaping the opinions or decisions of Spanish women with regard to their preferred route of delivery.

### Conclusions

The results of our study indicate that the portrayal of CS by Spanish women's magazines is not sufficiently comprehensive and does not provide important information that could help the readership to understand the real benefits and risks of delivery by CS. In addition, the authors of these articles rely on unknown or non-ideal sources of information to convey this message. Finally, the birth stories portrayed in these magazines show that most women delivering through CS have a positive outcome and are satisfied with their experience.

### Disclosure of interests

All authors declare no conflicts of interest.

### Contribution to authorship

APB, MRT and MM were responsible for the conception, design and planning of the study. BCM, APB and MRT carried out data extraction and analyses. MM participated in the analyses and interpretation of the data. MRT and APB drafted the article. BCM and MM revised the manuscript for important intellectual content. All authors revised and approved the final version of the manuscript.

### Details of ethics approval

This study is exempt from ethical approval.

### Funding

This study received funds from the Department of Reproductive Health of the World Health Organization.

## Acknowledgements

We are very grateful to Sonia Herrera Sánchez, Carolina Pulido Castro and Laura Quintero Galindo for their help with data extraction. We are also very grateful to Sara Bajo Madina, Betzabé Alejandra Figueroa Fuentes, Celia García Zamora, Patricia López Delgado and Violeta Salguero Salvador for their efforts in locating and retrieving the articles.

## Supporting Information

Additional Supporting Information may be found in the online version of this article:

**Appendix S1.** Main characteristics of Spanish women's magazines included in the review.

**Appendix S2.** Detailed information on Benefits and Maternal and Perinatal risks related to caesarean section presented in 1233 articles published in Spanish women's magazines 1989–2009. ■

## References

- 1 Appropriate technology for birth. *Lancet* 1985;2:436–7.
- 2 Betran AP, Meriardi M, Lauer JA, Bing-Shun W, Thomas J, Van LP, et al. Rates of caesarean section: analysis of global, regional and national estimates. *Paediatr Perinat Epidemiol* 2007;21:98–113.
- 3 Cyr RM. Myth of the ideal cesarean section rate: commentary and historic perspective. *Am J Obstet Gynecol* 2006;194:932–6.
- 4 De Brouwere V, Dubourg D, Richard F, Van LW. Need for caesarean sections in west Africa. *Lancet* 2002;359:974–5.
- 5 Dumont A, de Bernis L, Bouvier-Colle MH, Breart G. Caesarean section rate for maternal indication in sub-Saharan Africa: a systematic review. *Lancet* 2001;358:1328–33.
- 6 Althabe F, Sosa C, Belizan JM, Gibbons L, Jacquerioz F, Bergel E. Caesarean section rates and maternal and neonatal mortality in low-, medium-, and high-income countries: an ecological study. *Birth* 2006;33:270–7.
- 7 Belizan JM, Althabe F, Barros FC, Alexander S. Rates and implications of caesarean sections in Latin America: ecological study. *BMJ* 1999;319:1397–400.
- 8 Belizan JM, Cafferata ML, Althabe F, Buekens P. Risks of patient choice cesarean. *Birth* 2006;33:167–9.
- 9 Lumbiganon P, Laopaiboon M, Gulmezoglu AM, Souza JP, Taneepanichskul S, Ruyan P, et al. Method of delivery and pregnancy outcomes in Asia: the WHO global survey on maternal and perinatal health 2007–08. *Lancet* 2010;375:490–9.
- 10 Villar J, Valladares E, Wojdyla D, Zavaleta N, Carroli G, Velazco A, et al. Caesarean delivery rates and pregnancy outcomes: the 2005 WHO global survey on maternal and perinatal health in Latin America. *Lancet* 2006;367:1819–29.
- 11 Fuglenes D, Oian P, Kristiansen IS. Obstetricians' choice of cesarean delivery in ambiguous cases: is it influenced by risk attitude or fear of complaints and litigation? *Am J Obstet Gynecol* 2009;200:48.
- 12 Kalish RB, McCullough L, Gupta M, Thaler HT, Chervenak FA. Intrapartum elective cesarean delivery: a previously unrecognized clinical entity. *Obstet Gynecol* 2004;103:1137–41.
- 13 Usha Kiran TS, Jayawickrama NS. Who is responsible for the rising caesarean section rate? *J Obstet Gynaecol* 2002;22:363–5.
- 14 Handfield B, Turnbull S, Bell RJ. What do obstetricians think about media influences on their patients? *Aust N Z J Obstet Gynaecol* 2006;46:379–83.
- 15 Moyer CA, Vishnu LO, Sonnad SS. Providing health information to women. The role of magazines. *Int J Technol Assess Health Care* 2001;17:137–45.
- 16 Torloni MR, Daher S, Betran AP, Widmer M, Montilla P, Souza JP, et al. Portrayal of caesarean section in Brazilian women's magazines: 20 year review. *BMJ* 2011;342:d276.
- 17 WHO Regional Office for Europe. European Health for All Database (HFA-DB). August 31, 2012 [www.euro.who.int/en/what-we-do/data-and-evidence/databases/european-health-for-all-database-hfa-db2]. Accessed 21 November 2012.
- 18 Oficina de Justificación de la Difusión. Información y Control de Publicaciones. 2011 [www.ojd.es/OJD/Portal/home\_ojd/\_ZmEG1s9\_YAY8wV\_g7wLJFQ]. Accessed 5 January 2010.
- 19 Oxman AD, Guyatt GH, Cook DJ, Jaeschke R, Heddle N, Keller J. An index of scientific quality for health reports in the lay press. *J Clin Epidemiol* 1993;46:987–1001.
- 20 NIH State-of-the Science Conference Statement on Cesarean Delivery on Maternal Request. Report No. March 27–29; 23(1). AHRQ Publications Clearinghouse; 2006 [http://consensus.nih.gov/2006/cesarean.htm]. Accessed 1 September 2012.
- 21 ACOG Committee Opinion No. 394, December 2007. Cesarean delivery on maternal request. *Obstet Gynecol* 2007;110:1501.
- 22 American College of Obstetricians and Gynecologists Task Force on Cesarean Delivery Rates. Evaluation of cesarean delivery. Washington DC: ACOG; 2000.
- 23 National Institute for Clinical Excellence. *Caesarean section; Clinical Guideline 13*. National Collaborating Centre for Women's and Children's Health, 2004 [www.rcog.org.uk/files/rcog-corp/uploaded-files/NEBCSSummaryOfGuideline.pdf]. Accessed 1 September 2012.
- 24 Munro S, Kornelsen J, Hutton E. Decision making in patient-initiated elective cesarean delivery: the influence of birth stories. *J Midwifery Womens Health* 2009;54:373–9.
- 25 Hoffman-Goetz L, MacDonald M. Cancer coverage in mass-circulating Canadian women's magazines. *Can J Public Health* 1999;90:55–9.
- 26 Hotham NJ. Information on drugs and environmental influences in pregnancy in popular magazines: a critical review. *Med J Aust* 1995;162:417–20.
- 27 Ingram RE, Busch W, Christianson-Strom C, Fagerstrom C, Hale M, Himes P, et al. What our patients are reading about reproductive technologies. A review of eight popular women's magazines, 1978 and 1988. *Birth Defects Orig Artic Ser* 1990;26:105–8.
- 28 Kirkman A. Productive readings: the portrayal of health "experts" in women's magazines. *Qual Health Res* 2001;11:751–65.
- 29 Lete I, Lopez-Iglesias J, Duenas A, Rodriguez M, Bermejo R, Coll C, et al. Contraception in the Spanish press: an analysis of the 1997–2002 period. *Eur J Contracept Reprod Health Care* 2006;11:112–6.
- 30 Hillert A, Sandmann J, Ehlig SC, Sobota K, Weisbecker W, Kepplinger HM, et al. Psychopharmacological drugs as represented in the press: results of systematic analysis of newspapers and popular magazines. *Pharmacopsychiatry* 1996;29:67–71.