

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

Title (Provisional)

Quality of Care at childbirth during the COVID-19 pandemic: findings of the IMAGiNE EURO study in Belgium

Authors

Galle, Anna; Berghman, Helga; D'Hauwers, Silke; Vaerewijck, Nele; Valente, Emanuelle Pessa; Mariani, Ilaria; Bomben, Arianna; delle Vedove, Stefano; Lazzarini, Marzia; the IMAGiNE EURO Study Group, on behalf of

VERSION 1 - REVIEW

Reviewer	1
Name	Durmaz, Ayşegül
Affiliation	Kütahya Sağlık Bilimleri Üniversitesi, Midwifeery
Date	06-May-2024
COI	I confirm that I understand the above.

Dear Authors,

I think it is a well thought out and interesting study.

Below are my recommendations for authors.

My recommendations:

Please provide more detailed information about the data collection tools.

"This paper presents detailed survey findings on QMNC and trends over time, from the perspective of women who gave birth in Belgium during the COVID-19 pandemic, between March 2020 and May 2023." is expressed. However, it is mentioned that the study is a multi-country project. What are the countries included? Why was Belgium mentioned in the purpose? not understood. Please explain the connection of the study with Belgium and other countries in the method. The choice of Belgium mentioned in the findings should be explained in the method.

Quality assessment grouping is given, but what is the content of the sections? Please give some more details.

"Limitations and strengths of the multicounty IMAGiNE EURO survey have been described elsewhere." is expressed. It would be appropriate to mention it briefly in this study.

I wish you success

Kind regards

Reviewer	2
Name	Hicks, Lauren
Affiliation	The University of North Carolina at Chapel Hill School of Nursing
Date	19-Jul-2024
COI	N/A

Thank you for this wonderfully informative manuscript. Your study has done a great job identifying the exact areas and aspects of care that need to be addressed, even now following the pandemic. I am curious how different the findings would be if this project was repeated now. I only had a few questions and suggestions.

Comments to the Author:

BMJ Open 2024 086937

Comment to the Author- Thank you for this wonderfully informative manuscript. Your study has done a great job identifying the exact areas and aspects of care then need to be addressed, even now following the pandemic. I am curious how different the findings would be if this project was repeated now. I only had a few questions and suggestions which can be found below.

Notes:

- Line 75: Add an "as" between "such" and "mortality"
- Line 98: You can add a space between the) and the citation
- Line 135: You say the sample size was a minimum of 300 women for each country, but I thought this study was just on women in Belgium. I may be misunderstanding this, but if I am other readers may, too. I would consider clarifying.
- Line 143: For maternal education, does this mean did they receive education during pregnancy or level of education?
- Line 156: I think you can remove the "or" that is before "conduct" and before "reporting"
- Table 2 is clear and very easy to follow
- Line 265: You can remove the "and" between "patients" and "their families" and replace with a comma
- Line 277: It may be helpful to add "vaginal" between "instrumental" and "birth"

- Line 279: It would be nice if you stated who did the recent review and what year it was published in, for example, “Olde Loohuis et al. (2023) found in a recent review...”

Reviewer	3
Name	Li, Junyan
Affiliation	Wuhan University, Department of Nursing, School of Health Sciences
Date	25-Jul-2024
COI	The reviewer has no competing interests to declare.

I am honored to have been invited to review this manuscript. The paper addresses a significant issue, and its contributions to the field are both meaningful and impactful. The authors have presented their arguments in a highly logical and coherent manner, making the paper a valuable addition to the literature.

Below are my comments and suggestions for the manuscript:

Abstract:

1. In the statement “21.0% (n=166) of women who experienced labor,” it is unclear whether “labor” refers to vaginal delivery (natural birth) or encompasses all types of delivery methods, including cesarean sections.

2. “We found high QMNC scores but also specific gaps in all domains of QMNC.” The current description mentions “high QMNC scores” but does not provide specific numerical values or score ranges. To enhance the clarity and comparability of your results, please provide exact values or statistical data that define what constitutes a “high score” in your study. This will help readers understand what you mean by “high QMNC scores.”

The sentence is similar to the first sentence in the conclusion section. It is important to distinguish between the results and conclusion sections. Ensure that the results section focuses on presenting the data and findings, while the conclusion should interpret and discuss the implications of these results.

Method:

1. In line 131, it is mentioned that “Dissemination materials were available in Dutch, French, and English.” Could you please clarify why these three languages were chosen? Specifically, could you provide more information on how these languages were selected from 28 languages?

2. In the section where it is reported that “40 indicators contributed to a composite QMNC index, ranging from 0 to 100 for each of the four domains, for a total score ranging from 0 to

400 points, and higher scores indicating higher adherence to the WHO Standards," could you please provide more information about the credibility and validity of this composite index if possible?

3. The manuscript mentions that the online questionnaire was disseminated via social media (Facebook and X) as well as through leaflets in maternity wards, postnatal clinics, and creches. Were there measures in place to prevent duplicate responses from individuals who might have accessed the questionnaire both online and through physical leaflets?

4. In line 134, the term "Sample size" appears as a subheading. Given that this section predominantly describes data analysis methods, it may be more appropriate to delete this subheading.

5. In line 155, "Patients or the public were not involved in the design, or conduct, or reporting, or dissemination plans of our research." Could you please clarify if women with postpartum complications (Maternal admission to ICU:6) were excluded from the study?

Results

1. The term "Year of birth" in Table 1 is not accurately expressed for the context. Please consider revising it to "Year of Delivery" or "Year of Birth of Child" to clearly reflect the intended information.

2. In Table 1, the category "Other" under "Type of healthcare providers who directly assisted birth" requires further clarification. Could you please specify what types of healthcare providers are included in this category?

3. The manuscript mentions that the questionnaire was administered in different languages. Can you clarify whether the data was translated into a single language, such as English, before conducting the analysis?

4. Could you please provide the number of responses collected separately for online and offline methods? Additionally, it would be helpful to include the number of responses for each language used in the survey.

5. On line 111, it mentions that "Women who gave birth multiple times during the described period could fill in the questionnaire for each childbirth." Could you please clarify how this data is analyzed? Specifically, is data from only the most recent childbirth selected for analysis, or is there another approach used?

VERSION 1 - AUTHOR RESPONSE

Reviewer: 1

Dr. Ayşegül Durmaz, Kütahya Sağlık Bilimleri Üniversitesi

Comments to the Author:

Dear Authors,

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Please provide more detailed information about the data collection tools.

"This paper presents detailed survey findings on QMNC and trends over time, from the perspective of women who gave birth in Belgium during the COVID-19 pandemic, between March 2020 and May 2023." is expressed. However, it is mentioned that the study is a multi-country project. What are the countries included? Why was Belgium mentioned in the purpose? not understood. Please explain the connection of the study with Belgium and other countries in the method. The choice of Belgium mentioned in the findings should be explained in the method.

Thank you for the important remark. We have added more specific information on the multicountry study and focus on Belgium (p5):

"The IMAGiNE EURO project involved an online survey for women, translated into 23 languages, actively disseminated by project partners across the WHO European Region, including Belgium. This paper only presents the data collected from Belgium."

Quality assessment grouping is given, but what is the content of the sections?

Please give some more details.

Thank you for flagging this missing information. We have added more details on how the questionnaire was formed, process of validation and final content of sections (partially in supplementary material 2) (p6, line 132):

"The process of questionnaire development, validation and previous use has been reported elsewhere (25,26) and details can found in supplementary materials (Supplementary Material 2). The study was registered at the U.S. National Library of Medicine under NCT04847336. The questionnaire for women included 40 questions on one key indicator each, equally distributed in four domains: the three domains of the WHO Quality measures (21), namely provision of care, experience of care and availability of human and physical resources, plus an additional domain on key organizational changes related to the COVID-19 pandemic (26)."

"Limitations and strengths of the multicountry IMAGiNE EURO survey have been described elsewhere." is expressed. It would be appropriate to mention it briefly in this study.

We have addressed this remark by explaining the limitations of the multicountry study in this paper with specifications for Belgium (p19):

Limitations and strengths of the multicountry IMAGiNE EURO survey have been described elsewhere and are mainly related to the sampling method and recruitment of participants (5). All women needed to access internet for completing the survey, which will exclude

women with limited digital skills or internet access. Specifically for Belgium we observed that our study sample is highly comparable to the overall population (based on national registry data of women giving birth in Belgium) but we observed a slightly higher proportion of younger (<25) and primiparous women (11,12).

Reviewer: 2

Dr. Lauren Hicks, The University of North Carolina at Chapel Hill School of Nursing

Comments to the Author:

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Thank you for all these important remarks, they have all been addressed.

Reviewer: 3

Dr. Junyan Li, Wuhan University

Comments to the Author:

I am honored to have been invited to review this manuscript. The paper addresses a significant issue, and its contributions to the field are both meaningful and impactful. The authors have presented their arguments in a highly logical and coherent manner, making the paper a valuable addition to the literature.

Below are my comments and suggestions for the manuscript:

Abstract:

1. In the statement "21.0% (n=166) of women who experienced labor," it is unclear whether "labor" refers to vaginal delivery (natural birth) or encompasses all types of delivery methods, including cesarean sections.

We acknowledge the statement might have been confusing. Women who experienced labor can also include women who underwent an (emergency) cesarean section after labor started (=experienced active labor). We have added a precise definition of women who experienced labor vs women who did not in the methods section (p 6, line 137) and improved the reporting in the results (p 11, line 223). In the abstract we have separated the two sentences since they might lead to confusion. Due to word count restriction in the abstract the information on pain relief after cesarean section was omitted.

2. "We found high QMNC scores but also specific gaps in all domains of QMNC." The current description mentions "high QMNC scores" but does not provide specific numerical values or score ranges. To enhance the clarity and comparability of your results, please provide exact values or statistical data that define what constitutes a "high score" in your study. This will help readers understand what you mean by "high QMNC scores."

We have added the exact score in the abstract (p1), but also in the results for clarity (p16, line 274). The index scores per domain have been added to supplementary material 3 to improve transparency on these results/conclusions.

The sentence is similar to the first sentence in the conclusion section. It is important to distinguish between the results and conclusion sections. Ensure that the results section focuses on presenting the data and findings, while the conclusion should interpret and discuss the implications of these results.

We have rewritten the conclusion of the abstract to avoid the repetition of results and immediately interpret and discuss the implications (p1).

Method:

1. In line 131, it is mentioned that "Dissemination materials were available in Dutch, French, and English." Could you please clarify why these three languages

were chosen? Specifically, could you provide more information on how these languages were selected from 28 languages?

Thank you for this remark, we have added some context to understand why these three languages were spoken (p6, line 147):

Dissemination materials were available in Dutch, French and English. Around 90% of the Belgian population has Dutch or French as mother tongue, while English is the most spoken language by foreigners living in Belgium (29). The Dutch and French leaflet directed participants immediately to the online survey (in Dutch and French respectively), while the English flyer opened a landing page where participants could choose from 22 languages.

The questionnaire was filled in Dutch by 83.8% (752) of respondents, English by 1.7% (15) of respondents, French by 12.2% (109) of respondents, and other languages by 2.3% (21) of respondents. This information was presented in the results (p8) and in Table 1.

2. In the section where it is reported that "40 indicators contributed to a composite QMNC index, ranging from 0 to 100 for each of the four domains, for a total score ranging from 0 to 400 points, and higher scores indicating higher adherence to the WHO Standards," could you please provide more information about the credibility and validity of this composite index if possible?

Thank you for flagging this missing information. We have added more details on how the questionnaire was formed, process of validation and final content of sections (partially in supplementary material) (p6, line 132):

"The process of questionnaire development, validation and previous use has been reported elsewhere (25,26) and details can be found in supplementary materials (Supplementary Material 2). The study was registered at the U.S. National Library of Medicine under NCT04847336. The questionnaire for women included 40 questions on one key indicator each, equally distributed in four domains: the three domains of the WHO Quality measures (21), namely provision of care, experience of care and availability of human and physical resources, plus an additional domain on key organizational changes related to the COVID-19 pandemic (26)."

3. The manuscript mentions that the online questionnaire was disseminated via social media (Facebook and X) as well as through leaflets in maternity wards, postnatal clinics, and creches. Were there measures in place to prevent duplicate responses from individuals who might have accessed the questionnaire both online and through physical leaflets?

Indeed, suspected duplicates were removed during the data cleaning. We have added this information in the methods (p7, line 167):

Suspected duplicates, identified using date and place of birth, socio-demographic and obstetric data, were identified and the most recent record was retained.

4. In line 134, the term "Sample size" appears as a subheading. Given that this section predominantly describes data analysis methods, it may be more appropriate to delete this subheading.

Thank you, the subheading was deleted.

5. In line 155, "Patients or the public were not involved in the design, or conduct, or reporting, or dissemination plans of our research." Could you please clarify if women with postpartum complications (Maternal admission to ICU:6) were excluded from the study?

They were not excluded. We have added this information in the methods section (p6, line 158):

"There were no exclusion criteria based on mode of birth, maternal complications or other obstetric characteristics."

Results

1. The term "Year of birth" in Table 1 is not accurately expressed for the context. Please consider revising it to "Year of Delivery" or "Year of Birth of Child" to clearly reflect the intended information.

Thank you, this was adjusted.

2. In Table 1, the category "Other" under "Type of healthcare providers who directly assisted birth" requires further clarification. Could you please specify what types of healthcare providers are included in this category?

Women did not need to specify this category so we cannot give concrete examples. We assume this category will include family physicians, doulas, pediatricians and other types of health care providers that women did not identify as the previous categories.

3. The manuscript mentions that the questionnaire was administered in different languages. Can you clarify whether the data was translated into a single language, such as English, before conducting the analysis?

All data for this study was based on closed ended questions (women just had to tick the box) so this did not need any translation (everything was joined in a centralized dataset with variable names in English).

4. Could you please provide the number of responses collected separately for online and offline methods? Additionally, it would be helpful to include the number of responses for each language used in the survey.

All women filled in the questionnaire online (by accessing a QR-code on printed material or clicking on the link for digital materials) so we cannot differentiate between online/offline methods. This might not have been clear from the methods. We have described this more in depth (p6, line 145):

The online questionnaire was disseminated in Belgium by social media (Facebook and X) and by distributing leaflets in maternity wards, postnatal clinics and creches. The leaflet contained a QR code, bringing participants immediately to the questionnaire. Dissemination materials were available in Dutch, French and English. Around 90% of the Belgian population has Dutch or French as mother tongue, while English is the most spoken language by foreigners living in Belgium(29). The Dutch and French leaflet directed participants immediately to the online survey (in Dutch and French respectively), while the English flyer opened a landing page where participants could choose from 22 languages.

The responses for each language are available in the results both in text and in table 1 (p8, line 204):

The Dutch questionnaire was chosen by 83.8% (n=752) of women, the French questionnaire was chosen by 12.2% (n=109) of women, 1.7% (n=15) chose the English, and the rest opted for one of the other available languages (Table 1).

5. On line 111, it mentions that "Women who gave birth multiple times during the described period could fill in the questionnaire for each childbirth." Could you please clarify how this data is analyzed? Specifically, is data from only the most recent childbirth selected for analysis, or is there another approach used?

Thank you for this question. Data of each childbirth was included, since the quality of maternal and newborn health can be different for each childbirth. Women who gave birth multiple times had to restart the complete survey for each childbirth.