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**FROM EVIDENCE TO TAILORED DECISION-MAKING:  
UNDERSTANDING HOW TO IMPLEMENT NON-CLINICAL  
INTERVENTIONS FOR THE REDUCTION OF UNNECESSARY  
CAESAREAN SECTIONS IN ROMANIA**

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## FROM EVIDENCE TO TAILORED DECISION-MAKING: UNDERSTANDING HOW TO IMPLEMENT NON-CLINICAL INTERVENTIONS FOR THE REDUCTION OF UNNECESSARY CAESAREAN SECTIONS IN ROMANIA

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### Abstract

#### *Objective*

To improve understanding of the drivers of the increased CS rate in Romania and to identify interventions to reverse this trend, as well as barriers and facilitators.

#### *Design*

A formative research study was conducted in Romania between November 2019 and February 2020 by means of in-depth interviews and focus-group discussions. Romanian decision-makers and high-level obstetricians pre-selected seven non-clinical interventions for consideration. Thematic content analysis was carried out.

#### *Participants*

88 women and 26 health care providers and administrators.

#### *Settings*

Counties with higher and lower CS rates were selected for this research – namely Argeş, Bistriţa-Năsăud, Braşov, Ialomiţa, Iaşi, Ilfov, Dolj and the capital city of Bucureşti (Bucharest)

#### *Results*

Women wanted information, education and support. Obstetricians feared malpractice lawsuits; this was identified as a key reason for performing CSs. Most obstetrics and gynaecology physicians would oppose policies of mandatory second opinions, financial measures to equalize payments for vaginal and CS births, and goal setting for CS rates. In-service training was identified as a need by obstetricians, midwives and nurses. In addition, relevant structural constraints were identified: perceived lower quality of care for vaginal birth, a lack of obstetricians with expertise in managing complicated vaginal births, a lack of anaesthesiologists and midwives, and family doctors not providing antenatal care. Finally, women expressed the need to ensure their rights to dignified and respectful health care through pregnancy and childbirth.

#### *Conclusion*

Consideration of the views, values and preferences of all stakeholders in a multifaceted action tailored to Romanian determinants is critical to address relevant determinants to reduce unnecessary CSs. Further studies should assess the effect of multifaceted interventions.

### Strengths and limitations of this study

- The study serves to address a political concern in Romania to reduce a worryingly high CS rate (44.7% in 2018).
- The use of focus-group discussions and in-depth interviews with women, health care providers and health care administrators elicited rich information to design and implement a multifaceted intervention tailored to local determinants to optimize CS rates in Romania.
- Companions or the family of the pregnant women, and family doctors are represented through the discourses of a diverse sample of women, health care providers and health care administrators.

## Introduction

Caesarean section (CS) rates have been increasing worldwide[1] to levels that are not medically justified.[2] This poses a major public health concern[3] that needs to be addressed locally with evidence-based action to reduce unnecessary CSs. When medically justified, a CS can effectively prevent maternal and perinatal mortality and morbidity, but there is no evidence showing the benefits of caesarean delivery for women or infants who do not require the procedure. As with any surgery, CSs are associated with short- and long-term risks, which can extend many years beyond the delivery and affect the health of the woman and child, as well as future pregnancies. These risks are higher in women with limited access to comprehensive obstetric care.[4]

Policy-makers face complex decisions when deciding about interventions to include in national health programmes to optimize CS rates. Numerous factors underline the increase – both clinical and non-clinical[5] – such as the increase in incidence of maternal obesity, multiple pregnancies and a higher maternal age at birth, but also differences in health provider practices, fear of malpractice litigation[6] and economic or organizational factors. Sociocultural aspects should also not be overlooked,[7] such as women's desire to determine how and when their babies are born.

Recognizing the increasing relevance of nonmedical factors in the rise of CS rates worldwide,[8] in 2018 the World Health Organization (WHO) released recommendations on non-clinical interventions to reduce unnecessary CSs.[9, 10] Given the multifactorial nature of the increase and intrinsic variations between countries, before implementing any intervention to reduce rates, WHO recommends conducting research to define locally relevant determinants that can be targeted by tailored interventions.[9] This study aimed to generate evidence on (1) the views of women, health care providers and health care administrators; and (2) barriers and facilitating factors for implementation of non-clinical interventions to reduce unnecessary CSs to inform policy-making in Romania.

Romania's National Health Strategy 2014–2020 highlights the excessive use of CSs as a public health problem and a priority for maternal and child health. In 2018, the national CS rate was 44.7%.[11] This contrasts sharply with the 17% average rate in the Nordic countries, which have sustained low CS rates over recent decades.[12] Figure 1 shows the wide variability of the CS rate between Romanian counties in 2019, from 76.8% in Ilfov (one of the wealthiest) to 29.6% in Ialomița.[13]

[Figure 1 - Annex]

București (Bucharest) (65.6%) had one of the highest rates of CS births in 2019.[13] The capital city also has the highest CS rate per 1000 live births (99.5 CS per 1000 live births) compared to the other counties (Figure 2). Most CSs (88.6%) are conducted in the public sector. The proportion of CS births within the obstetrics and gynaecology (O&G) wards of hospitals ranged from 92.5% to zero in 2018, and although CS delivery is predominant in level 3 and level 2 public health facilities, 53 O&G wards of hospitals at the lowest level (level 1) reported a high percentage of CS births. For example, in 2018, Argeș county reported 92.5% of births by CS in level 1 hospitals.

[Figure 2 - Annex]

Box 1 describes the characteristics of the health system model for maternity care in Romania.

### Box 1. Romania's health system model for maternity

#### Organization and governance

- Maternity care is included in the *minimum benefit package* funded by the social health insurance system that includes antenatal care and childbirth for all pregnant women (both insured and uninsured).

#### Financing

- The National Health Insurance House (NHIH) reimburses the hospitals at a *higher tariff* (2–3 times more) for CS than for vaginal birth (depending on complications).[14]

#### Human resources

- Romania had 13.9 O&G physicians per 100 000 inhabitants in 2018 (EU average 15.5 in 2014).[15] Midwives are also in significant deficit: in 2013 Romania had 16.5 midwives per 100 000 inhabitants (EU average 61.1 in 2013).[16]
- The professional associations set educational standards and the criteria for a *licence to practise* of their respective professions, which needs to be validated every five years for physicians and yearly for midwives and nurses.[17]
- Health professionals employed in public hospitals receive the *same salary*, regardless of the number of deliveries they attend or the type of delivery.

#### Provision of care

- Most pregnant women are followed up by their O&G physicians, and visit the family doctor only occasionally; for example, to register the pregnancy.[18]
- The system is heavily led by doctors, which also includes management of low-risk pregnancies. Nurses and midwives are relegated to auxiliary care.[14]
- *Antenatal education* is not systematically provided in the public sector, and is mostly available in the private sector.[19]
- *Childbirth care* is provided in public and private hospitals.
- The presence of a companion during childbirth is not allowed in public hospitals.
- *Epidural anaesthesia* during labour is not a common practice in public hospitals.[20]
- The *clinical guideline for CSs* was updated in 2019 and endorsed as secondary legislation by the Ministry of Health. Hospitals have the freedom to develop their own protocols based on national guidelines, and accreditation standards do not refer to either the clinical guideline or hospital protocols regarding the mode of birth. Also, CS on maternal request is among the indications of the national CS clinical guideline.
- *Data* regarding the number of CSs performed on maternal request are not collected.

Political concern and commitment to reduce unnecessary CSs has grown in recent years; this has led to discussions in the Romanian Parliament and with WHO on the need to reduce the CS rate and to identify and implement strategies and public policies to support vaginal delivery. In 2019,

the Ministry of Health of Romania and WHO co-organized a workshop on implementing the Robson classification, recommended by WHO to assess, monitor and evaluate CS rates.[21]

This paper presents the results of the collaborative effort between the Ministry of Health, the WHO Country Office in Romania, the WHO Regional Office for Europe and WHO headquarters to improve understanding of the drivers of the increasing CS rates in Romania and to identify interventions to reverse this trend, alongside barriers and facilitating factors.

## Methods

This study used qualitative research methods to collect and analyse information. The generic formative research protocol prepared by WHO headquarters and designed as a guide for contextual assessment and understanding for anyone planning to take action to optimize the use of CS was used.[22] The research included a document review, focus groups with women and interviews with health care providers and administrators, and was carried out between November 2019 and February 2020. This paper reports on the findings of the focus groups and interviews with stakeholders.

### *Study setting and population*

Based on an initial analysis of routine hospital data in Romania, counties with higher and lower CS rates were selected for this research – namely Argeş, Bistriţa-Năsăud, Braşov, Ialomiţa, Iaşi, Ilfov, Dolj and the capital city of Bucureşti (Bucharest). In each county, the research included women aged 16–46 years, from urban and rural areas, with a parity history to represent nulliparous, multiparous with previous CS and multiparous without previous CS. In addition, health care providers and health care administrators were selected based on their geographical area, availability and position – including midwives, nurses, O&G physicians, medical directors and a representative of the NHIH.

### *Data collection*

Data were collected from focus-group discussions with women and in-depth interviews with health care providers and health care administrators, following the generic protocol.[22] Women attending antenatal care and postpartum women before discharge from the hospital were selected based on the topic of the focus-group discussion. The discussions lasted 30–60 minutes and included two facilitators, including men and women, with a public health, medicine or sociology background. Focus groups were conducted in the hospital facilities (for example, in a meeting room) or in a pre-assigned location in the city, and informed consent was obtained from each participant before the interview. The guidelines proposed in the generic formative research were translated into Romanian and piloted on 2–3 women each. During the session, snacks were provided.

Interviews with health care providers and administrators lasted 30–60 minutes and were conducted in hospital settings. Consent was obtained from each participant beforehand. The interviews were audio recorded and transcribed in full, except for the respondents who refused the recording, in which case the researcher took notes during the interview.

### *Data analysis*

A thematic content analysis of anonymized data was carried out. The data were segmented by type of informant. Categories of analysis were generated through a mix of the interview guide and those emerging from the data. Themes were identified, coded, recoded and classified, while examining new sections of text, to identify common patterns by looking at regularities, convergences and divergences in data through constant comparisons.

## ***Patient and Public Involvement statement***

The interventions included in the formative research were based on the instrument published in the generic protocol [22] and the results of a Ministry of Health of Romania and WHO workshop held in Bucharest in 2019. Romanian decision-makers and high-level O&G professionals selected seven non-clinical interventions with the potential to reduce CS rates based on the WHO instrument for formative research: prenatal education and support; decision aids for the mode of delivery; mandatory second opinion before conducting a CS; in-service training and implementation of clinical practice guidelines; equalizing physician pay for vaginal and CS births; setting a goal for CS rates at a facility level; and policies limiting legal liability and malpractice lawsuits. Women, health care providers and administrators were not specifically involved in the design, conduct, reporting or dissemination of this research.

## **Results**

In total, 88 women aged 16–46 years from urban and rural settings and 26 O&G professionals (nurses, midwives and O&G physicians), decision-makers at the hospital level (hospital managers, medical directors and chief nurses) and system level (representative of NHHH) participated in the study. Few doctors and nurses refused to participate. Participant quotations are shown in *italic*.

### ***Mode of birth preferences and perceived benefits***

Nulliparous women were more hesitant and less convinced about the mode of delivery, while multiparous women had clearer preferences and sometimes preconceived views. Among women with a previous vaginal delivery, there was a strong preference for vaginal birth. However, women did not consider a vaginal birth after a previous CS, showing the perception that a history of CS automatically sets the course of subsequent births for surgical delivery.

Benefits of CSs perceived by women included effortless delivery of the newborn; a quicker, less painful procedure; and avoidance of fear of the unknown during labour. Women also identified CSs as beneficial in the case of an obstetric emergency. Benefits of vaginal birth described by women were faster healing, better mobility, absence of or minimal pain after the birth, immediate breastfeeding and the believe that vaginal birth is the “*natural*” option.

While nurses clearly favoured vaginal birth, some O&G physicians stated their preference for CS as the mode of birth. Reasons underlying this preference were better control over fetal risks “*compared to unexpected complications of vaginal delivery*”, lower risk of malpractice complaints and doctors’ convenience (lower workload, overall shorter duration of the birth and avoiding going back to the hospital during night time). An O&G physician said, “*I prefer the caesarean delivery because it involves no risk for the fetus. It is, of course, also faster for the obstetrician, and practically we are less at risk of malpractice complaints when we perform a caesarean*”.

Health care providers admitted that the CS rate is high in Romania, but they argued that, to reduce use of CS, changes in the thinking processes of professionals and the population are required, as well as revision of antenatal care services (including the role of the family doctor, interventions to increase population-level information and psychological support for women).

### ***Interventions targeted to women***

#### **Education, birth preparation classes and support programmes**

Currently, education and birth preparation are optional, provided only in selected health facilities – mainly private hospitals and clinics – and paid for out of pocket. The courses, organized by hospitals, are led by midwives and include breathing, relaxation and message techniques.



1  
2 Women wanted more reliable information on birth for a number of topics: mode of delivery,  
3 delivery process, risks and benefits for the mother and baby. Most of the women would welcome  
4 birth preparation classes, although the unpredictable nature of labour and birth was  
5 acknowledged. A woman with previous CS commented: *“You can control pregnancy and  
6 motherhood only to a small extent. The pregnancy is unpredictable, and no matter how well  
7 informed you are, or how good the doctor is, surprises can occur at any time and no one can do  
8 miracles”*. O&G physicians were identified as women’s main source of trustable information.  
9 For example, a woman with previous CS said, *“I believe in the gynaecologist’s opinion: talking  
10 to him is important, more important than anything else”*. Nevertheless, women considered that  
11 O&G physicians allocate little time to discuss birth options. None of the women stated that they  
12 had discussed mode of delivery with the family doctor.  
13  
14

15 Midwives and nurses underlined the importance of prenatal education and the need to include the  
16 women’s companion, since *“husbands cannot attend childbirth: their participation is not  
17 allowed”*. Some of the O&G physicians considered that birth preparation classes are a task for  
18 midwives.  
19

### 20 **Decision-aid tools**

21 Women would use a decision-aid tool if it contained personalized information regarding evolution  
22 of the pregnancy and childbirth from a trusted source using plain language. Some women thought  
23 it would be useful when engaging in dialogue with health professionals, but they also feared that  
24 such a tool may result in less time and a lower number of contacts with the O&G physician. They  
25 also expressed concern about the anxiety that such educational materials can provoke. A woman  
26 with previous vaginal birth claimed *“they might write I don’t know what about the caesarean  
27 section, or the normal birth... and you become afraid”*.  
28  
29

30 O&G physicians would consider a decision-aid tool with evidence-based information endorsed  
31 by the physician useful. Obstetricians felt that *“any attempt at implementing new tools in the  
32 health system is difficult by default”*, although no specific barriers were reported. They thought  
33 that decision-aid tools should include information about the mode of delivery, course of  
34 pregnancy, timeline and milestones of pregnancy monitoring.  
35

### 36 **Interventions targeted to health care providers**

#### 37 **Revision and better adaptation of evidence-based clinical practice guidelines**

38 All respondents acknowledged the national O&G clinical guideline revised in 2019 and endorsed  
39 as secondary legislation by the Ministry of Health. Medical doctors considered these an important  
40 dimension of medical practice because they provide some safety from a malpractice accusation.  
41 According to respondents, the College of Physicians and the court ask for the guidelines in the  
42 case of a complaint or litigation: *“guidelines show you the steps [you have to follow] and using  
43 them in [the clinical] practice, you feel more secure. In the case of malpractice litigation, it can  
44 defend or impeach you, as the case may be”*.  
45  
46

47 Nurses and midwives were also aware of the guideline. Some hospitals have developed protocols  
48 for nurses, but they noted that: *“there are no guidelines for midwives and in the guidelines for  
49 doctors there is very little reference to the midwives’ practice”*.  
50

51 There is no systematic approach to clinical guideline accessibility, dissemination, training and  
52 physician–nurse communication. One O&G physician claimed that *“in my hospital, [...] each of  
53 us signed that we know them, but guidelines and protocols are largely ignored; there was no  
54 discussion or training regarding their use”*. Evaluation of implementation of clinical guidelines  
55 in hospitals is not a generalized practice, and algorithms for management of labour and  
56 complications are not available. Some O&G physicians were reluctant about the change and  
57 perceived protocols and guidelines as increasing the burden of work. One O&G physician  
58 described this reluctance: *“doctors see bureaucracy and waste of time – there are too many  
59  
60*

1  
2 *papers to be read and papers to be signed*". A nurse also identified a generational effect among  
3 O&G physicians, where younger doctors are more open to using the guidelines.  
4

### 5 **Simulation-based obstetrics and neonatal emergency training**

6 O&G professionals would welcome simulation-based obstetrics and neonatal emergency training  
7 in multidisciplinary teams. A nurse said: *"I would love to have special mannequins and a*  
8 *simulator for the delivery room"*. However, financial barriers for specialized training  
9 opportunities were also acknowledged, as a nurse noted: *"the hospital does not have resources to*  
10 *pay for courses or to organize them, but it does offer nurses free days to attend training"*.  
11

12  
13 Some respondents perceived that there are fewer opportunities for younger generations of O&G  
14 specialists to practise vaginal delivery after CS (VBAC), trial of labour after CS (TOLAC) or  
15 instrumental vaginal delivery, but others recognized that *"we all need to refresh knowledge and*  
16 *skills now and then"*. Although the national clinical guideline includes statements to assist O&G  
17 decisions about TOLAC, respondents stated that not even the leading O&G specialists prefer to  
18 perform TOLAC because they fear complications that might lead to malpractice accusations.  
19 Also, a woman with previous CS described: *"I think they see it [CS] as a safer modality. And yes,*  
20 *after that [first CS], it [caesarean childbirth] becomes routine"*.  
21

### 22 **Implementation of mandatory second opinion before conducting a CS**

23 Some hospitals have an established protocol for second opinion before a CS as their usual internal  
24 procedure; in others, the head of the O&G ward approves all CSs.  
25

26  
27 Some women perceived that a mandatory second opinion would increase their safety and  
28 confidence in the physician's decision regarding the birth method; others perceived this as a  
29 limitation of their preferences. Some women underlined that for physicians with a preference for  
30 CS births, a second mandatory opinion should be necessary. Other women agreed with a  
31 mandatory second opinion before CS for at-risk births.  
32

33 Although health care providers and administrators acknowledged the high CS rate in the country,  
34 generally, they would not trust mandatory second opinion as an effective intervention to lower it.  
35 There was a perception that doctors would feel safer when making decisions in complicated cases  
36 and share the responsibility, strengthening teamwork. An O&G physician said: *"if there are two*  
37 *agreeing opinions and I did what a colleague agreed, this has more weight, irrespective of the*  
38 *outcome of a complicated case"*. However, health care providers also identified several barriers  
39 to implementation. A second opinion could be seen as a threat; women may distrust providers;  
40 and it might create certain dynamics among O&G physicians, as an O&G physician identified:  
41 *"they [O&G physicians who perform more CSs] would ask their colleagues with common*  
42 *affinities for this second opinion"* and *"some gynaecologists are more attached to CS delivery*  
43 *and they would be upset with a contrasting opinion"*. It could also affect the personal financial  
44 reward associated with CS in the private health sector, as one O&G physician stated: *"I do not*  
45 *think gynaecologists would leave their private practices in the afternoon to come back to the*  
46 *hospital to give a so-called mandatory opinion"*. In remote areas with fewer O&G physicians, it  
47 might also be difficult to find one with higher clinical qualifications than the doctor requiring the  
48 consultation.  
49

### 50 **Interventions targeted to health organizations, facilities and systems**

#### 51 **Reforms equalizing physician fees for vaginal births and CSs**

52  
53 Currently, as an O&G physician said, in the public health sector *"the doctor has no financial*  
54 *incentives because he is paid [a fixed] salary"*. Thus, most medical doctors claimed that  
55 equalizing tariffs for vaginal births and CSs would not have an effect in reducing the CS rates.  
56 An O&G physician claimed: *"obstetricians prefer to do a caesarean [...] for other reasons: time,*  
57 *convenience, safety... and equalizing prices would not change the current behaviour"*.  
58  
59  
60

1  
2 Health care administrators stated that the current diagnosis-related group system to classify  
3 patients according to their diagnosis in order to reimburse hospitals[13] allows the insurance  
4 company to pay more for a CS and thus “stimulates the CS rate in hospitals”. Also, they predicted  
5 two challenges: opposition of O&G physicians and weak control over activity in maternity wards.  
6 In the health care administrators’ opinion, the way to implement such intervention would be to  
7 introduce financial incentives to physicians who perform vaginal births, accompanied by clearer  
8 indications for CSs, and mandatory clinical audit undertaken by independent evaluators because  
9 “there is a lot of variability and abnormality. [...] unfortunately, we do not have information  
10 collected in the information system to correlate the data”.

### 11 **Goal setting for CS rates**

12  
13 Support for this intervention was limited among the O&G physicians because they considered  
14 that it would limit their clinical autonomy and add additional pressure on medical practice, and  
15 that they would receive penalties for not reaching targets. In order to be supportive, medical  
16 doctors suggested providing bonuses for physicians to perform more vaginal deliveries. An  
17 additional challenge identified was the organizational culture in Romania: this includes the  
18 widespread practice of giving birth with the O&G physician who has monitored the pregnancy;  
19 hospitals permitting performance of unnecessary CSs; and the limited authority of hospital  
20 managers over medical decisions. An O&G physician claimed: “it is about the lack of confidence  
21 of the woman in the health system; they trust the doctor rather the health system, if the patient  
22 would belong to the hospital and not to a certain doctor, the process would be different”. Finally,  
23 women’s opinions and preferences for CS births are also considered a challenge, despite women  
24 identifying the opinion of the O&G physician as the most important factor.

25  
26 Health care administrators agreed that goal setting for CS rates at the hospital level may be  
27 effective in reducing the number of CSs, but identified that this would need to be implemented  
28 together with other interventions, such as economic disincentives for medical doctors or hospitals  
29 not being reimbursed for CSs above the target.

### 30 **Policies that limit financial or legal liability in the case of litigation of health care 31 professionals or organizations**

32  
33 There was consensus that doctors fear malpractice lawsuits and ask for better regulatory  
34 frameworks regarding legal liability in the medical profession. Under the current legal system,  
35 providers can be prosecuted under the civil code or, more often, under the criminal code, even  
36 before the case is judged by the College of Physicians. Also, no formal risk management strategy  
37 exists at the hospital level to reduce the likelihood of a negligence lawsuit. In the absence of these  
38 strategies, O&G physicians reduce the risk of a malpractice lawsuit by accepting all CS births on  
39 maternal request.

### 40 **Additional challenges related to implementation of the interventions**

41  
42 The respondents also identified a number of challenges related to the current performance of the  
43 health system, which might also hinder successful implementation of interventions if they are not  
44 adequately addressed. These included women’s experience and perception of lower quality of  
45 care for vaginal birth; out-of-pocket payments for prenatal examinations and childbirth  
46 preparation; a lack of O&G physicians with expertise and skills in managing complicated vaginal  
47 births; a lack of anaesthesiologists to administer epidural analgesia for labour and vaginal birth;  
48 and family doctors not providing antenatal care.

49  
50 Health care providers and administrators also recognized that an increased role for midwives  
51 during pregnancy and birth would increase women’s education, decrease fear and contribute to  
52 lower CS rates in hospitals. However, O&G physicians admitted that the measure would be  
53 controversial among their peers because of a reluctance to confer more duties on midwives.

54  
55 Finally, some women who had previous vaginal births said that “they [O&G physicians and  
56 nurses] only give orders and yell while women are in such great pain” and “they talk about us  
57 patients as if we were not there; mainly the nurses, all you hear is ‘wait, be good’”. This might

1  
2 indicate that the rights of women to dignified, respectful health care through pregnancy and  
3 childbirth are not systematically respected in the context of the Romanian health system,  
4 including a lack of continuous one-to-one intrapartum support.  
5

## 6 **Discussion**

7  
8  
9 The research outlined in this paper was an initiative of the partnership between the Ministry of  
10 Health of Romania, the WHO Country Office in Romania, the WHO Regional Office for Europe  
11 and WHO headquarters as a result of the current political concern and will for action to reduce  
12 unnecessary CSs. This is among the first experiences in Romania to conduct and use qualitative  
13 research on this topic, and it improves understanding of local determinants of the high CS rates  
14 in the country. Importantly, this research includes women and health care providers' views of the  
15 acceptability of potential interventions to reduce the use of CSs, as well as considerations for their  
16 implementation, based on the opinion of health care providers and administrators.  
17

18  
19 The findings of this study, in line with the current literature,[23] suggest that values and  
20 preferences for birth and for information vary among women, and that changes in women's  
21 opinions throughout pregnancy are shaped by interactions with the community, O&G physicians  
22 and the health system. Women's willingness to learn more is a major facilitator for  
23 implementation of educational interventions, resulting in more women being empowered in the  
24 decision-making process. In contrast to other studies, which have shown women's suspicions that  
25 health professionals manage information provision to encourage women to prefer a particular  
26 mode of birth,[24, 25] in Romania, women place the greatest trust in O&G physicians. As found  
27 elsewhere,[24] a potential barrier to effective implementation of educational interventions would  
28 be women's reluctance to use educational materials that might increase their anxiety or reduce  
29 the number of contacts with health care providers. This fear has been identified by WHO, which  
30 recommends that the content of educational materials should not provoke anxiety, while being  
31 consistent with advice from health care professionals, and should provide the basis for more  
32 informed dialogue with them.[23]  
33

34  
35 Health care providers' beliefs, values and preferences have crucial influence on decisions about  
36 the mode of birth. Providers' opinions, together with health system and organizational factors,  
37 need to be considered carefully in the design and implementation of interventions.[26, 27] O&G  
38 physicians in Romania believe that the current CS guideline provides some safety in case of  
39 malpractice accusation, which is attributed to the fact that the College of Physicians and the court  
40 review whether O&G physicians followed the indications of the guideline. However, consistent  
41 with the results of the Ionescu et al. (2019) study[28] and most the literature worldwide,[8] fear  
42 remains and influences decisions about mode of birth. Although in some countries some anecdotal  
43 reports reveal that lawsuits by women submitted to unnecessary CSs have started to emerge, in  
44 this research respondents always referred to lawsuits from complications associated with vaginal  
45 birth. O&G physicians fear complications that may occur during vaginal birth and recognize that  
46 they need more training and practice on instrumental vaginal deliveries, VBAC and TOLAC.[29]  
47 O&G physicians request better regulatory frameworks for legal liability of the medical profession.  
48 Without addressing their concerns, it will not be possible to optimize the use of CS in a sustainable  
49 manner. Also, aligned with published evidence,[27] dysfunctional teamwork within the medical  
50 profession, marginalization of midwives, power relationships and tension and a lack of  
51 communication between cadres may represent barriers to the reduction of CS rates.  
52

53  
54 Although joint implementation of evidence-based clinical practice guidelines and a mandatory  
55 second opinion for CS indication can be effective in reducing unnecessary CSs,[10, 30] in the  
56 context of Romania, opposition from O&G physicians should be expected. An entry point might  
57 be implementation of in-service training, which has been identified as a need in this research; this  
58 could help health care providers to incorporate the recommendations of the national guideline  
59 into their usual practice.[9] In addition, there is a need for better regulation of the provisions  
60

1  
2 associated with the indication of CS on maternal request in the national clinical guideline,  
3 endorsed as secondary legislation by the Ministry of Health.  
4

5 Equalizing fees between vaginal delivery and CS has been proposed among the regulatory and  
6 financial strategies to disincentive overuse of CSs.[10, 31] Health care administrators perceived  
7 that this would be effective if implemented together with goal setting for CS rates by means of  
8 economic disincentives for medical doctors and hospitals not being reimbursed for CSs above the  
9 target. These views are not a surprise, given the literature showing that financial incentives alone  
10 have little effect on CS rates.[31, 32] Equalizing fees may find opposition among health care  
11 providers, with the view that vaginal delivery is insufficiently paid because it requires more time  
12 compared to a quick and efficient CS.[27] In order to overcome these challenges, the  
13 identification of champions to promote the implementation of these recommendations may be  
14 useful.  
15

16  
17 Data collected from respondents also revealed several novel findings related to health system  
18 performance that need to be addressed if the national CS rate is to be reduced. Improvement of  
19 the quality of childbirth care, particularly for labour and vaginal birth, is crucial – including  
20 availability of pain relief for vaginal birth, continuous one-to-one intrapartum support by a  
21 companion of choice, positive and constructive communication and relationships with providers,  
22 and women's need for emotional support.  
23

24 In Romania no formal evidence is available on how well informed patients in general or pregnant  
25 women in particular are about their rights, and whether the available information is considered  
26 useful.[17] The findings of this study show that the rights of women to dignified, respectful health  
27 care through pregnancy and childbirth might not be systematically respected; this deserves the  
28 attention of national and international institutions.  
29

30 Lastly, momentum to address high CS rates is growing among professional societies and policy-  
31 makers in WHO European Region, which suggest synergies for joint initiatives, partnership and  
32 actions,[33] including in the case of Romania, as these findings show.  
33  
34

### 35 ***Strengths and limitations***

36 To our knowledge, this is the first time an in-depth and inclusive research study has been  
37 conducted in Romania to improve understanding of the drivers of increasing use of CS and to  
38 help with the design and implementation of strategies that are locally relevant, are culturally  
39 accepted by women and providers, and can be implemented effectively to reduce CS rates.  
40 However, the present research has some limitations. We did not include interviews with  
41 companions or the family of the pregnant women, so their opinions and views are not represented  
42 in our findings. Likewise, family doctors and other stakeholders were not included. Nevertheless,  
43 to a certain extent, their opinions have been captured through the women's and health care  
44 providers' discourses. Further, some health care providers refused to participate, although the  
45 research achieved saturation of the information.  
46  
47  
48

### 49 **Conclusion**

50  
51 In conclusion, multifaceted action tailored to Romanian determinants to address unnecessary CSs  
52 should include women's empowerment through information with consistent messages that do not  
53 increase their anxiety. Training and management of complicated vaginal birth is necessary, and  
54 could be an opportunity for the promotion of instrumental vaginal birth, TOLAC and VBAC,  
55 particularly among young O&G physicians working within a multidisciplinary team.  
56 Implementation of a mandatory second opinion and goal setting alone may not be effective in  
57 Romania. The introduction of financial incentives is a complex endeavour, due to current societal  
58 and health care organization norms and practices. If implemented, it needs to be carefully crafted  
59 within the health system. Finally, an increase in the quality of care for labour and vaginal birth is  
60

paramount for any of the interventions considered to succeed. Further studies should assess the effect of multifaceted interventions in Romania.

## Acknowledgements

None declared.

## Contributors

NB led on conceptualizing, coordinating the project, analysis and writing the manuscript. ALG reviewed the interpretation of results and drafted the first draft of the manuscript with inputs of APB, DF and NB. DF was responsible for the data collection and analysis with inputs of NB. APB, CB and MG contributed substantial comments to the writing of the manuscript. All authors critically reviewed the manuscript and approved the final version.

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## Competing interests

None declared.

## Patient consent for publication

Not required.

## Ethics approval

The generic protocol was approved by the Research Project Review Panel of the United Nations Development Programme/United Nations Population Fund/United Nations Children's Fund/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction, at the WHO headquarters Department of Sexual and Reproductive Health and Research, and the WHO Research Ethics Review Committee (protocol ID, 004571). Ethical approval was given by the scientific committee of Centre for Health Policies and Services of Romania.

## Data availability statement

No data are available.

## Disclaimer

The authors alone are responsible for the views expressed in this publication and they do not necessarily represent the decisions or policies of the World Health Organization.

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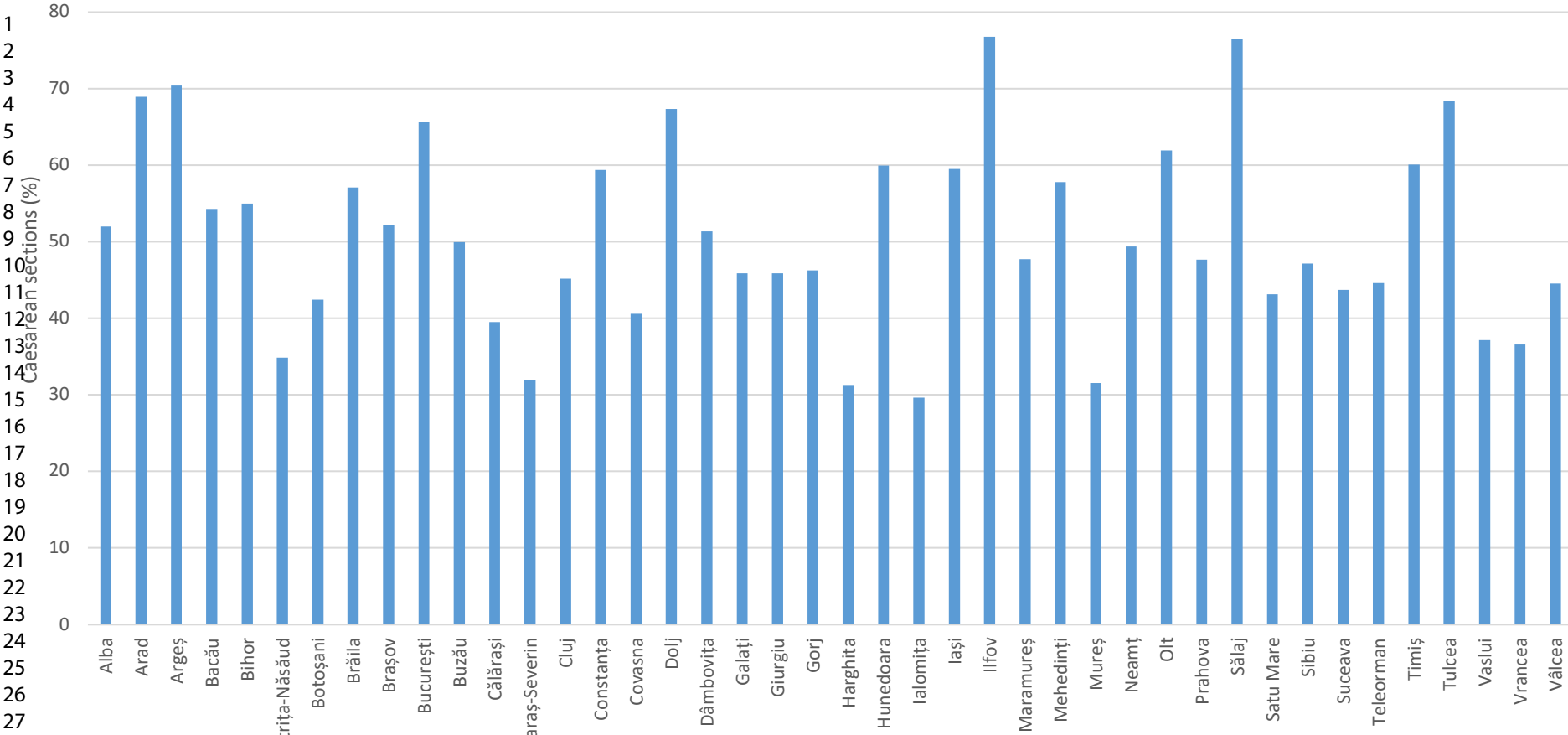
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## Annex

Figure 1. Proportion of CSs in Romanian counties (2019)

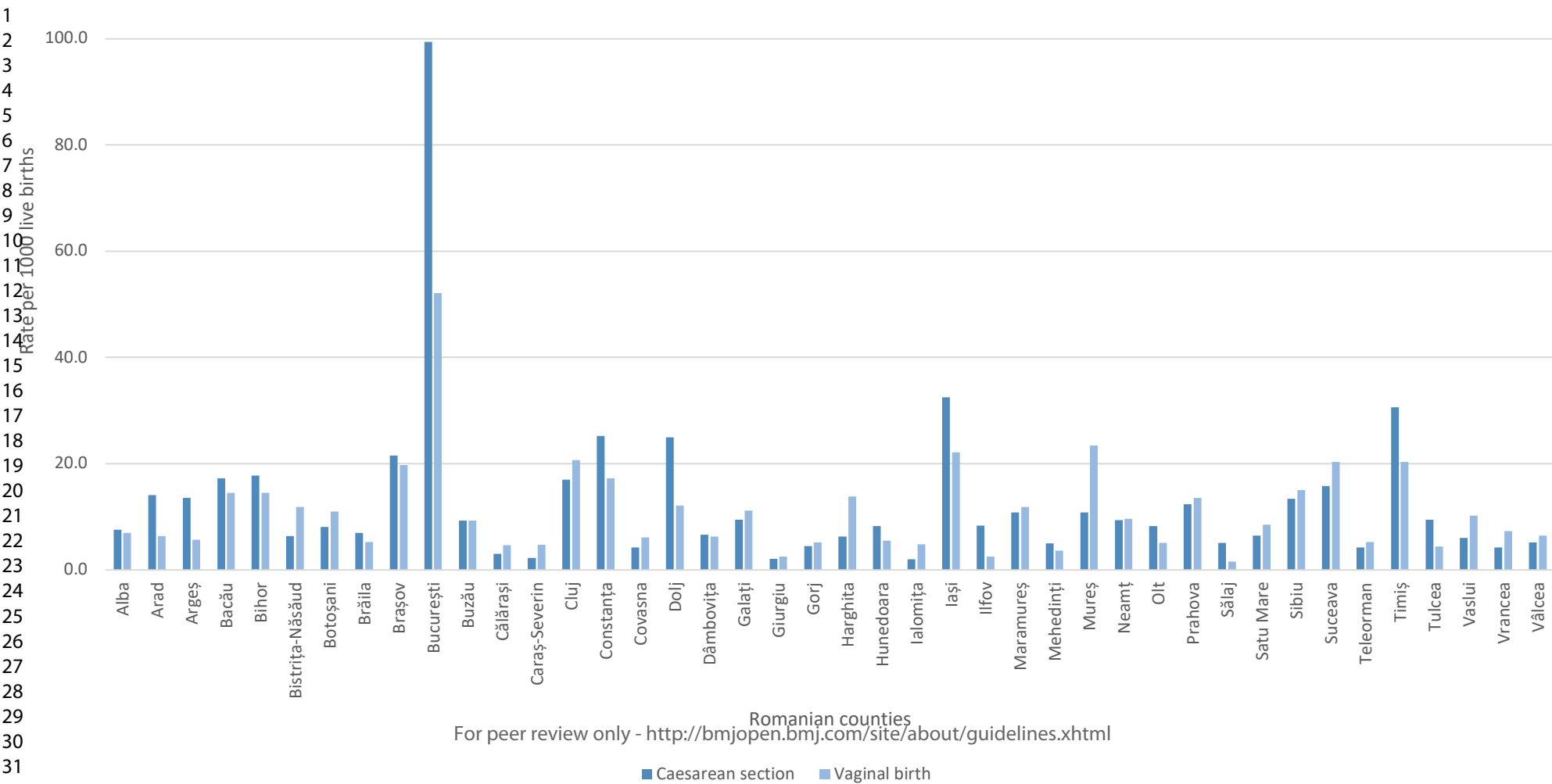
Figure 2. CS and vaginal birth rates per 1000 live births in Romanian counties (2019)





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Romanian counties



## Research Checklist

### Consolidated criteria for reporting qualitative research (COREQ)

#### Domain 1: Research team and reflexivity

##### Personal Characteristics (*page 1 of the manuscript*)

1. **Interviewer/facilitator:** Nino Berdzuli led on conceptualizing, coordinating the research, analysis and writing the manuscript. Alba Llop-Gironés reviewed the interpretation of results and drafted the first draft of the manuscript with inputs of Ana Pilar Betrán, Dana Farcasanu and Nino Berdzuli. Dana Farcasanu was responsible for the data collection and analysis with guidance and inputs of Nino Berdzuli. Ana Pilar Betrán, Cassandra Butu and Miljana Grbic contributed substantial comments to the writing of the manuscript. All authors critically reviewed the manuscript and approved the final version.
2. **Credentials:** the researchers are MD, RN, PhD including public health, medicine, nursing or sociology background
3. **Occupation:** the occupation of the authors is described below: Nino Berdzuli<sup>1</sup>, Alba Llop-Gironés<sup>1</sup>, Dana Farcasanu<sup>2</sup>, Cassandra Butu<sup>3</sup>, Miljana Grbic<sup>3</sup>, Ana Pilar Betran<sup>4</sup>
  1. World Health Organization Regional Office for Europe, Copenhagen, Denmark.
  2. Centre for Health Policies and Services, Bucharest, Romania
  3. World Health Organization Country Office, Bucharest, Romania
  4. UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP), Department of Sexual and Reproductive Health and Research, World Health Organization, Geneva, Switzerland
4. **Gender:** all the authors and researchers are female.
5. **Experience and training:** all the researchers are experts in the field with several years of experience

##### Relationship with participants (*page 4 of the manuscript*)

6. **Relationship established:** the researchers did not have an established relationship prior to study commencement.
7. **Participant knowledge of the interviewer:** women participating in the research were attending antenatal care and postpartum women before discharge. Health care providers and health care administrators included including midwives, nurses, O&G physicians, medical directors and a representative of the NHIH.
8. **Interviewer characteristics:** the items selected in the research is the result of a Ministry of Health of Romania and WHO workshop held in Bucharest in 2019. Romanian decision-makers and high-level O&G professionals selected seven non-clinical interventions with the potential to reduce CS rates based on the WHO instrument for formative research: prenatal education and support; decision aids for the mode of delivery; mandatory second opinion before conducting a CS; in-service training and implementation of clinical practice

1  
2  
3 guidelines; equalizing physician pay for vaginal and CS births; setting a goal for  
4 CS rates at a facility level; and policies limiting legal liability and malpractice  
5 lawsuits. Each of the items were explored with the participants as appropriate  
6 after indicating the objective of the research and informed consent was  
7 obtained.  
8

9 Domain 2: study design (*page 4 of the manuscript*)  
10

11 Theoretical framework  
12

- 13 9. **Methodological orientation and Theory:** A thematic content analysis of  
14 anonymized data was carried out.  
15

16 Participant selection  
17

- 18 10. **Sampling:** purposive  
19  
20 11. **Method of approach:** face-to-face  
21  
22 12. **Sample size:** 88 women aged 16–46 years from urban and rural settings and  
23 26 O&G professionals (nurses, midwives and O&G physicians), decision-makers  
24 at the hospital level (hospital managers, medical directors and chief nurses) and  
25 system level (representative of NHIH) participated in the study.  
26  
27 13. **Non-participation:** few doctors and nurses refused to participate  
28  
29

30 Setting (*page 4 of the manuscript*)  
31

- 32 14. **Setting of data collection:** clinic, workplace  
33  
34 15. **Presence of non-participants:** No  
35  
36 16. **Description of sample:** on one hand, women from counties with higher and  
37 lower CS rates, women aged 16–46 years, from urban and rural areas, with a  
38 parity history to represent nulliparous, multiparous with previous CS and  
39 multiparous without previous CS. On the other hand, health care providers and  
40 health care administrators were selected based on their geographical area,  
41 availability.  
42  
43

44 Data collection (*page 4 of the manuscript*)  
45

- 46 17. **Interview guide:** Yes.  
47  
48 18. **Repeat interviews:** No  
49  
50 19. **Audio/visual recording:** Yes, most of them were audio recorded  
51  
52 20. **Field notes:** Yes  
53  
54 21. **Duration:** 30 – 60 minutes  
55  
56 22. **Data saturation:** Yes  
57  
58 23. **Transcripts returned:** No  
59  
60

1  
2  
3 Domain 3: analysis and findings (*page 4 of the manuscript*)  
4

5 Data analysis  
6

7 24. **Number of data coders:** two  
8

9 25. **Description of the coding tree:** it is not provided in the text  
10

11 26. **Derivation of themes:** themes were identified in advance  
12

13 27. **Software** no, it was done manually  
14

15 28. **Participant checking** No  
16  
17

18 Reporting (*page 4 of the manuscript*)  
19

20 29. **Quotations presented:** yes, generic identifiers of anonymized data were used  
21

22 30. **Data and findings consistent:** yes  
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24 31. **Clarity of major themes:** yes  
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26 32. **Clarity of minor themes:** yes  
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# BMJ Open

## From evidence to tailored decision-making: A qualitative analysis of barriers and facilitating factors for the implementation of non-clinical interventions to reduce unnecessary caesarean section in Romania

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<b>Primary Subject Heading</b>:	Obstetrics and gynaecology
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# From evidence to tailored decision-making: A qualitative analysis of barriers and facilitating factors for the implementation of non-clinical interventions to reduce unnecessary caesarean section in Romania

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Nino Berdzuli is the corresponding author. Contact email: [berdzulin@who.int](mailto:berdzulin@who.int)

## Abstract

### *Objective*

To improve understanding of the drivers of the increased caesarean section (CS) rate in Romania and to identify interventions to reverse this trend, as well as barriers and facilitators.

### *Design*

A formative research study was conducted in Romania between November 2019 and February 2020 by means of in-depth interviews and focus-group discussions. Romanian decision-makers and high-level obstetricians pre-selected seven non-clinical interventions for consideration. Thematic content analysis was carried out.

### *Participants*

88 women and 26 health care providers and administrators.

### *Settings*

Counties with higher and lower CS rates were selected for this research – namely Argeş, Bistriţa-Năsăud, Braşov, Ialomiţa, Iaşi, Ilfov, Dolj and the capital city of Bucureşti (Bucharest).

### *Results*

Women wanted information, education and support. Obstetricians feared malpractice lawsuits; this was identified as a key reason for performing CSs. Most obstetrics and gynaecology physicians would oppose policies of mandatory second opinions, financial measures to equalize payments for vaginal and CS births, and goal setting for CS rates. In-service training was identified as a need by obstetricians, midwives and nurses. In addition, relevant structural constraints were identified: perceived lower quality of care for vaginal birth, a lack of obstetricians with expertise in managing complicated vaginal births, a lack of anaesthesiologists and midwives, and family doctors not providing antenatal care. Finally, women expressed the need to ensure their rights to dignified and respectful health care through pregnancy and childbirth.

### *Conclusion*

Consideration of the views, values and preferences of all stakeholders in a multifaceted action tailored to Romanian determinants is critical to address relevant determinants to reduce unnecessary CSs. Further studies should assess the effect of multifaceted interventions.



### Strengths and limitations of this study

- A qualitative study was conducted to address a political concern in Romania, a worryingly high CS rate (44.7% in 2018).
- Diverse perspective of women, health care providers and health care administrators were considered to design and implement a multifaceted intervention tailored to local determinants to optimize CS rates in Romania.
- Companions or the family of the pregnant women, and family doctors are represented through the discourses of a diverse sample of women, health care providers and health care administrators.

## 1 Introduction

2 Caesarean section (CS) rates have been increasing worldwide [1] to levels that are not medically  
3 justified.[2] This poses a major public health concern[3] that needs to be addressed locally with  
4 evidence-based action to reduce unnecessary CSs. When medically justified, a CS can effectively  
5 prevent maternal and perinatal mortality and morbidity, but there is no evidence showing the  
6 benefits of caesarean delivery for women or infants who do not require the procedure. As with  
7 any surgery, CSs are associated with short- and long-term risks, which can extend many years  
8 beyond the delivery and affect the health of the woman and child, as well as future pregnancies.  
9 These risks are higher in women with limited access to comprehensive obstetric care.[4]

10 Policymakers face complex decisions when deciding about interventions to include in national  
11 health programmes to optimize CS rates. Numerous factors underline the increase – both clinical  
12 and non-clinical [5] – such as the increase in incidence of maternal obesity, multiple pregnancies  
13 and a higher maternal age at birth, but also differences in health provider practices, fear of  
14 malpractice litigation[6] and economic or organizational factors. Sociocultural aspects should  
15 also not be overlooked,[7] such as women’s desire to determine how and when their babies are  
16 born.[8]

17 Recognizing the increasing relevance of nonmedical factors in the rise of CS rates worldwide,[9]  
18 in 2018 the World Health Organization (WHO) released recommendations on non-clinical  
19 interventions to reduce unnecessary CSs.[10, 11] Given the multifactorial nature of the increase  
20 and intrinsic variations between countries, before implementing any intervention to reduce rates,  
21 WHO recommends conducting research to define locally relevant determinants that can be  
22 targeted by tailored interventions.[10] This study aimed to generate evidence on (1) the views of  
23 women, health care providers and health care administrators; and (2) barriers and facilitating  
24 factors for implementation of non-clinical interventions to reduce unnecessary CSs to inform  
25 policy-making in Romania.

26 Romania’s National Health Strategy 2014–2020 highlights the excessive use of CSs as a public  
27 health problem and a priority for maternal and child health. In 2018, the national CS rate was  
28 44.7%.[12] This contrasts sharply with the 17% average rate in the Nordic countries, which have  
29 sustained low CS rates over recent decades.[13] Figure 1 shows the wide variability of the CS  
30 rate between Romanian counties in 2019, from 76.8% in Ilfov (one of the wealthiest) to 29.6% in  
31 Ialomița.[14]

32 [Figure 1 - Annex]

33 București (Bucharest) (65.6%) had one of the highest rates of CS births in 2019.[14] The capital  
34 city also has the highest CS rate per 1000 live births (99.5 CS per 1000 live births) compared to  
35 the other counties (Figure 2). Most CSs (88.6%) are conducted in the public sector. The proportion  
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of CS births within the obstetrics and gynaecology (O&G) wards of hospitals ranged from 92.5% to zero in 2018, and although CS delivery is predominant in level 3 and level 2 public health facilities, 53 O&G wards of hospitals at the lowest level (level 1) reported a high percentage of CS births. For example, in 2018, Argeş county reported 92.5% of births by CS in level 1 hospitals.

[Figure 2 - Annex]

Box 1 describes the characteristics of the health system model for maternity care in Romania.

### Box 1. Romania's health system model for maternity

#### Organization and governance

- Maternity care is included in the *minimum benefit package* funded by the social health insurance system that includes antenatal care and childbirth for all pregnant women (both insured and uninsured).

#### Financing

- The National Health Insurance House (NHIH) reimburses the hospitals at a *higher tariff* (2–3 times more) for CS than for vaginal birth (depending on complications).[15]

#### Human resources

- Romania had 13.9 O&G physicians per 100 000 inhabitants in 2018 (EU average 15.5 in 2014).[16] Midwives are also in significant deficit: in 2013 Romania had 16.5 midwives per 100 000 inhabitants (EU average 61.1 in 2013).[17]
- The professional associations set educational standards and the criteria for a *licence to practise* of their respective professions, which needs to be validated every five years for physicians and yearly for midwives and nurses.[18]
- Health professionals employed in public hospitals receive the *same salary*, regardless of the number of deliveries they attend or the type of delivery.

#### Provision of care

- Most pregnant women are followed up by their O&G physicians and visit the family doctor only occasionally; for example, to register the pregnancy.[19]
- The system is heavily led by doctors, which also includes management of low-risk pregnancies. Nurses and midwives are relegated to auxiliary care.[15]
- Antenatal education is not systematically provided in the public sector, and is mostly available in the private sector.[20]
- Childbirth care is provided in public and private hospitals.
- The presence of a companion during childbirth is not allowed in public hospitals.
- Epidural anaesthesia during labour is not a common practice in public hospitals.[21]
- The clinical guideline for CSs was updated in 2019 and endorsed as secondary legislation by the Ministry of Health. Hospitals have the freedom to develop their own protocols based on national guidelines, and accreditation standards do not refer to either the clinical guideline or hospital protocols regarding the mode of birth. Also, CS on maternal request is among the indications of the national CS clinical guideline.
- Data regarding the number of CSs performed on maternal request are not collected.

Political concern and commitment to reduce unnecessary CSs has grown in recent years; this has led to discussions in the Romanian Parliament and with WHO on the need to reduce the CS rate and to identify and implement strategies and public policies to support vaginal delivery. In 2019, the Ministry of Health of Romania and WHO co-organized a workshop on implementing the Robson classification, recommended by WHO to assess, monitor and evaluate CS rates.[22]

1 This paper presents the results of the collaborative effort between the Ministry of Health, the  
2 WHO Country Office in Romania, the WHO Regional Office for Europe and WHO headquarters  
3 to improve understanding of the drivers of the increasing CS rates in Romania and to identify  
4 interventions to reverse this trend, alongside barriers and facilitating factors.

## 5 **Methods**

6 This study used qualitative research case study methods to collect and analyse information. The  
7 generic formative research protocol prepared by WHO headquarters and designed as a guide for  
8 contextual assessment and understanding for anyone planning to take action to optimize the use  
9 of CS was used.[23] The research included a document review, focus groups with women and  
10 interviews with health care providers and administrators, and was carried out between November  
11 2019 and February 2020. This paper reports on the findings of the focus groups and interviews  
12 with stakeholders.

### 13 ***Study setting and population***

14 Based on an initial analysis of routine hospital data in Romania, counties with higher and lower  
15 CS rates were selected for this research – namely Argeş, Bistriţa-Năsăud, Braşov, Ialomiţa, Iaşi,  
16 Ilfov, Dolj and the capital city of Bucureşti (Bucharest). In each county, the research included  
17 women aged 16–46 years, from urban and rural areas, with a parity history to represent  
18 nulliparous, multiparous with previous CS and multiparous without previous CS. Women  
19 attending antenatal care and postpartum women before discharge from the hospital were  
20 purposively recruited based on the topic of the focus-group discussion and taking into account  
21 the variability of patients in terms of demographics, geographical area and parity history. In  
22 addition, health care providers and health care administrators were recruited based on their  
23 geographical area, availability and position – including midwives, nurses, O&G physicians,  
24 medical directors and a representative of the NHIH.

### 25 ***Data collection***

26 Data were collected from focus-group discussions with women and in-depth interviews with  
27 health care providers and health care administrators, following the generic protocol.[23] The  
28 discussions lasted 30–60 minutes and included two facilitators, including men and women, with  
29 a public health, medicine or sociology background. Focus groups were conducted in the hospital  
30 facilities (for example, in a meeting room) or in a pre-assigned location in the city, and informed  
31 consent was obtained from each participant before the interview. The guidelines proposed in the  
32 generic formative research were translated into Romanian and piloted on 2–3 women each.  
33 During the session, snacks were provided.

34 Interviews with health care providers and administrators lasted 30–60 minutes and were  
35 conducted in hospital settings. Consent was obtained from each participant beforehand. The  
36 interviews were audio recorded and transcribed in full, except for the respondents who refused  
37 the recording, in which case the researcher took notes during the interview.

### 40 ***Data analysis***

41 A thematic content analysis of anonymized data was carried out. The data were segmented by  
42 type of informant. Categories of analysis were generated through a mix of the interview guide  
43 and those emerging from the data. Themes were identified, coded, recoded and classified, while  
44 examining new sections of text, to identify common patterns by looking at regularities,  
45 convergences and divergences in data through constant comparisons and checking with members  
46 of the team.

## ***Patient and Public Involvement statement***

The interventions included in the formative research were based on the instrument published in the generic protocol [23] and the results of a Ministry of Health of Romania and WHO workshop held in Bucharest in 2019. Romanian decision-makers and high-level O&G professionals selected seven non-clinical interventions with the potential to reduce CS rates based on the WHO instrument for formative research: prenatal education and support; decision aids for the mode of delivery; mandatory second opinion before conducting a CS; in-service training and implementation of clinical practice guidelines; equalizing physician pay for vaginal and CS births; setting a goal for CS rates at a facility level; and policies limiting legal liability and malpractice lawsuits. Women, health care providers and administrators were not specifically involved in the design, conduct, reporting or dissemination of this research.

## **Results**

In total, 88 women aged 16–46 years from urban and rural settings and 26 O&G professionals (nurses, midwives and O&G physicians), decision-makers at the hospital level (hospital managers, medical directors and chief nurses) and system level (representative of NHH) participated in the study. Few doctors and nurses refused to participate. Participant quotations are shown in italic.

### ***Mode of birth preferences and perceived benefits***

Nulliparous women were more hesitant and less convinced about the mode of delivery, while multiparous women had clearer preferences and sometimes preconceived views. Among women with a previous vaginal delivery, there was a strong preference for vaginal birth. However, women did not consider a vaginal birth after a previous CS, showing the perception that a history of CS automatically sets the course of subsequent births for surgical delivery.

Benefits of CSs perceived by women included effortless delivery of the newborn; a quicker, less painful procedure; and avoidance of fear of the unknown during labour. Women also identified CSs as beneficial in the case of an obstetric emergency. Benefits of vaginal birth described by women were faster healing, better mobility, absence of or minimal pain after the birth, immediate breastfeeding and the believe that vaginal birth is the “*natural*” option.

While nurses clearly favoured vaginal birth, some O&G physicians stated their preference for CS as the mode of birth. Reasons underlying this preference were better control over fetal risks “*compared to unexpected complications of vaginal delivery*”, lower risk of malpractice complaints and doctors’ convenience (lower workload, overall shorter duration of the birth and avoiding going back to the hospital during night time). An O&G physician said, “*I prefer the caesarean delivery because it involves no risk for the fetus. It is, of course, also faster for the obstetrician, and practically we are less at risk of malpractice complaints when we perform a caesarean*”.

Health care providers admitted that the CS rate is high in Romania, but they argued that, to reduce use of CS, changes in the thinking processes of professionals and the population are required, as well as revision of antenatal care services (including the role of the family doctor, interventions to increase population-level information and psychological support for women).

### ***Interventions targeted to women***

#### **Education, birth preparation classes and support programmes**

Currently, education and birth preparation are optional, provided only in selected health facilities – mainly private hospitals and clinics – and paid for out of pocket. The courses, organized by hospitals, are led by midwives and include breathing, relaxation and message techniques.

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1 Women wanted more reliable information on birth for a number of topics: mode of delivery,  
2 delivery process, risks and benefits for the mother and baby. Most of the women would welcome  
3 birth preparation classes, although the unpredictable nature of labour and birth was  
4 acknowledged. A woman with previous CS commented: *“You can control pregnancy and  
5 motherhood only to a small extent. The pregnancy is unpredictable, and no matter how well  
6 informed you are, or how good the doctor is, surprises can occur at any time and no one can do  
7 miracles”*. O&G physicians were identified as women’s main source of trustable information.  
8 For example, a woman with previous CS said, *“I believe in the gynaecologist’s opinion: talking  
9 to him is important, more important than anything else”*. Nevertheless, women considered that  
10 O&G physicians allocate little time to discuss birth options. None of the women stated that they  
11 had discussed mode of delivery with the family doctor.

12  
13 Midwives and nurses underlined the importance of prenatal education and the need to include the  
14 women’s companion, since *“husbands cannot attend childbirth: their participation is not  
15 allowed”*. Some of the O&G physicians considered that birth preparation classes are a task for  
16 midwives.

### 17 **Decision-aid tools**

18 Women would use a decision-aid tool if it contained personalized information regarding evolution  
19 of the pregnancy and childbirth from a trusted source using plain language. Some women thought  
20 it would be useful when engaging in dialogue with health professionals, but they also feared that  
21 such a tool may result in less time and a lower number of contacts with the O&G physician. They  
22 also expressed concern about the anxiety that such educational materials can provoke. A woman  
23 with previous vaginal birth claimed, *“they might write I don’t know what about the caesarean  
24 section, or the normal birth... and you become afraid”*.

25  
26 O&G physicians would consider a decision-aid tool with evidence-based information endorsed  
27 by the physician useful. Obstetricians felt that *“any attempt at implementing new tools in the  
28 health system is difficult by default”*, although no specific barriers were reported. They thought  
29 that decision-aid tools should include information about the mode of delivery, course of  
30 pregnancy, timeline and milestones of pregnancy monitoring.

### 31 **Interventions targeted to health care providers**

#### 32 **Revision and better adaptation of evidence-based clinical practice guidelines**

33 All respondents acknowledged the national O&G clinical guideline revised in 2019 and endorsed  
34 as secondary legislation by the Ministry of Health. Medical doctors considered these an important  
35 dimension of medical practice because they provide some safety from a malpractice accusation.  
36 According to respondents, the College of Physicians and the court ask for the guidelines in the  
37 case of a complaint or litigation: *“guidelines show you the steps [you have to follow] and using  
38 them in [the clinical] practice, you feel more secure. In the case of malpractice litigation, it can  
39 defend or impeach you, as the case may be”*.

40  
41 Nurses and midwives were also aware of the guideline. Some hospitals have developed protocols  
42 for nurses, but they noted that: *“there are no guidelines for midwives and in the guidelines for  
43 doctors there is very little reference to the midwives’ practice”*.

44  
45 There is no systematic approach to clinical guideline accessibility, dissemination, training and  
46 physician–nurse communication. One O&G physician claimed that *“in my hospital, [...] each of  
47 us signed that we know them, but guidelines and protocols are largely ignored; there was no  
48 discussion or training regarding their use”*. Evaluation of implementation of clinical guidelines  
49 in hospitals is not a generalized practice, and algorithms for management of labour and  
50 complications are not available. Some O&G physicians were reluctant about the change and  
51 perceived protocols and guidelines as increasing the burden of work. One O&G physician  
52 described this reluctance: *“doctors see bureaucracy and waste of time – there are too many*

1 *papers to be read and papers to be signed*". A nurse also identified a generational effect among  
 2 O&G physicians, where younger doctors are more open to using the guidelines.

### 3 **Simulation-based obstetrics and neonatal emergency training**

4 O&G professionals would welcome simulation-based obstetrics and neonatal emergency training  
 5 in multidisciplinary teams. A nurse said: *"I would love to have special mannequins and a*  
 6 *simulator for the delivery room"*. However, financial barriers for specialized training  
 7 opportunities were also acknowledged, as a nurse noted: *"the hospital does not have resources to*  
 8 *pay for courses or to organize them, but it does offer nurses free days to attend training"*.

9  
 10 Some respondents perceived that there are fewer opportunities for younger generations of O&G  
 11 specialists to practise vaginal delivery after CS (VBAC), trial of labour after CS (TOLAC) or  
 12 instrumental vaginal delivery, but others recognized that *"we all need to refresh knowledge and*  
 13 *skills now and then"*. Although the national clinical guideline includes statements to assist O&G  
 14 decisions about TOLAC, respondents stated that not even the leading O&G specialists prefer to  
 15 perform TOLAC because they fear complications that might lead to malpractice accusations.  
 16 Also, a woman with previous CS described: *"I think they see it [CS] as a safer modality. And yes,*  
 17 *after that [first CS], it [caesarean childbirth] becomes routine"*.

### 18 **Implementation of mandatory second opinion before conducting a CS**

19 Some hospitals have an established protocol for second opinion before a CS as their usual internal  
 20 procedure; in others, the head of the O&G ward approves all CSs.

21  
 22 Some women perceived that a mandatory second opinion would increase their safety and  
 23 confidence in the physician's decision regarding the birth method; others perceived this as a  
 24 limitation of their preferences. Some women underlined that for physicians with a preference for  
 25 CS births, a second mandatory opinion should be necessary. Other women agreed with a  
 26 mandatory second opinion before CS for at-risk births.

27  
 28 Although health care providers and administrators acknowledged the high CS rate in the country,  
 29 generally, they would not trust mandatory second opinion as an effective intervention to lower it.  
 30 There was a perception that doctors would feel safer when making decisions in complicated cases  
 31 and share the responsibility, strengthening teamwork. An O&G physician said: *"if there are two*  
 32 *agreeing opinions and I did what a colleague agreed, this has more weight, irrespective of the*  
 33 *outcome of a complicated case"*. However, health care providers also identified several barriers  
 34 to implementation. A second opinion could be seen as a threat; women may distrust providers;  
 35 and it might create certain dynamics among O&G physicians, as an O&G physician identified:  
 36 *"they [O&G physicians who perform more CSs] would ask their colleagues with common*  
 37 *affinities for this second opinion"* and *"some gynaecologists are more attached to CS delivery,*  
 38 *and they would be upset with a contrasting opinion"*. It could also affect the personal financial  
 39 reward associated with CS in the private health sector, as one O&G physician stated: *"I do not*  
 40 *think gynaecologists would leave their private practices in the afternoon to come back to the*  
 41 *hospital to give a so-called mandatory opinion"*. In remote areas with fewer O&G physicians, it  
 42 might also be difficult to find one with higher clinical qualifications than the doctor requiring the  
 43 consultation.

### 44 **Interventions targeted to health organizations, facilities and systems**

#### 45 **Reforms equalizing physician fees for vaginal births and CSs**

46 Currently, as an O&G physician said, in the public health sector *"the doctor has no financial*  
 47 *incentives because he is paid [a fixed] salary"*. Thus, most medical doctors claimed that  
 48 equalizing tariffs for vaginal births and CSs would not have an effect in reducing the CS rates.  
 49 An O&G physician claimed: *"obstetricians prefer to do a caesarean [...] for other reasons: time,*  
 50 *convenience, safety... and equalizing prices would not change the current behaviour"*.

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1 Health care administrators stated that the current diagnosis-related group system to classify patients according to their diagnosis in order to reimburse hospitals allows the insurance company to pay more for a CS and thus *“stimulates the CS rate in hospitals”*. Also, they predicted two challenges: opposition of O&G physicians and weak control over activity in maternity wards. In the health care administrators’ opinion, the way to implement such intervention would be to introduce financial incentives to physicians who perform vaginal births, accompanied by clearer indications for CSs, and mandatory clinical audit undertaken by independent evaluators because *“there is a lot of variability and abnormality. [...] unfortunately, we do not have information collected in the information system to correlate the data”*.

### 10 **Goal setting for CS rates**

11 Support for this intervention was limited among the O&G physicians because they considered that it would limit their clinical autonomy and add additional pressure on medical practice, and that they would receive penalties for not reaching targets. In order to be supportive, medical doctors suggested providing bonuses for physicians to perform more vaginal deliveries. An additional challenge identified was the organizational culture in Romania: this includes the widespread practice of giving birth with the O&G physician who has monitored the pregnancy; hospitals permitting performance of unnecessary CSs; and the limited authority of hospital managers over medical decisions. An O&G physician claimed: *“it is about the lack of confidence of the woman in the health system; they trust the doctor rather the health system, if the patient would belong to the hospital and not to a certain doctor, the process would be different”*. Finally, women’s opinions and preferences for CS births are also considered a challenge, despite women identifying the opinion of the O&G physician as the most important factor.

24 Health care administrators agreed that goal setting for CS rates at the hospital level may be effective in reducing the number of CSs but identified that this would need to be implemented together with other interventions, such as economic disincentives for medical doctors or hospitals not being reimbursed for CSs above the target.

### 28 **Policies that limit financial or legal liability in the case of litigation of health care professionals or organizations**

30 There was consensus that doctors fear malpractice lawsuits and ask for better regulatory frameworks regarding legal liability in the medical profession. Under the current legal system, providers can be prosecuted under the civil code or, more often, under the criminal code, even before the case is judged by the College of Physicians. Also, no formal risk management strategy exists at the hospital level to reduce the likelihood of a negligence lawsuit. In the absence of these strategies, O&G physicians reduce the risk of a malpractice lawsuit by accepting all CS births on maternal request.

### 37 **Additional challenges related to implementation of the interventions**

38 The respondents also identified a number of challenges related to the current performance of the health system, which might also hinder successful implementation of interventions if they are not adequately addressed. These included women’s experience and perception of lower quality of care for vaginal birth; out-of-pocket payments for prenatal examinations and childbirth preparation; a lack of O&G physicians with expertise and skills in managing complicated vaginal births; a lack of anaesthesiologists to administer epidural analgesia for labour and vaginal birth; and family doctors not providing antenatal care.

46 Health care providers and administrators also recognized that an increased role for midwives during pregnancy and birth would increase women’s education, decrease fear and contribute to lower CS rates in hospitals. However, O&G physicians admitted that the measure would be controversial among their peers because of a reluctance to confer more duties on midwives.

51 Finally, some women who had previous vaginal births said that *“they [O&G physicians and nurses] only give orders and yell while women are in such great pain”* and *“they talk about us patients as if we were not there; mainly the nurses, all you hear is ‘wait, be good’”*. This might

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1 indicate that the rights of women to dignified, respectful health care through pregnancy and  
2 childbirth are not systematically respected in the context of the Romanian health system,  
3 including a lack of continuous one-to-one intrapartum support.

## 4 **Discussion**

5 The research outlined in this paper was an initiative of the partnership between the Ministry of  
6 Health of Romania, the WHO Country Office in Romania, the WHO Regional Office for Europe  
7 and WHO headquarters as a result of the current political concern and will for action to reduce  
8 unnecessary CSs. This is among the first experiences in Romania to conduct and use qualitative  
9 research on this topic, and it improves understanding of local determinants of the high CS rates  
10 in the country. Importantly, this research includes women and health care providers' views of the  
11 acceptability of potential interventions to reduce the use of CSs, as well as considerations for their  
12 implementation, based on the opinion of health care providers and administrators.

13  
14 The findings of this study, in line with the current literature,[24] suggest that values and  
15 preferences for birth and for information vary among women, and that changes in women's  
16 opinions throughout pregnancy are shaped by interactions with the community, O&G physicians  
17 and the health system. Women's willingness to learn more is a major facilitator for  
18 implementation of educational interventions, resulting in more women being empowered in the  
19 decision-making process. In contrast to other studies, which have shown women's suspicions that  
20 health professionals manage information provision to encourage women to prefer a particular  
21 mode of birth, [25, 26] in Romania, women place the greatest trust in O&G physicians. As found  
22 elsewhere,[25] a potential barrier to effective implementation of educational interventions would  
23 be women's reluctance to use educational materials that might increase their anxiety or reduce  
24 the number of contacts with health care providers. This fear has been identified by WHO, which  
25 recommends that the content of educational materials should not provoke anxiety, while being  
26 consistent with advice from health care professionals, and should provide the basis for more  
27 informed dialogue with them.[24]

28  
29 Health care providers' beliefs, values and preferences have crucial influence on decisions about  
30 the mode of birth. Providers' opinions, together with health system and organizational factors,  
31 need to be considered carefully in the design and implementation of interventions. [27, 28] O&G  
32 physicians in Romania believe that the current CS guideline provides some safety in case of  
33 malpractice accusation, which is attributed to the fact that the College of Physicians and the court  
34 review whether O&G physicians followed the indications of the guideline. However, consistent  
35 with the results of the Ionescu et al. (2019) study [29] and most the literature worldwide,[9] fear  
36 remains and influences decisions about mode of birth. Although in some countries some anecdotal  
37 reports reveal that lawsuits by women submitted to unnecessary CSs have started to emerge, in  
38 this research respondents always referred to lawsuits from complications associated with vaginal  
39 birth. O&G physicians fear complications that may occur during vaginal birth and recognize that  
40 they need more training and practice on instrumental vaginal deliveries, VBAC and TOLAC.[30]  
41 O&G physicians request better regulatory frameworks for legal liability of the medical profession.  
42 Without addressing their concerns, it will not be possible to optimize the use of CS in a sustainable  
43 manner. Also, aligned with published evidence,[28] dysfunctional teamwork within the medical  
44 profession, marginalization of midwives, power relationships and tension and a lack of  
45 communication between cadres may represent barriers to the reduction of CS rates.

46  
47 Although joint implementation of evidence-based clinical practice guidelines and a mandatory  
48 second opinion for CS indication can be effective in reducing unnecessary CSs, [11, 31] in the  
49 context of Romania, opposition from O&G physicians should be expected. An entry point might  
50 be implementation of in-service training, which has been identified as a need in this research; this  
51 could help health care providers to incorporate the recommendations of the national guideline  
52 into their usual practice.[10] In addition, there is a need for better regulation of the provisions



1 associated with the indication of CS on maternal request in the national clinical guideline,  
2 endorsed as secondary legislation by the Ministry of Health.

3  
4 Equalizing fees between vaginal delivery and CS has been proposed among the regulatory and  
5 financial strategies to disincentivize overuse of CSs. [11, 32] Health care administrators perceived  
6 that this would be effective if implemented together with goal setting for CS rates by means of  
7 economic disincentives for medical doctors and hospitals not being reimbursed for CSs above the  
8 target. These views are not a surprise, given the literature showing that financial incentives alone  
9 have little effect on CS rates.[32, 33] Equalizing fees may find opposition among health care  
10 providers, with the view that vaginal delivery is insufficiently paid because it requires more time  
11 compared to a quick and efficient CS.[28] In order to overcome these challenges, the  
12 identification of champions to promote the implementation of these recommendations may be  
13 useful.

14  
15 Data collected from respondents also revealed several novel findings related to health system  
16 performance that need to be addressed if the national CS rate is to be reduced. Improvement of  
17 the quality of childbirth care, particularly for labour and vaginal birth, is crucial – including  
18 availability of pain relief for vaginal birth, continuous one-to-one intrapartum support by a  
19 companion of choice, positive and constructive communication and relationships with providers,  
20 and women's need for emotional support.

21  
22 In Romania no formal evidence is available on how well-informed patients in general or pregnant  
23 women in particular are about their rights, and whether the available information is considered  
24 useful.[18] The findings of this study show that the rights of women to dignified, respectful health  
25 care through pregnancy and childbirth might not be systematically respected; this deserves the  
26 attention of national and international institutions.

27  
28 Lastly, momentum to address high CS rates is growing among professional societies and  
29 policymakers in WHO European Region, which suggest synergies for joint initiatives, partnership  
30 and actions,[34] including in the case of Romania, as these findings show.

### 31 32 ***Strengths and limitations***

33 To our knowledge, this is the first time an in-depth and inclusive research study has been  
34 conducted in Romania to improve understanding of the drivers of increasing use of CS and to  
35 help with the design and implementation of strategies that are locally relevant, are culturally  
36 accepted by women and providers, and can be implemented effectively to reduce CS rates.  
37 However, the present research has some limitations. We did not include interviews with  
38 companions or the family of the pregnant women, so their opinions and views are not represented  
39 in our findings. Likewise, family doctors and other stakeholders were not included. Nevertheless,  
40 to a certain extent, their opinions have been captured through the women's and health care  
41 providers' discourses. Further, some health care providers refused to participate, although the  
42 research achieved saturation of the information.

### 43 **Conclusion**

44 In conclusion, multifaceted action tailored to Romanian determinants to address unnecessary CSs  
45 should include women's empowerment through information with consistent messages that do not  
46 increase their anxiety. Training and management of complicated vaginal birth is necessary and  
47 could be an opportunity for the promotion of instrumental vaginal birth, TOLAC and VBAC,  
48 particularly among young O&G physicians working within a multidisciplinary team.  
49 Implementation of a mandatory second opinion and goal setting alone may not be effective in  
50 Romania. The introduction of financial incentives is a complex endeavour, due to current societal  
51 and health care organization norms and practices. If implemented, it needs to be carefully crafted  
52 within the health system. Finally, an increase in the quality of care for labour and vaginal birth is

1 paramount for any of the interventions considered to succeed. Further studies should assess the  
2 effect of multifaceted interventions in Romania.

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4 None declared.

### 5 **Contributors**

6 NB led on conceptualizing, coordinating the research, analysis and writing the manuscript. ALG  
7 reviewed the interpretation of results and drafted the first draft of the manuscript with inputs of  
8 APB, DF and NB. DF was responsible for the data collection and analysis with inputs of NB.  
9 APB, CB and MG contributed substantial comments to the writing of the manuscript. All authors  
10 critically reviewed the manuscript and approved the final version.

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### 13 **Competing interests**

14 None declared.

### 15 **Patient consent for publication**

16 Not required.

### 17 **Ethics approval**

18 The generic protocol was approved by the Research Project Review Panel of the United Nations  
19 Development Programme/United Nations Population Fund/United Nations Children's  
20 Fund/WHO/World Bank Special Programme of Research, Development and Research Training  
21 in Human Reproduction, at the WHO headquarters Department of Sexual and Reproductive  
22 Health and Research, and the WHO Research Ethics Review Committee (protocol ID, 004571).  
23 Ethical approval was given by the scientific committee of Centre for Health Policies and  
24 Services of Romania.

### 26 **Data availability statement**

28 No data are available.

### 30 **Disclaimer**

32 The authors alone are responsible for the views expressed in this publication and they do not  
33 necessarily represent the decisions or policies of the World Health Organization.

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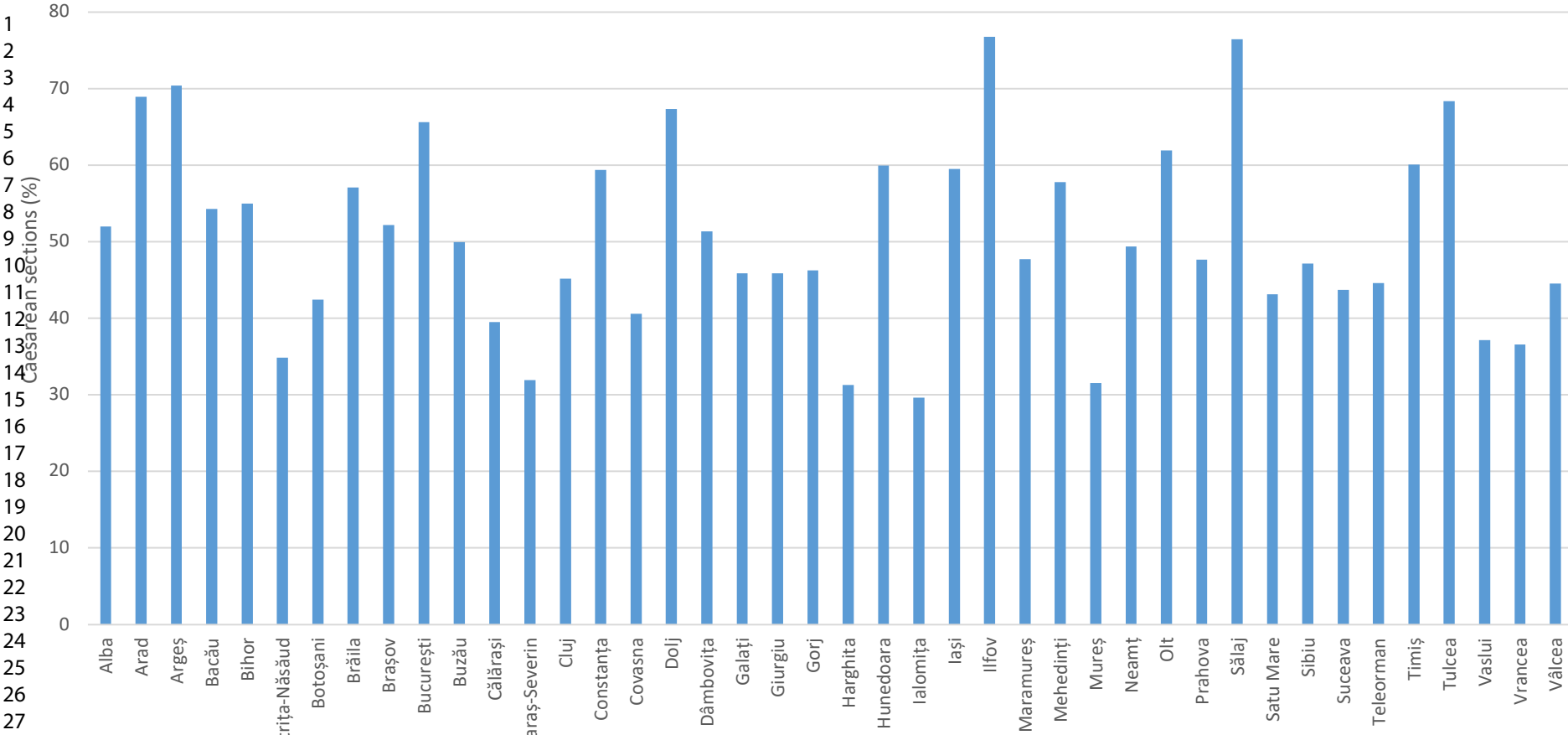
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## Annex

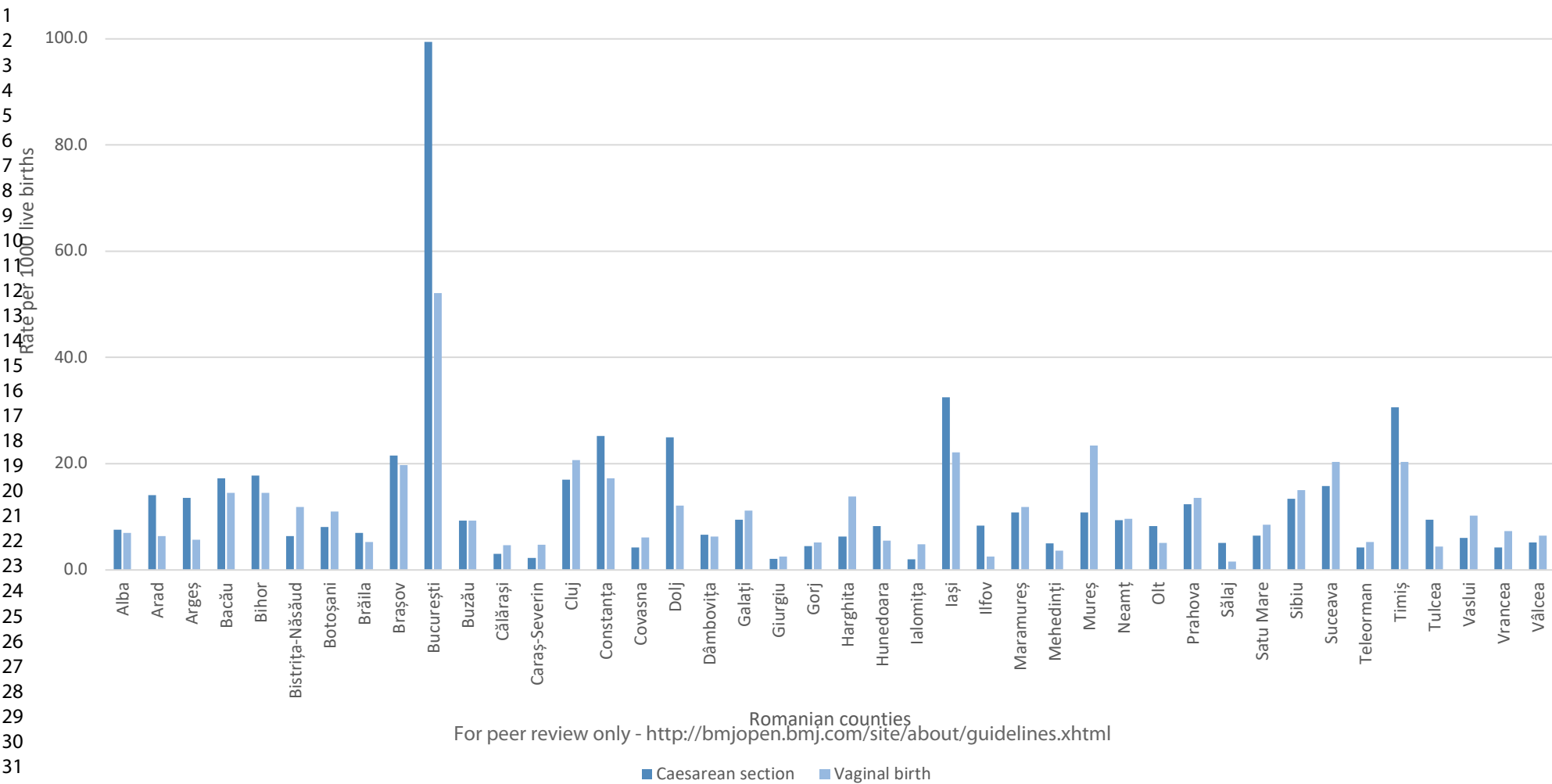
Figure 1. Proportion of CSs in Romanian counties (2019)

Figure 2. CS and vaginal birth rates per 1000 live births in Romanian counties (2019)



For peer review only - <http://bmjopen.bmj.com/site/about/guidelines.xhtml>

Romanian counties



## Standards for Reporting Qualitative Research (SRQR) checklist

Standard	Page/line number
<b>Title and abstract</b>	
<b>Title</b> - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	Page 1, line 1-3
<b>Abstract</b> - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	Page 1
<b>Introduction</b>	
<b>Problem formulation</b> - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	Page 2-3
<b>Purpose or research question</b> - Purpose of the study and specific objectives or questions	Page 4, lines 4-7
<b>Methods</b>	
<b>Qualitative approach and research paradigm</b> - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	Page 4, line 9
<b>Researcher characteristics and reflexivity</b> - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	Page 4, line 4-5
<b>Context</b> - Setting/site and salient contextual factors; rationale**	Page 3, lines 12-13
<b>Sampling strategy</b> - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	Page 4, lines 14-24
<b>Ethical issues pertaining to human subjects</b> - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	Page 4, line 31 and 36 Page 11, 15-22
<b>Data collection methods</b> - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	Page 4, line 25-38
<b>Data collection instruments and technologies</b> - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	Page 4, line 25-38

<b>Units of study</b> - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	Page 5, line 12-15
<b>Data processing</b> - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	Page 4, line 40-45
<b>Data analysis</b> - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	Page 4, line 40-46
<b>Techniques to enhance trustworthiness</b> - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	Page 4, line 43-46
<b>Results/findings</b>	
<b>Synthesis and interpretation</b> - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	Page 5-8
<b>Links to empirical data</b> - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	Page 5-8
<b>Discussion</b>	
<b>Integration with prior work, implications, transferability, and contribution(s) to the field</b> - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	Page 9-10
<b>Limitations</b> - Trustworthiness and limitations of findings	Page 10, line 27-37
<b>Other</b>	
<b>Conflicts of interest</b> - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	Page 11, line 11-12
<b>Funding</b> - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	Page 11, line 10-11
<p>*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.</p> <p>**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together</p> <p>O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. <i>Academic Medicine</i>, Vol. 89, No. 9 / Sept 2014 DOI: 10.1097/ACM.0000000000000388</p>	



## Research Checklist

### Consolidated criteria for reporting qualitative research (COREQ)

#### Domain 1: Research team and reflexivity

##### Personal Characteristics (*page 1 of the manuscript*)

1. **Interviewer/facilitator:** Nino Berdzuli led on conceptualizing, coordinating the research, analysis and writing the manuscript. Alba Llop-Gironés reviewed the interpretation of results and drafted the first draft of the manuscript with inputs of Ana Pilar Betrán, Dana Farcasanu and Nino Berdzuli. Dana Farcasanu was responsible for the data collection and analysis with guidance and inputs of Nino Berdzuli. Ana Pilar Betrán, Cassandra Butu and Miljana Grbic contributed substantial comments to the writing of the manuscript. All authors critically reviewed the manuscript and approved the final version.
2. **Credentials:** the researchers are MD, RN, PhD including public health, medicine, nursing or sociology background
3. **Occupation:** the occupation of the authors is described below: Nino Berdzuli<sup>1</sup>, Alba Llop-Gironés<sup>1</sup>, Dana Farcasanu<sup>2</sup>, Cassandra Butu<sup>3</sup>, Miljana Grbic<sup>3</sup>, Ana Pilar Betran<sup>4</sup>
  1. World Health Organization Regional Office for Europe, Copenhagen, Denmark.
  2. Centre for Health Policies and Services, Bucharest, Romania
  3. World Health Organization Country Office, Bucharest, Romania
  4. UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP), Department of Sexual and Reproductive Health and Research, World Health Organization, Geneva, Switzerland
4. **Gender:** all the authors and researchers are female.
5. **Experience and training:** all the researchers are experts in the field with several years of experience

##### Relationship with participants (*page 4 of the manuscript*)

6. **Relationship established:** the researchers did not have an established relationship prior to study commencement.
7. **Participant knowledge of the interviewer:** women participating in the research were attending antenatal care and postpartum women before discharge. Health care providers and health care administrators included including midwives, nurses, O&G physicians, medical directors and a representative of the NHIH.
8. **Interviewer characteristics:** the items selected in the research is the result of a Ministry of Health of Romania and WHO workshop held in Bucharest in 2019. Romanian decision-makers and high-level O&G professionals selected seven non-clinical interventions with the potential to reduce CS rates based on the WHO instrument for formative research: prenatal education and support; decision aids for the mode of delivery; mandatory second opinion before conducting a CS; in-service training and implementation of clinical practice

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3 guidelines; equalizing physician pay for vaginal and CS births; setting a goal for  
4 CS rates at a facility level; and policies limiting legal liability and malpractice  
5 lawsuits. Each of the items were explored with the participants as appropriate  
6 after indicating the objective of the research and informed consent was  
7 obtained.  
8

9 Domain 2: study design (*page 4 of the manuscript*)

10  
11 Theoretical framework

- 12  
13 9. **Methodological orientation and Theory:** A thematic content analysis of  
14 anonymized data was carried out.  
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16 Participant selection

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18 10. **Sampling:** purposive  
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20 11. **Method of approach:** face-to-face  
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22 12. **Sample size:** 88 women aged 16–46 years from urban and rural settings and  
23 26 O&G professionals (nurses, midwives and O&G physicians), decision-makers  
24 at the hospital level (hospital managers, medical directors and chief nurses) and  
25 system level (representative of NHIH) participated in the study.  
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27 13. **Non-participation:** few doctors and nurses refused to participate  
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30 Setting (*page 4 of the manuscript*)

- 31  
32 14. **Setting of data collection:** clinic, workplace  
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34 15. **Presence of non-participants:** No  
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36 16. **Description of sample:** on one hand, women from counties with higher and  
37 lower CS rates, women aged 16–46 years, from urban and rural areas, with a  
38 parity history to represent nulliparous, multiparous with previous CS and  
39 multiparous without previous CS. On the other hand, health care providers and  
40 health care administrators were selected based on their geographical area,  
41 availability.  
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44 Data collection (*page 4 of the manuscript*)

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46 17. **Interview guide:** Yes.  
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48 18. **Repeat interviews:** No  
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50 19. **Audio/visual recording:** Yes, most of them were audio recorded  
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52 20. **Field notes:** Yes  
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54 21. **Duration:** 30 – 60 minutes  
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56 22. **Data saturation:** Yes  
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58 23. **Transcripts returned:** No  
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3 Domain 3: analysis and findings (*page 4 of the manuscript*)  
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5 Data analysis  
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7 24. **Number of data coders:** two  
8

9 25. **Description of the coding tree:** it is not provided in the text  
10

11 26. **Derivation of themes:** themes were identified in advance  
12

13 27. **Software** no, it was done manually  
14

15 28. **Participant checking** No  
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18 Reporting (*page 4 of the manuscript*)  
19

20 29. **Quotations presented:** yes, generic identifiers of anonymized data were used  
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22 30. **Data and findings consistent:** yes  
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24 31. **Clarity of major themes:** yes  
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26 32. **Clarity of minor themes:** yes  
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# BMJ Open

## From evidence to tailored decision-making: A qualitative research of barriers and facilitating factors for the implementation of non-clinical interventions to reduce unnecessary caesarean section in Romania

Journal:	<i>BMJ Open</i>
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<b>Primary Subject Heading</b>:	Obstetrics and gynaecology
Secondary Subject Heading:	Health services research, Qualitative research, Health policy
Keywords:	Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Maternal medicine < OBSTETRICS

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# From evidence to tailored decision-making: A qualitative research of barriers and facilitating factors for the implementation of non-clinical interventions to reduce unnecessary caesarean section in Romania

Nino Berdzuli<sup>1</sup>, Alba Llop-Gironés<sup>1</sup>, Dana Farcasanu<sup>2</sup>, Cassandra Butu<sup>3</sup>, Miljana Grbic<sup>3</sup>, Ana Pilar Betran<sup>4</sup>

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Nino Berdzuli and Alba Llop-Gironés share first authorship

Nino Berdzuli is the corresponding author. Contact email: [berdzulin@who.int](mailto:berdzulin@who.int)

## Abstract

### *Objective*

To improve understanding of the drivers of the increased caesarean section (CS) rate in Romania and to identify interventions to reverse this trend, as well as barriers and facilitators.

### *Design*

A formative research study was conducted in Romania between November 2019 and February 2020 by means of in-depth interviews and focus-group discussions. Romanian decision-makers and high-level obstetricians pre-selected seven non-clinical interventions for consideration. Thematic content analysis was carried out.

### *Participants*

88 women and 26 health care providers and administrators.

### *Settings*

Counties with higher and lower CS rates were selected for this research – namely Argeş, Bistriţa-Năsăud, Braşov, Ialomiţa, Iaşi, Ilfov, Dolj and the capital city of Bucureşti (Bucharest).

### *Results*

Women wanted information, education and support. Obstetricians feared malpractice lawsuits; this was identified as a key reason for performing CSs. Most obstetrics and gynaecology physicians would oppose policies of mandatory second opinions, financial measures to equalize payments for vaginal and CS births, and goal setting for CS rates. In-service training was identified as a need by obstetricians, midwives and nurses. In addition, relevant structural constraints were identified: perceived lower quality of care for vaginal birth, a lack of obstetricians with expertise in managing complicated vaginal births, a lack of anaesthesiologists and midwives, and family doctors not providing antenatal care. Finally, women expressed the need to ensure their rights to dignified and respectful health care through pregnancy and childbirth.

### *Conclusion*

Consideration of the views, values and preferences of all stakeholders in a multifaceted action tailored to Romanian determinants is critical to address relevant determinants to reduce unnecessary CSs. Further studies should assess the effect of multifaceted interventions.

### Strengths and limitations of this study

- In Romania, the excessive use of CS has become a public health challenge. This is the first study to improve understanding of the drivers of the increase and identify interventions to reverse this trend, alongside barriers and facilitating factors.
- This study was driven by the Ministry of Health and guided by the country's needs reflected in Romania's National Health Strategy, an initial analysis of routine hospital data, and a stakeholder workshop.
- We used the rigorous methodology proposed in the generic formative research protocol prepared by the World Health Organization, which was designed as a guide for contextual assessment and understanding before implementing any intervention to optimize the use of CS.
- A key strength of our study is the incorporation of the views and concerns of both women and healthcare providers. On the other hand, we did not interview companions, family members, or family doctors. While our research was conducted across different counties, the findings may not be transferrable to all settings in Romania.

## 1 Introduction

Caesarean section (CS) rates have been increasing worldwide [1] to levels that are not medically justified.[2] This poses a major public health concern [3] that needs to be addressed locally with evidence-based action to reduce unnecessary CSs. When medically justified, a CS can effectively prevent maternal and perinatal mortality and morbidity, but there is no evidence showing the benefits of caesarean delivery for women or infants who do not require the procedure. As with any surgery, CSs are associated with short- and long-term risks, which can extend many years beyond the delivery and affect the health of the woman and child, as well as future pregnancies. These risks are higher in women with limited access to comprehensive obstetric care.[4]

Policymakers face complex decisions when deciding about interventions to include in national health programmes to optimize CS rates. Numerous factors underline the increase – both clinical and non-clinical [5] – such as the increase in incidence of maternal obesity, multiple pregnancies and a higher maternal age at birth, but also differences in health provider practices, fear of malpractice litigation [6] and economic or organizational factors. Sociocultural aspects should also not be overlooked,[7] such as women's desire to determine how and when their babies are born.[8]

Recognizing the increasing relevance of nonmedical factors in the rise of CS rates worldwide,[9] in 2018 the World Health Organization (WHO) released recommendations on non-clinical interventions to reduce unnecessary CSs.[10, 11] Given the multifactorial nature of the increase and intrinsic variations between countries, before implementing any intervention to reduce rates, WHO recommends conducting research to define locally relevant determinants that can be targeted by tailored interventions.[10] This study aimed to generate evidence on (1) the views of women, health care providers and health care administrators; and (2) barriers and facilitating factors for implementation of non-clinical interventions to reduce unnecessary CSs to inform policy-making in Romania.

Romania's National Health Strategy 2014–2020 highlights the excessive use of CSs as a public health problem and a priority for maternal and child health. In 2018, the national CS rate was 44.7%.[12] This contrasts sharply with the 17% average rate in the Nordic countries, which have sustained low CS rates over recent decades.[13] Figure 1 shows the wide variability of the CS

1 rate between Romanian counties in 2019, from 76.8% in Ilfov (one of the wealthiest) to 29.6% in  
2 Ialomița.[14]

3  
4 [Figure 1 - Annex]

5  
6 București (Bucharest) (65.6%) had one of the highest rates of CS births in 2019.[14] The capital  
7 city also has the highest CS rate per 1000 live births (99.5 CS per 1000 live births) compared to  
8 the other counties (Figure 2). Most CSs (88.6%) are conducted in the public sector. The proportion  
9 of CS births within the obstetrics and gynaecology (O&G) wards of hospitals ranged from 92.5%  
10 to zero in 2018, and although CS delivery is predominant in level 3 and level 2 public health  
11 facilities, 53 O&G wards of hospitals at the lowest level (level 1) reported a high percentage of  
12 CS births. For example, in 2018, Argeș county reported 92.5% of births by CS in level 1 hospitals.

13  
14 [Figure 2 - Annex]

15  
16 Box 1 describes the characteristics of the health system model for maternity care in Romania.  
17



### Box 1. Romania's health system model for maternity

#### Organization and governance

- Maternity care is included in the *minimum benefit package* funded by the social health insurance system that includes antenatal care and childbirth for all pregnant women (both insured and uninsured).

#### Financing

- The National Health Insurance House (NHIH) reimburses the hospitals at a *higher tariff* (2–3 times more) for CS than for vaginal birth (depending on complications).[15]

#### Human resources

- Romania had 13.9 O&G physicians per 100 000 inhabitants in 2018 (EU average 15.5 in 2014).[16] Midwives are also in significant deficit: in 2013 Romania had 16.5 midwives per 100 000 inhabitants (EU average 61.1 in 2013).[17]
- The professional associations set educational standards and the criteria for a *licence to practise* of their respective professions, which needs to be validated every five years for physicians and yearly for midwives and nurses.[18]
- Health professionals employed in public hospitals receive the *same salary*, regardless of the number of deliveries they attend or the type of delivery.

#### Provision of care

- Most pregnant women are followed up by their O&G physicians and visit the family doctor only occasionally; for example, to register the pregnancy.[19]
- The system is heavily led by doctors, which also includes management of low-risk pregnancies. Nurses and midwives are relegated to auxiliary care.[15]
- *Antenatal education* is not systematically provided in the public sector and is mostly available in the private sector.[20]
- *Childbirth care* is provided in public and private hospitals.
- The *presence of a companion* during childbirth is not allowed in public hospitals.
- *Epidural anaesthesia* during labour is not a common practice in public hospitals.[21]
- The *clinical guideline for CSs* was updated in 2019 and endorsed as secondary legislation by the Ministry of Health. Hospitals have the freedom to develop their own protocols based on national guidelines, and accreditation standards do not refer to either the clinical guideline or hospital protocols regarding the mode of birth. Also, CS on maternal request is among the indications of the national CS clinical guideline.
- *Data* regarding the number of CSs performed on maternal request are not collected.

Political concern and commitment to reduce unnecessary CSs has grown in recent years; this has led to discussions in the Romanian Parliament and with WHO on the need to reduce the CS rate and to identify and implement strategies and public policies to support vaginal delivery. In 2019, the Ministry of Health of Romania and WHO co-organized a workshop on implementing the Robson classification, recommended by WHO to assess, monitor and evaluate CS rates.[22]

This paper presents the results of the collaborative effort between the Ministry of Health, the WHO Country Office in Romania, the WHO Regional Office for Europe and WHO headquarters to improve understanding of the drivers of the increasing CS rates in Romania. We conducted formative research to describe women's and healthcare providers' views and opinions on specific interventions to reduce caesarean section including barriers and facilitating factors to their implementation. The ultimate aim is to use the study findings to inform the design and implementation of interventions to reverse this trend that are acceptable and feasible for the local context and stakeholders.

## 1 **Methods**

2 This study used qualitative research case study methods to collect and analyse information. The  
3 generic formative research protocol prepared by WHO headquarters and designed as a guide for  
4 contextual assessment and understanding for anyone planning to take action to optimize the use  
5 of CS was used.[23] The research included a document review, focus groups with women and  
6 interviews with health care providers and administrators, and was carried out between November  
7 2019 and February 2020. This paper reports on the findings of the focus groups and interviews  
8 with stakeholders.

### 9 ***Study setting and population***

10 Based on an initial analysis of routine hospital data in Romania, counties with higher and lower  
11 CS rates were selected for this research – namely Argeş, Bistriţa-Năsăud, Braşov, Ialomiţa, Iaşi,  
12 Ilfov, Dolj and the capital city of Bucureşti (Bucharest). In each county, the research included  
13 women aged 16–46 years, from urban and rural areas, with a parity history to represent  
14 nulliparous, multiparous with previous CS and multiparous without previous CS. Purposive  
15 sampling was used to recruit participants aiming for diversity (mix of urban or rural, residence,  
16 parity, age and ethnicity). Women attending antenatal care and women in the postpartum period  
17 before discharge from the hospital were invited to participate based on the topic of the focus-  
18 group discussion and considering the variability of patients in terms of demographics,  
19 geographical area and parity history. Invitation and recruitment were conducted by a research  
20 assistant who was not hospital staff. For those women accepting the invitation, the focus groups  
21 were scheduled at the convenience of the women. In addition, health care providers and health  
22 care administrators were recruited based on their geographical area, availability and position –  
23 including midwives, nurses, O&G physicians, medical directors and a representative of the  
24 NHIH. No exclusion criteria were applied.

### 25 ***Data collection***

26 Data were collected from focus-group discussions with women and in-depth interviews with  
27 health care providers and health care administrators, following the generic protocol.[23] The  
28 discussions lasted 30–60 minutes and included two facilitators, including men and women, with  
29 a public health, medicine or sociology background. Focus groups were conducted in the hospital  
30 facilities (for example, in a meeting room) or in a pre-assigned location in the city, and informed  
31 consent was obtained from each participant before the interview. The guidelines proposed in the  
32 generic formative research were translated into Romanian and piloted on 2–3 women each.  
33 During the session, snacks were provided.

34 Interviews with health care providers and administrators lasted 30–60 minutes and were  
35 conducted in hospital settings. Consent was obtained from each participant beforehand. The  
36 interviews were audio recorded and transcribed in full, except for the respondents who refused  
37 the recording, in which case the researcher took notes during the interview.

### 40 ***Data analysis***

41 A thematic content analysis of anonymized data was carried out. The data were segmented by  
42 type of informant. Categories of analysis were generated through a mix of the interview guide  
43 and those emerging from the data. Themes were identified, coded, recoded, and classified, while  
44 examining new sections of text, to identify common patterns by looking at regularities,  
45 convergences and divergences in data through constant comparisons and checking with members  
46 of the team.

### 48 ***Patient and Public Involvement statement***

49 The interventions included in the formative research were based on the instrument published in  
50 the generic protocol [23] and the results of a Ministry of Health of Romania and WHO workshop  
51

1 held in Bucharest in 2019. Romanian decision-makers and high-level O&G professionals selected  
2 seven non-clinical interventions with the potential to reduce CS rates based on the WHO  
3 instrument for formative research: prenatal education and support; decision aids for the mode of  
4 delivery; mandatory second opinion before conducting a CS; in-service training and  
5 implementation of clinical practice guidelines; equalizing physician pay for vaginal and CS  
6 births; setting a goal for CS rates at a facility level; and policies limiting legal liability and  
7 malpractice lawsuits. Women, health care providers and administrators were not specifically  
8 involved in the design, conduct, reporting or dissemination of this research.

## 9 **Results**

10 In total, 88 women aged 16–46 years from urban and rural settings and 26 O&G professionals  
11 (nurses, midwives and O&G physicians), decision-makers at the hospital level (hospital  
12 managers, medical directors and chief nurses) and system level (representative of NHIH)  
13 participated in the study. Few doctors and nurses refused to participate. Participant quotations are  
14 shown in italic.

### 15 ***Mode of birth preferences and perceived benefits***

16 Nulliparous women were more hesitant and less convinced about the mode of delivery, while  
17 multiparous women had clearer preferences and sometimes preconceived views. Among women  
18 with a previous vaginal delivery, there was a strong preference for vaginal birth. However, women  
19 did not consider a vaginal birth after a previous CS, showing the perception that a history of CS  
20 automatically sets the course of subsequent births for surgical delivery.

21 Benefits of CSs perceived by women included effortless delivery of the newborn; a quicker, less  
22 painful procedure; and avoidance of fear of the unknown during labour. Women also identified  
23 CSs as beneficial in the case of an obstetric emergency. Benefits of vaginal birth described by  
24 women were faster healing, better mobility, absence of or minimal pain after the birth, immediate  
25 breastfeeding and the believe that vaginal birth is the “*natural*” option.

26 While nurses clearly favoured vaginal birth, some O&G physicians stated their preference for CS  
27 as the mode of birth. Reasons underlying this preference were better control over fetal risks  
28 “*compared to unexpected complications of vaginal delivery,*” lower risk of malpractice  
29 complaints and doctors’ convenience (lower workload, overall shorter duration of the birth and  
30 avoiding going back to the hospital during night time). An O&G physician said, “*I prefer the*  
31 *caesarean delivery because it involves no risk for the fetus. It is, of course, also faster for the*  
32 *obstetrician, and practically we are less at risk of malpractice complaints when we perform a*  
33 *caesarean*”.

34 Health care providers admitted that the CS rate is high in Romania, but they argued that, to reduce  
35 use of CS, changes in the thinking processes of professionals and the population are required, as  
36 well as revision of antenatal care services (including the role of the family doctor, interventions  
37 to increase population-level information and psychological support for women).

### 38 ***Interventions targeted to women***

#### 39 **Education, birth preparation classes and support programmes**

40 Currently, education and birth preparation are optional, provided only in selected health facilities  
41 – mainly private hospitals and clinics – and paid for out of pocket. The courses, organized by  
42 hospitals, are led by midwives and include breathing, relaxation and massage techniques.

43 Women wanted more reliable information on birth for a number of topics: mode of delivery,  
44 delivery process, risks and benefits for the mother and baby. Most of the women would welcome  
45 birth preparation classes, although the unpredictable nature of labour and birth was  
46 acknowledged. A woman with previous CS commented: “*You can control pregnancy and*  
47 *motherhood only to a small extent. The pregnancy is unpredictable, and no matter how well*  
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1 informed you are, or how good the doctor is, surprises can occur at any time, and no one can do  
 2 miracles". O&G physicians were identified as women's main source of trustable information.  
 3 For example, a woman with previous CS said, "I believe in the gynaecologist's opinion: talking  
 4 to him is important, more important than anything else". Nevertheless, women considered that  
 5 O&G physicians allocate little time to discuss birth options. None of the women stated that they  
 6 had discussed mode of delivery with the family doctor.

7  
 8 Midwives and nurses underlined the importance of prenatal education and the need to include the  
 9 women's companion, since "husbands cannot attend childbirth: their participation is not  
 10 allowed". Some of the O&G physicians considered that birth preparation classes are a task for  
 11 midwives.

## 12 **Decision-aid tools**

13 Women would use a decision-aid tool if it contained personalized information regarding evolution  
 14 of the pregnancy and childbirth from a trusted source using plain language. Some women thought  
 15 it would be useful when engaging in dialogue with health professionals, but they also feared that  
 16 such a tool may result in less time and a lower number of contacts with the O&G physician. They  
 17 also expressed concern about the anxiety that such educational materials can provoke. A woman  
 18 with previous vaginal birth claimed, "they might write I don't know what about the caesarean  
 19 section, or the normal birth... and you become afraid".

20  
 21 O&G physicians would consider a decision-aid tool with evidence-based information endorsed  
 22 by the physician useful. Obstetricians felt that "any attempt at implementing new tools in the  
 23 health system is difficult by default", although no specific barriers were reported. They thought  
 24 that decision-aid tools should include information about the mode of delivery, course of  
 25 pregnancy, timeline and milestones of pregnancy monitoring.

## 26 **Interventions targeted to health care providers**

### 27 **Revision and better adaptation of evidence-based clinical practice guidelines**

28 All respondents acknowledged the national O&G clinical guideline revised in 2019 and endorsed  
 29 as secondary legislation by the Ministry of Health. Medical doctors considered these an important  
 30 dimension of medical practice because they provide some safety from a malpractice accusation.  
 31 According to respondents, the College of Physicians and the court ask for the guidelines in the  
 32 case of a complaint or litigation: "guidelines show you the steps [you have to follow] and using  
 33 them in [the clinical] practice, you feel more secure. In the case of malpractice litigation, it can  
 34 defend or impeach you, as the case may be".

35  
 36 Nurses and midwives were also aware of the guideline. Some hospitals have developed protocols  
 37 for nurses, but they noted that: "there are no guidelines for midwives and in the guidelines for  
 38 doctors there is very little reference to the midwives' practice".

39  
 40 There is no systematic approach to clinical guideline accessibility, dissemination, training and  
 41 physician–nurse communication. One O&G physician claimed that "in my hospital, [...] each of  
 42 us signed that we know them, but guidelines and protocols are largely ignored; there was no  
 43 discussion or training regarding their use". Evaluation of implementation of clinical guidelines  
 44 in hospitals is not a generalized practice, and algorithms for management of labour and  
 45 complications are not available. Some O&G physicians were reluctant about the change and  
 46 perceived protocols and guidelines as increasing the burden of work. One O&G physician  
 47 described this reluctance: "doctors see bureaucracy and waste of time – there are too many  
 48 papers to be read and papers to be signed". A nurse also identified a generational effect among  
 49 O&G physicians, where younger doctors are more open to using the guidelines.

### 50 **Simulation-based obstetrics and neonatal emergency training**

51 O&G professionals would welcome simulation-based obstetrics and neonatal emergency training  
 52 in multidisciplinary teams. A nurse said: "I would love to have special mannequins and a

1 simulator for the delivery room". However, financial barriers for specialized training  
 2 opportunities were also acknowledged, as a nurse noted: "the hospital does not have resources to  
 3 pay for courses or to organize them, but it does offer nurses free days to attend training".

4  
 5 Some respondents perceived that there are fewer opportunities for younger generations of O&G  
 6 specialists to practise vaginal delivery after CS (VBAC), trial of labour after CS (TOLAC) or  
 7 instrumental vaginal delivery, but others recognized that "we all need to refresh knowledge and  
 8 skills now and then". Although the national clinical guideline includes statements to assist O&G  
 9 decisions about TOLAC, respondents stated that not even the leading O&G specialists prefer to  
 10 perform TOLAC because they fear complications that might lead to malpractice accusations.  
 11 Also, a woman with previous CS described: "I think they see it [CS] as a safer modality. And yes,  
 12 after that [first CS], it [caesarean childbirth] becomes routine".

### 13 **Implementation of mandatory second opinion before conducting a CS**

14 Some hospitals have an established protocol for second opinion before a CS as their usual internal  
 15 procedure; in others, the head of the O&G ward approves all CSs.

16  
 17 Some women perceived that a mandatory second opinion would increase their safety and  
 18 confidence in the physician's decision regarding the birth method; others perceived this as a  
 19 limitation of their preferences. Some women underlined that for physicians with a preference for  
 20 CS births, a second mandatory opinion should be necessary. Other women agreed with a  
 21 mandatory second opinion before CS for at-risk births.

22  
 23 Although health care providers and administrators acknowledged the high CS rate in the country,  
 24 generally, they would not trust mandatory second opinion as an effective intervention to lower it.  
 25 There was a perception that doctors would feel safer when making decisions in complicated cases  
 26 and share the responsibility, strengthening teamwork. An O&G physician said: "if there are two  
 27 agreeing opinions and I did what a colleague agreed, this has more weight, irrespective of the  
 28 outcome of a complicated case". However, health care providers also identified several barriers  
 29 to implementation. A second opinion could be seen as a threat; women may distrust providers;  
 30 and it might create certain dynamics among O&G physicians, as an O&G physician identified:  
 31 "they [O&G physicians who perform more CSs] would ask their colleagues with common  
 32 affinities for this second opinion" and "some gynaecologists are more attached to CS delivery,  
 33 and they would be upset with a contrasting opinion". It could also affect the personal financial  
 34 reward associated with CS in the private health sector, as one O&G physician stated: "I do not  
 35 think gynaecologists would leave their private practices in the afternoon to come back to the  
 36 hospital to give a so-called mandatory opinion". In remote areas with fewer O&G physicians, it  
 37 might also be difficult to find one with higher clinical qualifications than the doctor requiring the  
 38 consultation.

### 39 **Interventions targeted to health organizations, facilities and systems**

#### 40 **Reforms equalizing physician fees for vaginal births and CSs**

41 Currently, as an O&G physician said, in the public health sector "the doctor has no financial  
 42 incentives because he is paid [a fixed] salary". Thus, most medical doctors claimed that  
 43 equalizing tariffs for vaginal births and CSs would not have an effect in reducing the CS rates.  
 44 An O&G physician claimed: "obstetricians prefer to do a caesarean [...] for other reasons: time,  
 45 convenience, safety... and equalizing prices would not change the current behaviour".

46  
 47 Health care administrators stated that the current diagnosis-related group system to classify  
 48 patients according to their diagnosis to reimburse hospitals allows the insurance company to pay  
 49 more for a CS and thus "stimulates the CS rate in hospitals". Also, they predicted two challenges:  
 50 opposition of O&G physicians and weak control over activity in maternity wards. In the health  
 51 care administrators' opinion, the way to implement such intervention would be to introduce  
 52 financial incentives to physicians who perform vaginal births, accompanied by clearer indications  
 53 for CSs, and mandatory clinical audit undertaken by independent evaluators because "there is a

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1 *lot of variability and abnormality. [...] unfortunately, we do not have information collected in the*  
2 *information system to correlate the data”.*

### 3 **Goal setting for CS rates**

4 Support for this intervention was limited among the O&G physicians because they considered  
5 that it would limit their clinical autonomy and add additional pressure on medical practice, and  
6 that they would receive penalties for not reaching targets. To be supportive, medical doctors  
7 suggested providing bonuses for physicians to perform more vaginal deliveries. An additional  
8 challenge identified was the organizational culture in Romania: this includes the widespread  
9 practice of giving birth with the O&G physician who has monitored the pregnancy; hospitals  
10 permitting performance of unnecessary CSs; and the limited authority of hospital managers over  
11 medical decisions. An O&G physician claimed: *“it is about the lack of confidence of the woman*  
12 *in the health system; they trust the doctor rather the health system, if the patient would belong to*  
13 *the hospital and not to a certain doctor, the process would be different”.* Finally, women’s  
14 opinions and preferences for CS births are also considered a challenge, despite women identifying  
15 the opinion of the O&G physician as the most important factor.

16  
17 Health care administrators agreed that goal setting for CS rates at the hospital level may be  
18 effective in reducing the number of CSs but identified that this would need to be implemented  
19 together with other interventions, such as economic disincentives for medical doctors or hospitals  
20 not being reimbursed for CSs above the target.

### 21 **Policies that limit financial or legal liability in the case of litigation of health care** 22 **professionals or organizations**

23 There was consensus that doctors fear malpractice lawsuits and ask for better regulatory  
24 frameworks regarding legal liability in the medical profession. Under the current legal system,  
25 providers can be prosecuted under the civil code or, more often, under the criminal code, even  
26 before the case is judged by the College of Physicians. Also, no formal risk management strategy  
27 exists at the hospital level to reduce the likelihood of a negligence lawsuit. In the absence of these  
28 strategies, O&G physicians reduce the risk of a malpractice lawsuit by accepting all CS births on  
29 maternal request.

### 30 **Additional challenges related to implementation of the interventions**

31 The respondents also identified several challenges related to the current performance of the health  
32 system, which might also hinder successful implementation of interventions if they are not  
33 adequately addressed. These included women’s experience and perception of lower quality of  
34 care for vaginal birth; out-of-pocket payments for prenatal examinations and childbirth  
35 preparation; a lack of O&G physicians with expertise and skills in managing complicated vaginal  
36 births; a lack of anaesthesiologists to administer epidural analgesia for labour and vaginal birth;  
37 and family doctors not providing antenatal care.

38  
39 Health care providers and administrators also recognized that an increased role for midwives  
40 during pregnancy and birth would increase women’s education, decrease fear and contribute to  
41 lower CS rates in hospitals. However, O&G physicians admitted that the measure would be  
42 controversial among their peers because of a reluctance to confer more duties on midwives.

43  
44 Finally, some women who had previous vaginal births said that *“they [O&G physicians and*  
45 *nurses] only give orders and yell while women are in such great pain”* and *“they talk about us*  
46 *patients as if we were not there; mainly the nurses, all you hear is ‘wait, be good’”.* This might  
47 indicate that the rights of women to dignified, respectful health care through pregnancy and  
48 childbirth are not systematically respected in the context of the Romanian health system,  
49 including a lack of continuous one-to-one intrapartum support.

## 1 Discussion

2 The research outlined in this paper was an initiative of the partnership between the Ministry of  
3 Health of Romania, the WHO Country Office in Romania, the WHO Regional Office for Europe  
4 and WHO headquarters as a result of the current political concern and will for action to reduce  
5 unnecessary CSs. This is among the first experiences in Romania to conduct and use qualitative  
6 research on this topic, and it improves understanding of local determinants of the high CS rates  
7 in the country. Importantly, this research includes women and health care providers' views of the  
8 acceptability of potential interventions to reduce the use of CSs, as well as considerations for their  
9 implementation, based on the opinion of health care providers and administrators.

10 The findings of this study, in line with the current literature,[24] suggest that values and  
11 preferences for birth and for information vary among women, and that changes in women's  
12 opinions throughout pregnancy are shaped by interactions with the community, O&G physicians  
13 and the health system. Women's willingness to learn more is a major facilitator for  
14 implementation of educational interventions, resulting in more women being empowered in the  
15 decision-making process. In contrast to other studies, which have shown women's suspicions that  
16 health professionals manage information provision to encourage women to prefer a particular  
17 mode of birth, [25, 26] in Romania, women place the greatest trust in O&G physicians. As found  
18 elsewhere,[25] a potential barrier to effective implementation of educational interventions would  
19 be women's reluctance to use educational materials that might increase their anxiety or reduce  
20 the number of contacts with health care providers. This fear has been identified by WHO, which  
21 recommends that the content of educational materials should not provoke anxiety, while being  
22 consistent with advice from health care professionals, and should provide the basis for more  
23 informed dialogue with them.[24]

24 Health care providers' beliefs, values and preferences have crucial influence on decisions about  
25 the mode of birth. Providers' opinions, together with health system and organizational factors,  
26 need to be considered carefully in the design and implementation of interventions. [27, 28] O&G  
27 physicians in Romania believe that the current CS guideline provides some safety in case of  
28 malpractice accusation, which is attributed to the fact that the College of Physicians and the court  
29 review whether O&G physicians followed the indications of the guideline. However, consistent  
30 with the results of the Ionescu et al. (2019) study [29] and most the literature worldwide,[9] fear  
31 remains and influences decisions about mode of birth. Although in some countries some anecdotal  
32 reports reveal that lawsuits by women submitted to unnecessary CSs have started to emerge, in  
33 this research respondents always referred to lawsuits from complications associated with vaginal  
34 birth. O&G physicians fear complications that may occur during vaginal birth and recognize that  
35 they need more training and practice on instrumental vaginal deliveries, VBAC and TOLAC.[30]  
36 O&G physicians request better regulatory frameworks for legal liability of the medical profession.  
37 Without addressing their concerns, it will not be possible to optimize the use of CS in a sustainable  
38 manner. Also, aligned with published evidence,[28] dysfunctional teamwork within the medical  
39 profession, marginalization of midwives, power relationships and tension and a lack of  
40 communication between cadres may represent barriers to the reduction of CS rates.

41 Although joint implementation of evidence-based clinical practice guidelines and a mandatory  
42 second opinion for CS indication can be effective in reducing unnecessary CSs, [11, 31] in the  
43 context of Romania, opposition from O&G physicians should be expected. An entry point might  
44 be implementation of in-service training, which has been identified as a need in this research; this  
45 could help health care providers to incorporate the recommendations of the national guideline  
46 into their usual practice.[10] In addition, there is a need for better regulation of the provisions  
47 associated with the indication of CS on maternal request in the national clinical guideline,  
48 endorsed as secondary legislation by the Ministry of Health.

49 Equalizing fees between vaginal delivery and CS has been proposed among the regulatory and  
50 financial strategies to disincentivize overuse of CSs. [11, 32] Health care administrators perceived  
51

1 that this would be effective if implemented together with goal setting for CS rates by means of  
2 economic disincentives for medical doctors and hospitals not being reimbursed for CSs above the  
3 target. These views are not a surprise, given the literature showing that financial incentives alone  
4 have little effect on CS rates.[32, 33] Equalizing fees may find opposition among health care  
5 providers, with the view that vaginal delivery is insufficiently paid because it requires more time  
6 compared to a quick and efficient CS.[28] In order to overcome these challenges, the  
7 identification of champions to promote the implementation of these recommendations may be  
8 useful.

9  
10 Data collected from respondents also revealed several novel findings related to health system  
11 performance that need to be addressed if the national CS rate is to be reduced. Improvement of  
12 the quality of childbirth care, particularly for labour and vaginal birth, is crucial – including  
13 availability of pain relief for vaginal birth, continuous one-to-one intrapartum support by a  
14 companion of choice, positive and constructive communication and relationships with providers,  
15 and women's need for emotional support.

16  
17 In Romania no formal evidence is available on how well-informed patients in general or pregnant  
18 women are about their rights, and whether the available information is considered useful.[18] The  
19 findings of this study show that the rights of women to dignified, respectful health care through  
20 pregnancy and childbirth might not be systematically respected; this deserves the attention of  
21 national and international institutions.

22  
23 Lastly, momentum to address high CS rates is growing among professional societies and  
24 policymakers in the WHO European Region, which suggest synergies for joint initiatives,  
25 partnership, and actions, [34] including in the case of Romania, as these findings demonstrate.

### 26 27 ***Strengths and limitations***

28 To our knowledge, this is the first time an in-depth and inclusive research study has been  
29 conducted in Romania to improve understanding of the drivers of increasing use of CS and to  
30 help with the design and implementation of strategies that are locally relevant, culturally accepted  
31 by women and providers, and can be implemented effectively to reduce CS rates. However, the  
32 present research has some limitations. We did not include interviews with companions or the  
33 family of the pregnant women, so their opinions and views are not represented in our findings.  
34 Likewise, family doctors and other stakeholders were not included. Nevertheless, to a certain  
35 extent, their opinions have been captured through the women's and health care providers'  
36 discourses. Further, some health care providers refused to participate, although the research  
37 achieved saturation of the information.

### 38 39 **Conclusion**

40 In conclusion, multifaceted action tailored to Romanian determinants to address unnecessary CSs  
41 should include women's empowerment through information with consistent messages that do not  
42 increase their anxiety. Training and management of complicated vaginal birth is necessary and  
43 could be an opportunity for the promotion of instrumental vaginal birth, TOLAC and VBAC,  
44 particularly among young O&G physicians working within a multidisciplinary team.  
45 Implementation of a mandatory second opinion and goal setting alone may not be effective in  
46 Romania. The introduction of financial incentives is a complex endeavour, due to current societal  
47 and health care organization norms and practices. If implemented, it needs to be carefully crafted  
48 within the health system. Finally, an increase in the quality of care for labour and vaginal birth is  
49 paramount for any of the interventions considered to succeed. Further studies should assess the  
50 effect of multifaceted interventions in Romania.



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## 3 Contributors

4 NB led on conceptualizing, coordinating the research, analysis and writing the manuscript. ALG  
5 reviewed the interpretation of results and drafted the first draft of the manuscript with inputs of  
6 APB, DF and NB. DF was responsible for the data collection and analysis with inputs of NB.  
7 APB, CB and MG contributed substantial comments to the writing of the manuscript. All authors  
8 critically reviewed the manuscript and approved the final version.

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## 11 Competing interests

12 None declared.

## 13 Patient consent for publication

14 Not required.

## 15 Ethics approval

16 The generic protocol was approved by the Research Project Review Panel of the United Nations  
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18 Fund/WHO/World Bank Special Programme of Research, Development and Research Training  
19 in Human Reproduction, at the WHO headquarters Department of Sexual and Reproductive  
20 Health and Research, and the WHO Research Ethics Review Committee (protocol ID, 004571).  
21 Ethical approval was given by the scientific committee of Centre for Health Policies and  
22 Services of Romania.

## 24 Data availability statement

26 No data are available.

## 28 Disclaimer

30 The authors alone are responsible for the views expressed in this publication and they do not  
31 necessarily represent the decisions or policies of the World Health Organization.

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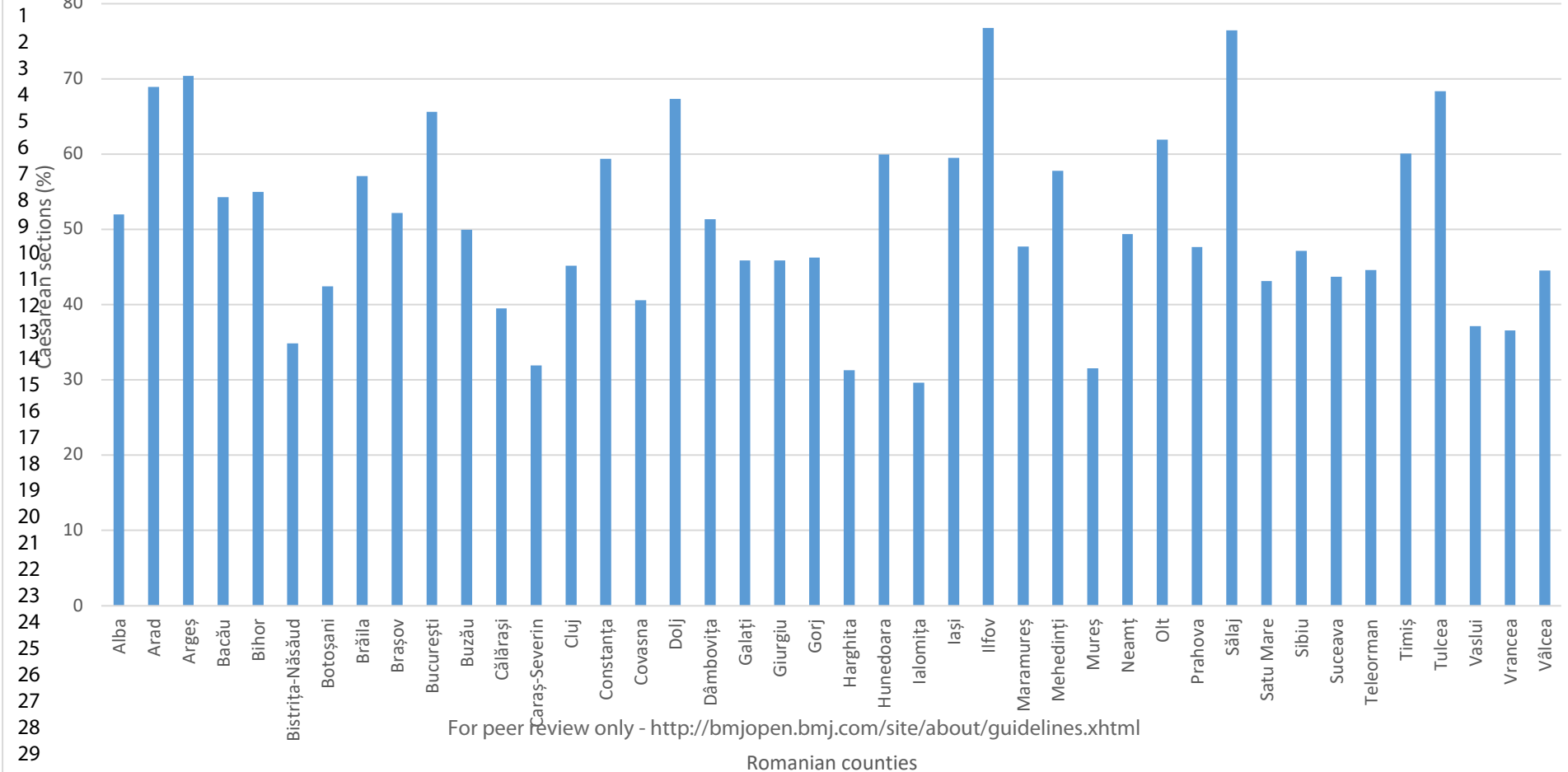
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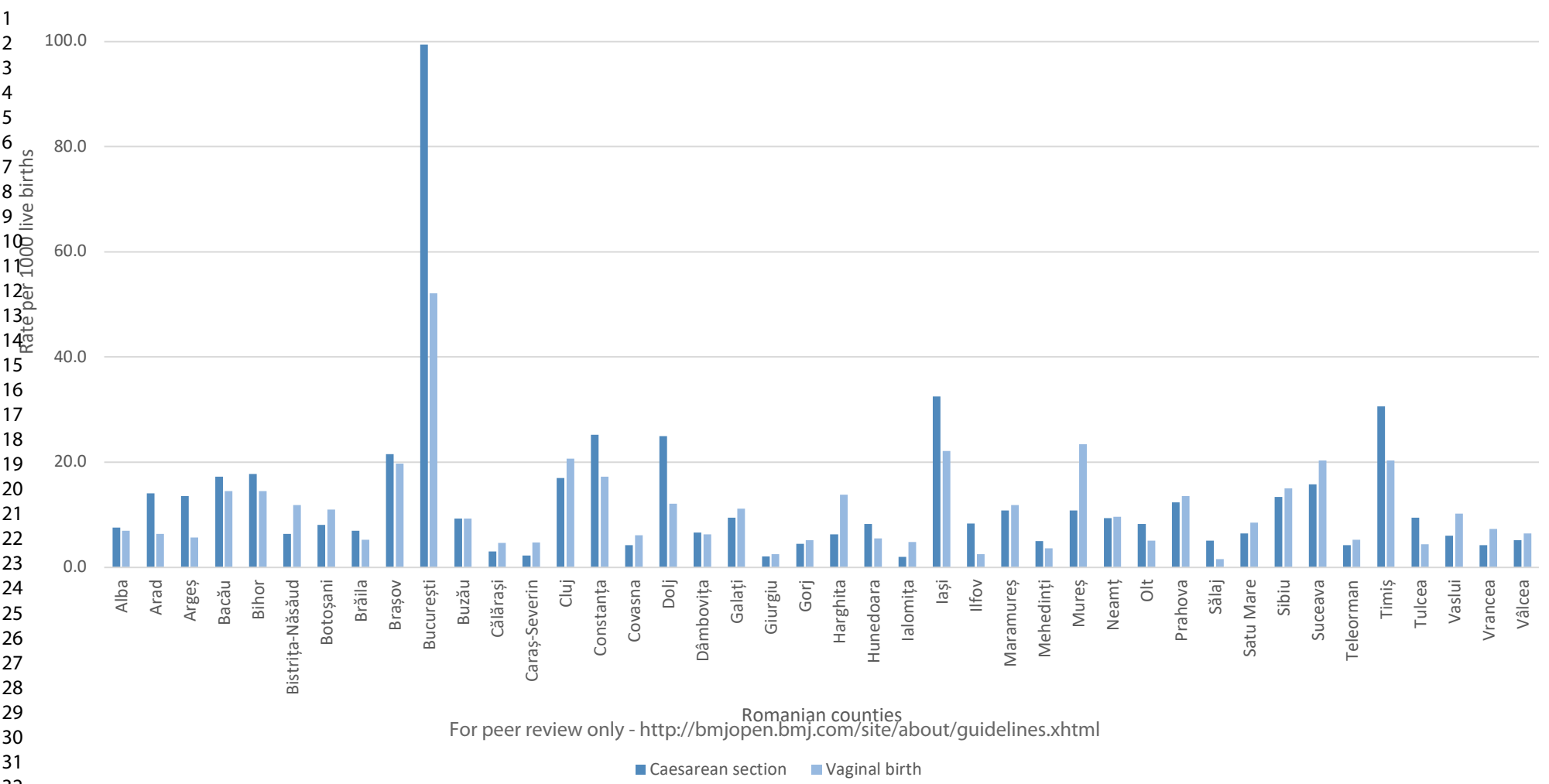
## 31 Annex

32 Figure 1. Proportion of CSs in Romanian counties (2019)

33 Figure 2. CS and vaginal birth rates per 1000 live births in Romanian counties (2019)

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## Standards for Reporting Qualitative Research (SRQR) checklist

Standard	Page/line number
<b>Title and abstract</b>	
<b>Title</b> - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	Page 1, line 1-3
<b>Abstract</b> - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	Page 1
<b>Introduction</b>	
<b>Problem formulation</b> - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	Page 2-3
<b>Purpose or research question</b> - Purpose of the study and specific objectives or questions	Page 4, lines 4-7
<b>Methods</b>	
<b>Qualitative approach and research paradigm</b> - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	Page 4, line 9
<b>Researcher characteristics and reflexivity</b> - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	Page 4, line 4-5
<b>Context</b> - Setting/site and salient contextual factors; rationale**	Page 3, lines 12-13
<b>Sampling strategy</b> - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	Page 4, lines 14-24
<b>Ethical issues pertaining to human subjects</b> - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	Page 4, line 31 and 36 Page 11, 15-22
<b>Data collection methods</b> - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	Page 4, line 25-38
<b>Data collection instruments and technologies</b> - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	Page 4, line 25-38

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	<p><b>Units of study</b> - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)</p> <p><b>Data processing</b> - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts</p> <p><b>Data analysis</b> - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**</p> <p><b>Techniques to enhance trustworthiness</b> - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**</p> <p><b>Results/findings</b></p> <p><b>Synthesis and interpretation</b> - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory</p> <p><b>Links to empirical data</b> - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings</p> <p><b>Discussion</b></p> <p><b>Integration with prior work, implications, transferability, and contribution(s) to the field</b> - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field</p> <p><b>Limitations</b> - Trustworthiness and limitations of findings</p> <p><b>Other</b></p> <p><b>Conflicts of interest</b> - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed</p> <p><b>Funding</b> - Sources of funding and other support; role of funders in data collection, interpretation, and reporting</p> <p>*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.</p> <p>**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together</p> <p>O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. <i>Academic Medicine</i>, Vol. 89, No. 9 / Sept 2014 DOI: 10.1097/ACM.0000000000000388</p>	<p>Page 5, line 12-15</p> <p>Page 4, line 40-45</p> <p>Page 4, line 40-46</p> <p>Page 4, line 43-46</p> <p>Page 5-8</p> <p>Page 5-8</p> <p>Page 9-10</p> <p>Page 10, line 27-37</p> <p>Page 11, line 11-12</p> <p>Page 11, line 10-11</p>
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## Research Checklist

### Consolidated criteria for reporting qualitative research (COREQ)

#### Domain 1: Research team and reflexivity

##### Personal Characteristics (*page 1 of the manuscript*)

1. **Interviewer/facilitator:** Nino Berdzuli led on conceptualizing, coordinating the research, analysis and writing the manuscript. Alba Llop-Gironés reviewed the interpretation of results and drafted the first draft of the manuscript with inputs of Ana Pilar Betrán, Dana Farcasanu and Nino Berdzuli. Dana Farcasanu was responsible for the data collection and analysis with guidance and inputs of Nino Berdzuli. Ana Pilar Betrán, Cassandra Butu and Miljana Grbic contributed substantial comments to the writing of the manuscript. All authors critically reviewed the manuscript and approved the final version.
2. **Credentials:** the researchers are MD, RN, PhD including public health, medicine, nursing or sociology background
3. **Occupation:** the occupation of the authors is described below: Nino Berdzuli<sup>1</sup>, Alba Llop-Gironés<sup>1</sup>, Dana Farcasanu<sup>2</sup>, Cassandra Butu<sup>3</sup>, Miljana Grbic<sup>3</sup>, Ana Pilar Betran<sup>4</sup>
  1. World Health Organization Regional Office for Europe, Copenhagen, Denmark.
  2. Centre for Health Policies and Services, Bucharest, Romania
  3. World Health Organization Country Office, Bucharest, Romania
  4. UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP), Department of Sexual and Reproductive Health and Research, World Health Organization, Geneva, Switzerland
4. **Gender:** all the authors and researchers are female.
5. **Experience and training:** all the researchers are experts in the field with several years of experience

##### Relationship with participants (*page 4 of the manuscript*)

6. **Relationship established:** the researchers did not have an established relationship prior to study commencement.
7. **Participant knowledge of the interviewer:** women participating in the research were attending antenatal care and postpartum women before discharge. Health care providers and health care administrators included including midwives, nurses, O&G physicians, medical directors and a representative of the NHIH.
8. **Interviewer characteristics:** the items selected in the research is the result of a Ministry of Health of Romania and WHO workshop held in Bucharest in 2019. Romanian decision-makers and high-level O&G professionals selected seven non-clinical interventions with the potential to reduce CS rates based on the WHO instrument for formative research: prenatal education and support; decision aids for the mode of delivery; mandatory second opinion before conducting a CS; in-service training and implementation of clinical practice



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3 guidelines; equalizing physician pay for vaginal and CS births; setting a goal for  
4 CS rates at a facility level; and policies limiting legal liability and malpractice  
5 lawsuits. Each of the items were explored with the participants as appropriate  
6 after indicating the objective of the research and informed consent was  
7 obtained.  
8

9 Domain 2: study design (*page 4 of the manuscript*)

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11 Theoretical framework

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14 9. **Methodological orientation and Theory:** A thematic content analysis of  
15 anonymized data was carried out.

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17 Participant selection

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19 10. **Sampling:** purposive  
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21 11. **Method of approach:** face-to-face  
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23 12. **Sample size:** 88 women aged 16–46 years from urban and rural settings and  
24 26 O&G professionals (nurses, midwives and O&G physicians), decision-makers  
25 at the hospital level (hospital managers, medical directors and chief nurses) and  
26 system level (representative of NHIH) participated in the study.  
27  
28 13. **Non-participation:** few doctors and nurses refused to participate  
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30  
31 Setting (*page 4 of the manuscript*)

- 32  
33 14. **Setting of data collection:** clinic, workplace  
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35 15. **Presence of non-participants:** No  
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37 16. **Description of sample:** on one hand, women from counties with higher and  
38 lower CS rates, women aged 16–46 years, from urban and rural areas, with a  
39 parity history to represent nulliparous, multiparous with previous CS and  
40 multiparous without previous CS. On the other hand, health care providers and  
41 health care administrators were selected based on their geographical area,  
42 availability.  
43

44  
45 Data collection (*page 4 of the manuscript*)

- 46  
47 17. **Interview guide:** Yes.  
48  
49 18. **Repeat interviews:** No  
50  
51 19. **Audio/visual recording:** Yes, most of them were audio recorded  
52  
53 20. **Field notes:** Yes  
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55 21. **Duration:** 30 – 60 minutes  
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57 22. **Data saturation:** Yes  
58  
59 23. **Transcripts returned:** No  
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3 Domain 3: analysis and findings (*page 4 of the manuscript*)  
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5 Data analysis  
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7 24. **Number of data coders:** two  
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9 25. **Description of the coding tree:** it is not provided in the text  
10

11 26. **Derivation of themes:** themes were identified in advance  
12

13 27. **Software** no, it was done manually  
14

15 28. **Participant checking** No  
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18 Reporting (*page 4 of the manuscript*)  
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20 29. **Quotations presented:** yes, generic identifiers of anonymized data were used  
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22 30. **Data and findings consistent:** yes  
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24 31. **Clarity of major themes:** yes  
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26 32. **Clarity of minor themes:** yes  
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