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# BMJ Open

## The influence of the COVID-19 pandemic on abortions and births in Sweden - a mixed methods study

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7 2 births in Sweden - a mixed methods study  
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12 4 Running title: The influence of the COVID-19 pandemic on abortions and births in Sweden  
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36 17 **WORD COUNT: 2753**  
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38 18

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41 19 **ABSTRACT**  
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43 20 Introduction: Although considered an essential service by the World Health Organization  
44  
45 21 (WHO), there are indications that access to induced abortion care has been restricted during  
46  
47 22 the ongoing COVID-19 pandemic.

48  
49 23 Objectives: To investigate the impact of the Covid-19 pandemic on the abortion care in  
50  
51 24 Sweden.

52  
53 25 Design: Mixed methods. Qualitative part: including interviews. Quantitative part: National  
54  
55 26 data on abortions and births.

56  
57 27 Setting: Large abortion clinic, Gothenburg, Sweden, and Sweden respectively.

58  
59 28 Participants: 15 informants were interviewed. For the quantitative part: All women aged 15  
60  
29 – 44 living in Sweden 2018-2020, approximately 1.9 million.

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3 1 Primary and secondary outcome measures: To explore women's perception of abortion care  
4 during the first period of the COVID-19 pandemic. To investigate if the number of induced  
5 2 abortions and births have changed.  
6  
7 3

8 4 Results: Themes identified in the interviews: Availability, Influence of the COVID-19  
9 pandemic on the decision of having an abortion, Feelings of loneliness and isolation, Fear of  
10 5 being infected and to infect others, To catch COVID-19 during pregnancy and Fear of giving  
11 6 birth without support. The number of abortions/1000 women or births did not change  
12 7 significantly during the specified period.  
13  
14 8

15 9 Conclusions: This study shows that women did not hesitate to seek abortion care and the  
16 10 results are supported by the fact that the number of abortions and ongoing pregnancies  
17 11 remained stable. The women expressed a number of fears concerning both availability of  
18 12 care and their health which could have been more properly addressed by the authorities.  
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## ARTICLE SUMMARY

### Strengths and limitations:

- This is the first ever reported study from Sweden which explores abortion care during the COVID-19 pandemic.
- The main strength of this study is the mixed methods design with a combination of qualitative and quantitative data.
- The main limitation is that the interviews were conducted on women who actually sought abortion care. Further perspectives could have been explored in interviews with women who contemplated seeking abortion care but then decided not to.

### KEY MESSAGE

- No change in number of abortions or ongoing pregnancies during the first wave of the COVID-19 pandemic in Sweden.
- Swedish women did not hesitate to seek abortion care during the first wave of the COVID-19 pandemic.

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- 1 • Despite not hesitating to seek abortion care women expressed fears of contracting a
  - 2 COVID-19 infection, not being welcomed to the clinic and not allowed to bring a
  - 3 partner.
  - 4

5 **TRIAL REGISTRATION NUMBER:** Not applicable

6

7 **KEY WORDS:** COVID-19 pandemic, induced abortion, qualitative study, reproductive

8 medicine, sexual medicine.

9

## 10 INTRODUCTION

11 The World Health Organization (WHO) estimated that, during the years 2015 – 2019, 73.3

12 million induced abortions occurred world-wide annually(1). Access to legal and safe induced

13 abortion care is considered essential to attain the highest standard of sexual and

14 reproductive health(2).

15 On March 11, 2020, the WHO classified the COVID-19 outbreak as a global pandemic(3).

16 Based on poor experiences of disruption of sexual and reproductive health services during

17 previous pandemics the WHO recommended that access to contraception and abortion to

18 the full context allowed by the law, during the COVID-19 pandemic, should be ensured. If

19 facility-based provision of such services is disrupted then digital health service should be

20 recommended(4).

21 After being classified as a pandemic, there are studies indicating that global access to

22 induced abortion has been restricted due to priorities in health services, lack of political will

23 and a detrimental effect of the lock-down(5). European governments have taken wildly

24 divergent approaches to tackle the issue with induced abortion care during the pandemic.

25 From suspension of abortion services, considered non-essential, to lifting of regulations and

26 allowing telemedicine and self-managed care solutions such as postal delivery of

27 mifepristone and misoprostol(2, 6, 7).

28 Induced abortion care is a well-established part of the Swedish public health care system.

29 Each year around 35 - 38000 induced abortions are performed in Sweden, and during 2019

30 the number of abortions was 19/1000 women (aged 15 – 44 years)(8).

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2  
3 1 The induced abortion care units in Sweden have been providing services as usual during the  
4 COVID-19 pandemic. No official policy changes have been conducted to facilitate access,  
5 2  
6 such as expansion of telemedicine or at-home administration of mifepristone.  
7 3  
8 There is so far, to our knowledge, no peer-reviewed qualitative research on how the current  
9 4  
10 COVID-19 pandemic has affected women seeking induced abortion care in Sweden.  
11 5  
12 The aim of this study is to explore women's perception of abortion care during the first  
13 6  
14 period of the COVID-19 pandemic and to investigate if the number of induced abortions and  
15 7  
16 births have changed during the same period compared to recent years.  
17 8  
18 9

## 20 10 **MATERIAL AND METHODS**

### 22 11 **Data collection**

23 12 In order to investigate women's expectations and apprehensions about pregnancy and  
24 13  
25 abortion care during the COVID-19 pandemic a qualitative method including interviews was  
26 14  
27 used. Seventeen informants were recruited (two declined before the interviews) at the  
28 15  
29 Abortion Clinic at the Department of Gynecology and Reproductive Medicine, Sahlgrenska  
30 16  
31 University Hospital (SU), Gothenburg, Sweden in June 2020, when the number of COVID-19  
32 17  
33 positive patients was high in Sweden. The Abortion Clinic at SU is the major abortion clinic in  
34 18  
35 Gothenburg, the second largest city in Sweden. It manages abortions in all gestational weeks  
36 19  
37 and is the only abortion clinic in Gothenburg with an in-patient clinic for patients in the  
38 20  
39 second trimester and patients with intercurrent diseases that require in-hospital care. It was  
40 21  
41 therefore possible to recruit informants from the whole spectrum of abortion seeking  
42 22  
43 patients. The interviews were performed by a midwife working at the abortion clinic, but not  
44 23  
45 involved in the informants' abortion care. All interviews were recorded and transcribed  
46 24  
47 verbatim.

48 25 Data regarding number of abortions and births were collected from the Swedish Board of  
49 26  
50 Welfare and the Swedish Pregnancy Register respectively(8, 9).  
51 27

### 53 28 **Data analysis**

54 29 The interviews were analysed by systematic text condensation (STC) according to Malterud  
55 30  
56 (10). STC was chosen because it aims to describe the informants' experiences, as expressed  
57 31  
58 by themselves, rather than to explore the possible underlying meaning of their statements.  
59 31  
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3 1 The process involved four steps: I. Reading all the material several times to obtain an overall  
4  
5 2 impression. II. Identifying units of meaning, representing different aspects of the research  
6  
7 3 question, and coding and sub-coding for these. III. Condensing and summarising the  
8  
9 4 contents of each of the coded groups and IV. Creating generalising descriptions and concepts  
10  
11 5 reflecting the informants' most important expectations and apprehensions about pregnancy  
12  
13 6 and abortion care.

14 7 The only available option for data collection regarding abortions from the Swedish Board of  
15  
16 8 Welfare were quarterly numbers. The number of abortions performed during January-March  
17  
18 9 and April-June 2020 were compared to the same periods during 2018 and 2019. The data is  
19  
20 10 presented as number of abortions/1000 women aged 15-44 years, percentage of abortions  
21  
22 11 in different gestational weeks (GW) (divided into <7 GW, 7-9 GW, 9-12 GW, 12-18 GW and  
23  
24 12 >18 GW) and percentage of abortions according to the method used (surgical, medical in-  
25  
26 13 hospital and medical home abortion).

27 14 Since abortions are displayed as numbers of abortions/1000 women 15-44 years of age  
28  
29 15 quarterly, also births are displayed in an equal mode.

30  
31 16 This study was approved by the Ethics Committee (Dnr 2020-02661).  
32  
33 17

### 34 18 **Patient and Public involvement**

35  
36 19 Patients or the public were not involved in the design, recruitment or analysis of this study.  
37  
38 20 The results will be issued in a press release to the public media.  
39  
40 21

## 41 42 22 **RESULTS**

43  
44 23 Demographic data of the informants are shown in Table 1.  
45  
46 24

### 47 48 25 **Table 1. Demographic data of the informants [REDACTED DUE TO IDENTIFIERS – SEE** 49 26 **PUBLISHED VERSION]**

50  
51 27 GW=gestational week. \*Medical in-hospital abortion at GW  $\leq 9+0$ . \*\*Medical home-abortion  
52 28 at GW  $\leq 9+0$   
53 29

### 54 30 **Interviews**

55  
56 31 The following themes were identified: Availability, Influence of the COVID-19 pandemic on  
57  
58 32 the decision of having an abortion, Feelings of loneliness and isolation, Fear of being infected  
59  
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2  
3 1 and to infect others, To catch COVID-19 during pregnancy and Fear of giving birth without  
4  
5 2 support.

6  
7 3  
8  
9 4 Availability

10 5 Participants described that it was easy to schedule an appointment at the abortion clinic.

11 6 Participants expressed thankfulness for living in a country where abortion care is available  
12  
13 7 during the pandemic. Although not hesitating to seek abortion care they did describe a fear  
14  
15 8 before the visit of not being welcome. Some participants were worried that there would not  
16  
17 9 be room for abortion patients at the hospital. Others were afraid of not being allowed to  
18  
19 10 enter the hospital due to symptoms that could be associated with COVID-19 infection.

20  
21 11 When at the abortion clinic several participants described the staff as supportive,  
22  
23 12 accommodating, helpful and friendly.

24  
25 13

26  
27 14 Influence of the COVID-19 pandemic on the decision of having an abortion

28  
29 15 Participants stated that the COVID-19 pandemic did not influence their decision to seek  
30  
31 16 abortion care. One participant expressed that the instable situation concerning work and  
32  
33 17 income influenced her decision to some extent and one participant responded that she was  
34  
35 18 afraid that the health care system might not be able to give her complete maternal health  
36  
37 19 care during the pandemic if she continued her pregnancy.

38 20

39  
40 21 Feelings of loneliness and isolation

41 22 Participants missed having a partner, friend or relative for support during their stay at the  
42  
43 23 hospital. However, the participants also expressed understanding for the restrictions due to  
44  
45 24 the pandemic. The participants who chose home abortion did not suffer from this and one  
46  
47 25 participant said that she chose to have a home abortion in order to be able to have  
48  
49 26 somebody close by.

50  
51 27

52  
53 28 Fear of being infected and to infect others

54 29 Participants expressed a fear of getting infected with the COVID-19 virus during the visit or  
55  
56 30 on their way in public transportation to the appointment. There was also a fear of infecting  
57  
58 31 others. One participant described that she did not want to visit the hospital since she was in  
59  
60 32 a risk group.

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5 2 To catch COVID-19 during pregnancy  
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7 3 Participants expressed that they would not have planned a pregnancy during the pandemic.  
8  
9 4 Some articulated that they would have been concerned about both their own and the baby's  
10  
11 5 health in case they would contract COVID-19 while being pregnant.  
12  
13 6

14 7 Fear of giving birth without support

15  
16 8 Participants described that they would not have wanted to give birth during the pandemic  
17  
18 9 since partners were not allowed into the postnatal ward. They also expressed a fear that the  
19  
20 10 hospital would not be able to deliver sufficient health care.  
21  
22 11

## 23 12 **Number of abortions and births**

24  
25 13 The number of abortions/1000 women 15-44 years did not change significantly in Sweden  
26  
27 14 (Figure 1) or in the county where Gothenburg is situated. The number of surgical abortions  
28  
29 15 declined and medical abortions increased during the first two quartiles of 2020 compared to  
30  
31 16 2018 and 2019 (Figure 2). There was no change in what pregnancy week the patient sought  
32  
33 17 abortion care (Figure 3).

34 18 The number of births in the 4th quarter of 2020 and 1st quarter of 2021, which reflects  
35  
36 19 ongoing pregnancies during the first 6 months of 2020, did not change significantly  
37  
38 20 compared to the previous year (Figure 1).  
39  
40 21

## 41 42 22 **DISCUSSION**

43  
44 23 This study provides an insight into abortion seeking women's perspectives during the COVID-  
45  
46 24 19 pandemic. Despite a number of aggravating and worrying factors the pandemic did not  
47  
48 25 influence the study participants decision to have an abortion. This is reflected in the finding  
49  
50 26 that the number of abortions and continuing pregnancies remained stable during the study  
51  
52 27 period, indicating that women sought abortion care to the same extent as before the  
53  
54 28 pandemic.

55 29 Based on experiences from previous pandemics there have been concerns that patients  
56  
57 30 postpone their visits to health care units. One qualitative study from the Ebola pandemic in  
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3 1 2014 suggested that the decrease in care-seeking behaviour was due to fear of contracting  
4 2 the Ebola virus at health facilities and distrust of the health care system(11).

5 3 For abortion care this could result in patients presenting in higher gestational weeks and  
6 4 subsequently undergoing later abortions which is associated with higher medical risks. This  
7 5 has not been the case in Sweden during the study period (Figure 3). This is also reflected in  
8 6 the interviews where participants described that they did not hesitate to seek abortion care  
9 7 although some expressed a fear of not being welcomed prior to the visit and worried about  
10 8 both contracting and spreading the virus.

11 9 There are few qualitative studies investigating the psychosocial effects of the current COVID-  
12 10 19 pandemic on pregnant women. In one meta-synthesis from 2020 the authors summarize  
13 11 that during a pandemic, pregnant women often experience anxiety, fear and more  
14 12 specifically concern about their health. Limited available information and lack of digital  
15 13 health care was also highlighted(7). One American study suggested that psychological  
16 14 distress is likely due to social, economic and healthcare disruptions as well as the uncertainty  
17 15 regarding the medical effect of COVID-19(12). One study from the United Kingdom further  
18 16 explored pregnant women's perception of COVID-19 and the healthcare services. Themes  
19 17 were: 'not wanting to bother', 'lack of wider support' and 'media influence'(13). In an  
20 18 Australian study the authors also focused on lack of partner support as well as risks of  
21 19 acquiring the infection and concerns with telehealth(14). These findings are confirmed by  
22 20 this study where the interviewed participants expressed that they would not have wanted to  
23 21 plan a pregnancy during the pandemic due to fear for their own and the baby's health, the  
24 22 instable work and income situation. They also expressed worries that the health care system  
25 23 might not be able to offer complete maternal health care and also because the partner was  
26 24 not allowed into the postnatal ward. We believe there is enough scientific support to the  
27 25 conclusion that pregnant women are a particularly vulnerable group concerning risk of  
28 26 psychological un-wellbeing during a pandemic.

29 27  
30 28 The proportion of surgical abortions decreased, and medical home abortion increased during  
31 29 the study period. This could be due to lack of surgical resources as a consequence of  
32 30 allocating staff to COVID-19 intensive care units, but the shift towards home abortion and  
33 31 from surgical abortions started long before the pandemic. In 2014 surgical abortions  
34 32 constituted 12% of all abortions and home abortions 52% compared to 6.8% and 64%

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2  
3 1 respectively at the beginning of the study period(8). Patients preference for home abortion  
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5 2 has also been shown in previous studies(15, 16). During the pandemic home abortion was  
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7 3 the only alternative if the patient wanted support from a partner, friend or relative. In this  
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9 4 study the participants who chose home abortion did not express feelings of loneliness or  
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11 5 lack of support as opposed to some of the other participants.  
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13 6

14 7 The main strength of this first ever reported study from Sweden which explores abortion  
15  
16 8 care during the COVID-19 pandemic is the combination of qualitative and quantitative data.  
17  
18 9 The main limitation is that the interviews were conducted on women who actually sought  
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20 10 abortion care. Further perspectives could have been explored in interviews with women  
21  
22 11 who contemplated seeking abortion care but then decided not to. It would have been a  
23  
24 12 great challenge to find those participants.  
25  
26 13

27 14 In conclusion this study has shown that women did not hesitate to seek abortion care and  
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29 15 the results are supported by the fact that the number of abortions and ongoing pregnancies  
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31 16 remained stable during the first period of the COVID-19 pandemic in Sweden. This might be  
32  
33 17 due to the fact that Sweden has a long tradition of defending the right to induced abortion  
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35 18 and that Swedish women trust that abortion care is considered essential. However, although  
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37 19 the study participants did not hesitate to seek abortion care they expressed a number of  
38  
39 20 fears and worries concerning both availability of care and their health. Sweden has made no  
40  
41 21 official statement that abortion care is considered essential and prioritized during the  
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43 22 pandemic and maybe some of the fears and worries could have been prevented if this had  
44  
45 23 been stated by the relevant authorities. Also, we suggest that Sweden take after Great  
46  
47 24 Britain, where an order was issued already in March 2020 that made tele-medicine an  
48  
49 25 alternative for abortion care(17), in order to avoid unnecessary spread of the infection and  
50  
51 26 increase the safety and availability of the abortion care.  
52  
53 27

## 53 28 **AUTHOR STATEMENT**

54  
55 29 JR, TJA and HH developed the study design. ME, JR and HH collected the data and HH, JR TJA,  
56  
57 30 ME and VN analysed the data. JR, ME, VN, TJA, IM and HH had access to the data, prepared  
58  
59 31 final manuscript, and approved of the final version of the manuscript submitted.  
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## 9   **COMPETING INTERESTS**

10   All authors have completed the Unified Competing Interest form at  
11   <http://icmje.org/disclosure-of-interest/> (available on request from the corresponding  
12   author) and declare that HH has received compensation from Gedeon Richter for lectures,  
13   JR, TJA, IM, ME and VN have no competing interests; For all authors, their spouses, partners  
14   or children have no financial interests that may be relevant to the submitted work.

## 16   **DATA SHARING**

17   Aggregated data from the national registries and anonymised data from the qualitative part  
18   of the study are available at reasonable request from the corresponding author.

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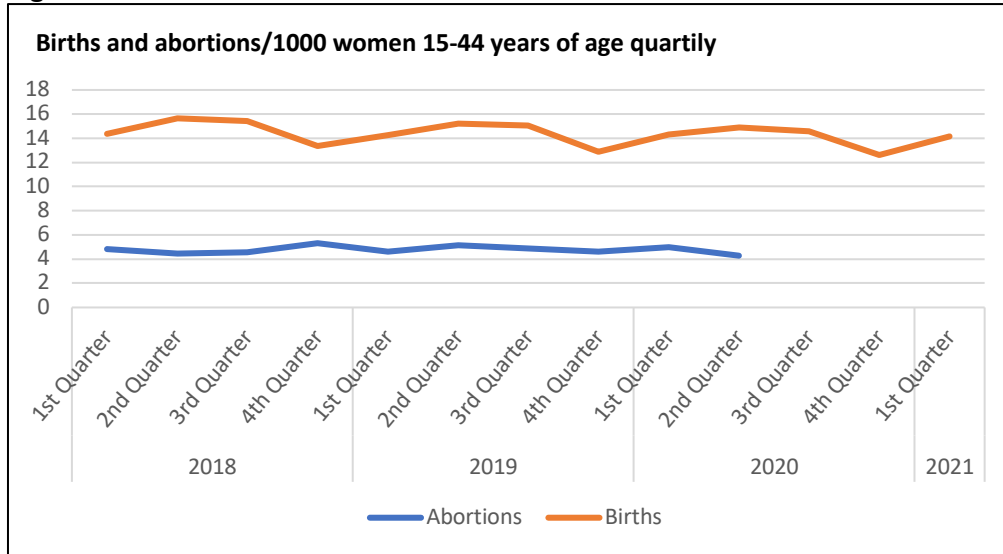
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Figure 1

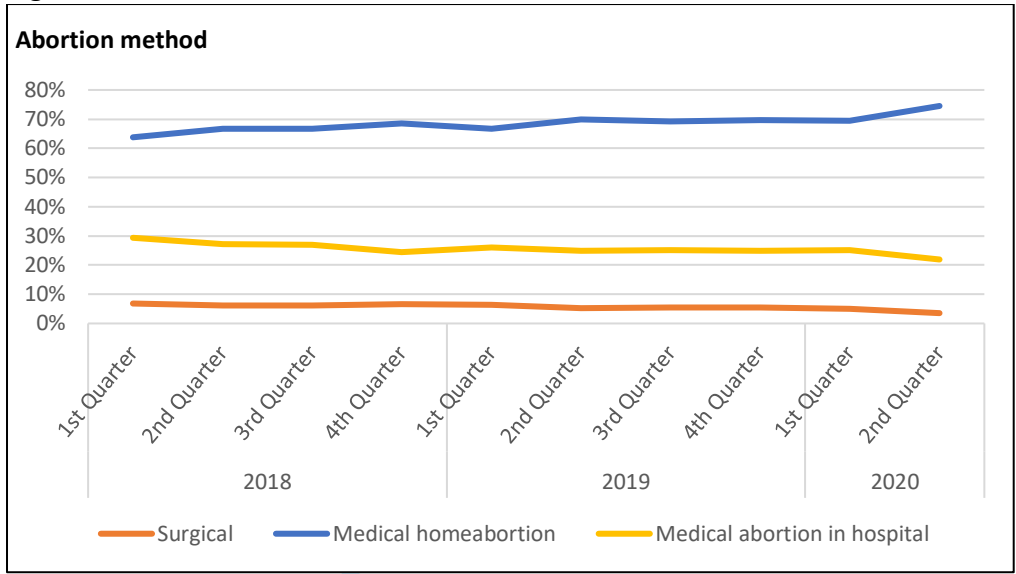


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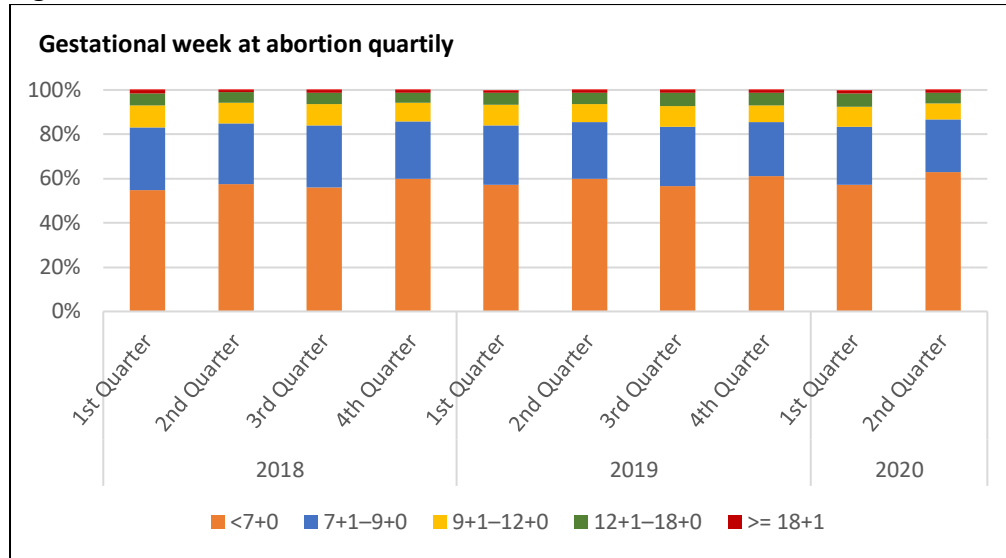
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Figure 2



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Figure 3



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**Trial title:** The impact of the covid-19 epidemic on induced abortion in Sweden: a quantitative register study and a qualitative semi-structured interview study

**Short title:** The impact of Covid-19 epidemic on induced abortion in Sweden

**Principal investigator:**

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**Overall aim:**

The overall aim is to investigate how a global epidemic affect the numbers of induced abortions in Sweden. Both concerning the number of unplanned pregnancies but also the capacity of the Swedish health care system to handle women's reproductive requests.

**Scientific background:**

Abortion is defined as termination of pregnancy before the foetus is viable outside the uterus. Induced abortion is practiced world-wide and around 56 million pregnancies end in induced abortion every year. Induced abortion is also a common medical procedure in Sweden and during 2018, 36 000 induced abortions were reported (Socialstyrelsen, 2019).

The reason women choose to perform an induced abortion is divided into three groups: Foetal indication (severe foetal damage or malformation), maternal indication (the mother is at risk of medical harm due to the pregnancy) or social indication (non-medical indication).

A majority of the terminations takes place in the first trimester, and around 10 – 15 % take place in the second trimester. The Swedish law permits an induced abortion up until 18 gestational weeks and until 21 weeks and 6 days after special permit. During the recent years in Sweden there has been a transition from the majority of the abortions being performed surgically to being medically induced. During 2018 over 90 % of the abortions were medically induced.

Mifepristone followed by a prostaglandin analogue is the current medical method of choice and has been shown to be safe and effective. The most commonly used combination of drugs is Mifepristone and Misoprostol. Mifepristone is a synthetic steroid which acts as an antiprogesterin. Treatment with Mifepristone softens the cervix and sensitizes the pregnant uterus to exogenous prostaglandin. Misoprostol is a prostaglandin E1 analogue that induces cervical ripening and stimulation of myometrial activity which lead to expulsion of the pregnancy (1).

The Covid-19 outbreak was declared a pandemic on March 11 2020, and cases has been observed in all continents. The first case of Covid-19 in Sweden was observed on January 31.

1  
2  
3 Covid-19 is a disease new to humans, and only limited scientific evidence is available to identify its  
4 impact on sexual and reproductive health. The virus effect on pregnant women is still debated and  
5 the risk of mother-to-child transmission is one of many clinical questions to be answered.  
6

7 Experience in historic epidemics has shown that lack of access to essential health services, such as  
8 pre- and postnatal-care, contraception services and abortion care, and shut down of services  
9 unrelated to the epidemic response resulted in more deaths than those caused by the epidemic  
10 itself.  
11

12  
13 The effect on these services is unpredictable. Recent epidemics like the Zika and Ebola out-breaks  
14 have shown different patterns. It was noted in Puerto Rico during the Zika epidemic that when  
15 contraceptive care was made more available during the epidemic, the use of contraceptives to  
16 prevent pregnancy and adverse outcome due to exposure to the Zika virus, increased. On the other  
17 hand, there is evidence that during the 2014 Ebola epidemic the utilization of family planning and  
18 antenatal care declined and did not recover to pre-outbreak levels for 6 months (2).  
19

20  
21 The covid-19 epidemic has already affected access to abortion care. It has been suggested that  
22 demands of safe abortion services have increased in the hospitals nearby Hunan Province in China,  
23 where the virus was first detected, which may be related to lack of contraceptive commodities or to  
24 fear of unknown consequences of infection during pregnancy (2).  
25

26 In the United States governors in a number of states have called for a halt to abortion care  
27 throughout the covid-19 epidemic. Abortion care has been categorized as elective or nonessential. A  
28 few of the states have blocked the bans and lawsuits are pending (3).  
29

30 In the United Kingdom the Royal College of Obstetricians & Gynaecologists has published a  
31 document "Coronavirus (COVID-19) infection and abortion care" to ensure safe and effective  
32 abortion care during the epidemic. It entails recommendations and guidance to health care  
33 professionals. A similar document is not available in Sweden yet (4).  
34

35 It is estimated that a 10% drop in reproductive health care due to the covid-19 epidemic could have  
36 catastrophic impact in low- and middle-income countries. Due to several reasons, explained in the  
37 cited article, this could for example lead to 3 million more unsafe abortions and 15 million more  
38 unintended pregnancies (5).  
39

40 The covid-19 epidemic has resulted in that the Swedish health care system has prioritized resources  
41 from planned elective care, such as non-emergent out-patient visits and elective benign surgery, to  
42 intensive and emergency care. Traditionally induced abortion belongs to emergency care that cannot  
43 be delayed. The possible effect of a delayed induced abortion could be that the woman has to go  
44 through an induced abortion at a later gestational week and, worst-case scenario, that she has  
45 already passed the legal gestational week limit for an induced abortion.  
46

47 The abortion clinics in Sweden are open as usual during the epidemic. We have however noticed that  
48 fewer women contact the clinic in Gothenburg to perform an abortion compared to the same time  
49 period earlier years. The same tendency has been reported through personal communication with  
50 other abortion clinics in Sweden.  
51

## 52 Objectives:

53 The objective of this study is to investigate how the covid-19 epidemic has affected the numbers of  
54 induced abortions in Sweden, during the epidemic period compared to the same period during the  
55 recent years. We will also investigate if the covid-19 epidemic has affected the method by which an  
56 induced abortion is performed (surgical vs medical) or if the abortion is performed at a later  
57 gestational week, compared to the same time period recent years.  
58

59 We will also investigate if more women chose to complete a pregnancy instead of performing an  
60 abortion.

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3 We will also investigate if the covid-19 epidemic has affected women to change their expectations  
4 and apprehensions about pregnancy and abortion care.  
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### 8 **Design:**

9 This is a study that is divided into three parts; two quantitative and one qualitative. The quantitative  
10 parts are based on data from the abortion register and the medical birth register (Socialstyrelsen).  
11 Data on total number of abortions, number of abortions per 1000 women, which week of gestation  
12 the abortion is performed (divided into <8 GW, 9 – 12 GW, 12-18 GW and >18 GW), which method is  
13 used to perform the abortion (surgical or medical) among all women in Sweden during the epidemic  
14 will be compared with the corresponding data from 2018 and 2019. The numbers will also be  
15 subdivided into monthly figures (March, April, May..). In the second quantitative part of the study  
16 number of abortions during the pandemic and births 9 months later will be compared with the  
17 corresponding data from 2018 and 2019.

18 Socialstyrelsen is suffering from a high workload due to the pandemic. Data retrieval from the  
19 registers might be postponed although Socialstyrelsen is prioritizing projects relating to the covid-19-  
20 epidemic. Still it is important to collect information already during the ongoing epidemic about if the  
21 abortion care is affected negatively. If the first data retrieval is not possible by October 2020 a local  
22 study in Gothenburg will be performed awaiting the data from Socialstyrelsen. The local study will be  
23 based on the same parameters as mentioned above and will be retrieved from the medical journal  
24 data systems Melior and Obstetrix.

25 In the qualitative study ten women will be asked to take part in interviews. The women will be asked  
26 to participate during the on-going covid-19 epidemic. A qualitative method with a descriptive  
27 approach according to Malterud (Malterud K, 2009) will be used. For a semi-structured interview, a  
28 guide with open questions will be prepared. The interviews will be recorded and transcribed  
29 verbatim. The transcript will be analyzed by systematic text condensing which has four steps: Firstly,  
30 the researchers read the text to get a general impression without putting their understanding into it.  
31 Later the researchers organize and systematize the themes which they find in the texts and create  
32 meaningful units that they will code. Thereafter the content of the meaningful units is concluded and  
33 divided into subgroups with different codes. In the last step all units are put together and they will  
34 retell and mediate the informants' voices.  
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### 39 **Setting/centres:**

40 The Department of Gynaecology and Reproductive medicine at Östra sjukhuset, Sahlgrenska  
41 University Hospital, Gothenburg.  
42

### 43 **Participants:**

44 The quantitative parts of the study cover all women who perform an induced abortion and who give  
45 birth 9 months later during the covid-19 epidemic and the equivalent time period during 2018 and  
46 2019.  
47

48 The participants in the qualitative study will be women who visit the abortion clinic to perform an  
49 induced abortion during the covid-19 epidemic. The women will fulfil the inclusion criteria but not  
50 the exclusion criteria (see below).  
51

### 52 **Outcome measures:**

53 Differences in total number of abortions, number of abortions per 1000 women, which week of  
54 gestation the abortion is performed (divided into <8 GW, 9 – 12 GW, 12-18 GW and >18 GW), which  
55 method is used to perform the abortion (surgical or medical) during the pandemic and births 9  
56 months after the time period of the pandemic compared to 2018 and 2019.

57 Expectations and apprehensions about pregnancy and abortion care among women seeking abortion  
58 care during the Covid-19-epidemic.  
59  
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**Eligibility criteria:****Inclusion criteria:**

Women aged  $\geq 18$  years requesting a termination of pregnancy, for social, medical or foetal indications willing and able to understand and participate after the study has been explained, with good understanding of Swedish or English language, in general good health, who have given their informed consent will be eligible for the qualitative part of the study.

All women in the abortion register and the Medical birth register during the relevant time periods will be included.

**Exclusion criteria:**

Women who do not wish to participate, who are unable to communicate in Swedish or English, are  $< 18$  years of age or suffer from a severe psychiatric disorder will not be enrolled in qualitative part of the study.

**Trial process and data collection:**

Data will be retrieved from the Abortion register and the Medical birth register at Socialstyrelsen and from interviews with patients seeking abortion care.

If the local study in Gothenburg will be performed data will be retrieved from the medical journal data systems Melior and Obstetrix via Datautnheten/Sahlgrenska Universitetssjukhuset.

**Enrolment:**

For the qualitative part of the study ten women will be interviewed. Women who come to the abortion clinic during the covid-19 epidemic requesting a termination of pregnancy, with live pregnancies and who are eligible will be invited to be included in the study at the initial outpatient consultation. The women will receive detailed oral and written information and have the possibility to ask questions regarding the study. Written informed consent will be signed by the attending physician/midwife and the woman. The interviewer will not be same person as the care giver of the patient.

**Discontinuation:**

After recruitment, women may withdraw from the trial at any time without giving any reason if they do not wish to participate.

**Trial start date:**

It is estimated that ethics permission will be granted in June 2020, so that the qualitative study can start during the summer of 2020. To start the quantitative study data needs to be collected. It is at this point uncertain at which time data has been registered at Socialstyrelsen.

**Statistical analysis; power calculations – sample size:****Sample size:**

According to the method used in the qualitative part of the study ten participants will be sufficient. Since all women of the relevant population is included in the register studies, and not only a sample, even small variations between the groups will be highly significant.

**Ethics committees and other regulatory boards:**

Permission will be obtained from the regional ethics committee.

**Ethical issues:**

Women will receive oral and written study specific information and an informed consent will be signed by the participating women and the investigators prior to any participation in the trial. Confidentiality will be guaranteed.

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2  
3 Since termination of pregnancy might be considered a sensitive subject in the general population the  
4 investigators will show consideration and guarantee full confidentiality to the study participants.  
5

#### 6 **Risk benefit analysis:**

7 Questions about pregnancy and abortions might be considered personal and sensitive, but the  
8 participation will be voluntary and subjects have the right to withdraw from the study at any  
9 time without prejudice to their further medical care. Also the interview consists of open  
10 questions which enables the participants to choose what they are willing to share.  
11

12 The study is expected to increase the knowledge about abortion care in times of crises and the  
13 benefit of this knowledge is expected to be higher than the low risk of emotional discomfort of  
14 the participants in the interview study.  
15

#### 16 **Significance:**

17 We expect a significant decrease of the number of induced abortions during the covid-19 epidemic.  
18 The reason for this could be a reduced number of sexual encounters because of social restrictions  
19 due to recommendations of social distancing. Another explanation could be that more women chose  
20 to fulfil a pregnancy or contact the abortion clinic later in the pregnancy due to a fear of visiting  
21 health facilities during the epidemic and hence have a late abortion. Further explanations could be  
22 that the massive information from authorities has resulted in a misunderstanding that women  
23 should not seek abortion care because it is not considered emergent care.  
24

25 It is important to investigate how a global crisis affect the abortion numbers in Sweden, both  
26 considering the number of unplanned pregnancies but also the capacity of the health care to meet  
27 women's reproductive wishes. Sexual and reproductive rights must be maintained even during  
28 epidemics and a plan for this should be part of the national crisis preparedness.  
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## Standards for Reporting Qualitative Research (SRQR)\*

<http://www.equator-network.org/reporting-guidelines/srqr/>

Page/line no(s).

### Title and abstract

<p><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</p>	1/1-2
<p><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</p>	1/19-29, 2/1-12

### Introduction

<p><b>Problem formulation</b> - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement</p>	4/1-3
<p><b>Purpose or research question</b> - Purpose of the study and specific objectives or questions</p>	4/1-3

### Methods

<p><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**</p>	4/24-26
<p><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</p>	4/17-19
<p><b>Context</b> - Setting/site and salient contextual factors; rationale**</p>	4/9-15
<p><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**</p>	4/9-16
<p><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</p>	5/10
<p><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**</p>	4/6-21



1 2 3 4 5	<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	4/7-9, 24-26
6 7 8	<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)	5/19
9 10 11 12	<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	4/27-32
13 14 15 16	<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**	4/27-32
17 18 19 20	<b>Techniques to enhance trustworthiness</b> - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	4/23-26

### Results/findings

23 24 25 26	<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	4/24-26
27 28 29	<b>Links to empirical data</b> - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	Figure 1-3

### Discussion

32 33 34 35 36 37	<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	(/1-17, 9/1-14, 16-21
38 39	<b>Limitations</b> - Trustworthiness and limitations of findings	9/16-21

### Other

42 43 44	<b>Conflicts of interest</b> - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	10/17-22
45 46	<b>Funding</b> - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	10/13-15

\*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.

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\*\*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.

**Reference:**

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014  
DOI: 10.1097/ACM.0000000000000388

For peer review only

# BMJ Open

## The influence of the COVID-19 pandemic on abortions and births in Sweden - a mixed methods study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-054076.R1
Article Type:	Original research
Date Submitted by the Author:	29-Nov-2021
Complete List of Authors:	Rydellius, Johanna; Sahlgrenska Academy, Department of clinical sciences, Obstetrics and Gynecology Edalat, Mina; Sahlgrenska University Hospital, Reproductive and Perinatal Health, Institute of Health and Care Science Nyman, Viola; Sahlgrenska Academy, Reproductive and Perinatal Health, Institute of Health and Care Science Jar-Allah, Tagrid; Sahlgrenska Academy, Department of clinical sciences, Obstetrics and Gynecology Milsom, Ian; Sahlgrenska Academy, Department of clinical sciences, Obstetrics and Gynecology Hognert, Helena; Sahlgrenska Academy, Department of clinical sciences, Obstetrics and Gynecology
<b>Primary Subject Heading</b>:	Obstetrics and gynaecology
Secondary Subject Heading:	Qualitative research, Sexual health
Keywords:	COVID-19, REPRODUCTIVE MEDICINE, SEXUAL MEDICINE

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4 1 The influence of the COVID-19 pandemic on abortions and  
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7 2 births in Sweden - a mixed methods study  
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12 4 Running title: The influence of the COVID-19 pandemic on abortions and births in Sweden  
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38 18 **WORD COUNT: 3884**  
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42  
43 20 **ABSTRACT**

44  
45 21 Introduction: Although considered an essential service by the World Health Organization  
46  
47 22 (WHO), there are indications that access to induced abortion care has been restricted during  
48  
49 23 the COVID-19 pandemic.

50  
51 24 Objectives: To investigate if the number of induced abortions and ongoing pregnancies  
52  
53 25 changed during the first pandemic wave of COVID-19 in 2020 compared to recent years prior  
54  
55 26 to the pandemic and explore possible reasons for the findings.

56  
57 27 Design: Convergent parallel mixed methods design. Collection of quantitative data from the  
58  
59 28 Swedish National Board of Health and Welfare and the Swedish Pregnancy Register and  
60  
29 qualitative data from interviews.

1  
2  
3 1 Setting and time period: National data on abortions January 2018-June 2020 and births  
4 January 2018-March 2021. Interviews performed at the main abortion clinic, Gothenburg,  
5 Sweden, in June 2020.  
6  
7  
8 4 Participants: All women aged 15-44 living in Sweden 2018-2020, approximately 1.9 million.  
9 15 informants were interviewed.  
10  
11  
12 6 Primary and secondary outcome measures: Number of abortions and births/1000 women  
13 15-44 years. Themes and subthemes identified from interviews.  
14  
15  
16 8 Results: The number of abortions and ongoing pregnancies did not change significantly  
17 during the study period compared to before the pandemic started. Interview themes  
18 identified: Meeting with abortion care during the COVID-19 pandemic; *availability and fear*  
19 *of being infected and to infect others*, the impact of the COVID-19 pandemic on the abortion  
20 decision; *to catch COVID-19 during pregnancy, feelings of loneliness and isolation, and social*  
21 *aspects*.  
22  
23  
24  
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26  
27 14 Conclusions: This study shows that the number of abortions and ongoing pregnancies  
28 remained unchanged during the first wave of the COVID-19 pandemic in 2020 in Sweden  
29 compared to before the start of the pandemic. Abortion seeking women did not hesitate to  
30 proceed with the abortion. The women expressed a number of fears concerning both  
31 availability of care and their health which could have been properly addressed by the  
32 authorities.  
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## 40 ARTICLE SUMMARY

### 42 Strengths and limitations:

- 44 23 • This is the first ever reported study from Sweden which explores women's  
45 24 expectations and apprehensions about abortion care and being pregnant during the  
46 25 COVID-19 pandemic.
- 47 26 • The main strength of this study is the convergent parallel mixed methods design  
48 27 which combines quantitative and qualitative data.
- 49 28 • The main limitation is that the interviews were conducted on women who actually  
50 29 sought abortion care. Further perspectives could have been explored in interviews  
51 30 with women who contemplated seeking abortion care but then decided not to.  
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## 1 KEY MESSAGE

- 2 • No change in number of abortions or ongoing pregnancies during the first wave of  
3 the COVID-19 pandemic in Sweden.
- 4 • Abortion seeking women proceeded with the abortion at the same rate during the  
5 first wave of the COVID-19 pandemic as they did prior to COVID-19.
- 6 • Despite not hesitating to proceed with the abortion women expressed fears of  
7 contracting a COVID-19 infection, not being welcomed to the clinic and not allowed  
8 to bring a partner.

10 **TRIAL REGISTRATION NUMBER:** Not applicable

12 **KEY WORDS:** COVID-19 pandemic, induced abortion, mixed methods study, reproductive  
13 medicine, sexual medicine.

## 15 INTRODUCTION

16 The World Health Organization (WHO) estimated that, during the years 2015 – 2019, 73.3  
17 million induced abortions occurred world-wide annually (1). Access to legal and safe induced  
18 abortion care is considered essential to attain the highest standard of sexual and  
19 reproductive health (2).

20 On March 11, 2020, the WHO classified the COVID-19 outbreak as a global pandemic (3).  
21 Based on poor experiences during previous pandemics, such as the Ebola outbreak in 2014,  
22 there were concerns that disruption of sexual and reproductive health services could occur.  
23 During the Ebola outbreak patients postponed their visits to health care units and one  
24 qualitative study suggested that the decrease in care-seeking behaviour was due to fear of  
25 contracting the Ebola virus at health facilities and distrust of the health care system (4). With  
26 this in mind, on June 1<sup>st</sup>, 2020, the WHO recommended that access to contraception and  
27 abortion care to the full extent as allowed by the law should be ensured during the COVID-  
28 19 pandemic. If facility-based provision of such services should be disrupted then digital  
29 health service was recommended (5).

1  
2  
3 1 Despite the strong recommendations from the WHO there are studies indicating that global  
4  
5 2 access to induced abortion has been restricted due to priorities in health services, lack of  
6  
7 3 political will and a detrimental effect of the lock-down (6). European governments have  
8  
9 4 taken wildly divergent approaches to tackle the issue with induced abortion care during the  
10  
11 5 pandemic. From suspension of abortion services, considering this service non-essential, to  
12  
13 6 lifting of regulations and allowing telemedicine and self-managed care solutions such as  
14  
15 7 postal delivery of mifepristone and misoprostol (6, 7).  
16  
17 8

18 9 There are few qualitative studies investigating the psychosocial effects of the current COVID-  
19  
20 10 19 pandemic on pregnant women. In one meta-synthesis from 2020 Shorey et al summarize  
21  
22 11 that during a pandemic, pregnant women often experience anxiety, fear and more  
23  
24 12 specifically concern about their health (8). One American study suggested that psychological  
25  
26 13 distress is likely due to social, economic and healthcare disruptions as well as the uncertainty  
27  
28 14 regarding the medical effect of COVID-19 (9).  
29  
30 15

31 16 Each year around 35 - 38000 induced abortions are performed in Sweden, and during 2019  
32  
33 17 the number of abortions was 36000 which corresponds to 19/1000 women (aged 15-44  
34  
35 18 years) (10).

36 19 Abortion care in Sweden is part of the public health care system, and it is the responsibility  
37  
38 20 of the local healthcare authority to provide induced abortion within a week from the first  
39  
40 21 patient contact. Induced abortion care is publicly funded and available to all residents.

41 22 Women performing an abortion up until gestational week (GW) 9 are usually treated in a  
42  
43 23 primary health care unit or at home. If the woman has an intercurrent disease or is in GW  
44  
45 24 >9+0 she is treated in a secondary health care unit (e.g. a gynecological ward). The Swedish  
46  
47 25 Abortion Act (1974:595) (11) allows induced abortion on request up until GW 18+0. From  
48  
49 26 GW 18+1 to 21+6 induced abortion may be performed after permission from the National  
50  
51 27 Board of Health and Welfare. According to the Abortion Act the induced abortion needs to  
52  
53 28 be initiated at a health care unit. In clinical practice this means that a woman who is about  
54  
55 29 to perform a home abortion will swallow mifepristone at the unit and then take the rest of  
56  
57 30 the medication, misoprostol and analgesics, at home.

58 31 The first wave of the COVID-19 pandemic in Sweden started in February 2020 and peaked  
59  
60 32 during week 15 and 16. During week 24, which correlates with the time of data collection,



1 the number of COVID-19 deaths were 232 which corresponds to 2.24/100.000 per week  
2 (12).

3 The Public Health Agency of Sweden did not issue any official lock-downs but restricted  
4 numbers of persons allowed in gatherings to a maximum of 50. Contact tracing, testing,  
5 hygiene and protective measures and physical distancing were widely used.

6 Recommendations such as to stay at home with the slightest symptom of an infection, to  
7 keep distance from others and for specific risk groups, to completely avoid close contact  
8 with others, were issued (13).

9 The Swedish public health care system did not officially change their access policy but since  
10 staff was re-allocated to the COVID-19 intensive care units the actual availability did change.  
11 During the spring of 2020 the number of primary health care visits declined, many elective  
12 surgery departments were partly closed and visits to specialized care departments declined  
13 by 50% (14).

14 The induced abortion care units, both primary and secondary, in Sweden provided services  
15 as usual during the COVID-19 pandemic. No official policy changes were initiated to facilitate  
16 access, such as expansion of telemedicine or at-home administration of mifepristone.

17  
18 There is as far as we are aware no peer-reviewed qualitative research on how the current  
19 COVID-19 pandemic has affected women seeking induced abortion care in Sweden.

20 The aim of this study was to investigate if the number of induced abortions and ongoing  
21 pregnancies changed during the first pandemic wave of COVID-19 compared to recent years  
22 prior to the pandemic and to explore possible reasons for the findings.

23

## 24 MATERIAL AND METHODS

### 25 Data collection

26 A convergent parallel mixed methods design was used. The purpose of the design was to use  
27 qualitative data to illustrate quantitative findings (15).

28

29 Data regarding number of abortions and births were collected from the Swedish National  
30 Board of Health and Welfare and the Swedish Pregnancy Register respectively (10). Data on  
31 abortions was collected for the same period of time as interviews were performed, i.e., June

1  
2  
3 1 2020, and for January 2018 to May 2020 for comparison. Data on births were collected from  
4  
5 2 January 2018-March 2021 to illustrate ongoing pregnancies during the study period and  
6  
7 3 during previous years for comparison. All abortion clinics in Sweden report yearly to the  
8  
9 4 abortion register at the Swedish National Board of Health and Welfare and in 2019 the  
10  
11 5 Swedish Pregnancy Register covered 91.1% of all births in Sweden (16).  
12  
13 6

14 7 In order to investigate women's expectations and apprehensions about pregnancy and  
15  
16 8 abortion care during the COVID-19 pandemic a qualitative method including interviews was  
17  
18 9 used. The study is based on a supportive and caring relationship according to Berg and  
19  
20 10 Lundgren (17). The basis of care includes respect and goodwill towards other people. A  
21  
22 11 caring and health-promoting approach supports people's autonomy and integrity, and  
23  
24 12 refrains from all forms of condemnation, punishment, abusive treatment and the exercise of  
25  
26 13 power. Informants were contacted at the Abortion Clinic at the Department of Gynaecology  
27  
28 14 and Reproductive Medicine, Sahlgrenska University Hospital (SU), Gothenburg, Sweden in  
29  
30 15 June 2020, when the number of COVID-19 positive patients was high in Sweden. 40 women  
31  
32 16 aged > 18 years who, understood and spoke Swedish or English, and attended the abortion  
33  
34 17 clinic for counselling for abortion were asked to participate in the study. Women with severe  
35  
36 18 mental illness were excluded in order not to aggravate their suffering. Considerations were  
37  
38 19 made to include women of different ages and gestational weeks. 17 informants accepted to  
39  
40 20 participate in the study, but two declined before the interviews. All informants received oral  
41  
42 21 and written information about the study purpose, that participation was voluntary,  
43  
44 22 anonymized, and that they could decline participation at any time without giving any reason.  
45  
46 23 They also received information about whom to contact if they needed counselling after the  
47  
48 24 interview. The informants signed an informed written consent before the interviews started.  
49  
50 25 ME, who was working as a midwife at the clinic but not involved in the women's care,  
51  
52 26 carried out the interviews during the women's first visit. The interview guide contained  
53  
54 27 demographic questions and two open-ended questions; experience of seeking abortion care  
55  
56 28 and of being pregnant during the COVID-19 pandemic.  
57  
58 29 The Abortion Clinic at SU is the major abortion clinic in Gothenburg, the second largest city  
59  
60 30 in Sweden. It manages abortions at all gestational weeks and is the only abortion clinic in  
31  
32 31 Gothenburg with an in-patient clinic for patients in the second trimester and patients with  
intercurrent diseases that require in-hospital care. It was therefore possible to recruit

1 informants of different gestational age and who chose different abortion methods. All  
2 interviews were recorded and transcribed verbatim.

#### 4 **Data analysis**

5 The only available option for collection of data on abortions from the Swedish National  
6 Board of Health and Welfare were quarterly numbers. The number of abortions performed  
7 during January-March and April-June 2020 were compared to the same periods during 2018  
8 and 2019. The data is presented as number of abortions/1000 women aged 15-44 years,  
9 percentage of abortions in different gestational weeks (divided into <7 GW, 7-9 GW, 9-12  
10 GW, 12-18 GW and >18 GW) and as a percentage of abortions according to the method used  
11 (surgical, medical in-hospital and medical home abortion).

12 Since abortions are displayed as numbers of abortions/1000 women 15-44 years of age  
13 quarterly, also births are displayed as numbers/1000 women 15-44 years of age.

14  
15 The interviews were analysed by systematic text condensation (STC) according to Malterud  
16 (18). STC was chosen because it aims to describe the informants' experiences, as expressed  
17 by themselves, rather than to explore the possible underlying meaning of their statements.  
18 The process involved four steps: I. Reading all the material several times to obtain an overall  
19 impression. II. Identifying units of meaning, representing different aspects of the research  
20 question, and coding and sub-coding for these. III. Condensing and summarising the  
21 contents of each of the coded groups and IV. Creating generalising descriptions and concepts  
22 reflecting the informants' most important expectations and apprehensions about pregnancy  
23 and abortion care. All authors read the text separately. ME, VN and HH did the analysis and  
24 created the themes, and all authors agreed on the results. During the analysis process the  
25 authors, all working within reproductive and perinatal care, reflected on their own  
26 preunderstanding, and the fact of unintentionally influencing the outcomes.

27  
28 This study was approved by the Ethics Committee (Dnr 2020-02661).

#### 30 **Patient and Public involvement**

31 Patients or the public were not involved in the design, recruitment or analysis of this study.

32 The results will be issued in a press release to the public media.

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4  
5 **2 RESULTS**6  
7  
8 **3 Number of abortions and births**

9  
10 The number of abortions/1000 women (15-44 years) was 18,3 during the whole year of  
11 2020, compared to 19,2 during the two previous years in Sweden. Even when comparing the  
12 national figures for the number of abortions/1000 in women aged 15-44 years during the  
13 two first quartiles of 2020 (5,0 and 4,3) with the corresponding quartiles of 2018 (4,9 and  
14 4,5) and 2019 (4,6 and 5,2) there was no significant decline (Figure 1). Neither did the  
15 numbers change in the region where Gothenburg is situated, where the number of  
16 abortions/1000 women aged 15-44 years were 4,3, 4,2 and 4,4 during 2018, 2019 and 2020  
17 respectively. The number of surgical abortions declined from 6,3 and 5,2% during the first  
18 quartiles of 2019 to 5,1 and 3,5% during the first two quartiles of 2020, and consequently  
19 medical home abortions increased from 66,8% and 70% during the first quartiles of 2019 to  
20 69,6 and 74,5% during the first two quartiles of 2020 (Figure 2). There was no change in  
21 what pregnancy week the patient sought abortion care (Figure 3).

22 The number of births/1000 women (15-44 years) was 12,6 during the 4th quartile of 2020  
23 and 14,2 during the 1st quartile of 2021, which reflects ongoing pregnancies during the first  
24 6 months of 2020, and did not change significantly compared to the 4th quartile of 2019;  
25 12,9, and the 1st quartile of 2020; 14,3 (Figure 1).

26

27

28 **22 Interviews**

29 Demographic data of the informants are shown in Table 1.

30 **Table 1. Demographic data of the informants**

Age	Abortion
34	GW <9+0*
32	GW 9-12*
44	Home abortion**
20	GW 9-12*
31	GW 9-12*
33	GW <9+0*
19	Surgical abortion
23	GW 9-12*
25	GW 9-12*
39	GW <9+0*
26	Home abortion**

20	Home abortion**
46	GW >12+0*
39	Home abortion**
28	GW >12+0*

GW=gestational week.

\*Medical in-hospital abortion at GW  $\leq$ 9+0. \*\*Medical home-abortion at GW  $\leq$ 9+0

Two themes and subthemes were identified: meeting with abortion care during the COVID-19 pandemic; *availability, fear of being infected and to infect others*, and the impact of the COVID-19 pandemic on the abortion decision; *to catch COVID-19 during pregnancy, feelings of loneliness and isolation, and social aspects* (Table 2).

**Table 2. Themes and subthemes**

Meeting with abortion care during the COVID-19 pandemic	The impact of the COVID-19 pandemic on the abortion decision
availability	to catch COVID-19 during pregnancy
fear of being infected and to infect others	feelings of loneliness and isolation
	social aspects

### ***Meeting with abortion care during the COVID-19 pandemic***

#### ***Availability***

Participants described that it was easy to obtain an appointment at the abortion unit.

Participants expressed thankfulness for living in a country where abortion care was available during the pandemic. Although not hesitating to seek abortion care they did describe a fear before the visit of not being welcome. Some participants were worried that there would not be room for abortion patients on the gynaecological ward. Others were afraid of not being allowed to enter the ward due to symptoms that could be associated with a COVID-19 infection. After the consultation several participants described the staff as supportive, accommodating, helpful and friendly.

*"I was a little worried. I did not think you could get in, that you could book an appointment"*  
(participant no. 17)

#### ***Fear of being infected and to infect others***

Participants expressed a fear of contracting the COVID-19 virus during the visit or during public transportation to the appointment. There was also a fear of infecting others. One participant described that she did not want to visit the hospital since she was in a risk group.

1  
2  
3 1 *I myself am very scared of getting this disease, what if I go to the hospital now, here I am*  
4  
5 2 *today, and then I get infected" (participant no. 3).*  
6  
7 3

#### 8 4 **The impact of the pandemic on the abortion decision**

##### 9 5 *To catch COVID-19 during pregnancy*

10  
11 6 Participants expressed that they did not plan a pregnancy or wanted to give birth during the  
12  
13 7 pandemic. Some articulated that they would have been concerned about both their own and  
14  
15 8 the baby's health in case they would contract COVID-19 while being pregnant.

16  
17 9 *"What if I get it [COVID-19] when I'm pregnant? Can it affect my child? Can I get well?"*  
18  
19 10 *(participant no 16).*  
20  
21 11

##### 22 12 *Feelings of loneliness and isolation*

23  
24 13 Participants missed having a partner, friend or relative for support during their stay at the  
25  
26 14 hospital. Instead, they obtained support by having contact with their partner or others via  
27  
28 15 e.g. a mobile phone when the first pill was taken at the ward. However, the participants also  
29  
30 16 expressed understanding for the restrictions due to the pandemic. The participants who  
31  
32 17 chose home abortion did not suffer from this and one participant said that she chose to have  
33  
34 18 a home abortion in order to be able to have somebody close by.

35  
36 19 *"Actually, both a man and a woman are required to get pregnant, but it is only the woman*  
37  
38 20 *who should suffer and it felt very bad and it affected a lot"*  
39  
40 21 *(participant no. 10).*  
41  
42 22

##### 43 23 *Social aspects*

44  
45 24 Participants stated that the COVID-19 pandemic did not influence their decision to seek  
46  
47 25 abortion care. However, one participant expressed that the instable situation concerning  
48  
49 26 work and income influenced her decision to some extent and one participant responded that  
50  
51 27 she was afraid that the health care system might not be able to give her complete maternal  
52  
53 28 health care during the pandemic if she continued her pregnancy.

54  
55 29 *"At work, there have been notices of redundancy so we don't know for how long we have a*  
56  
57 30 *job. Things like that might influence if a pregnancy is welcomed or not" (participant no. 4)*  
58  
59 31

## 1 DISCUSSION

2 This study provides an insight into abortion seeking women's perspectives during the COVID-  
3 19 pandemic. The number of abortions and ongoing pregnancies did not change during the  
4 first wave of the pandemic in 2020 compared to 2018 and 2019, indicating that women  
5 sought abortion care to the same extent as before the pandemic. From the qualitative data  
6 analysis, we found that despite a number of aggravating and worrying factors the pandemic  
7 did not influence the abortion seeking women's decisions to proceed with the abortion.

8 In previous pandemics a decrease in care-seeking behaviour has been observed. For an  
9 abortion-seeking woman this could result in presenting at a higher gestational weeks and  
10 subsequently undergoing later abortions which is associated with greater medical risks. This  
11 has not been the case in Sweden during the study period (Figure 3). This is also reflected in  
12 the interviews where participants described that they did not hesitate to seek abortion care  
13 although some expressed a fear of not being welcomed prior to the visit and worried about  
14 both contracting and spreading the virus.

15  
16 The participants in this study expressed that they did not want to plan a pregnancy during  
17 the pandemic due to fear for their own and the baby's health, and also due to the unstable  
18 employment and income situation. They also expressed worries that their partner was not  
19 allowed into the postnatal ward. Similar results were found in the meta-synthesis by Shorey  
20 et al as well as in a British study where pregnant women's perception of COVID-19 and the  
21 healthcare services were further explored. Themes were: 'barriers to accessing health care',  
22 'lack of wider support' and 'media influence' (8, 19). In an Australian study the authors also  
23 focused on lack of partner support as well as risks of acquiring the infection and concerns  
24 with telehealth (20). We believe there is enough scientific support to the conclusion that  
25 pregnant women are a particularly vulnerable group concerning the risk of psychological un-  
26 wellbeing during a pandemic.

27  
28 The proportion of surgical abortions decreased, and medical home abortions increased  
29 during the study period. This could be due to a lack of surgical resources as a consequence of  
30 allocating staff to COVID-19 intensive care units, but the shift from surgical abortions  
31 towards home abortion started long before the pandemic. In 2014 surgical abortions

1  
2  
3 1 constituted 12% of all abortions and home abortions 52% compared to 6,8% and 64%  
4  
5 2 respectively at the beginning of 2018 (10). This could be looked upon as a long-term trend  
6  
7 3 due to enhancing medical protocols and patients' preference for home abortion which has  
8  
9 4 been shown in previous studies (21, 22). During the pandemic home abortion was the only  
10  
11 5 alternative if the patient wanted support from a partner, friend or relative. In this study the  
12  
13 6 participants who chose home abortion did not express feelings of loneliness or lack of  
14  
15 7 support as opposed to some of the other participants.  
16  
17 8

18 9 The main strength of this first ever reported study from Sweden which explores abortion  
19  
20 10 care during the COVID-19 pandemic is the convergent parallel mixed methods study design  
21  
22 11 combining quantitative and qualitative data.

23 12 The main limitation is that the interviews were conducted on women who actually sought  
24  
25 13 abortion care. Further perspectives could have been explored in interviews with women  
26  
27 14 who contemplated seeking abortion care but then decided not to. It would have been a  
28  
29 15 great challenge to get in contact with and interview such informants especially since non-  
30  
31 16 essential contacts between patients and health care providers were restricted due to the  
32  
33 17 pandemic.  
34  
35 18

36 19 In conclusion this study has shown that the number of abortions and ongoing pregnancies  
37  
38 20 remained stable and that abortion seeking women did not hesitate to proceed with the  
39  
40 21 abortion due to the pandemic during the first period of the COVID-19 pandemic in Sweden.  
41  
42 22 This result might be due to the fact that Sweden has a long tradition of defending the right  
43  
44 23 to induced abortion and that Swedish women trust that abortion care is considered essential  
45  
46 24 (23). However, although the study participants did not hesitate to seek abortion care they  
47  
48 25 expressed a number of fears and worries concerning both the availability of care and their  
49  
50 26 health. Sweden has made no official statement that abortion care was considered essential  
51  
52 27 and prioritized during the pandemic and maybe some of the fears and worries could have  
53  
54 28 been prevented if this had been stated by the relevant authorities. Also, we suggest that  
55  
56 29 Sweden should have followed the example set by Great Britain, where an order was issued  
57  
58 30 already in March 2020 to include tele-medicine as an alternative for abortion care (24), in  
59  
60 31 order to avoid unnecessary spread of the infection and increase the safety and availability of  
32 32 the abortion care.



1

## 2 AUTHOR STATEMENT

3 JR, TJA and HH developed the study design. ME, JR and HH collected the data and HH, JR,  
4 TJA, ME and VN analysed the data. JR, ME, VN, TJA, IM and HH had access to the data,  
5 prepared final manuscript, and approved of the final version of the manuscript submitted.

6

## 7 ACKNOWLEDGEMENTS

8 We thank the study participants in the interview section of the study.

9

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12 Svensson's Fund grant HJSV2021003. The researchers were independent of the funders.

13

## 14 COMPETING INTERESTS

15 All authors have completed the Unified Competing Interest form at  
16 <http://icmje.org/disclosure-of-interest/> (available on request from the corresponding  
17 author) and declare that HH has received compensation from Gedeon Richter for lectures,  
18 JR, TJA, IM, ME and VN have no competing interests; For all authors, their spouses, partners  
19 or children have no financial interests that may be relevant to the submitted work.

20

## 21 DATA SHARING

22 Aggregated data from the national registries and anonymised data from the qualitative part  
23 of the study are available at reasonable request from the corresponding author.

24

## 25 EXCLUSIVE LICENSE

26 I, the Submitting Author has the right to grant and does grant on behalf of all authors of the  
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### 33 17 FIGURE CAPTIONS

34 18 Figure 1: Births/1000 women quarterly January 2018 – March 2021 and abortions/1000  
35 19 women quarterly January 2018 – June 2020  
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38 20 Figure 2: Distribution of abortion methods in percentage quarterly January 2018 – June 2020  
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40 21 Figure 3: Distribution of gestational length at abortion quarterly January 2018 – June 2020  
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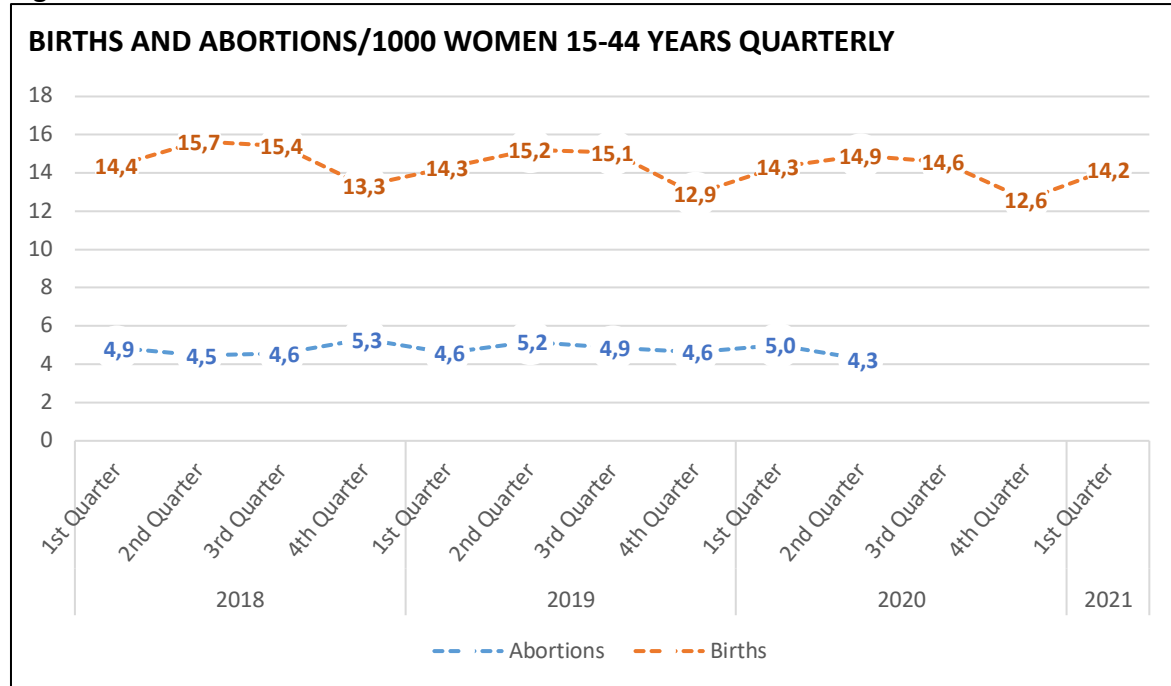
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Figure 1



Peer review only

Figure 2

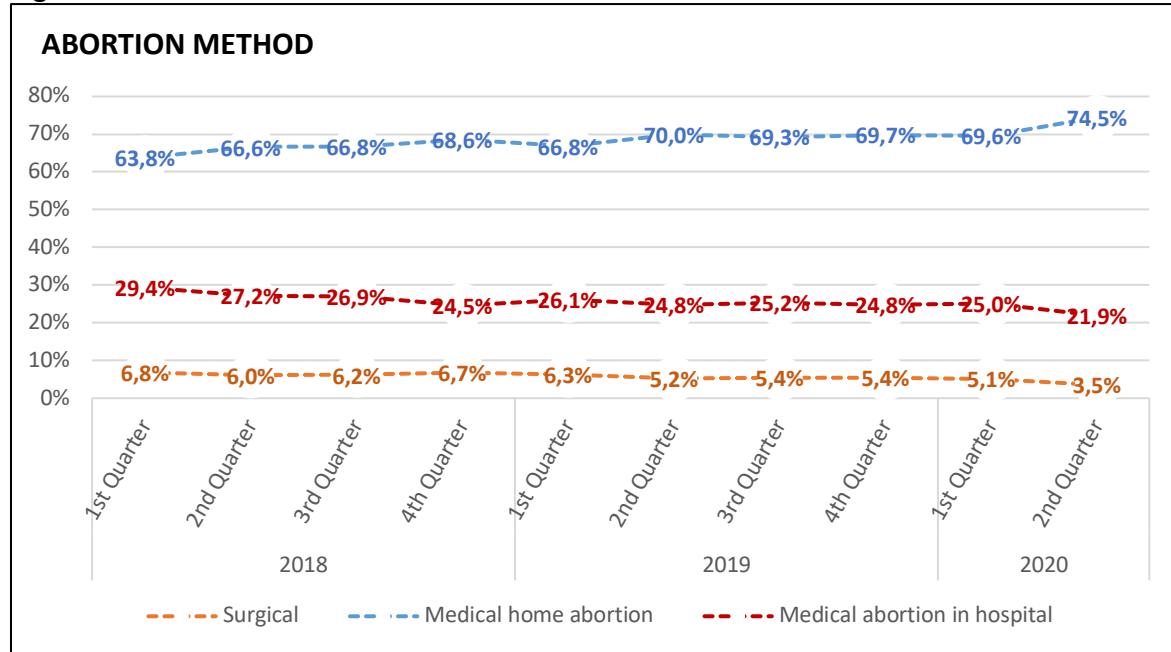
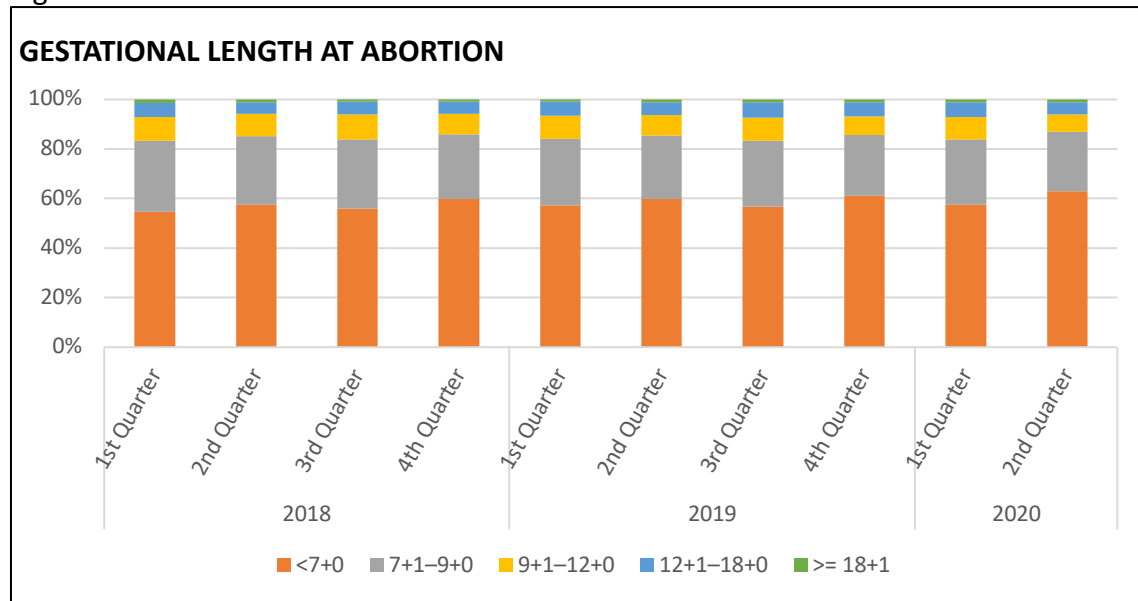


Figure 3



peer review only

**Trial title:** The impact of the covid-19 epidemic on induced abortion in Sweden: a quantitative register study and a qualitative semi-structured interview study

**Short title:** The impact of Covid-19 epidemic on induced abortion in Sweden

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**Overall aim:**

The overall aim is to investigate how a global epidemic affect the numbers of induced abortions in Sweden. Both concerning the number of unplanned pregnancies but also the capacity of the Swedish health care system to handle women's reproductive requests.

**Scientific background:**

Abortion is defined as termination of pregnancy before the foetus is viable outside the uterus.

Induced abortion is practiced world-wide and around 56 million pregnancies end in induced abortion every year. Induced abortion is also a common medical procedure in Sweden and during 2018, 36 000 induced abortions were reported (Socialstyrelsen, 2019).

The reason women choose to perform an induced abortion is divided into three groups: Foetal indication (severe foetal damage or malformation), maternal indication (the mother is at risk of medical harm due to the pregnancy) or social indication (non-medical indication).

A majority of the terminations takes place in the first trimester, and around 10 – 15 % take place in the second trimester. The Swedish law permits an induced abortion up until 18 gestational weeks and until 21 weeks and 6 days after special permit. During the recent years in Sweden there has been a transition from the majority of the abortions being performed surgically to being medically induced. During 2018 over 90 % of the abortions were medically induced.

Mifepristone followed by a prostaglandin analogue is the current medical method of choice and has been shown to be safe and effective. The most commonly used combination of drugs is Mifepristone and Misoprostol. Mifepristone is a synthetic steroid which acts as an antiprogesterin. Treatment with Mifepristone softens the cervix and sensitizes the pregnant uterus to exogenous prostaglandin. Misoprostol is a prostaglandin E1 analogue that induces cervical ripening and stimulation of myometrial activity which lead to expulsion of the pregnancy (1).

The Covid-19 outbreak was declared a pandemic on March 11 2020, and cases has been observed in all continents. The first case of Covid-19 in Sweden was observed on January 31.



1  
2  
3 Covid-19 is a disease new to humans, and only limited scientific evidence is available to identify its  
4 impact on sexual and reproductive health. The virus effect on pregnant women is still debated and  
5 the risk of mother-to-child transmission is one of many clinical questions to be answered.  
6

7  
8 Experience in historic epidemics has shown that lack of access to essential health services, such as  
9 pre- and postnatal-care, contraception services and abortion care, and shut down of services  
10 unrelated to the epidemic response resulted in more deaths than those caused by the epidemic  
11 itself.  
12

13  
14 The effect on these services is unpredictable. Recent epidemics like the Zika and Ebola out-breaks  
15 have shown different patterns. It was noted in Puerto Rico during the Zika epidemic that when  
16 contraceptive care was made more available during the epidemic, the use of contraceptives to  
17 prevent pregnancy and adverse outcome due to exposure to the Zika virus, increased. On the other  
18 hand, there is evidence that during the 2014 Ebola epidemic the utilization of family planning and  
19 antenatal care declined and did not recover to pre-outbreak levels for 6 months (2).  
20

21  
22 The covid-19 epidemic has already affected access to abortion care. It has been suggested that  
23 demands of safe abortion services have increased in the hospitals nearby Hunan Province in China,  
24 where the virus was first detected, which may be related to lack of contraceptive commodities or to  
25 fear of unknown consequences of infection during pregnancy (2).

26  
27 In the United States governors in a number of states have called for a halt to abortion care  
28 throughout the covid-19 epidemic. Abortion care has been categorized as elective or nonessential. A  
29 few of the states have blocked the bans and lawsuits are pending (3).

30  
31 In the United Kingdom the Royal College of Obstetricians & Gynaecologists has published a  
32 document "Coronavirus (COVID-19) infection and abortion care" to ensure safe and effective  
33 abortion care during the epidemic. It entails recommendations and guidance to health care  
34 professionals. A similar document is not available in Sweden yet (4).  
35

36  
37 It is estimated that a 10% drop in reproductive health care due to the covid-19 epidemic could have  
38 catastrophic impact in low- and middle-income countries. Due to several reasons, explained in the  
39 cited article, this could for example lead to 3 million more unsafe abortions and 15 million more  
40 unintended pregnancies (5).  
41

42  
43 The covid-19 epidemic has resulted in that the Swedish health care system has prioritized resources  
44 from planned elective care, such as non-emergent out-patient visits and elective benign surgery, to  
45 intensive and emergency care. Traditionally induced abortion belongs to emergency care that cannot  
46 be delayed. The possible effect of a delayed induced abortion could be that the woman has to go  
47 through an induced abortion at a later gestational week and, worst-case scenario, that she has  
48 already passed the legal gestational week limit for an induced abortion.

49  
50 The abortion clinics in Sweden are open as usual during the epidemic. We have however noticed that  
51 fewer women contact the clinic in Gothenburg to perform an abortion compared to the same time  
52 period earlier years. The same tendency has been reported through personal communication with  
53 other abortion clinics in Sweden.  
54

### 55 **Objectives:**

56  
57 The objective of this study is to investigate how the covid-19 epidemic has affected the numbers of  
58 induced abortions in Sweden, during the epidemic period compared to the same period during the  
59 recent years. We will also investigate if the covid-19 epidemic has affected the method by which an  
60 induced abortion is performed (surgical vs medical) or if the abortion is performed at a later  
gestational week, compared to the same time period recent years.

We will also investigate if more women chose to complete a pregnancy instead of performing an  
abortion.

1  
2  
3 We will also investigate if the covid-19 epidemic has affected women to change their expectations  
4 and apprehensions about pregnancy and abortion care.  
5  
6  
7

### 8 **Design:**

9 This is a study that is divided into three parts; two quantitative and one qualitative. The quantitative  
10 parts are based on data from the abortion register and the medical birth register (Socialstyrelsen).  
11 Data on total number of abortions, number of abortions per 1000 women, which week of gestation  
12 the abortion is performed (divided into <8 GW, 9 – 12 GW, 12-18 GW and >18 GW), which method is  
13 used to perform the abortion (surgical or medical) among all women in Sweden during the epidemic  
14 will be compared with the corresponding data from 2018 and 2019. The numbers will also be  
15 subdivided into monthly figures (March, April, May..). In the second quantitative part of the study  
16 number of abortions during the pandemic and births 9 months later will be compared with the  
17 corresponding data from 2018 and 2019.

18 Socialstyrelsen is suffering from a high workload due to the pandemic. Data retrieval from the  
19 registers might be postponed although Socialstyrelsen is prioritizing projects relating to the covid-19-  
20 epidemic. Still it is important to collect information already during the ongoing epidemic about if the  
21 abortion care is affected negatively. If the first data retrieval is not possible by October 2020 a local  
22 study in Gothenburg will be performed awaiting the data from Socialstyrelsen. The local study will be  
23 based on the same parameters as mentioned above and will be retrieved from the medical journal  
24 data systems Melior and Obstetrix.

25 In the qualitative study ten women will be asked to take part in interviews. The women will be asked  
26 to participate during the on-going covid-19 epidemic. A qualitative method with a descriptive  
27 approach according to Malterud (Malterud K, 2009) will be used. For a semi-structured interview, a  
28 guide with open questions will be prepared. The interviews will be recorded and transcribed  
29 verbatim. The transcript will be analyzed by systematic text condensing which has four steps: Firstly,  
30 the researchers read the text to get a general impression without putting their understanding into it.  
31 Later the researchers organize and systematize the themes which they find in the texts and create  
32 meaningful units that they will code. Thereafter the content of the meaningful units is concluded and  
33 divided into subgroups with different codes. In the last step all units are put together and they will  
34 retell and mediate the informants' voices.  
35  
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38

### 39 **Setting/centres:**

40 The Department of Gynaecology and Reproductive medicine at Östra sjukhuset, Sahlgrenska  
41 University Hospital, Gothenburg.  
42

### 43 **Participants:**

44 The quantitative parts of the study cover all women who perform an induced abortion and who give  
45 birth 9 months later during the covid-19 epidemic and the equivalent time period during 2018 and  
46 2019.  
47

48 The participants in the qualitative study will be women who visit the abortion clinic to perform an  
49 induced abortion during the covid-19 epidemic. The women will fulfil the inclusion criteria but not  
50 the exclusion criteria (see below).  
51

### 52 **Outcome measures:**

53 Differences in total number of abortions, number of abortions per 1000 women, which week of  
54 gestation the abortion is performed (divided into <8 GW, 9 – 12 GW, 12-18 GW and >18 GW), which  
55 method is used to perform the abortion (surgical or medical) during the pandemic and births 9  
56 months after the time period of the pandemic compared to 2018 and 2019.

57 Expectations and apprehensions about pregnancy and abortion care among women seeking abortion  
58 care during the Covid-19-epidemic.  
59  
60

**Eligibility criteria:****Inclusion criteria:**

Women aged  $\geq 18$  years requesting a termination of pregnancy, for social, medical or foetal indications willing and able to understand and participate after the study has been explained, with good understanding of Swedish or English language, in general good health, who have given their informed consent will be eligible for the qualitative part of the study.

All women in the abortion register and the Medical birth register during the relevant time periods will be included.

**Exclusion criteria:**

Women who do not wish to participate, who are unable to communicate in Swedish or English, are  $< 18$  years of age or suffer from a severe psychiatric disorder will not be enrolled in qualitative part of the study.

**Trial process and data collection:**

Data will be retrieved from the Abortion register and the Medical birth register at Socialstyrelsen and from interviews with patients seeking abortion care.

If the local study in Gothenburg will be performed data will be retrieved from the medical journal data systems Melior and Obstetrix via Datautredningen/Sahlgrenska Universitetssjukhuset.

**Enrolment:**

For the qualitative part of the study ten women will be interviewed. Women who come to the abortion clinic during the covid-19 epidemic requesting a termination of pregnancy, with live pregnancies and who are eligible will be invited to be included in the study at the initial outpatient consultation. The women will receive detailed oral and written information and have the possibility to ask questions regarding the study. Written informed consent will be signed by the attending physician/midwife and the woman. The interviewer will not be same person as the care giver of the patient.

**Discontinuation:**

After recruitment, women may withdraw from the trial at any time without giving any reason if they do not wish to participate.

**Trial start date:**

It is estimated that ethics permission will be granted in June 2020, so that the qualitative study can start during the summer of 2020. To start the quantitative study data needs to be collected. It is at this point uncertain at which time data has been registered at Socialstyrelsen.

**Statistical analysis; power calculations – sample size:****Sample size:**

According to the method used in the qualitative part of the study ten participants will be sufficient. Since all women of the relevant population is included in the register studies, and not only a sample, even small variations between the groups will be highly significant.

**Ethics committees and other regulatory boards:**

Permission will be obtained from the regional ethics committee.

**Ethical issues:**

Women will receive oral and written study specific information and an informed consent will be signed by the participating women and the investigators prior to any participation in the trial. Confidentiality will be guaranteed.

1  
2  
3 Since termination of pregnancy might be considered a sensitive subject in the general population the  
4 investigators will show consideration and guarantee full confidentiality to the study participants.  
5

#### 6 **Risk benefit analysis:**

7 Questions about pregnancy and abortions might be considered personal and sensitive, but the  
8 participation will be voluntary and subjects have the right to withdraw from the study at any  
9 time without prejudice to their further medical care. Also the interview consists of open  
10 questions which enables the participants to choose what they are willing to share.  
11

12 The study is expected to increase the knowledge about abortion care in times of crises and the  
13 benefit of this knowledge is expected to be higher than the low risk of emotional discomfort of  
14 the participants in the interview study.  
15

#### 16 **Significance:**

17 We expect a significant decrease of the number of induced abortions during the covid-19 epidemic.  
18 The reason for this could be a reduced number of sexual encounters because of social restrictions  
19 due to recommendations of social distancing. Another explanation could be that more women chose  
20 to fulfil a pregnancy or contact the abortion clinic later in the pregnancy due to a fear of visiting  
21 health facilities during the epidemic and hence have a late abortion. Further explanations could be  
22 that the massive information from authorities has resulted in a misunderstanding that women  
23 should not seek abortion care because it is not considered emergent care.  
24

25 It is important to investigate how a global crisis affect the abortion numbers in Sweden, both  
26 considering the number of unplanned pregnancies but also the capacity of the health care to meet  
27 women's reproductive wishes. Sexual and reproductive rights must be maintained even during  
28 epidemics and a plan for this should be part of the national crisis preparedness.  
29  
30

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## Standards for Reporting Qualitative Research (SRQR)\*

<http://www.equator-network.org/reporting-guidelines/srqr/>

Page/line no(s).

### Title and abstract

<p><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</p>	1/1-2
<p><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</p>	1/19-31, 2/1-16

### Introduction

<p><b>Problem formulation</b> - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement</p>	4/4-9
<p><b>Purpose or research question</b> - Purpose of the study and specific objectives or questions</p>	5/12-16

### Methods

<p><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**</p>	5/20-21
<p><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</p>	6/14-20 7/17-20
<p><b>Context</b> - Setting/site and salient contextual factors; rationale**</p>	6/7-8, 23-27
<p><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**</p>	6/9-13
<p><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</p>	6/14-18, 7/22
<p><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**</p>	5/23-30, 6/1-3, 9

1 2 3 4 5	<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	6/20-22
6 7 8	<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)	2/1-2
9 10 11 12	<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	6/15-16, 27-28,
13 14 15 16	<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**	7/9-17
17 18 19 20	<b>Techniques to enhance trustworthiness</b> - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	7/17-18

### Results/findings

23 24 25 26	<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	7/28-10/25
27 28 29	<b>Links to empirical data</b> - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	9/16-17, 23-24 10/4-5, 14-15, 24-25

### Discussion

32 33 34 35 36 37	<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	10/27-12/2
38 39	<b>Limitations</b> - Trustworthiness and limitations of findings	12/8-13

### Other

42 43 44	<b>Conflicts of interest</b> - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	13/13-18
45 46	<b>Funding</b> - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	13/9-11

\*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.

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\*\*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.

**Reference:**

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014  
DOI: 10.1097/ACM.0000000000000388

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# BMJ Open

## The influence of the COVID-19 pandemic on abortions and births in Sweden - a mixed methods study

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<b>Primary Subject Heading</b>:	Obstetrics and gynaecology
Secondary Subject Heading:	Qualitative research, Sexual health
Keywords:	COVID-19, REPRODUCTIVE MEDICINE, SEXUAL MEDICINE

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4 1 The influence of the COVID-19 pandemic on abortions and  
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7 2 births in Sweden - a mixed methods study  
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12 4 Running title: The influence of the COVID-19 pandemic on abortions and births in Sweden  
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40 19 **WORD COUNT: 3922**  
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42 20  
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44  
45 21 **ABSTRACT**

46  
47 22 Introduction: Although considered an essential service by the World Health Organization  
48  
49 23 (WHO), there are indications that access to induced abortion care has been restricted during  
50  
51 24 the COVID-19 pandemic.

52  
53 25 Objectives: To investigate if the number of induced abortions and ongoing pregnancies  
54  
55 26 changed during the first pandemic wave of COVID-19 in 2020 compared to recent years prior  
56  
57 27 to the pandemic and explore possible reasons for the findings.  
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3 1 Design: Convergent parallel mixed methods design. Collection of quantitative data from the  
4  
5 2 Swedish National Board of Health and Welfare and the Swedish Pregnancy Register and  
6  
7 3 qualitative data from interviews.

8  
9 4 Setting and time period: National data on abortions January 2018-June 2020 and births  
10  
11 5 January 2018-March 2021. Interviews performed at the main abortion clinic, Gothenburg,  
12  
13 6 Sweden, in June 2020.

14  
15 7 Participants: All women aged 15-44 living in Sweden 2018-2020, approximately 1.9 million.  
16  
17 8 15 women who sought abortion were interviewed.

18  
19 9 Primary and secondary outcome measures: Number of abortions and births/1000 women  
20  
21 10 15-44 years. Themes and subthemes identified from interviews.

22  
23 11 Results: The number of abortions and ongoing pregnancies did not change significantly  
24  
25 12 during the study period compared to before the pandemic started. Interview themes  
26  
27 13 identified: Meeting with abortion care during the COVID-19 pandemic; *availability* and *fear*  
28  
29 14 *of being infected and to infect others*, the impact of the COVID-19 pandemic on the abortion  
30  
31 15 decision; *to catch COVID-19 during pregnancy*, *feelings of loneliness and isolation*, and *social*  
32  
33 16 *aspects*.

34  
35 17 Conclusions: This study shows that the number of abortions and ongoing pregnancies  
36  
37 18 remained unchanged during the first wave of the COVID-19 pandemic in 2020 in Sweden  
38  
39 19 compared to before the start of the pandemic. Abortion seeking women did not hesitate to  
40  
41 20 proceed with the abortion. The women expressed a number of fears concerning both  
42  
43 21 availability of care and their health which could have been properly addressed by the  
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45 22 authorities.

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## 24 **ARTICLE SUMMARY**

### 25 **Strengths and limitations:**

- 26 • This is the first ever reported study from Sweden which explores women's  
27 expectations and apprehensions about abortion care and being pregnant during the  
28 COVID-19 pandemic.
- 29 • The main strength of this study is the convergent parallel mixed methods design  
30 which combines quantitative and qualitative data.

- 1
- 2
- 3 1 • The main limitation is that the interviews were conducted with women who actually
- 4 2 sought abortion care. Further perspectives could have been explored in interviews
- 5 3 with women who contemplated seeking abortion care but then decided not to.
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## 11 5 **KEY MESSAGE**

- 12
- 13
- 14 6 • No change in number of abortions or ongoing pregnancies during the first wave of
- 15 7 the COVID-19 pandemic in Sweden.
- 16 8 • Abortion seeking women proceeded with the abortion at the same rate during the
- 17 9 first wave of the COVID-19 pandemic as they did prior to COVID-19.
- 18 10 • Despite not hesitating to proceed with the abortion women expressed fears of
- 19 11 contracting a COVID-19 infection, not being welcomed to the clinic and not allowed
- 20 12 to bring a partner.
- 21
- 22
- 23
- 24
- 25
- 26
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29 14 **TRIAL REGISTRATION NUMBER:** Not applicable

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33 16 **KEY WORDS:** COVID-19 pandemic, induced abortion, mixed methods study, reproductive

34 17 medicine, sexual medicine.

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## 41 19 **INTRODUCTION**

42

43 20 The World Health Organization (WHO) estimated that, during the years 2015 – 2019, 73.3

44 21 million induced abortions occurred world-wide annually (1). Access to legal and safe induced

45 22 abortion care is considered essential to attain the highest standard of sexual and

46 23 reproductive health (2).

47 24 On March 11, 2020, the WHO classified the COVID-19 outbreak as a global pandemic (3).

48 25 Based on poor experiences during previous pandemics, such as the Ebola outbreak in Sierra

49 26 Leone during 2014, there were concerns that disruption of sexual and reproductive health

50 27 services could occur. During the Ebola outbreak patients postponed their visits to health

51 28 care units and one qualitative study suggested that the decrease in care-seeking behaviour

52 29 was due to fear of contracting the Ebola virus at health facilities and distrust of the health

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3 1 care system (4). With this in mind, on June 1<sup>st</sup>, 2020, the WHO recommended that access to  
4  
5 2 contraception and abortion care to the full extent as allowed by the law should be ensured  
6  
7 3 during the COVID-19 pandemic. If facility-based provision of such services should be  
8  
9 4 disrupted then digital health service was recommended (5).

10 5 Despite the strong recommendations from the WHO there are studies indicating that global  
11  
12 6 access to induced abortion has been restricted due to priorities in health services, lack of  
13  
14 7 political will and a detrimental effect of the lock-down (6). European governments have  
15  
16 8 taken wildly divergent approaches to tackle the issue with induced abortion care during the  
17  
18 9 pandemic. From suspension of abortion services, considering this service non-essential, to  
19  
20 10 lifting of regulations and allowing telemedicine and self-managed care solutions such as  
21  
22 11 postal delivery of mifepristone and misoprostol (6, 7).

23  
24  
25 13 There are few qualitative studies investigating the psychosocial effects of the current COVID-  
26  
27 14 19 pandemic on pregnant women. In one meta-synthesis from 2020 Shorey et al summarize  
28  
29 15 that during a pandemic, pregnant women often experience anxiety, fear and more  
30  
31 16 specifically concern about their health (8). One American study suggested that psychological  
32  
33 17 distress is likely due to social, economic and healthcare disruptions as well as the uncertainty  
34  
35 18 regarding the medical effect of COVID-19 (9).

36  
37  
38 20 Each year around 35 - 38000 induced abortions are performed in Sweden, and during 2019  
39  
40 21 the number of abortions was 36000 which corresponds to 19/1000 women (aged 15-44  
41  
42 22 years) (10).

43  
44 23 Abortion care in Sweden is part of the public health care system, and it is the responsibility  
45  
46 24 of the local healthcare authority to provide induced abortion within a week from the first  
47  
48 25 patient contact. Induced abortion care is publicly funded and available to all residents.

49 26 Women performing an abortion up until gestational week (GW) 9 are usually treated in a  
50  
51 27 primary health care unit or at home. If the woman has an intercurrent disease or is in GW  
52  
53 28 >9+0 she is treated in a secondary health care unit (e.g. a gynecological ward). The Swedish  
54  
55 29 Abortion Act (1974:595) (11) allows induced abortion on request up until GW 18+0. From  
56  
57 30 GW 18+1 to 21+6 induced abortion may be performed after permission from the National  
58  
59 31 Board of Health and Welfare. According to the Abortion Act the induced abortion needs to  
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32 be initiated at a health care unit. In clinical practice this means that a woman who is about

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2  
3 1 to perform a home abortion will swallow mifepristone at the unit and then take the rest of  
4  
5 2 the medication, misoprostol and analgesics, at home.

6  
7 3 The first wave of the COVID-19 pandemic in Sweden started in February 2020 and peaked  
8  
9 4 during the second and third week of April. During the second week of June, which correlates  
10  
11 5 with the time of data collection, the number of COVID-19 deaths were 232 which  
12  
13 6 corresponds to 2.24/100.000 per week (12).

14  
15 7 The Public Health Agency of Sweden did not issue any official lock-downs but restricted  
16  
17 8 numbers of persons allowed in gatherings to a maximum of 50. Contact tracing, testing,  
18  
19 9 hygiene and protective measures and physical distancing were widely used.

20  
21 10 Recommendations such as to stay at home with the slightest symptom of an infection, to  
22  
23 11 keep distance from others and for specific risk groups, to completely avoid close contact  
24  
25 12 with others, were issued (13).

26  
27 13 The Swedish public health care system did not officially change their access policy but since  
28  
29 14 staff was re-allocated to the COVID-19 intensive care units the actual availability did change.  
30  
31 15 During the spring of 2020 the number of primary health care visits declined, many elective  
32  
33 16 surgery departments were partly closed and visits to specialized care departments declined  
34  
35 17 by 50% (14).

36  
37 18 The induced abortion care units, both primary and secondary, in Sweden provided services  
38  
39 19 as usual during the COVID-19 pandemic. No official policy changes were initiated to facilitate  
40  
41 20 access, such as expansion of telemedicine or at-home administration of mifepristone.

42  
43 21  
44 22 There is as far as we are aware no peer-reviewed qualitative research on how the current  
45  
46 23 COVID-19 pandemic has affected women seeking induced abortion care in Sweden.

47  
48 24 The aim of this study was to investigate if the number of induced abortions and ongoing  
49  
50 25 pregnancies changed during the first pandemic wave of COVID-19 compared to recent years  
51  
52 26 prior to the pandemic and to explore possible reasons for the findings.

53  
54 27

## 55 28 **MATERIAL AND METHODS**

### 56 29 **Data collection**

57  
58 30 A convergent parallel mixed methods design was used where the quantitative and  
59  
60 31 qualitative strands of the research were performed independently but collected

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2  
3 1 concurrently, and their results were brought together in the overall interpretation. The  
4 purpose of the design was to use qualitative data to illustrate quantitative findings (15).  
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8  
9 4 Data regarding number of abortions and births were collected from the Swedish National  
10 Board of Health and Welfare and the Swedish Pregnancy Register respectively (10). Data on  
11 abortions was collected for the same period of time as interviews were performed, i.e., June  
12 2020, and for January 2018 to May 2020 for comparison. Data on births were collected from  
13  
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16 8  
17 9  
18 9 during previous years for comparison. All abortion clinics in Sweden report yearly to the  
19  
20 10  
21 11  
22 11 Swedish Pregnancy Register covered 91.1% of all births in Sweden (16).  
23  
24 12

25 13 In order to investigate women's expectations and apprehensions about pregnancy and  
26 14 abortion care during the COVID-19 pandemic a qualitative method including interviews was  
27 15 used. The study is based on a supportive and caring relationship according to Berg and  
28 16 Lundgren (17). The basis of care includes respect and goodwill towards other people. A  
29 17 caring and health-promoting approach supports people's autonomy and integrity, and  
30 18 refrains from all forms of condemnation, punishment, abusive treatment and the exercise of  
31 19 power. Women who sought abortion care were contacted at the Abortion Clinic at the  
32 20 Department of Gynaecology and Reproductive Medicine, Sahlgrenska University Hospital  
33 21 (SU), Gothenburg, Sweden in June 2020, when the number of COVID-19 positive patients  
34 22 was high in Sweden. 40 women aged > 18 years who, understood and spoke Swedish or  
35 23 English, and attended the abortion clinic for counselling for abortion were asked to  
36 24 participate in the study. Women with severe mental illness were excluded in order not to  
37 25 aggravate their suffering. Considerations were made to include women of different ages  
38 26 and gestational weeks. 17 informants accepted to participate in the study, but two declined  
39 27 before the interviews. All informants received oral and written information about the study  
40 28 purpose, that participation was voluntary, anonymized, and that they could decline  
41 29 participation at any time without giving any reason. They also received information about  
42 30 whom to contact if they needed counselling after the interview. The informants signed an  
43 31 informed written consent before the interviews started. ME, who was working as a midwife  
44 32 at the clinic but not involved in the women's care, carried out the interviews during the

1 women's first visit. The interview guide contained demographic questions and two open-  
2 ended questions; experience of seeking abortion care and of being pregnant during the  
3 COVID-19 pandemic.

4 The Abortion Clinic at SU is the major abortion clinic in Gothenburg, the second largest city  
5 in Sweden. It manages abortions at all gestational weeks and is the only abortion clinic in  
6 Gothenburg with an in-patient clinic for patients in the second trimester and patients with  
7 intercurrent diseases that require in-hospital care. It was therefore possible to recruit  
8 informants of different gestational age and who chose different abortion methods. All  
9 interviews were recorded and transcribed verbatim.

### 11 **Data analysis**

12 The only available option for collection of data on abortions from the Swedish National  
13 Board of Health and Welfare were quarterly numbers. The number of abortions performed  
14 during January-March and April-June 2020 were compared to the same periods during 2018  
15 and 2019. The data is presented as number of abortions/1000 women aged 15-44 years,  
16 percentage of abortions in different gestational weeks (divided into <7 GW, 7-9 GW, 9-12  
17 GW, 12-18 GW and >18 GW) and as a percentage of abortions according to the method used  
18 (surgical, medical in-hospital and medical home abortion).

19 Since abortions are displayed as numbers of abortions/1000 women 15-44 years of age  
20 quarterly, also births are displayed as numbers/1000 women 15-44 years of age.

21  
22 The interviews were analysed by systematic text condensation (STC) according to Malterud  
23 (18). STC was chosen because it aims to describe the informants' experiences, as expressed  
24 by themselves, rather than to explore the possible underlying meaning of their statements.  
25 The process involved four steps: I. Reading all the material several times to obtain an overall  
26 impression. II. Identifying units of meaning, representing different aspects of the research  
27 question, and coding and sub-coding for these. III. Condensing and summarising the  
28 contents of each of the coded groups and IV. Creating generalising descriptions and concepts  
29 reflecting the informants' most important expectations and apprehensions about pregnancy  
30 and abortion care. All authors read the text separately. ME, VN and HH did the analysis and  
31 created the themes, and all authors agreed on the results. During the analysis process the



1  
2  
3 1 authors, all working within reproductive and perinatal care, reflected on their own  
4  
5 2 preunderstanding, and the fact of unintentionally influencing the outcomes.  
6  
7 3

8  
9 4 This study was approved by the Ethics Committee (Dnr 2020-02661).  
10  
11 5

## 12 6 **Patient and Public involvement**

13  
14 7 Patients or the public were not involved in the design, recruitment or analysis of this study.

15  
16 8 The results will be issued in a press release to the public media.  
17  
18 9

## 19 20 10 **RESULTS**

### 21 22 11 **Number of abortions and births**

23  
24 12 The number of abortions/1000 women (15-44 years) was 18,3 during the whole year of  
25  
26 13 2020, compared to 19,2 during the two previous years in Sweden. Even when comparing the  
27  
28 14 national figures for the number of abortions/1000 in women aged 15-44 years during the  
29  
30 15 two first quartiles of 2020 (5,0 and 4,3) with the corresponding quartiles of 2018 (4,9 and  
31  
32 16 4,5) and 2019 (4,6 and 5,2) there was no significant decline (Figure 1). Neither did the  
33  
34 17 numbers change in the region where Gothenburg is situated, where the number of  
35  
36 18 abortions/1000 women aged 15-44 years were 4,3, 4,2 and 4,4 during 2018, 2019 and 2020  
37  
38 19 respectively. The number of surgical abortions declined from 6,3 and 5,2% during the first  
39  
40 20 quartiles of 2019 to 5,1 and 3,5% during the first two quartiles of 2020, and consequently  
41  
42 21 medical home abortions increased from 66,8% and 70% during the first quartiles of 2019 to  
43  
44 22 69,6 and 74,5% during the first two quartiles of 2020 (Figure 2). There was no change in  
45  
46 23 what pregnancy week the patient sought abortion care (Figure 3).

47  
48 24 The number of births/1000 women (15-44 years) was 12,6 during the 4th quartile of 2020  
49  
50 25 and 14,2 during the 1st quartile of 2021, which reflects ongoing pregnancies during the first  
51  
52 26 6 months of 2020, and did not change significantly compared to the 4th quartile of 2019;  
53  
54 27 12,9, and the 1st quartile of 2020; 14,3 (Figure 1).  
55  
56 28

### 57 29 **Interviews**

58  
59 30 Demographic data of the informants are shown in Table 1.  
60

1 **Table 1. Demographic data of the informants**

Age	Abortion
34	GW <9+0*
32	GW 9-12*
44	Home abortion**
20	GW 9-12*
31	GW 9-12*
33	GW <9+0*
19	Surgical abortion
23	GW 9-12*
25	GW 9-12*
39	GW <9+0*
26	Home abortion**
20	Home abortion**
46	GW >12+0*
39	Home abortion**
28	GW >12+0*

2 GW=gestational week.

3 \*Medical in-hospital abortion at GW  $\leq$ 9+0. \*\*Medical home-abortion at GW  $\leq$ 9+0

4  
5 Two themes and subthemes were identified: meeting with abortion care during the COVID-  
6 19 pandemic; *availability, fear of being infected and to infect others*, and the impact of the  
7 COVID-19 pandemic on the abortion decision; *to catch COVID-19 during pregnancy, feelings*  
8 *of loneliness and isolation, and social aspects* (Table 2).

10 **Table 2. Themes and subthemes**

Meeting with abortion care during the COVID-19 pandemic	The impact of the COVID-19 pandemic on the abortion decision
availability	to catch COVID-19 during pregnancy
fear of being infected and to infect others	feelings of loneliness and isolation
	social aspects

11  
12 ***Meeting with abortion care during the COVID-19 pandemic***

13 ***Availability***

14 Participants described that it was easy to obtain an appointment at the abortion unit.

15 Participants expressed thankfulness for living in a country where abortion care was available  
16 during the pandemic. Although not hesitating to seek abortion care they did describe a fear  
17 before the visit of not being welcome. Some participants were worried that there would not  
18 be room for abortion patients on the gynaecological ward. Others were afraid of not being  
19 allowed to enter the ward due to symptoms that could be associated with a COVID-19

1  
2  
3 1 infection. After the consultation several participants described the staff as supportive,  
4  
5 2 accommodating, helpful and friendly.

6  
7 3 *"I was a little worried. I did not think you could get in, that you could book an appointment"*  
8  
9 4 *(participant no. 17)*

#### 10 5 11 12 6 *Fear of being infected and to infect others*

13  
14 7 Participants expressed a fear of contracting the COVID-19 virus during the visit or during  
15  
16 8 public transportation to the appointment. There was also a fear of infecting others. One  
17  
18 9 participant described that she did not want to visit the hospital since she was in a risk group.  
19  
20 10 *I myself am very scared of getting this disease, what if I go to the hospital now, here I am*  
21  
22 11 *today, and then I get infected" (participant no. 3).*

#### 23 12 24 25 13 ***The impact of the pandemic on the abortion decision***

##### 26 14 *To catch COVID-19 during pregnancy*

27  
28  
29 15 Participants expressed that they did not plan a pregnancy or wanted to give birth during the  
30  
31 16 pandemic. Some articulated that they would have been concerned about both their own and  
32  
33 17 the baby's health in case they would contract COVID-19 while being pregnant.

34 18 *"What if I get it [COVID-19] when I'm pregnant? Can it affect my child? Can I get well?"*  
35  
36 19 *(participant no 16).*

##### 37 20 38 39 21 *Feelings of loneliness and isolation*

40  
41 22 Participants missed having a partner, friend or relative for support during their stay at the  
42  
43 23 hospital. Instead, they obtained support by having contact with their partner or others via  
44  
45 24 e.g. a mobile phone when the first pill was taken at the ward. However, the participants also  
46  
47 25 expressed understanding for the restrictions due to the pandemic. The participants who  
48  
49 26 chose home abortion did not suffer from this and one participant said that she chose to have  
50  
51 27 a home abortion in order to be able to have somebody close by.

52 28 *"Actually, both a man and a woman are required to get pregnant, but it is only the woman*  
53  
54 29 *who should suffer and it felt very bad and it affected a lot"*  
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56 30 *(participant no. 10).*

##### 57 31 58 59 32 *Social aspects*

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3 1 Participants stated that the COVID-19 pandemic did not influence their decision to seek  
4 2 abortion care. However, one participant expressed that the instable situation concerning  
5 3 work and income influenced her decision to some extent and one participant responded that  
6 4 she was afraid that the health care system might not be able to give her complete maternal  
7 5 health care during the pandemic if she continued her pregnancy.

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10 6 *“At work, there have been notices of redundancy so we don’t know for how long we have a*  
11 7 *job. Things like that might influence if a pregnancy is welcomed or not” (participant no. 4)*

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## 17 9 **DISCUSSION**

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20 10 This study provides an insight into abortion seeking women’s perspectives during the COVID-  
21 11 19 pandemic. The number of abortions and ongoing pregnancies did not change during the  
22 12 first wave of the pandemic in 2020 compared to 2018 and 2019, indicating that women  
23 13 sought abortion care to the same extent as before the pandemic. From the qualitative data  
24 14 analysis, we found that despite a number of aggravating and worrying factors the pandemic  
25 15 did not influence the abortion seeking women’s decisions to proceed with the abortion.  
26 16 In previous pandemics a decrease in care-seeking behaviour has been observed. For an  
27 17 abortion-seeking woman this could result in presenting at a higher gestational week and  
28 18 subsequently undergoing later abortions which is associated with greater medical risks. This  
29 19 has not been the case in Sweden during the study period (Figure 3). This is also reflected in  
30 20 the interviews where participants described that they did not hesitate to seek abortion care  
31 21 although some expressed a fear of not being welcomed prior to the visit and worried about  
32 22 both contracting and spreading the virus.

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46 24 The participants in this study expressed that they did not want to plan a pregnancy during  
47 25 the pandemic due to fear for their own and the baby’s health, and also due to the unstable  
48 26 employment and income situation. They also expressed worries that their partner was not  
49 27 allowed into the postnatal ward. Similar results were found in the meta-synthesis by Shorey  
50 28 et al as well as in a British study where pregnant women’s perception of COVID-19 and the  
51 29 healthcare services were further explored. Themes were: ‘barriers to accessing health care’,  
52 30 ‘lack of wider support’ and ‘media influence’ (8, 19). In an Australian study the authors also  
53 31 focused on lack of partner support as well as risks of acquiring the infection and concerns

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3 1 with telehealth (20). We believe there is enough scientific support to the conclusion that  
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5 2 pregnant women are a particularly vulnerable group concerning the risk of psychological un-  
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7 3 wellbeing during a pandemic.  
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10 5 The proportion of surgical abortions decreased, and medical home abortions increased  
11 6 during the study period. This could be due to a lack of surgical resources as a consequence of  
12 7 allocating staff to COVID-19 intensive care units, but the shift from surgical abortions  
13 8 towards home abortion started long before the pandemic. In 2014 surgical abortions  
14 9 constituted 12% of all abortions and home abortions 52% compared to 6,8% and 64%  
15 10 respectively at the beginning of 2018 (10). This could be looked upon as a long-term trend  
16 11 due to enhancing medical protocols and patients' preference for home abortion which has  
17 12 been shown in previous studies (21, 22). During the pandemic home abortion was the only  
18 13 alternative if the patient wanted support from a partner, friend or relative. In this study the  
19 14 participants who chose home abortion did not express feelings of loneliness or lack of  
20 15 support as opposed to some of the other participants.  
21 16

22 17 The main strength of this first ever reported study from Sweden which explores abortion  
23 18 care during the COVID-19 pandemic is the convergent parallel mixed methods study design  
24 19 combining quantitative and qualitative data.  
25 20

26 21 The main limitation is that the interviews were conducted on women who actually sought  
27 22 abortion care. Further perspectives could have been explored in interviews with women  
28 23 who contemplated seeking abortion care but then decided not to. It would have been a  
29 24 great challenge to get in contact with and interview such informants especially since non-  
30 25 essential contacts between patients and health care providers were restricted due to the  
31 26 pandemic.  
32 27

33 28 In conclusion this study has shown that the number of abortions and ongoing pregnancies  
34 29 remained stable and that abortion seeking women did not hesitate to proceed with the  
35 30 abortion due to the pandemic during the first period of the COVID-19 pandemic in Sweden.  
36 31 This result might be due to the fact that Sweden has a long tradition of defending the right  
37 32 to induced abortion and that Swedish women trust that abortion care is considered essential  
(23). However, although the study participants did not hesitate to seek abortion care they

1 expressed a number of fears and worries concerning both the availability of care and their  
2 health. Sweden has made no official statement that abortion care was considered essential  
3 and prioritized during the pandemic and maybe some of the fears and worries could have  
4 been prevented if this had been stated by the relevant authorities. Also, we suggest that  
5 Sweden should have followed the example set by Great Britain, where an order was issued  
6 already in March 2020 to include tele-medicine as an alternative for abortion care (24), in  
7 order to avoid unnecessary spread of the infection and increase the safety and availability of  
8 the abortion care.

## **AUTHOR STATEMENT**

11 JR, TJA and HH developed the study design. ME, JR and HH collected the data and HH, JR,  
12 TJA, ME and VN analysed the data. JR, ME, VN, TJA, IM and HH had access to the data,  
13 prepared final manuscript, and approved of the final version of the manuscript submitted.

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## **COMPETING INTERESTS**

23 All authors have completed the Unified Competing Interest form at  
24 <http://icmje.org/disclosure-of-interest/> (available on request from the corresponding  
25 author) and declare that HH has received compensation from Gedeon Richter for lectures,  
26 JR, TJA, IM, ME and VN have no competing interests; For all authors, their spouses, partners  
27 or children have no financial interests that may be relevant to the submitted work.

## **DATA SHARING**

1  
2  
3 1 Aggregated data from the national registries and anonymised data from the qualitative part  
4 2 of the study are available at reasonable request from the corresponding author.  
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#### 46 24 **FIGURE CAPTIONS**

47 25 Figure 1: Births/1000 women quarterly January 2018 – March 2021 and abortions/1000  
48 26 women quarterly January 2018 – June 2020  
49 27 Figure 2: Distribution of abortion methods in percentage quarterly January 2018 – June 2020  
50 28 Figure 3: Distribution of gestational length at abortion quarterly January 2018 – June 2020  
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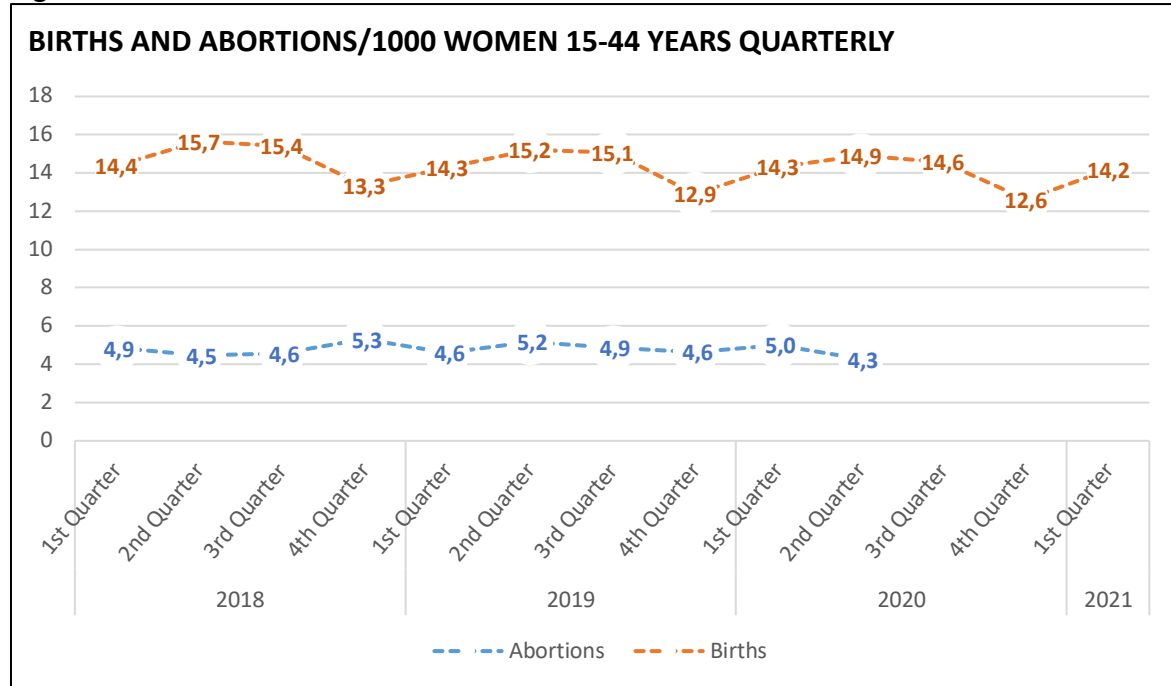
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Figure 1



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Figure 2

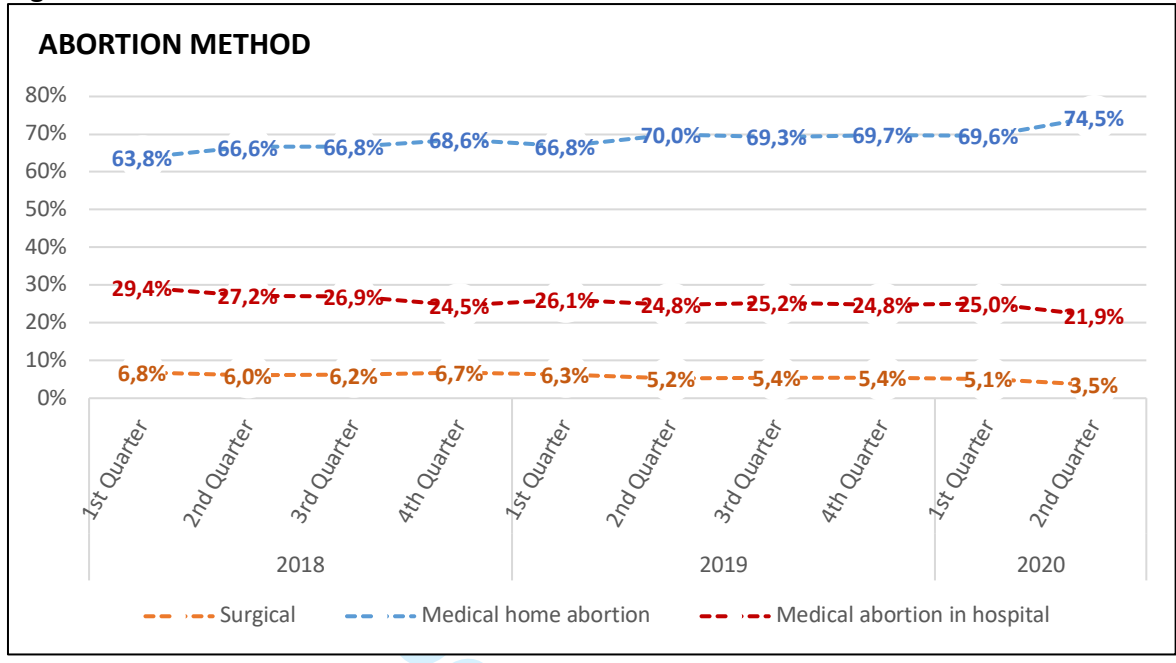
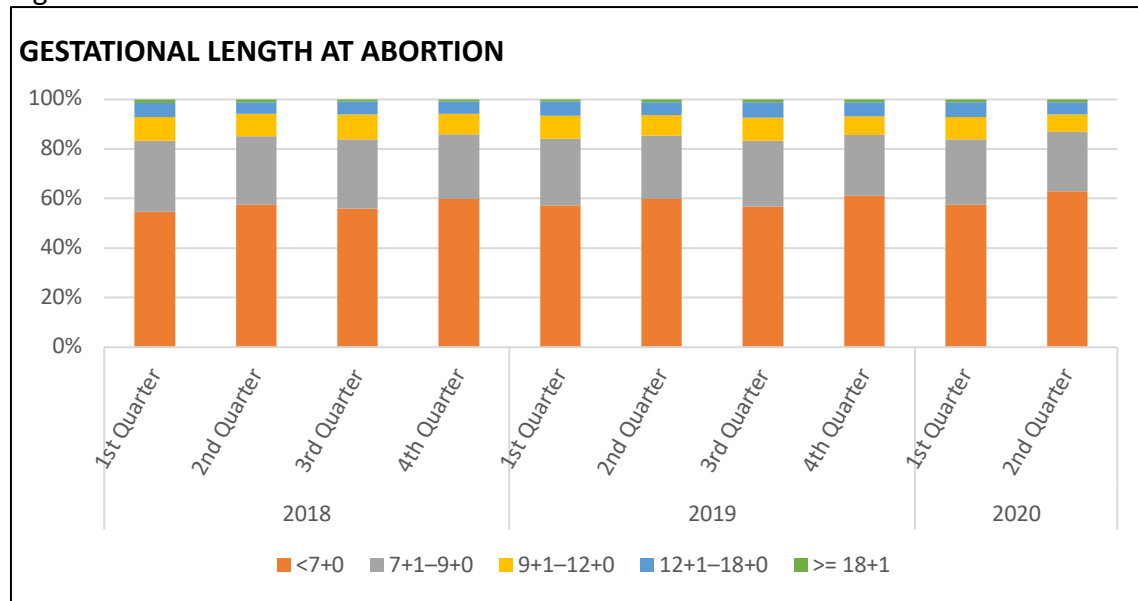


Figure 3



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<http://www.equator-network.org/reporting-guidelines/srqr/>

Page/line no(s).

### Title and abstract

<p><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</p>	1/1-2
<p><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</p>	1/19-31, 2/1-16

### Introduction

<p><b>Problem formulation</b> - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement</p>	4/4-9
<p><b>Purpose or research question</b> - Purpose of the study and specific objectives or questions</p>	5/12-16

### Methods

<p><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**</p>	5/20-21
<p><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</p>	6/14-20 7/17-20
<p><b>Context</b> - Setting/site and salient contextual factors; rationale**</p>	6/7-8, 23-27
<p><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**</p>	6/9-13
<p><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</p>	6/14-18, 7/22
<p><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**</p>	5/23-30, 6/1-3, 9

	6/20-22
<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	
<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)	2/1-2
<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	6/15-16, 27-28,
<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**	7/9-17
<b>Techniques to enhance trustworthiness</b> - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	7/17-18

### Results/findings

<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	7/28-10/25
<b>Links to empirical data</b> - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	9/16-17, 23-24 10/4-5, 14-15, 24-25

### Discussion

<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	10/27-12/2
<b>Limitations</b> - Trustworthiness and limitations of findings	12/8-13

### Other

<b>Conflicts of interest</b> - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	13/13-18
<b>Funding</b> - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	13/9-11

\*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.

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\*\*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.

**Reference:**

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014  
DOI: 10.1097/ACM.0000000000000388

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