ABSTRACT

Background The COVID-19 pandemic has imposed strict lockdown restrictions that have introduced barriers to in-person abortion clinic visits in the Netherlands. Women on Web (WoW) is a global medical abortion telemedicine service operating outside the formal health sector.

Aim To understand the motivations and perceived barriers women faced when choosing telemedicine abortion outside the formal health sector, and how this was affected by the pandemic.

Methods 178 women who completed an online consultation on the Dutch WoW website during the period 6 March 2020 to 5 March 2021 were included in this cross-sectional cohort study and exploratory qualitative study. Patient characteristics and motivations were analysed and associated with the severity of COVID-19 restrictions. Email exchanges in which women could further describe their requests were also examined for recurrent clarification of motivations.

Results Women experienced barriers to regular abortion care due to COVID-19 restrictions and had the preference to (1) self-manage their abortion, (2) stay in the comfort of their own home, and (3) keep their abortion private. In particular, women who did not live in the cities where abortion clinics were located experienced barriers to abortion services. As COVID-19 restrictions tightened, it was more frequently mentioned that women sought help from WoW because of COVID-19 specific reasons and because abortion care was not accessible to them in the Netherlands. Additionally, concerns over privacy and domestic violence were recurrent reasons for choosing WoW in the consultations.

Conclusions In the Netherlands, barriers to receiving adequate abortion care were exacerbated for women in vulnerable positions such as being geographically farther away from an abortion clinic, being in a deprived socioeconomic position, or being in an unsafe home situation. Similar to other medical care, abortion care should be deliverable online.
INTRODUCTION
The COVID-19 pandemic and its subsequent lockdown restrictions have posed significant challenges to the provision of abortion care in the Netherlands. The incidence of induced abortion in the Netherlands is one of the lowest globally at 8.8 per 1000 women of reproductive age.1 The low figures are not only a consequence of relatively liberal laws but also of the provision of comprehensive public education on sexuality and the widespread availability of contraception.

With the onset of the COVID-19 pandemic in March 2020, government restrictions, such as discouraging travel, closing schools, and mandatory working from home, have introduced barriers to visiting abortion clinics in person.2 While many other types of medical care were provided digitally, this was not the case with abortion care.3 For example, the Dutch Royal College for Midwives and the Dutch Society of Obstetrics and Gynaecology produced a guideline with recommendations to shift from face-to-face interaction to digital consultations with health professionals during the pandemic.4 5 However, the request to facilitate telemedicine during the period with COVID-19 restrictions was rejected by the court in The Hague on 10 April 2020.6 Adequate access to abortion care is fundamental to protecting and upholding the human rights of women and is an essential component of healthcare. Research in countries where abortion is not permitted indicates that women with unwanted pregnancies will resort to unsafe abortion methods.7 Further, accessible abortion care without delay is crucial because fewer complications occur during a first-trimester abortion in comparison with second-trimester abortion.8

In response to the pandemic, European countries have responded in different ways regarding policies to ensure abortion care provision.9 These range from approving online abortion care in Great Britain, Ireland, and France, to continuing the ban on abortion care in five countries (Andorra, Liechtenstein, Malta, Monaco, and San Marino) for non-medical reasons. In Great Britain, the Royal College of Obstetricians and Gynaecologists and Gynaecologists developed a revised guideline for abortion care during the COVID-19 pandemic with an emphasis on the safety and possibilities of using telemedicine.10 The use of telemedicine in abortion care was further emphasised by the International Federation of Gynecology and Obstetrics (FIGO) and is endorsed by the recently released updated WHO abortion guidelines.11 12

Prior research from the worldwide telemedicine abortion service Women on Web (WoW) shows that women in the most vulnerable positions particularly experience barriers to accessing formal abortion services.13 Moreover, a significant rise in demand for abortion telemedicine services in European countries has been reported during the COVID-19 pandemic.14 At the same time, in the Netherlands, there were 5% fewer visits to abortion clinics during the pandemic. It is plausible that the government imposed COVID-19 restrictions, such as associated travel restrictions, which influenced the number of pregnancy terminations.15

Our aim was to understand which barriers women faced trying to access abortion services during the COVID-19 pandemic and the motivations for choosing telemedicine abortion through WoW and how this was affected by the recently imposed COVID-19 restrictions.

METHODS
We conducted a mixed methods study consisting of a cross-sectional cohort study and an exploratory qualitative content analysis among women living in the Netherlands who went through online consultation at the Dutch WoW website from the start of COVID-19 restrictions in the Netherlands during one calendar year between 6 March 2020 and 5 March 2021.

Patient and public involvement
No patients were involved in the design, conduct, or reporting of this study.

Data collection
Data from the online consultations were extracted anonymously in an Excel binary file in which duplicate data were subsequently removed. The WoW questionnaire included questions about demographic data such as age, obstetric history, and data regarding the rationale for choosing a telemedicine approach through WoW which was specified through multiple-choice questions. In addition, they could further describe their request to the doctors and help desk members by email correspondence. For this study, the requests were translated into English when written in another language using the neural machine translation tool DeepL Translator. Before starting the online consultation, participants gave consent for WoW to use anonymized reported data for research purposes. The study was approved by the Ethics Committee at Karolinska Institutet, Sweden.

Quantitative analyses
As described earlier, the online WoW questionnaire data were used to examine patient characteristics and motivations. To describe the degree of COVID-19 restrictions per day in the Netherlands, the stringency index was used.16 This is a composite measure developed by researchers at Oxford University, with a score from 0 to 100 that is based on nine indicators, including travel bans and school closures. To determine the association between the stringency index, the measure of COVID-19 restrictions, and the different responses to the question of why women consulted WoW, we performed a bivariate logistic regression analysis. A p value <0.05 was considered statistically significant. Analyses were performed with SPSS for Windows, version 23.0.0.0 (IBM, Armonk, NY, USA).
Email content analysis
After women completed their online WoW consultations, they receive an email providing information about the availability of abortion healthcare in the formal sector, followed by this request:

‘If you feel unable to access abortion services in The Netherlands, could you please tell us a bit more about why […] We will let you know as soon as possible if we can help you in any way.’

In the interest of better understanding women’s motivations for choosing telemedicine abortion outside the formal health sector and the barriers women experienced in the Netherlands, two researchers (NC and RG) identified the main reasons and clarification of motivations, according to the thematic analysis approach proposed by Braun and Clarke involving identifying, analysing and reporting overarching themes.17 Example quotes from these identified reasons were categorised and afterward grouped into subcategories to contextualise the findings.

RESULTS
Between 6 March 2020 and 5 March 2022, WoW received 178 online consultations on the WoW website in which telemedicine abortion services were requested.

Most women were between the age of 19 and 40 years, with an equal number of women in the 19 to 29 years age range as the 30 to 40 years age range. For 73 (46%) women it was their first pregnancy and for 108 (74%) their first intended abortion. Only 36 consultations (20%) were in Dutch, 64 (36%) in Polish, 62 (35%) in English, and the rest in other languages. One hundred and fourteen women (64%) lived in urban areas and 62 (35%) in rural areas. There was an abortion clinic in the city of residence for 43 women (24%).

The demographic characteristics of participants are shown in Table 1.

Most women (89, (54%)) became pregnant because they did not use contraceptives, 70 (42%) because their contraceptives did not work, and four (2%) were raped.

Women could indicate multiple responses to their reason for abortion and choosing online abortion over formal abortion services, thus leading to total response percentages exceeding 100%. More than two-thirds of women (107 (67%)) reported their reason for abortion to be that they could not have a child at that point in their lives, followed by 67 (42%) having no money to raise a child, 28 (18%) already having a complete family, and 24 (15%) wanting to finish school. The other reasons such as feeling too old or too young, and their partner not wanting to have a child, were reported by <15% of women.

The main reasons for choosing online abortion over formal abortion services were that 88 (53%) women preferred to self-manage their abortions, 70 (42%)
women were more comfortable at home, 69 (42%) would rather keep their abortion private, and 61 (37%) because of COVID-19 restrictions. Furthermore, 49 (30%) women reported that they would rather keep the abortion a secret from their partner/family, and six (4%) found formal abortion services hard to access because their partners were abusive. Additionally, 42 (26%) women preferred to have their partner/friend with them during the process. Abortion clinics in the Netherlands formulated different policies regarding the allowance of companions during the process and some do not allow companions because of the COVID-19 pandemic. In most, a companion is allowed to be present during the consult, but not during the surgical procedure. Other obstacles named were distance by 39 (23%) women, costs by 38 (23%), and being an undocumented immigrant by 29 (18%). Other reasons such as not wanting to deal with protesters were named by <20% of women.

The stringency index is a pre-existing composite score measuring the extent of governmental measures in response to the COVID-19 pandemic. There was a significant correlation between a higher stringency index and the likelihood to report a preference for abortion through WoW because of COVID-19 restrictions (OR 1.027, 95% CI 1.001 to 1.053, p=0.038) and because abortion services were not accessible in the Netherlands (OR 1.085, 95% CI 1.005 to 1.171, p=0.036). Additionally, a significant correlation was seen between not living in a city where an abortion clinic was situated and choosing online abortion services over formal services because of the self-stated reason of COVID-19 restrictions (OR 2.370, 95% CI 1.072 to 5.242, p=0.033).

Also, a correlation was found, although not significant, between the stringency index and women who requested online abortion services because of abusive partners (OR 1.058, 95% CI 0.993 to 1.128, p=0.080). The correlation between the stringency index and the categorical reasons for choosing online abortion is shown in table 2.

Reasons identified that led women to choose WoW in content analysis of email data

Recurring overarching themes in reasons for choosing WoW in email exchanges are privacy concerns, COVID-19, domestic violence, and the language barrier of women who are not from the Netherlands. Examples of quotes from the consultations divided by categories and subcategories are listed in table 3.

DISCUSSION

Our study shows that during 1 year of the COVID-19 pandemic, women experienced barriers to regular abortion care mainly due to COVID-19 restrictions, and had the preference to self-manage abortion, stay in the comfort of their own home and keep their abortion private. Women who lived in a city where there were no abortion clinics located experienced more barriers. As COVID-19 restrictions tightened, more women mentioned that they preferred telemedicine abortion because of COVID-19 restrictions and abortion care not being accessible to them in the Netherlands. The qualitative analysis of emails additionally revealed recurring overarching themes such as increasing difficulty in maintaining secrecy about abortions, costs, domestic violence, and language barriers of women originating from outside of the Netherlands.

According to both the WHO and a large-scale meta-analysis, women can safely and effectively perform a medicinal abortion on their own. Likewise, a study that analysed telemedicine abortion care data from the COVID-19 period in the UK found that medicinal telemedicine abortions were equally effective and safe compared with inpatient abortions.

More recent evidence from Schellekens et al revealed that six in 10 Dutch primary care providers in the Netherlands are willing to prescribe abortion medicine, although 57.5% indicated the need for training. Providing adequate training by primary care physicians and repealing current Dutch abortion laws that prohibit the prescription of these medications by
these physicians have the potential to improve women-centred abortion care.

Additionally, our study confirms that the main reason for consulting WoW was that women preferred to self-manage their abortion. This is in agreement with prior research that has shown that women who opt for abortion outside of formal services, even in countries where legal abortions are provided, often do so for reasons of privacy concerns and a preference for self-management. Our findings are also in line with previously conducted WoW research in Italy and France where the COVID-19 pandemic was seen to be an important driver for requesting telemedicine abortion through our service. Following heightened COVID-19 restrictions, demand for self-managed abortion increased in European countries where abortion is mainly provided in hospitals and where travel restrictions were most stringent. By contrast, in the UK, where fully remote no-test telemedicine abortion was implemented, demand for self-managed abortion fell almost to zero. Likewise, a study from the UK reported that women support the continuation of permission for a fully telemedical model of abortion care. The reasons cited were in good agreement with our findings, including comfort, privacy, and respect for autonomy.

Limitations
Our study has several limitations. First, the information is based on self-reporting by women. The sample size is relatively small, possibly due to a decreased number of consultations. An explanation is the Google algorithm update on 5 May 2020, which subsequently decreased the number of visits to the WoW website worldwide by 90%. In addition, our study did not sufficiently capture women who were seeking help but were not able to find the WoW website and may have resorted to other methods. Also, our findings cannot provide a complete evaluation of abortion services in the Netherlands. To describe accurately the gaps in the current abortion service delivery, expanded research including surveys among women and providers is necessary.

CONCLUSION
This study highlights the experience of women who encountered the most barriers to abortion care during the COVID-19 pandemic in the Netherlands. These are women in vulnerable positions due to being geographically farther away from an abortion clinic, having privacy concerns, or because of their deprived socioeconomic status. Moreover, COVID-19 restrictions illuminated and exacerbated the obstacles for women with unwanted pregnancies in receiving adequate abortion care in formal abortion clinics.

Recommendation
Following the example of other medical care in European countries, the Netherlands should also offer the possibility of online abortion services to ensure that all women have equal access to abortion care during and beyond the COVID-19 pandemic. To make this possible, abortion should be decriminalised and

### Table 2

<table>
<thead>
<tr>
<th>Questions</th>
<th>P value</th>
<th>OR</th>
<th>95% CI for OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td>0.038*</td>
<td>1.027</td>
<td>1.001–1.053</td>
</tr>
<tr>
<td>Protesters in front of clinic</td>
<td>0.776</td>
<td>0.996</td>
<td>0.966–1.026</td>
</tr>
<tr>
<td>Not available in my country</td>
<td>0.036*</td>
<td>1.085</td>
<td>1.005–1.171</td>
</tr>
<tr>
<td>Prefer to have my partner/friend with me during the process</td>
<td>0.799</td>
<td>0.997</td>
<td>0.974–1.021</td>
</tr>
<tr>
<td>Other reasons</td>
<td>0.868</td>
<td>1.006</td>
<td>0.936–1.081</td>
</tr>
<tr>
<td>More comfortable at home</td>
<td>0.187</td>
<td>0.986</td>
<td>0.965–1.007</td>
</tr>
<tr>
<td>Rather self-manage my abortion</td>
<td>0.913</td>
<td>1.001</td>
<td>0.981–1.022</td>
</tr>
<tr>
<td>Empowering</td>
<td>0.504</td>
<td>1.013</td>
<td>0.975–1.053</td>
</tr>
<tr>
<td>Undocumented migrant</td>
<td>0.432</td>
<td>1.012</td>
<td>0.982–1.043</td>
</tr>
<tr>
<td>Rather keep it private</td>
<td>0.739</td>
<td>0.996</td>
<td>0.976–1.018</td>
</tr>
<tr>
<td>Costs</td>
<td>0.751</td>
<td>1.004</td>
<td>0.979–1.030</td>
</tr>
<tr>
<td>Work/school</td>
<td>0.927</td>
<td>1.001</td>
<td>0.975–1.029</td>
</tr>
<tr>
<td>Distance</td>
<td>0.696</td>
<td>1.005</td>
<td>0.980–1.031</td>
</tr>
<tr>
<td>Abusive partner</td>
<td>0.080**</td>
<td>1.058</td>
<td>0.993–1.128</td>
</tr>
<tr>
<td>Legal restrictions</td>
<td>0.849</td>
<td>0.997</td>
<td>0.966–1.029</td>
</tr>
<tr>
<td>Need to keep it secret from partner/family</td>
<td>0.696</td>
<td>1.005</td>
<td>0.982–1.028</td>
</tr>
</tbody>
</table>

*P<0.05. **P<0.1.
Table 3  Example quotes in schematic presentation divided by categories and subcategories derived from the email correspondence from Women on Web consultations among women in the Netherlands between 6 March 2019 and 5 March 2020

<table>
<thead>
<tr>
<th>Categories</th>
<th>Subcategories</th>
<th>Example quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privacy concerns</td>
<td>Family-related privacy concerns</td>
<td>The reason is because my family is very strict and I cannot leave the house. I beg you for help please, help me. I have little time! I live in Holland but I am afraid that my visit to the clinic will be exposed</td>
</tr>
<tr>
<td></td>
<td>Partner-related privacy concerns</td>
<td>My husband wants to have this baby, but I don’t. He always checks my way and knows where I’m going. We have a daughter and if he finds out, his reaction will be serious. I feel desperate and ashamed because I should never have put myself in this situation. I know it is legal in Holland but I don’t feel free to do it</td>
</tr>
<tr>
<td></td>
<td>Religion-related privacy concerns</td>
<td>In my religion it is forbidden to have an abortion. I want no one to find out about this, hence my decision to contact you. And if I have to go to a clinic then they will find out since I will have to have a babysitter for my baby</td>
</tr>
<tr>
<td>COVID-19</td>
<td>Infection with virus</td>
<td>Due to corona infection of my daughter I have to stay in the house for 2 weeks. For that reason, I will not be able to go to the clinic until 3 weeks from now. I find this mentally very difficult</td>
</tr>
<tr>
<td></td>
<td>Distance</td>
<td>Family doctor: I have consulted with CSGNN Groningen (center for sexual health), but they are unable to cooperate. An example solution would be: digital consultation and then send medicine to the pharmacist on Vlieland. Patient has to travel to Groningen herself. Because of Corona (she has to travel by public transport) and costs she does not want this. Also, travel time is 1h45 boat+1h30 public transport (one way)</td>
</tr>
<tr>
<td></td>
<td>Language barrier</td>
<td>I am urgently asking for help because communication is limited by this language barrier and now COVID is making it worse. Please let me know because I will have to look for another solution because for me there is no point in waiting</td>
</tr>
<tr>
<td></td>
<td>Costs</td>
<td>I have not been to an abortion doctor because I do not have health insurance due to the high cost of private social security. Because I don’t have health insurance, I think I have to pay for the abortion and at the moment I can’t afford it because I was recently laid off from my job due to the restrictions in the hospitality industry in this country</td>
</tr>
<tr>
<td>Other</td>
<td>Waiting time</td>
<td>When we found out I was pregnant, we had contacted the abortion clinic for an appointment, but I had to get a referral letter from the family doctor first. The family doctor told me that I could only go in 1 week because I had not yet registered. Which would be too late for me to have a medicated abortion</td>
</tr>
<tr>
<td></td>
<td>Daycare for children</td>
<td>I have a 15-month-old daughter, no network to support her and the closest clinic is more than 2 hours away by public transport. I have no driver’s licence and, as mentioned, no network around me</td>
</tr>
<tr>
<td></td>
<td>Agoraphobia</td>
<td>I am aware that abortion is legal here in the Netherlands. The problem is my generalised anxiety disorder (agoraphobia to be exact) that I have been dealing with for about 12 years. I have extreme fear of leaving my house and I get extreme panic attacks that are almost unbearable. Please, can you send me the pills to my address. There is literally no one who can or will help me. I can’t handle pregnancy because of my mental state. I have been in bed for 3 days in a row with panic attacks every 10 min because of this situation</td>
</tr>
</tbody>
</table>

regulated as other medical treatments, which were similarly largely provided online during the COVID-19 pandemic.

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Contributors  NC and RG conceived the original research question and contributed to the study design. RG provided the anonymised data. NC conducted the quantitative analysis and NC and RG did the qualitative analysis. RG and KGD supervised the study analysis. NC wrote the first draft of the manuscript. All authors contributed to the final data interpretation, revised the first and subsequent drafts critically, and approved the final version of the manuscript. NC is the guarantor.

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Patient and public involvement  Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication  Not applicable.

Ethics approval  This study involves human participants and was approved by the Regional Ethics Committee, Karolinska Institutet, Dnr 2009/2072-1/2 and Dnr 2020/05406. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review  Not commissioned; externally peer reviewed.

Data availability statement  Data are available upon reasonable request.

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