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# A trans-national examination of the impact of the COVID-19 pandemic on abortion requests through a telemedicine service

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## ABSTRACT

**Background** The COVID-19 pandemic is limiting access to reproductive healthcare worldwide. Substantial research gaps remain regarding the impact of the pandemic on access to abortion care.

**Methods** We performed a cohort analysis of abortion requests made through the telemedicine abortion service Women on Web (WoW) between 18 March 2020 and 4 May 2020. We used binary logistic regression analyses to test the association between COVID-19 as a reason for the help request and reporting having had an ultrasound to determine gestation and/or use of contraception. A subanalysis of Italy, Argentina, Malaysia and the United Arab Emirates (UAE) was executed to explore differences between countries.

**Results** Of requests made during the study period, 43.5% (n=1972) were COVID-19-related. A negative association was found with having had an ultrasound to determine gestation length and COVID-19-related requests. Italy had the highest percentage (66.5%, n=117) of COVID-19-related requests in the subanalysis, followed by Argentina (55.3%, n=68), Malaysia (51.9%, n=41) and the UAE (44.4%, n=75).

**Conclusions** Almost half the women and pregnant people having an abortion through WoW reported experiencing obstacles to abortion care because of COVID-19. Abortion guidelines should be updated to permit abortion services via telemedicine. This is especially urgent during the ongoing pandemic.

## INTRODUCTION

The ongoing severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, COVID-19) pandemic has a major impact on public health and health systems. Government responses to limit the

## Key messages

- More than 40% of women who requested an abortion during the study period stated COVID-19 as a reason for using the service.
- Women and pregnant people living in countries with a liberal abortion law were more likely to state COVID-19 as a reason for experiencing obstacles to local abortion care.
- Women and pregnant people with COVID-19-related requests were less likely to have had an ultrasound to determine gestation length.

spread of the pandemic vary worldwide, with different lockdown measurements and quarantine orders affecting access to safe abortion care.<sup>1 2</sup> Evidence shows that when safe abortion is unavailable or restricted, women and pregnant people might undergo an unsafe abortion, risking their health and lives.<sup>3</sup> Of the 56 million abortions that take place worldwide each year, approximately 25 million are unsafe.<sup>4</sup> It is estimated that during the COVID-19 pandemic, 10% of women and pregnant people who would normally have access to safe abortion services will instead undergo an unsafe abortion.<sup>5</sup> Consequently, an additional 3.3 million unsafe abortions were predicted to occur in low- and middle-income countries in 2020.<sup>5</sup>

The Inter-Agency Working Group on Reproductive Health in Crises (IAWG) states that governments should ensure support for self-management of medical abortion care with remote approaches in order to improve access to abortion

care during the COVID-19 pandemic.<sup>6</sup> Medical abortion with mifepristone and misoprostol is 95%–98% effective in terminating pregnancies in the early first trimester.<sup>7</sup> Multiple studies confirm the safety and acceptability of medical abortion, also when provided through telemedicine.<sup>8–12</sup> The World Health Organization (WHO) also recommends self-management of medical abortion with the use of mifepristone and misoprostol.<sup>13</sup>

A significant rise in abortion requests to telemedicine services in European countries has been reported during the pandemic.<sup>14</sup> Obstacles to abortion care increased generally, including in countries where abortion services are legally available.<sup>15</sup> Despite the growing demand for self-managed medical abortion with telemedicine, many countries still reject this form of abortion.<sup>15 16</sup>

Major gaps remain in the evidence regarding the impact of the ongoing COVID-19 pandemic on abortion care. We aimed to gather additional knowledge about the impact of the COVID-19 pandemic on abortion care worldwide by analysing abortion requests received during an early period of the COVID-19 pandemic by the worldwide telemedicine abortion service Women on Web (WoW).

## METHODS

A cohort analysis was executed to analyse reasons given for requesting a medical abortion through the telemedicine service WoW between 18 March 2020 and 4 May 2020. Women and pregnant people who seek an abortion through WoW fill out an abortion consultation form, and data were extracted from this survey. The survey consists of 30 binary, categorical (multiple options could be chosen) and open questions requesting the following information: data on the current pregnancy, their medical history, and their reasons for seeking an abortion (see online supplemental material). The digital clinic WoW only prescribes a medical abortion to persons with a reported maximum of 10 weeks gestational age. Gestational age can be based on an ultrasound or on the date of their last menstruation.

On 18 March 2020, WoW added an extra response option, ‘because of COVID-19’, to the question ‘What are the main reasons why you are requesting an abortion through WoW?’.

We collected data from this date until 4 May 2020. On that date, the second Google Core Update of 2020 began, and WoW’s website experienced severe findability difficulties in Google’s search engine: the website had a drastic 90% decline in visits. This problem lasted for a period of weeks. Therefore 4 May 2020 is the end date of this study.

The dependent variable of ‘COVID-19-related’ requests was used when a woman or pregnant person chose the option ‘because of COVID-19’ as one of the reasons or the only reason for requesting an abortion through WoW. The independent variables were

‘age’, ‘contraceptive use when becoming pregnant’, ‘ultrasound to determine gestation’ and ‘country of residence’. The variable ‘age’ was categorised ( $\leq 20$ , 21–25, 26–30, 31–35,  $\geq 36$  years).

All the abortion consultation forms submitted from 18 March 2020 until 4 May 2020 were included in the study. Countries with more than 20% of missing data for the chosen variables were excluded.

We performed data cleaning in Excel, a process that included organising the data, removing system errors and duplicates, and coding the variables. After data cleaning, the data were downloaded into IBM SPSS 25 for statistical analysis. We executed a logistic regression analysis to test the association between the dependent variable ‘COVID-19-related’ and the independent variables ‘age’, ‘ultrasound to determine gestation’ and ‘contraceptive use when becoming pregnant’. For the categorical variable ‘age’, the youngest age group ( $\leq 20$ ) was set as the reference category.

We selected the countries Italy, Argentina, Malaysia and the United Arab Emirates (UAE) for subanalysis to reflect a representation of different continents of the world, with different abortion laws and with sufficient COVID-19-related requests to analyse. Africa lacked countries with sufficient requests, and the United States of America (USA) was not included because WoW does not operate in the USA. For the subanalysis of the selected countries, Italy was set as the reference category. To ensure the reliability of all analyses, an odds ratio (OR) and a 95% confidence interval (95% CI) were calculated. A significant association was found when the *p* value was smaller than 0.05 ( $p \leq 0.05$ ).<sup>17</sup>

## Ethics approval statement

The data were anonymised before they were received by the researchers. The participants gave informed consent to their data being used for the purpose of research before filling in their requests. Ethical approval was obtained from Karolinska Institute (Dnr 2020–05406).

## RESULTS

A total of 4962 women and pregnant people completed the online consultation to request a medical abortion through WoW during the period 18 March 2020 to 4 May 2020. The average age was 25.4 years, ranging from 13 to 67 years (ages were self-reported by the women/pregnant people, and were not verified). The requests came from 171 different countries, but Thailand was excluded from the analysis as due to a system error 94.8% of the values for the variable ‘COVID-19-related’ were missing. Table 1 represents a frequency list of the top 26 countries.

Of all the requests made between 18 March 2020 and 4 May 2020 ( $n=4962$ ), 1972 (43.5%) requests were COVID-19-related. Of the COVID-19-related requests, the percentage of women who had an ultrasound was 16.9% compared with 24.4% of the

**Table 1** Frequency table of abortion requests and COVID-19-related requests received by Women on Web (WoW) between 18 March 2020 and 4 May 2020: 26 most frequent countries

Country	Requests (n=4344) (n (%))	COVID-19-related=Yes (n=1742) (n (%))
Poland	681 (15.7)	316 (46.5) <i>Missing: 2</i>
South Korea	548 (12.6)	67 (12.4) <i>Missing: 9</i>
Germany*	389 (9.0)	179 (45.7) <i>Missing: 3</i>
Thailand	343 (7.9)	6 (33.3) <i>Missing: 325</i>
Great Britain	234 (5.4)	159 (68.8) <i>Missing: 3</i>
Japan	203 (4.7)	64 (32.0) <i>Missing: 3</i>
Indonesia	194 (4.5)	53 (27.7) <i>Missing: 3</i>
Brazil	189 (4.4)	76 (41.1) <i>Missing: 4</i>
Italy	177 (4.1)	117 (66.5) <i>Missing: 1</i>
United Arab Emirates	177 (4.1)	75 (44.4) <i>Missing: 8</i>
France*	149 (3.4)	86 (59.3) <i>Missing: 4</i>
Argentina	124 (2.9)	68 (55.3) <i>Missing: 1</i>
Mexico	109 (2.5)	39 (36.4) <i>Missing: 2</i>
Chile	106 (2.4)	34 (32.1) <i>Missing: 0</i>
Northern Ireland (UK)	102 (2.3)	73 (73.0) <i>Missing: 2</i>
Malaysia	81 (1.9)	41 (51.9) <i>Missing: 2</i>
Hungary	80 (1.8)	42 (53.8) <i>Missing: 2</i>
Morocco	78 (1.8)	46 (61.3) <i>Missing: 3</i>
Saudi Arabia	70 (1.6)	32 (48.5) <i>Missing: 4</i>
Ireland	65 (1.5)	46 (70.8) <i>Missing: 0</i>
Portugal	61 (1.4)	33 (55.0) <i>Missing: 1</i>
Malta	42 (1.0)	24 (61.5) <i>Missing: 3</i>
Qatar	41 (0.9)	18 (47.4) <i>Missing: 3</i>
Colombia	39 (0.9)	18 (46.2) <i>Missing: 0</i>
The Netherlands	36 (0.8)	17 (48.6) <i>Missing: 1</i>
Australia	26 (0.6)	13 (50.0) <i>Missing: 0</i>

\*The frequencies of Germany and France are not comparable to the other countries, as all the German and French requests in 2020 were saved in the WoW database. For all other countries where WoW operates, requests without any form of additional correspondence are automatically deleted 3 weeks after the booking date.

non-COVID-19-related requests. Of the COVID-19-related requests, 43.3% had not used contraception, compared with 46.9% of the non-COVID-19-related requests. No significant association was found with age. There was a significant negative association between having had an ultrasound and COVID-19-related requests (OR 0.630, 95% CI 0.543 to 0.733). A significant negative association was also found between not having used contraception and COVID-19-related requests (OR 0.864, 95% CI 0.767 to 0.972) (see [table 2](#)).

Frequencies of COVID-19-related requests made during the period 18 March 2020 to 4 May 2020 are presented in [Table 3](#) for the four included countries. Italy had the highest percentage of COVID-19-related requests, with an average of 66.5% during the study period. Women requesting an abortion in Malaysia and the UAE showed a significant negative association for COVID-19-related requests compared with women living in Italy.

## DISCUSSION

This study describes and analyses abortion requests received by WoW during the period 18 March 2020 to 4 May 2020. The negative association between having had an ultrasound and ‘COVID-19-related requests’ indicates that women and pregnant people were less likely to have had an ultrasound to establish gestational length. Their inability to obtain an ultrasound may be an indication that COVID-19 limited access to reproductive healthcare and/or impacted their willingness to seek healthcare due to potential risk of infection. This finding is in line with a study performed by Marie Stopes International in the UK, South Africa and India, which concluded that access to reproductive healthcare has been constrained during the pandemic.<sup>1</sup> Another explanation could be that in some countries there was a rapid move to change guidelines for medical abortion, permitting access without the need for an ultrasound.<sup>15</sup>

The negative association between not having used contraception and COVID-19-related requests suggests that women and pregnant people seeking abortion and citing COVID-19 as a factor were more likely to have used contraception. Research conducted by the United Nations and Sexual Reproductive Health Agency predicted that fewer women would have used contraceptives during the pandemic in low- and middle-income countries.<sup>18</sup> The contradictory finding can potentially be explained by the fact that the research population of this study consists of people who probably do not live in extreme poverty. Not much is known about the socioeconomic status of the research population. However, access to the Internet is required to use WoW services, so persons requesting help might not experience financial barriers to accessing contraceptives. Another explanation may be that during the pandemic the ability to have casual

**Table 2** Frequencies of age categories, ultrasound and contraception for COVID-19-related requests (yes/no) and summary of logistic regression analysis (all countries)\*

Parameter	COVID-19-related=No (n=2563, 56.5%) (n (%))	COVID-19-related=Yes (n=1972, 43.5%) (n (%))	OR (95% CI)
Age (years)			
≤20 (Reference)	473 (18.5)	365 (18.5)	
21–25	731 (28.5)	518 (26.3)	0.918 (0.769 to 1.096)
26–30	611 (23.8)	502 (25.5)	1.065 (0.889 to 1.275)
31–35	397 (15.5)	306 (15.5)	0.999 (0.816 to 1.223)
≥36	351 (13.7)	281 (14.2)	1.037 (0.843 to 1.277)
Ultrasound			
Yes	608 (24.4)	325 (16.9)	0.630 (0.543 to 0.733)
	<i>Missing: 69</i>	<i>Missing: 48</i>	
Contraception			
Non-use	1192 (46.9)	849 (43.3)	0.864 (0.767 to 0.972)
	<i>Missing: 24</i>	<i>Missing: 12</i>	

\*Thailand is excluded.

CI, confidence interval; OR, odds ratio.

sex is reduced due to closure of meeting places and lockdown regulations, as well as fear of infection.<sup>19</sup> Research shows that women in casual relationships are less likely to use contraception, compared with women in consistent relationships.<sup>20</sup> For some women and pregnant people contacting WoW, contraception failure or failure to access services may have taken place before the lockdown started in their country. Therefore, the pandemic did not affect their ability to access contraceptives yet, and the results of the analysis could be biased as a result, at least initially.

Italy had the highest frequency of COVID-19-related requests of the countries included. Italy was

the epicentre when the pandemic began in Europe, and lack of information, movement restrictions, and gynaecological staff reassigned to COVID-19 care might have contributed to barriers to accessing local abortion care.<sup>21 22</sup>

The high percentage of COVID-19-related requests for women and pregnant people in Argentina might be explained by the fact that Argentinians often seek help for an abortion from local abortion rights activist organisations. These organisations were also affected by the pandemic.<sup>23</sup>

The increase in COVID-19-related requests in Malaysia during the pandemic is in line with a recent

**Table 3** Frequencies of requests through Women on Web (WoW) for Italy, Argentina, Malaysia and the United Arab Emirates, including COVID-19-related requests, per month, from 18 March 2020 to 4 May 2020

Parameter	Italy	Argentina	Malaysia	UAE
Population* (millions)	60.5	45.2	32.7	9.9
Abortion law*	<b>On request</b> ▶ Parental authorisation/ notification required	<b>To preserve health†</b> ▶ Permitted in cases of rape	<b>To preserve health</b> ▶ Law explicitly includes mental health	<b>To save the woman's life</b> ▶ Permitted in cases of fetal impairment ▶ Spousal authorisation required ▶ Parental authorisation/ notification required
Requests (%=calculated by row) 18 March 2020–4 May 2020 (n=559) (n (%))	177 (30.7)	124 (22.2)	81 (14.5)	177 (31.7)
COVID-19-related=Yes (%=column) 18 March 2020–4 May 2020 (n=361) (n (%))	117 (66.5)	68 (55.3)	41 (51.9)	75 (44.4)
OR (95% CI)	Reference	0.623 (0.388 to 1.001)	0.544 (0.317 to 0.935)	0.402 (0.260 to 0.622)

\*Abortion law.<sup>28</sup> Population.<sup>29</sup>

†The abortion law recently changed in Argentina and now allows abortions until 14 weeks 'on request'.<sup>30</sup> The abortion law during the time of collecting the data was used for this study.

CI, confidence interval; OR, odds ratio; UAE, United Arab Emirates.

report by the Reproductive Rights Advocacy Alliance of Malaysia (RRAAM), which observed a 48% increase in requests for safe abortion in 2020 compared with 2019.<sup>24</sup> The increase in requests received by PRAAM started just a few weeks after the lockdown measurement, and are most likely the result of closed clinics and quarantine orders.<sup>25</sup>

Women and pregnant people in the UAE often seek an abortion in nearby countries because the abortion law in the UAE is very restrictive.<sup>26</sup> Due to COVID-19-related travel restrictions, the ability to leave the country to obtain an abortion was limited. The UAE showed the strongest negative association in the subanalysis and has the most restrictive abortion law of the selected countries. Based on the safe abortion care model of Benson,<sup>27</sup> in countries with a restrictive abortion law, such as the UAE, laws and policies are the greatest barrier to accessing safe abortion care.

A limitation of this analysis is the short study period and resultant limited sample due to the technical problems noted and the impact of the Google Core update. Also, the reason 'because of COVID-19' did not specify the exact barrier that women experienced. It could be that local abortion clinics were closed, that women and pregnant people did not want to travel to a clinic because they were afraid of infection, or another COVID-19-related reason, but this cannot be discerned from the available information. A recommendation for future research is a qualitative study to explore the opinions and experiences of women and pregnant people who used the telemedicine abortion service during the COVID-19 pandemic.

A strength of this study is that it addresses a research gap regarding the impact of the COVID-19 pandemic on abortion access. The study includes data from several diverse countries, and thus provides a macro view of the subject.

## Conclusions

The results of this study indicate that women and pregnant people in many countries had reduced access to local reproductive healthcare in order to obtain a safe abortion during an early period (18 March 2020 to 4 May 2020) of the COVID-19 pandemic. As a result of reduced access to reproductive healthcare, fewer women and pregnant people obtained an ultrasound to determine gestational length. Countries with a supportive abortion law and strong lockdown measurements experienced COVID-19 as a greater barrier to access abortion care compared with countries with a less supportive abortion law, where access was already very restricted. However, COVID-19 posed a major barrier for women and pregnant people in countries with a restrictive abortion law as well. Telemedicine helped to address the barriers to abortion care, but availability was and remains insufficient. There is an urgent need for policymakers to expand access to medical abortion by allowing and encouraging the use

of telemedicine, changing the interpretation of laws, and allowing self-management of medical abortion. Such changes will enable women and pregnant people to access safe medical abortion care, ensuring the right to abortion, including during the ongoing COVID-19 pandemic.

**Correction notice** This article has been corrected since it was first published. The author order has been changed.

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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. Although this study was an analysis of secondary, anonymised data, with no direct participant involvement, the research questions were informed by the needs of women who rely on Women on Web to access abortion.

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**Data availability statement** Data are available upon reasonable request. Anonymised data may be available upon reasonable request to Women on Web.

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## REFERENCES

- 1 Marie Stopes International. Resilience, adaption and action, 2020. Available: <https://www.mariestopes.org/media/3849/resilience-adaptation-and-action.pdf> [Accessed 16 Sep 2020].
- 2 Bateson DJ, Lohr PA, Norman WV, *et al.* The impact of COVID-19 on contraception and abortion care policy and practice: experiences from selected countries. *BMJ Sex Reprod Health* 2020;46:241–3.
- 3 Ganatra B, Gerds C, Rossier C, *et al.* Global, regional, and subregional classification of abortions by safety, 2010–14: estimates from a Bayesian hierarchical model. *The Lancet* 2017;390:2372–81. doi:10.1016/S0140-6736(17)31794-4
- 4 World Health Organization (WHO). Preventing unsafe abortion, 2019. Available: <https://www.who.int/news-room/fact-sheets/detail/preventing-unsafe-abortion> [Accessed 18 Sep 2020].
- 5 Riley T, Sully E, Ahmed Z, *et al.* Estimates of the potential impact of the COVID-19 pandemic on sexual and reproductive

- health in low- and middle-income countries. *Int Perspect Sex Reprod Health* 2020;46:73–6. doi:10.1363/46e9020
- 6 Centre for Reproductive Rights. Access to Comprehensive Sexual and Reproductive Health Care is a Human Rights Imperative During the COVID-19 Pandemic [Internet], 2020. Available: [https://reproductiverights.org/sites/default/files/documents/Access to Comprehensive Sexual and Reproductive Health Care is a Human Rights Imperative During the COVID-19 Pandemic.pdf](https://reproductiverights.org/sites/default/files/documents/Access%20to%20Comprehensive%20Sexual%20and%20Reproductive%20Health%20Care%20is%20a%20Human%20Rights%20Imperative%20During%20the%20COVID-19%20Pandemic.pdf) [Accessed 18 Sep 2020].
  - 7 Abubeker FA, Lavelanet A, Rodriguez MI, *et al*. Medical termination for pregnancy in early first trimester ( $\leq 63$  days) using combination of mifepristone and misoprostol or misoprostol alone: a systematic review. *BMC Womens Health* 2020;20:142.
  - 8 Aiken ARA, Digol I, Trussell J, *et al*. Self reported outcomes and adverse events after medical abortion through online telemedicine: population based study in the Republic of Ireland and Northern Ireland. *BMJ* 2017;357:j2011.
  - 9 Aiken A, Lohr PA, Lord J. Effectiveness, safety and acceptability of no-test medical abortion provided via telemedicine: a national cohort study. *BJOG* 2021.
  - 10 Gatter M, Cleland K, Nucatola DL. Efficacy and safety of medical abortion using mifepristone and buccal misoprostol through 63 days. *Contraception* 2015;91:269–73.
  - 11 Reynolds-Wright JJ, Johnstone A, McCabe K, *et al*. Telemedicine medical abortion at home under 12 weeks' gestation: a prospective observational cohort study during the COVID-19 pandemic. *BMJ Sex Reprod Health* 2021;47:bmjsrh-2020-200976.
  - 12 Porter Erlank C, Lord J, Church K. Acceptability of no-test medical abortion provided via telemedicine during Covid-19: analysis of patient-reported outcomes. *BMJ Sex Reprod Health* 2021;010.1136/bmjsex-2020-200954. [Epub ahead of print: 18 Feb 2021].
  - 13 World Health Organization (WHO). What is self care? 2020. Available: <https://www.who.int/reproductivehealth/publications/> [Accessed 20 Oct 2020].
  - 14 Aiken ARA, Starling JE, Gomperts R, *et al*. Demand for self-managed online telemedicine abortion in eight European countries during the COVID-19 pandemic: a regression discontinuity analysis. *BMJ Sex Reprod Health* 2021;150. doi:10.1136/bmjsex-2020-200880. [Epub ahead of print: 11 Jan 2021].
  - 15 Moreau C, Shankar M, Glasier A. Abortion regulation in Europe in the era of COVID-19: a spectrum of policy responses. *BMJ Sex Reprod Health* 2021:1–8.
  - 16 Rechtbank Denk Haag. ECLI:NL:RBDHA:2020:3551, Rechtbank Den Haag, C/09/590986 / KG ZA 20-303 [Internet], 2020. Available: <https://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:RBDHA:2020:3551> [Accessed 18 Sep 2020].
  - 17 Twisk JWR. *Inleiding in de Toegepaste Biostatistiek*. 4th ed. Houten: Bohn Stafleu van Loghum, 2016.
  - 18 United Nations. Interim technical note impact of the COVID-19 pandemic on family planning and ending gender-based violence, female genital mutilation and child marriage, 2020. Available: <https://www.unfpa.org/resources/impact-covid-19-pandemic-family-planning-and-ending-gender-based-violence-female-genital>
  - 19 Coombe J, Kong FYS, Bittleston H, *et al*. Love during lockdown: findings from an online survey examining the impact of COVID-19 on the sexual health of people living in Australia. *Sex Transm Infect* 2021;97:357–62. doi:10.1136/sxtrans-2020-054688
  - 20 Upadhyay UD, Raifman S, Raine-Bennett T. Effects of relationship context on contraceptive use among young women. *Contraception* 2016;94:68–73.
  - 21 De Luca MN. Coronavirus, “L'emergenza blocca gli aborti, diamo a casa la pillola Ru486”, 2020. La Repubblica. Available: [https://www.repubblica.it/cronaca/2020/04/07/news/aborto\\_appello\\_delle\\_ginecologhe-253414886/](https://www.repubblica.it/cronaca/2020/04/07/news/aborto_appello_delle_ginecologhe-253414886/) [Accessed 6 October 2021].
  - 22 Human Rights Watch. Italy: Covid-19 exacerbates obstacles to legal abortion. Human Rights Watch [Internet], 2020. Available: <https://www.hrw.org/news/2020/07/30/italy-covid-19-exacerbates-obstacles-legal-abortion> [Accessed 6 Jan 2021].
  - 23 Socorristas en red. Inicio -¿Cómo hacerse un aborto seguro con medicamentos? [Internet], 2020. Available: <https://socorristasenred.org/> [Accessed 21 Dec 2020].
  - 24 Rawther A, Tiew A, Sim J. Through the PRAAM hotline: perspectives on abortion in Malaysia [Internet], 2020. Available: <https://drive.google.com/file/d/14JM19ythy4rDMvV29LmEoidPw1R46-E2/view> [Accessed 21 Dec 2020].
  - 25 Choong S. Safer options for unwanted pregnancies. The Star [Internet], 2020. Available: <https://www.thestar.com.my/opinion/letters/2020/06/30/safer-options-for-unwanted-pregnancies> [Accessed 6 Jan 2021].
  - 26 Jaffery R. Life in lockdown: when abortion is illegal, where do you go? Huck [Internet], 2020. Available: <https://www.huckmag.com/perspectives/reportage-2/how-lockdown-is-affecting-womens-reproductive-rights/> [Accessed 21 Dec 2020].
  - 27 Benson J. Evaluating abortion-care programs: old challenges, new directions. *Stud Fam Plann* 2005;36:189–202. doi:10.1111/j.1728-4465.2005.00061.x
  - 28 Centre for Reproductive Rights. By the numbers [Internet], 2020. Available: <https://reproductiverights.org/sites/default/files/documents/World-Abortion-Map-ByTheNumbers.pdf> [Accessed 16 Sep 2020].
  - 29 Worldometer. Population by country (2020) - Worldometer [Internet], 2020. Available: <https://www.worldometers.info/world-population/population-by-country/> [Accessed 18 Dec 2020].
  - 30 Watson K. Argentina abortion: senate votes in favour of legalisation. BBC News [Internet], 2020. Available: <https://www.bbc.com/news/world-latin-america-55475036> [Accessed 30 Dec 2020].