

# Journal Pre-proof



Abortion experiences and preferences of transgender, nonbinary, and gender-expansive people in the United States

Dr. Heidi MOSESON, PhD, Mx. Laura FIX, MSW, Mx. Sachiko RAGOSTA, BA, Mx. Hannah FORSBERG, MPH, Dr. Jen HASTINGS, MD, Mx. Ari STOEFFLER, BA, Dr. Mitchell R. LUNN, MD, Dr. Annesa FLENTJE, MD, Dr. Matthew R. CAPRIOTTI, PhD, Dr. Micah E. LUBENSKY, PhD, Dr. Juno OBEDIN-MALIVER, MD

PII: S0002-9378(20)31126-1

DOI: <https://doi.org/10.1016/j.ajog.2020.09.035>

Reference: YMOB 13512

To appear in: *American Journal of Obstetrics and Gynecology*

Received Date: 20 May 2020

Revised Date: 18 August 2020

Accepted Date: 22 September 2020

Please cite this article as: MOSESON H, FIX L, RAGOSTA S, FORSBERG H, HASTINGS J, STOEFFLER A, LUNN MR, FLENTJE A, CAPRIOTTI MR, LUBENSKY ME, OBEDIN-MALIVER J, Abortion experiences and preferences of transgender, nonbinary, and gender-expansive people in the United States, *American Journal of Obstetrics and Gynecology* (2020), doi: <https://doi.org/10.1016/j.ajog.2020.09.035>.

This is a PDF file of an article that has undergone enhancements after acceptance, such as the addition of a cover page and metadata, and formatting for readability, but it is not yet the definitive version of record. This version will undergo additional copyediting, typesetting and review before it is published in its final form, but we are providing this version to give early visibility of the article. Please note that, during the production process, errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

© 2020 Published by Elsevier Inc.

1 **Title:** Abortion experiences and preferences of transgender, nonbinary, and gender-expansive  
2 people in the United States

3  
4 **Authors:**

- 5 1. Dr. Heidi MOSESON, PhD, Oakland, CA, Ibis Reproductive Health
- 6 2. Mx. Laura FIX, MSW, Cambridge, MA, Ibis Reproductive Health
- 7 3. Mx. Sachiko RAGOSTA, BA, Oakland, CA, Ibis Reproductive Health
- 8 4. Mx. Hannah FORSBERG, MPH, Oakland, CA, Ibis Reproductive Health
- 9 5. Dr. Jen HASTINGS, MD, San Francisco, CA, University of California, San Francisco,  
10 Department of Family and Community Medicine
- 11 6. Mx. Ari STOEFFLER, BA, Boston, MA, Planned Parenthood League of Massachusetts
- 12 7. Dr. Mitchell R. LUNN, MD, Stanford, CA, Division of Nephrology, Department of  
13 Medicine, Stanford University School of Medicine; The PRIDE Study/PRIDENet
- 14 8. Dr. Annesa FLENTJE, MD, Department of Community Health Systems; University of  
15 California, San Francisco, San Francisco; Alliance Health Project, Department of Psychiatry,  
16 University of California, San Francisco; The PRIDE Study/PRIDENet, Stanford University
- 17 9. Dr. Matthew R. CAPRIOTTI, PhD, San Jose, CA, Department of Psychology, San José State  
18 University; The PRIDE Study/PRIDENet, Stanford University
- 19 10. Dr. Micah E. LUBENSKY, PhD, Stanford, CA, The PRIDE Study/PRIDENet, Stanford  
20 University
- 21 11. Dr. Juno OBEDIN-MALIVER, MD, Department of Obstetrics and Gynecology, Stanford  
22 University School of Medicine; The PRIDE Study/PRIDENet, Stanford University

23  
24 **Corresponding Author:**

25 Heidi Moseson, PhD MPH  
26 Ibis Reproductive Health  
27 1736 Franklin Street, Suite 600  
28 Oakland, CA 94612

29 **Disclosure statement:** J.O.M. has consulted for Sage Therapeutics (5/2017) in a one-day  
30 advisory board, Ibis Reproductive Health (a non-for-profit research group 3/2017-5/2018), Hims,  
31 Inc. (2019-present), and Folx, Inc (2020-present). M.R.L. has consulted for Hims, Inc. (2019-  
32 present) and Folx, Inc (2020-present). None of these roles present a conflict of interest with this  
33 work as described here. This research was funded by a grant from the Society of Family  
34 Planning. All other authors report no conflict of interest.

35 **Role of the funding source:** This study was funded by the Society of Family Planning  
36 (SFPRF11-III). The funder had no role in the study design, nor in the collection, analysis, or  
37 interpretation of data, nor in the writing of this manuscript, nor the decision to submit the article  
38 for publication.

39  
40 **Word count for abstract and main text:** 3,402 words

41 **Condensation:** Transgender, nonbinary, and gender-expansive people have abortions, and have  
42 recommendations that can be used to adapt abortion care to better serve these marginalized  
43 populations.

44

45 **Short title:** Abortion experiences and preferences of transgender and nonbinary people

46

47 **AJOG at a Glance:**

48 A. Why was the study conducted?

- 49 • To fill gaps in the evidence base on abortion experiences of transgender, nonbinary,  
50 and gender-expansive (TGE) people.

51 B. What are the key findings?

- 52 • TGE people have abortions, and many prefer medication abortion to surgical abortion  
53 because medication is viewed as less invasive, offers greater privacy, and does not  
54 require anesthesia.
- 55 • Abortion providers can improve care for TGE people by adopting gender-neutral  
56 intake forms and inclusive language.

57 C. What does this study add to what is already known?

- 58 • As compared to cisgender women, TGE people may prioritize different factors in  
59 determining abortion method preference.
- 60 • With relatively simple changes to intake forms and staff and clinician language,  
61 providers can improve the accessibility and quality of abortion care for TGE people.

62

63 **Structured Abstract**

64 **Background:** Transgender, nonbinary, and gender-expansive (TGE) people who were assigned  
65 female or intersex at birth experience pregnancy and have abortions. No data have been  
66 published on individual abortion experiences or preferences of this understudied population.

67 **Objective(s):** To fill existing evidence gaps on the abortion experiences and preferences of TGE  
68 people in the United States to inform policies and practices to improve access to and quality of  
69 abortion care for this population.

70 **Study Design:** In 2019, we recruited TGE people assigned female or intersex at birth and aged  
71 18 years and older from across the United States to participate in an online survey about sexual  
72 and reproductive health recruited through The PRIDE Study and online postings. We  
73 descriptively analyzed closed- and open-ended survey responses related to pregnancy history,  
74 abortion experiences, preferences for abortion method, recommendations to improve abortion  
75 care for TGE people, and respondent sociodemographic characteristics.

76 **Results:** The majority of the 1,694 respondents were less than 30 years of age. Respondents  
77 represented multiple gender identities and sexual orientations and resided across all four United  
78 States Census Regions. Overall, 210 (12%) respondents had ever been pregnant; these 210  
79 reported 421 total pregnancies, of which 92 (22%) ended in abortion. For respondents' most  
80 recent abortion, 41 (61%) were surgical, 23 (34%) were medication, and 3 (4.5%) used another  
81 method (primarily herbal). Most recent abortions took place at or before nine weeks gestation  
82 (n=41, 61%). If they were to need an abortion today, respondents preferred medication abortion  
83 to surgical abortion three to one (n=703 versus n=217), but 514 (30%) respondents did not know  
84 which method they would prefer. Reasons for medication abortion preference among the 703  
85 respondents included a belief that it is the least invasive method (n=553, 79%) and the most

86 private method (n=388, 55%). To improve accessibility and quality of abortion care for TGE  
87 patients, respondents most frequently recommended that abortion clinics adopt gender-neutral or  
88 gender-affirming intake forms, that providers utilize gender-neutral language, and that greater  
89 privacy be incorporated into the clinic.

90 **Conclusion(s):** These data contribute significantly to the evidence base on individual  
91 experiences of and preferences for abortion care for TGE people. Findings can be used to adapt  
92 abortion care to better include and affirm the experiences of this underserved population.

93

94 **Keywords/phrases:** abortion, abortion method preference, induced abortion, intersex,  
95 medication abortion, sexual and gender minorities, surgical abortion, transgender persons

96

97 **Acknowledgements:** We wish to thank Avery Lesser-Lee and Lyndon Cudlitz for their  
98 thoughtful contributions to this work. We also wish to thank The PRIDE Study, a community-  
99 engaged research project. We acknowledge The PRIDE Study participants and the PRIDENet  
100 Participant Advisory Committee, Ambassadors, and Community Partners for their contributions  
101 to this work. For more information, please visit <https://pridestudy.org/pridenet>.

## 102 **Introduction**

103 Transgender, nonbinary, and gender-expansive (TGE) people experience pregnancy and  
104 need abortions.<sup>1-3</sup> *Transgender* is an umbrella term that describes a person whose gender identity  
105 (*e.g.*, man, nonbinary, woman) differs from the sex they were assigned at birth (*i.e.*, female,  
106 intersex, male) which is typically based on external genitalia. *Cisgender* describes a person  
107 whose gender identity aligns with the sex they were assigned at birth. *Nonbinary* and *gender-*  
108 *expansive* are also umbrella terms that describe gender identities that are not limited to man or  
109 woman – they could be a combination of both or neither. Transgender people are thought to  
110 make up at least 0.6% of the total United States population or 1.4 million people.<sup>4</sup> This  
111 proportion may be higher among younger people, especially when including nonbinary and  
112 gender-expansive identities: a recent study found that 2% of 18-34-year-olds identified as  
113 transgender, 8% identified as agender, bigender, genderfluid or genderqueer, and another 2%  
114 identified as unsure or questioning.<sup>5</sup> In short, 12% of those in this age group identified as  
115 transgender or gender non-conforming.<sup>5</sup> Population level data do not exist on the number of TGE  
116 people in the United States capable of pregnancy. The majority of TGE individuals assigned  
117 female sex at birth do not have surgeries to remove their internal reproductive organs (*i.e.*,  
118 uterus, ovaries, and fallopian tubes),<sup>6,7</sup> and some report having sperm-producing sexual  
119 partners.<sup>3,8,9</sup> As a result, a substantial proportion of TGE individuals assigned female sex at birth  
120 may need pregnancy and/or abortion care during their lives. Similarly, people with intersex  
121 conditions or differences in sex development (DSD) – a heterogeneous group that may or may  
122 not also be TGE identified – may also need pregnancy and/or abortion care during their lives.<sup>10,11</sup>

123 Although current studies estimate that one quarter of all (presumably cisgender) women will  
124 have an abortion in the United States,<sup>12</sup> no corresponding population-level data exist on the

125 abortion rate among TGE people who can get pregnant. The best approximation, from all known  
126 abortion-providing facilities in the United States, estimated that there were between 462 and 530  
127 transgender and nonbinary abortion patients nationwide in 2017. This incidence estimate,  
128 however, is likely an underestimate as not all providers collected data on the patients' gender  
129 identities and/or sex assigned at birth – necessary to identify TGE people.<sup>2,13</sup>

130 Several studies have published data on abortions experienced by TGE people in the United  
131 States.<sup>14,15</sup> A survey of 450 transgender and gender non-conforming adults who were assigned  
132 female sex at birth found that 28 (6%) reported having at least one unplanned pregnancy, and of  
133 these, 10 (32%) ended in abortion.<sup>15</sup> In a mixed-methods study of 197 masculine identified  
134 people who were assigned female sex at birth, 32 (16%) participants reported 60 lifetime  
135 pregnancies, of which 7 (12%) ended in abortion.<sup>14</sup> We are not aware of any studies that describe  
136 the abortion types that TGE patients have had, the gestational ages at which abortion care was  
137 accessed, or preferences for abortion care.

138 There are well-established barriers to general health care for TGE people, including  
139 discrimination based on gender identity in clinics, limited provider knowledge, refusal of care  
140 provision, lower rates of insurance coverage than the general United States population, and more  
141 frequent discrepancies between gender presentation/identity and sex/gender indicated on  
142 administrative documents compared to cisgender women.<sup>16-23</sup> These barriers result in delays,  
143 denials, and extra charges for care.<sup>18,21,22,24</sup> These same barriers likely hinder access to abortion  
144 care.<sup>24-29</sup> To begin addressing these barriers to care, foundational epidemiological data on  
145 abortion – a major pregnancy and reproductive health outcome<sup>30</sup> – among TGE individuals are  
146 needed to inform the adaptation of abortion care. Stakeholders – including researchers, health  
147 care providers, and community members – have called for these data.<sup>24,31,32</sup> To address this gap,

148 we conducted a national survey to measure experiences with, preferences for, and  
149 recommendations toward improve abortion care among TGE people who were assigned female  
150 or intersex at birth in the United States.

151

## 152 **Materials and Methods**

### 153 *Study population and recruitment*

154

155 From May to September 2019, we fielded an online quantitative survey about the sexual  
156 and reproductive health experiences, needs, and preferences of TGE individuals who were  
157 assigned female or intersex at birth in the United States. Participants were recruited from two  
158 populations: (1) the general public, and (2) The Population Research in Identities and Disparities  
159 for Equality (PRIDE) Study, an online national prospective cohort study of sexual and gender  
160 minority adults. The PRIDE Study, community engagement research approach, demographics,  
161 and research platform have been described elsewhere.<sup>33,34</sup> Eligibility criteria for both  
162 populations included being at least 18 years of age, being of TGE experience, having been  
163 female or intersex assigned at birth, residence in the United States, and an ability to read and  
164 understand English. Participants from the general public were recruited through study  
165 advertisements posted to social media, shared via community email lists, and distributed at in-  
166 person community events and SRH conferences. Study advertisements provided a website where  
167 interested participants could be screened for eligibility, and then directed to the online informed  
168 consent process and survey. Participants from The PRIDE Study were recruited through the  
169 display of a new sexual and reproductive health survey in their online participant dashboard,  
170 from which they could click through to be screened for eligibility, and proceed to the survey if  
171 eligible. In addition to TGE respondents, cisgender sexual minority women within The PRIDE



172 Study were also eligible to complete the survey, as data from cisgender sexual minority women  
173 are underrepresented in sexual and reproductive health research as well. However, for the  
174 purposes of this analysis, we present only results from TGE respondents assigned female or  
175 intersex at birth.

176

### 177 *Survey Instrument*

178 We administered a questionnaire using Qualtrics (Qualtrics, Provo, UT) that featured  
179 customizable words to enhance comfort and minimize gender dysphoria experienced by  
180 respondents.<sup>35</sup> Relevant survey domains for this analysis included pregnancy history, abortion  
181 history and preferences, and sociodemographic characteristics, including gender identity, sex  
182 assigned at birth, sexual orientation, and race/ethnicity. We developed and tested survey  
183 questions with an independent Community Advisory Team comprised of TGE individuals as  
184 well as the Research and Participant Advisory Committees of The PRIDE Study; the survey  
185 design and format have been described in detail elsewhere.<sup>35</sup> All survey questions allowed for a  
186 “Prefer not to say” or “I don’t know” response option to ensure completeness of responses. To  
187 prevent multiple responses from any participants, we enabled the “Prevent Ballot Box Stuffing”  
188 feature and reviewed participant IP addresses; IP address data were subsequently deleted.  
189 Participants who completed the survey were entered into a randomized drawing to win a \$50  
190 electronic gift card (\$6,700 in gift cards were distributed in total).

191

### 192 *Study Measures*

193 Key variables included experiences with abortion, recommendations for improving  
194 abortion care, measures of abortion method preference, and respondent sociodemographic

195 characteristics. To evaluate experiences of abortion, the survey included a pregnancy history  
196 module that prompted respondents to enter each pregnancy they had experienced. For each  
197 pregnancy, participants were asked whether they were trying to get pregnant and to indicate how  
198 each pregnancy had ended. For respondents that reported a prior abortion, survey questions  
199 assessed how many abortions and the types of abortions that they had experienced. For a  
200 respondent's most recent abortion, additional survey questions inquired about the abortion type  
201 and gestational age at which the abortion took place. Among those who reported a prior abortion,  
202 respondents had the opportunity to indicate recommendations for improving abortion care from a  
203 list of ten options, including the option to write-in a recommendation. To measure abortion  
204 method preference, all respondents were asked: "If you needed an abortion now, what type of  
205 abortion would you prefer?" The response choices included "medication abortion", "surgical  
206 abortion", "not listed" (with an option to write-in a method), or "I don't know". The survey then  
207 prompted respondents to answer the question: "What are the main reasons that this is your  
208 preferred method of abortion?" Respondents could select up to three options from a multiple-  
209 choice list of reasons related to method privacy, cost, accessibility, pain, familiarity, and more,  
210 including a write-in response. The full text of the survey has been published elsewhere.<sup>35</sup>

211 Specific sociodemographic characteristics included age at the time of survey initiation, gender  
212 identity, sex assigned at birth, intersex identity, sexual orientation, race/ethnicity, education  
213 level, health insurance coverage, and region of residence. For gender identity, sexual orientation,  
214 and race/ethnicity, respondents could select all options that applied, or write-in their own option.  
215 Region of residence is defined in accordance with the United States Census Bureau's four  
216 regions.<sup>36</sup>

217

218 *Analysis*

219           We analyzed respondent answers to closed-ended survey questions using Stata 15.1  
220 (StataCorp, College Station, TX). We calculated frequencies and percentages for all study  
221 measures defined above for the full study sample, or among those who reported an abortion, as  
222 appropriate. We catalogued open-ended survey responses in Microsoft Excel to group similar  
223 write-in responses, and to tabulate frequencies across groups.

224

225 *Ethical review*

226           We obtained ethical review and approval for this study from the Institutional Review  
227 Boards of Stanford University and the University of California, San Francisco. Review and  
228 approval of this study was also provided by The PRIDE Study Research Advisory Committee  
229 and The PRIDE Study Participant Advisory Committee (pridestudy.org). All participants  
230 provided informed consent prior to beginning the survey.

231

232 **Results**233 *Characteristics of the study population*

234           Overall, 5,005 people initiated the survey: 798 from the general population (an unknown  
235 proportion of the total number exposed to study information), and 4,207 from The PRIDE Study  
236 (35.3% of PRIDE participants likely eligible due to reporting female sex assignment at birth, or  
237 with missing data for assigned sex at birth). In response to a question on sex assigned at birth in  
238 this current survey, 2,704 of these 4,207 PRIDE participants reported having been female sex  
239 assigned at birth, 1,400 reported male, eight each reported neither or preferring not to say, and 87  
240 did not respond to the question. Approximately half of the PRIDE participants who responded to

241 this survey and reported having been female sex assigned at birth (50.8%) identified as cisgender  
242 sexual minority women, and thus, their results are not presented here. Among all respondents to  
243 the survey, 1,694 expressed a gender identity that aligned with the larger umbrella of TGE and  
244 were female or intersex assigned at birth. The majority of these participants (n=1,281, 76%) were  
245 recruited through The PRIDE Study, and the rest from the general public (n=413, 24%). Details  
246 of study screening and recruitment are reported elsewhere.<sup>35</sup>

247         Among the 1,694 participants, most were younger than 30 years (median=27; Table 1).  
248 The most common gender identity was nonbinary (51%), followed by transgender man (39%),  
249 and genderqueer (39%); 61% of respondents reported more than one gender identity. Most (99%)  
250 respondents reported having been female sex assigned at birth, with 4% identifying as intersex.  
251 Respondents reported a range of sexual orientations, most frequently queer (68%), followed by  
252 bisexual (34%) and pansexual (25%). Respondents were primarily white (87%), well-educated,  
253 and most (89%) had health insurance coverage.

254

#### 255 *Abortion experiences*

256         For the 421 lifetime pregnancies reported across 210 (12%) respondents, 233 (55%) were  
257 retrospectively reported as unintended. Of these 210 ever-pregnant respondents, 67 (32%)  
258 reported at least one pregnancy ending in abortion. These 67 respondents reported a total of 92  
259 abortions. Fifty-two respondents reported a single abortion, nine reported two abortions, and six  
260 reported three or more (Table 2). For respondents' most recent abortion, 41 (61%) were surgical,  
261 23 (34%) were medication, and 3 (4.5%) were another method (primarily herbal). Nearly two  
262 thirds of respondents' most recent abortions took place at or before nine weeks gestation (n=41,  
263 61%) (Table 2).

264

265 *Respondent's recommendations to improve abortion care*

266         The 67 respondents who reported a pregnancy ending in abortion offered gender-related  
267 recommendations to improve the abortion care experience as a TGE person. Specifically,  
268 respondents most frequently recommended that clinics adopt gender-neutral intake forms that are  
269 gender and sexual orientation affirming, and that staff utilize gender-neutral language (Table 3).  
270 Other respondent recommendations related to specific ideas for increasing the availability of  
271 affirming abortion care, as well as increasing patient privacy within and outside of abortion  
272 facilities.

273

274 *Abortion method preference*

275         When asked about abortion method preference, 703 respondents (42%) preferred  
276 medication abortion over surgical (n=217, 13%) or an unlisted method (n=28, 2%) (Figure 1),  
277 while 514 respondents (30%) did not know what type of abortion they would prefer. Among the  
278 28 respondents who wrote-in an unlisted method, 12 indicated that they would never get an  
279 abortion because of opposition to abortion or inability to get pregnant; five indicated that they  
280 would base the decision on the provider's recommendation; two stated that either method was  
281 fine; and two indicated a preference for an herbal method. While medication abortion was the  
282 most preferred method among both those who had experienced an abortion and those who had  
283 not (45% versus 41% respectively), a higher proportion of respondents who had experienced  
284 abortion reported a preference for surgical abortion than among respondents who had not  
285 experienced abortion (28% versus 12%); while a lower proportion of those who had experienced  
286 abortion did not know what type they would prefer (13% versus 31%). Among the 67 most

287 recent abortions, 89% of people who preferred surgical abortion had obtained a surgical abortion,  
288 while only 50% of those who preferred medication abortion had obtained a medication abortion.

289 Overall, the most common reasons given for preferring medication abortion included  
290 “This method is the least invasive” (n=553, 79%); “This method feels the most private” (n=388,  
291 55%); and “This method does not require anesthesia” (n=231, 33%) (Table 4). Thirty-one  
292 respondents wrote-in a reason for preferring medication abortion, which included a desire to  
293 avoid interactions with medical providers where they could be misgendered or traumatized (n=9,  
294 1.3%), and the ability to manage the abortion themselves in the privacy of their own homes  
295 without having to face protestors (n=6, 0.8%).

296 Among the 217 respondents who indicated a preference for surgical abortion, the most  
297 common reasons included “I feel most comfortable with the type and number of medical staff  
298 present for this option” (n=105, 48%); “This method would take the least amount of time (is  
299 fastest)” (n=88, 41%); and “The method is the least painful” (n=40, 18%) (Table 4). Write-in  
300 responses from 38 participants who preferred surgical abortion included an aversion to the  
301 hormones contained in medication abortion (n=10, 5%), a greater certainty that the abortion  
302 would be a success (n=7, 3%), a desire to avoid passing the pregnancy at home (n=7, 3%), and a  
303 sense that surgical would be less traumatizing than medication abortion (n=6, 3%).

304

### 305 **Comment**

306 These results demonstrate that TGE people assigned female or intersex at birth in the  
307 United States have medication, surgical, and herbal abortions. Respondents reported nearly one  
308 in five abortions occurring past the gestational limits for medication abortion (10 weeks),<sup>37</sup>  
309 which may account for the higher number of surgical abortions reported as compared to

310 medication abortions, despite a three to one preference for medication abortion. Notably, nearly  
311 one third of respondents did not know what type of abortion they would prefer if they were to  
312 need one today. To improve abortion care for TGE patients, respondents recommended that  
313 abortion providers incorporate affirming intake forms into clinics and that staff and clinicians use  
314 gender-inclusive language.

315

### 316 *Strengths and Limitations*

317 The primary limitation of this study is the lack of representativeness of the study  
318 population. Because no known sampling frame exists for recruiting TGE people assigned female  
319 or intersex at birth, we relied on convenience sampling. The extent to which these findings are  
320 generalizable to all TGE people assigned female or intersex at birth is unknown. Additionally,  
321 although 381 (22%) respondents indicated a race or ethnicity other than “white”, some racial and  
322 ethnic groups had low representation, and more specific studies focused on the experiences of  
323 TGE people of color and the intersection of various sociodemographic characteristics is  
324 warranted. Lower numbers of participants from multiple racial groups precluded our ability to  
325 assess if and how these abortion experiences and preferences represent a diversity of experiences  
326 – particularly when disparities in abortion care along racial lines are well established.<sup>38</sup>

327 These limitations are balanced by strengths. This is the first quantitative study to report  
328 on abortion experiences and preferences of TGE people in the United States. Further, the large  
329 number of respondents, several orders of magnitude larger than prior sexual and reproductive  
330 health studies among this population,<sup>14,15,39,40</sup> provides more descriptive information than  
331 previously available. The study was performed in a community-dwelling sample rather than a  
332 clinical sample. The survey instrument, as well as recruitment efforts, were co-created by our

333 interdisciplinary research team in close collaboration with a Community Advisory Team<sup>35</sup>;  
334 community engagement was essential to reaching respondents and to ensuring that the survey  
335 centered the experiences of the target populations.

336

### 337 *Clinical Implications*

338         The implications of these findings are that people of various gender identities and  
339 experiences have abortions, and thus abortion providers must ensure that systems serve the  
340 abortion needs of people with varying gender identities and experiences. Revising clinic intake  
341 forms to assess capacity and desires for pregnancy in a gender-neutral way, as well as  
342 systematically incorporating similar questions into conversations between providers and patients,  
343 may help to identify patients capable of pregnancy and prompt pregnancy options  
344 counseling.<sup>41,42</sup> Several studies evaluating clinician knowledge and comfort with care provision  
345 for TGE populations found self-identified gaps in provider knowledge about TGE health care,<sup>43</sup>  
346 as well as a lack of confidence, sense of preparedness, or experience with providing care to these  
347 populations.<sup>44-46</sup> Therefore, clinicians should seek out training on how to provide gender-  
348 affirming sexual and reproductive healthcare for TGE patients to improve the appropriateness  
349 and quality of care. Perhaps relatedly, many respondents in this study did not know which  
350 abortion type they preferred, suggesting that clinicians and counselors should incorporate more  
351 information about abortion options in conversations with TGE patients, including advocating for  
352 and distributing abortion education materials that are inclusive of many genders, not only  
353 cisgender women.<sup>31</sup>

354         Clinicians should also consider that reasons for preferring one method of abortion over  
355 another may differ for TGE patients as compared to cisgender women patients. Prior studies of



356 abortion method preference among (presumably) cisgender women, although most published  
357 following the introduction of medication abortion in the United States, found that women's  
358 preferences for abortion were motivated primarily by fears of bleeding, complications, or  
359 anesthesia, as well as beliefs about which method was more "natural", and the time involved for  
360 either method.<sup>47</sup> While TGE respondents shared some reasons consistent with those reported by  
361 cisgender women previously, the importance of privacy and minimizing the invasiveness of the  
362 experience emerged more strongly among those who preferred medication abortion -  
363 considerations central to TGE patients, a community commonly subjected to unnecessary  
364 medical questioning, exams, or even assault on the part of providers.<sup>16</sup> That medication abortion  
365 does not require a physical procedure, can be offered via telemedicine, and can be completed  
366 privately, at home or other preferred setting, may add to the appeal as an abortion method of  
367 choice for TGE people. Further, recent shifts in the United States toward "no-test" medication  
368 abortion protocols in response to the novel corona virus disease 2019 (COVID-19) reduce or  
369 remove the requirement for in-person clinic visits and physical exams,<sup>48</sup> experiences known to be  
370 dysphoria-inducing for some TGE patients.<sup>24</sup>

371

### 372 *Research Implications*

373 Despite a strong preference for medication abortion, more than twice as many  
374 respondents had accessed surgical abortion as compared to medication abortion. These data  
375 highlight a gap between *preferred* abortion method and *obtained* abortion method – a gap that  
376 future research should explore. Further, while most respondents obtained an abortion prior to ten  
377 weeks gestation, one in five obtained an abortion ten weeks or later. Future research should  
378 explore barriers and facilitators to abortion care generally as well as potential delays throughout

379 the process of obtaining an abortion. Finally, most abortion care research in the United States  
380 focuses almost exclusively on the experiences of cisgender women, despite these and other  
381 recent findings<sup>2</sup> that demonstrate that TGE people want, seek, and obtain abortions. These results  
382 emphasize the need for greater awareness and sensitivity to the inclusion of TGE people in  
383 research on abortion preferences and experiences and there is growing operational guidance  
384 towards these aims.<sup>31,35</sup>

385

### 386 *Conclusions*

387         These data provide much needed insight into the abortion experiences and preferences of  
388 transgender, nonbinary, and gender-expansive people – a population that has been excluded from  
389 or marginalized in most research on abortion. These findings offer insight into how abortion  
390 care, an essential component of comprehensive reproductive health care, can be improved to be  
391 inclusive of their needs and preferences.

392

## References

- 393 1. Light A, Wang L, Zeymo A, Gomez-Lobo V. Family planning and contraception use in  
394 transgender men. *Contraception*. 2018;98(4):266-269.
- 395 2. Jones RK, Witwer E, Jerman J. Transgender abortion patients and the provision of  
396 transgender-specific care at non-hospital facilities that provide abortions. *Contraception*:  
397 X. 2020;2.
- 398 3. Cipres D, Seidman D, Cloniger C, Nova C, O'Shea A, Obedin-Maliver J. Contraceptive  
399 use and pregnancy intentions among transgender men presenting to a clinic for sex  
400 workers and their families in San Francisco. *Contraception*. 2017;95(2):186-189.
- 401 4. Flores AR, Herman JL, Gates GJ, Brown TNT. *How Many Adults Identify as*  
402 *Transgender in the United States?* Los Angeles,CA: The Williams Institute;2016.
- 403 5. *Accelerating Acceptance 2017: a Harris Poll survey of Americans' acceptance of*  
404 *LGBTQ people*. Gay and Lesbian Alliance Against Defamation (GLAAD);2017.
- 405 6. Beckwith N, Reisner SL, Zaslow S, Mayer KH, Keuroghlian AS. Factors Associated with  
406 Gender-Affirming Surgery and Age of Hormone Therapy Initiation Among Transgender  
407 Adults. *Transgend Health*. 2017;2(1):156-164.
- 408 7. Harb CYW, Pass LE, De Soriano IC, Zwick A, Gilbert PA. Motivators and Barriers to  
409 Accessing Sexual Health Care Services for Transgender/Genderqueer Individuals  
410 Assigned Female Sex at Birth. *Transgend Health*. 2019;4(1):58-67.
- 411 8. Reisner S, Perkovich B, Mimiaga M. A mixed methods study of the sexual health needs  
412 of New England transmen who have sex with nontransgender men. *AIDS Patient Care*  
413 *STDs*. 2010;24(8):501-513.
- 414 9. Bauer GR, Redman N, Bradley K, Scheim AI. Sexual Health of Trans Men Who Are  
415 Gay, Bisexual, or Who Have Sex with Men: Results from Ontario, Canada. *Int J*  
416 *Transgend*. 2013;14(2):66-74.
- 417 10. Van Batavia JP, Kolon TF. Fertility in disorders of sex development: A review. *J Pediatr*  
418 *Urol*. 2016;12(6):418-425.
- 419 11. Rowlands S, Amy JJ. Preserving the reproductive potential of transgender and intersex  
420 people. *Eur J Contracept Reprod Health Care*. 2018;23(1):58-63.
- 421 12. Jones RK, Witwer E, Jerman J. *Abortion incidence and service availability in the United*  
422 *States, 2017*. New York, NY: Guttmacher Institute;2019.
- 423 13. Tate CC, Ledbetter JN, Youssef CP. A two-question method for assessing gender  
424 categories in the social and medical sciences. *J Sex Res*. 2013;50(8):767-776.
- 425 14. Light A, Wang LF, Zeymo A, Gomez-Lobo V. Family planning and contraception use in  
426 transgender men. *Contraception*. 2018;98(4):266-269.
- 427 15. Abern L, Nippita S, Maguire K. Contraceptive use and abortion views among transgender  
428 and gender-nonconforming individuals assigned female at birth. *Contraception*.  
429 2018;98(4).
- 430 16. James SE, Herman JL, Rankin S, Keisling M, Mottet L, Anafi M. *The Report of the 2015*  
431 *U.S. Transgender Survey*. Washington, DC: National Center for Transgender  
432 Equality;2016.
- 433 17. Scheim AI, Perez-Brumer AG, Bauer GR. Gender-concordant identity documents and  
434 mental health among transgender adults in the USA: a cross-sectional study. *The Lancet*  
435 *Public Health*. 2020;5(4):e196-e203.

- 436 18. The Lancet Public H. Transgender health, identity, and dignity. *The Lancet Public*  
437 *Health*. 2020;5(4).
- 438 19. The World Professional Association for Transgender Health. Standards of Care for the  
439 Health of Transsexual, Transgender, and Gender-Nonconforming People – Version 7.  
440 *International Journal of Transgenderism*. 2011;13(4):165-232.
- 441 20. Safer J, Tangpricha V. Care of the Transgender Patient. *Ann Intern Med*.  
442 2019;171(10):775-776.
- 443 21. Safer JD, Coleman E, Feldman J, et al. Barriers to healthcare for transgender individuals.  
444 *Current Opinion in Endocrinology & Diabetes and Obesity*. 2016;23(2):168-171.
- 445 22. Rodriguez A, Agardh, A. & Asamoah, B. . Self-reported discrimination in health-care  
446 settings based on recognizability as transgender: A cross-sectional study among  
447 transgender U.S. citizens. *Arch Sex Behavior*. 2017;47(4):973-985.
- 448 23. Kates J, Ranji U, Beamesderfer A, Salganicoff A, Dawson L. Health and access to care  
449 and coverage for lesbian, gay, bisexual, and transgender individuals in the U.S. 2016;  
450 [http://files.kff.org/attachment/Issue-Brief-Health-and-Access-to-Care-and-Coverage-for-](http://files.kff.org/attachment/Issue-Brief-Health-and-Access-to-Care-and-Coverage-for-LGBT-Individuals-in-the-US)  
451 [LGBT-Individuals-in-the-US](http://files.kff.org/attachment/Issue-Brief-Health-and-Access-to-Care-and-Coverage-for-LGBT-Individuals-in-the-US). Accessed August 3, 2018.
- 452 24. Fix L, Durden M, Obedin-Maliver J, et al. Stakeholder Perceptions and Experiences  
453 Regarding Access to Contraception and Abortion for Transgender, Non-Binary, and  
454 Gender-Expansive Individuals Assigned Female at Birth in the U.S. *Arch Sex Behav*.  
455 2020.
- 456 25. Hoffkling A, Obedin-Maliver, J. & Sevelius, J. From erasure to opportunity: a qualitative  
457 study of the experiences of transgender men around pregnancy and recommendations for  
458 providers. *BMC Pregnancy and Childbirth*. 2017;17:332.
- 459 26. Klein DA, Berry-Bibee EN, Keglovitz Baker K, Malcolm NM, Rollison JM, Frederiksen  
460 BN. Providing Quality Family Planning Services to LGBTQIA Individuals:A Systematic  
461 Review. *Contraception*. 2018;97(5):378-391.
- 462 27. Lowik AJ. Trans-Inclusive Abortion Care: A Manual for Operationalizing Trans-  
463 Inclusive Policies and Practices in an Abortion Setting, United States. *FQPN, National*  
464 *Abortion Federation* 2019; [https://www.ajlowik.com/publications#/transinclusive-](https://www.ajlowik.com/publications#/transinclusive-abortion)  
465 [abortion](https://www.ajlowik.com/publications#/transinclusive-abortion).
- 466 28. Harb CY, Pass LE, De Soriano IC, Zwick A, Gilbert PA. Motivators and Barriers to  
467 Accessing Sexual Health Care Services for Transgender/Genderqueer Individuals  
468 Assigned Female Sex at Birth. *Transgender Health*. 2019;4(1):58-67.
- 469 29. Light AD, Obedin-Maliver J., Sevelius JM, Kerns JL. Transgender men who experienced  
470 pregnancy after female-to-male gender transitioning. *Obstetrics & Gynecology*.  
471 2014;124(6):1120-1127.
- 472 30. Roberts SCM, Fuentes L, Berglas NF, Dennis AJ. A 21st-Century Public Health  
473 Approach to Abortion. *Am J Public Health*. 2017;107(12):1878-1882.
- 474 31. Moseson H, Zazanis N, Goldberg E, et al. The Imperative for Transgender and Gender  
475 Nonbinary Inclusion: Beyond Women's Health. *Obstet Gynecol*. 2020(May).
- 476 32. Obedin-Maliver J. Time for OBGYNs to care for people of all genders. *J Womens Health*  
477 *(Larchmt)*. 2015;24(2):109-111.
- 478 33. Lunn MR, Capriotti MR, Flentje A, et al. Using mobile technology to engage sexual and  
479 gender minorities in clinical research. *PLoS One*. 2019;14(5):e0216282.
- 480 34. Lunn MR, Lubensky M, Hunt C, et al. A digital health research platform for community  
481 engagement, recruitment, and retention of sexual and gender minority adults in a national

- 482 longitudinal cohort study--The PRIDE Study. *J Am Med Inform Assoc.* 2019;26(8-9):737-  
483 748.
- 484 35. Moseson H, Lunn MR, Katz A, et al. Development of an affirming and customizable  
485 electronic survey of sexual and reproductive health experiences for transgender and  
486 gender nonbinary people. *PLoS One.* 2020;15(5):e0232154.
- 487 36. USCB. Census regions and divisions of the United States.  
488 [https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us\\_regdiv.pdf](https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf). Accessed  
489 April 28, 2020, 2020.
- 490 37. ACOG. ACOG Statement on Medication Abortion. 2016;  
491 [https://www.acog.org/news/news-releases/2016/03/acog-statement-on-medication-](https://www.acog.org/news/news-releases/2016/03/acog-statement-on-medication-abortion)  
492 [abortion](https://www.acog.org/news/news-releases/2016/03/acog-statement-on-medication-abortion). Accessed 18 May 2020.
- 493 38. Dehlendorf C, Harris LH, Weitz TA. Disparities in abortion rates: a public health  
494 approach. *Am J Public Health.* 2013;103(10):1772-1779.
- 495 39. Light A, Obedin-Maliver J, Sevelius J, Kerns J. Transgender men who experienced  
496 pregnancy after female-to-male gender transitioning. *Obstet Gynecol.* 2014;124(6):1120-  
497 1127.
- 498 40. Light A, Wang L, Gomez-Lobo V. The Family Planning Needs of Young Transgender  
499 Men. *J Pediatr Adolesc Gynecol.* 2017;30:274.
- 500 41. Krempasky C, Harris M, Abern L, Grimstad F. Contraception across the transmasculine  
501 spectrum. *Am J Obstet Gynecol.* 2019.
- 502 42. Bonnington A, Dianat S, Kerns J, et al. Contraceptive counseling for transgender and  
503 gender diverse people who were female sex assigned at birth. *Contraception.* 2020.
- 504 43. Paradiso C, Lally RM. Nurse Practitioner Knowledge, Attitudes, and Beliefs When  
505 Caring for Transgender People. *Transgender Health.* 2018;3(1):47-56.
- 506 44. Davidge-Pitts C, Nippoldt T, Danoff A, Radziejewski L, Natt N. Transgender health in  
507 endocrinology: Current status of endocrinology fellowship programs and practicing  
508 clinicians. *The Journal of Clinical Endocrinology & Metabolism.* 2017;102(4):1286-  
509 1290.
- 510 45. White W, Brenman S, Paradis E, et al. Lesbian, Gay, Bisexual, and Transgender Patient  
511 Care: Medical Students' Preparedness and Comfort. *Teaching and Learning in Medicine.*  
512 2015;27(3):254-263.
- 513 46. Dy GW, Osburn NC, Morrison SD, Grant DW, Merguerian PA, Transgender Education  
514 Study Group. Exposure to and attitudes regarding transgender education among urology  
515 residents. *The journal of sexual medicine.* 2016;13(10):1466-1472.
- 516 47. Kanstrup C, Makela M, Hauskov Graungaard A. Women's reasons for choosing abortion  
517 method: A systematic literature review. *Scand J Public Health.* 2018;46(8):835-845.
- 518 48. Raymond EG, Grossman D, Mark A, et al. Commentary: No-test medication abortion: A  
519 sample protocol for increasing access during a pandemic and beyond. *Contraception.*  
520 2020.
- 521
- 522

523 **Table 1. Respondent sociodemographic characteristics, overall and by abortion history**  
 524 **among an online sample of transgender, non-binary, and gender-expansive individuals**  
 525 **assigned female or intersex at birth in the United States (n=1,694)**  
 526

Sample Characteristics	All Respondents (n=1,694)		Respondents who reported an abortion (n=67)	
	n	%	n	%
<b>Median age in years, IQR</b>	27	23-33	33	27-41
<b>Age categories</b>				
18-19y	150	9	2	3
20-24y	469	28	7	10
25-29y	447	26	15	22
30-34y	284	17	12	18
35-39y	149	9	12	18
40-44y	88	5	7	10
45-49y	38	2	3	5
50-54y	31	2	3	5
55-59y	20	1	3	5
60-78y	18	1	3	5
Missing	0	0	0	0
<b>Gender identities*</b>				
Agender	226	13	16	24
Cisgender man	1	0	0	0
Cisgender woman	0	0	4	6
Genderqueer	655	39	34	51

Man	293	17	5	8
Nonbinary	868	51	42	63
Transgender man	662	39	26	39
Transgender woman	4	0	0	0
Two-spirit	26	2	1	2
Woman	204	12	4	6
Additional gender identity	197	12	7	10
Multiple gender identities	1036	61	42	63
Prefer not to say	2	0	0	0
Missing	0	0	0	0
<b>Sex assigned at birth</b>				
Female	1684	99	67	100
Intersex	2	0.1	0	0
Not listed	8	0.5	0	0
Missing	0	0	0	0
<b>Identifies as intersex</b>				
Yes	69	4	1	2
Prefer not to say	21	1	2	3
Missing	0	0	0	0
<b>Sexual orientation*</b>				
Asexual	252	15	5	8
Bisexual	571	34	24	36

Gay	348	21	16	24
Lesbian	218	13	6	9
Pansexual	418	25	29	43
Queer	1150	68	50	75
Questioning	69	4	3	5
Same-gender loving	111	7	2	3
Straight/heterosexual	61	4	1	2
Another sexual orientation	129	8	6	9
Multiple sexual orientations	1010	60	44	66
Missing	21	1	0	0
<b>Race/ethnicity*</b>				
American Indian or Alaska Native	42	3	1	2
Asian, Central	0	0	0	0
Asian, East	41	2	3	5
Asian, South	19	1	1	2
Asian, Southeast	25	2	1	2
Black or African American	67	4	2	3
Hispanic or Latinx	101	6	6	9
Middle Eastern or North African	24	1	1	2
Native Hawaiian or Pacific Islander	5	0.3	0	0
White	1472	87	65	97
Unknown	12	1	1	2
Another race	41	2	2	3
Multiple racial/ethnic identities	202	12	13	19



None of these	4	0	0	0
Missing	79	5	1	2
<b>Education level</b>				
High school degree or less	141	8	6	9
Some college, trade or tech school	410	24	18	27
College degree	644	38	18	27
Grad or professional degree	410	24	23	34
Missing	89	5	2	3
<b>Health insurance coverage</b>	1512	89	62	93
<b>US Census Region</b>				
Midwest	304	18	13	19
Northeast	411	24	14	21
South	326	19	11	16
West	468	28	22	33
Missing	185	11	7	10
<b>Ever pregnant</b>	210	12	67	100
<b>Is a parent</b>	200	12	20	30

---

527 \* Participants could select more than one response

528

529

530

531 **Table 2. Abortion experiences reported among an online sample of transgender, non-**  
 532 **binary, and gender-expansive individuals assigned female or intersex at birth in the United**  
 533 **States (n=1,694)**

	<b>n</b>	<b>%</b>
<b>Ever had an abortion</b>	67	4
<b>Number of abortions</b>		
0	1627	96
1	52	3
2	9	0.5
3	4	0.2
4	1	0.1
6	1	0.1
<b>Lifetime abortions</b>		
Medication abortion	27	40
Surgical abortion	45	67
Another method	3	5
<b>Most recent abortion</b>		
Medication abortion	23	34
Surgical abortion	41	61
Not listed	3	5
<b>Gestational age at most recent abortion*</b>		
<6 weeks	11	16
6-9 weeks	30	45
10-12 weeks	9	13
13-15 weeks	4	6
16-20 weeks	0	0
21-24 weeks	1	2
Don't know	12	18

534 *\*Measured from last menstrual period*

535 **Table 3. Recommendations for improving abortion care, from an online sample of**  
 536 **transgender, non-binary, and gender-expansive individuals who had one or more abortions**  
 537 **in the United States (n=67)**

<b>Is there anything you would recommend to improve the abortion care that you received? Select all that apply.</b>	<b>Respondents who reported an abortion (n=67)</b>	
	<b>n</b>	<b>%</b>
Intake forms that are gender-neutral or gender-affirming	35	52
Gender-neutral language used by staff	32	48
Intake forms that are affirming of all sexual orientations	24	36
Closer clinic/office location to my home	20	30
More privacy outside of the clinic	16	24
More support from the clinic staff	10	15
More privacy within the clinic	9	13
More support from my provider	9	13
Better pain management during abortion	1	2
More time in recovery	1	2
None of these	14	21

538

539

540

541 **Table 4. Reasons given for abortion method preference among an online sample of**  
 542 **transgender, non-binary, and gender-expansive individuals assigned female or intersex at**  
 543 **birth in the United States (n=1,694) Respondents could select up to three reasons.**  
 544

What are the main reasons this is your preferred method of abortion?	Overall*		Medication		Surgical	
	n	%	n	%	n	%
This method is the least invasive	556	33	553	79	1	1
This method feels the most private	422	25	388	55	32	15
This method does not require anesthesia	233	14	231	33	1	1
I feel most comfortable with the type and number of medical staff present for this option	227	13	122	17	105	48
This method would take the least amount of time (is fastest)	157	9	69	10	88	41
This method costs the least amount of money	143	8	138	20	3	1
This method is the least painful	123	7	83	12	40	18
This method is easier to schedule	101	6	84	12	17	8
This method is the only method with which I am familiar	93	6	56	8	36	17
This method requires the fewest visits	90	5	61	9	28	13
Only method known	48	3	10	1	38	18
I have had this type of abortion before and know what to expect	32	2	15	2	17	8
This method does require anesthesia	22	1	6	1	16	7
This is the only method available in my area	5	0	3	0	1	1
None of the above capture my reasons for preferring this method	27	2	1	0	1	1
Write-in option specified	93	6	31	4	53	24

545 \* The overall total includes responses from 28 respondents who indicated a preference for a  
 546 method other than medication or surgical; thus, the overall total does not always equal the sum  
 547 of the medication and surgical responses.  
 548  
 549  
 550  
 551  
 552  
 553  
 554

555 **Figure 1. Abortion method preference among an online sample of transgender, nonbinary,**  
556 **or gender expansive people assigned female or intersex at birth in the United States**  
557 **(n=1,694)**

Journal Pre-proof

If you needed an abortion now,  
what type of abortion would you prefer?

