

GYNECOLOGY

Public perceptions of abortion complications



Sarina R. Chaiken, MD, MPH; Blair G. Darney, PhD, MPH; Marta Schenck, MD; Leo Han, MD, MPH

BACKGROUND: Misinformation contributes to the perception that abortion has substantial health risks, despite the known safety of medication and aspiration abortion. We lack detailed information about which health risks the public believes are most likely.

OBJECTIVE: This study aimed to describe public perception of short- and long-term risks of abortion.

STUDY DESIGN: We conducted a cross-sectional survey of US residents aged ≥ 18 years using Amazon Mechanical Turk (MTurk). We collected information regarding participant demographics, reproductive history, political views, and position on abortion restrictions. We provided participants with a list of 9 short-term and 15 long-term possible complications and asked them to indicate whether they occurred never (0%), very rarely ($<1\%$), rarely ($1\%–5\%$), occasionally ($5\%–20\%$), or frequently ($>20\%$) following abortion. We used descriptive statistics to understand our population demographics and to capture the perceived incidence of all complications. We created a binary indicator of answering all risk estimates incorrectly vs at least 1 estimate correctly, separately for all long-term possible complications, and the 2 short-term risks of infection and bleeding. We determined the proportion of individuals who responded incorrectly to all questions in each category and used multivariable logistic regression to identify factors associated with incorrect perceptions about the risks of abortion.

RESULTS: For all listed complications, participant (N=1057) estimates of risk were higher than the known incidence. For both short-

term risks of bleeding and infection, over 40% of participants reported that these outcomes occur occasionally or frequently. Similarly, for both long-term risks of depression and anxiety, over 60% of respondents reported that these outcomes occur occasionally or frequently after abortion. Participants reported that possible complications known to not be associated with abortion, including hair loss, future pregnancy complications, breast cancer, and cosmetic disfigurement, occurred at least rarely. Nearly one-quarter of participants responded that death occurs occasionally or frequently (in over 5% of abortions), and 79% of participants responded that breast cancer can result from abortion. One-quarter (24.9%) of participants incorrectly overestimated both short-term outcomes of infection and bleeding, whereas 19.5% answered all long-term complication questions incorrectly, including outcomes that never occur. On multivariable analyses, we identified that the participants most likely to incorrectly identify risks of abortion identified as Asian or Black race/ethnicity, were from rural communities, or believed that abortion should have more legal restrictions.

CONCLUSION: The public perceives abortion to be much riskier than it actually is. This information can be used to develop targeted clinical and public health efforts to disseminate the true risks of abortion.

Key words: abortion, complications, public perception, risk

Introduction

Abortion is common in the United States, although rates are declining; 1 in 4 women will have an abortion in their lifetime.^{1,2} Abortion is safe; the most frequent short-term risks commonly included in the consent process include heavy bleeding ($<2\%$) and infection ($<2\%$).^{3,4} More serious complications such as hospitalization or uterine scar tissue (Asherman syndrome) are exceedingly rare.^{5,6} Numerous studies have shown that abortion is not associated with risks such as breast cancer, hair loss, or future adverse pregnancy outcomes such as preterm delivery, and that

mental health conditions such as depression and anxiety occur at the same rate as in the general population.^{7–10} The risk of mortality following abortion is approximately 14 to 50 times lower than the mortality associated with childbirth, and is similar to the risk of death associated with a colonoscopy.^{5,11,12} Despite the known safety of abortion, in the wake of the Supreme Court of the United States ruling of *Dobbs v Jackson Women's Health Organization*, abortion has become illegal or increasingly restricted in many states in the United States.¹³

Widespread misinformation about abortion via online sources, the mainstream media, or crisis pregnancy centers contributes to perceptions that abortion is unsafe and to political and judicial decision-making about regulating abortion.^{14–16} Online sources of false information can come from trusted websites, including those run by state

health agencies, purporting that abortion can cause breast cancer, infertility, and depression.^{15,17} In the United States, some states require that physicians provide false information about abortion as part of state-mandated counseling.¹⁸ As a result, individuals may perceive abortion to be more risky than it actually is. Although previous literature has shown that public misperception of abortion risks exists, we do not know which complications the public believes occur commonly. In this study, we sought to describe the public's perception of short- and long-term risks of abortion in the United States.

Materials and Methods

We conducted a cross-sectional survey using the Amazon Mechanical Turk (MTurk) platform. MTurk facilitates online crowdsourcing and recruits anonymous users to participate in a variety of computer-based tasks, including

Cite this article as: Chaiken SR, Darney BG, Schenck M, et al. Public perceptions of abortion complications. *Am J Obstet Gynecol* 2023;229:421.e1-8.

0002-9378/\$36.00

© 2023 Elsevier Inc. All rights reserved.

<https://doi.org/10.1016/j.ajog.2023.07.024>

AJOG at a Glance

Why was this study conducted?

This study aimed to elucidate the public perception of short- and long-term risks of abortion.

Key findings

In our sample of over 1000 US individuals, participants had low knowledge of abortion complications and overestimated the risks of abortion. Participants most likely to incorrectly identify risks of abortion were older, identified as Asian or Black race/ethnicity, had a personal abortion history, or believed that abortion should have more legal restrictions.

What does this add to what is known?

Our study describes misperceptions about the risks of abortion: the specific risks that people believe to be present, how likely they believe these complications are to occur, and who is at greatest risk of misperceptions.

surveys.¹⁹ Both participants and requesters are anonymous to each other. Requesters can select user criteria so that the survey is only visible to those who qualify. We only recruited participants who were US residents and aged ≥ 18 years. We recruited participants and collected data from July 10 to 18, 2019. To minimize selection bias related to abortion sentiments, we titled the survey, “Answer a survey about the frequency of complications from medical procedures.” Only after choosing to participate, individuals were informed that the survey was abortion-related in the survey instructions and consent form. We compensated participants \$0.50 to complete the survey and invited individuals to complete the survey once on the basis of their MTurk ID, a unique platform identifier that ensures individuals do not take the survey more than once. In addition, to obtain the reward for survey completion, the participant had to enter a unique code from 2 different points in the survey (middle and end) to the MTurk task to “prove” completion. This study was reviewed and approved by the Oregon Health & Science University Institutional Review Board.

We constructed our survey on the basis of existing surveys of abortion knowledge and also collected information about participants’ demographics, reproductive history, views on how available abortion

should be, and political affiliation.^{17,20} We provided participants with a list of 9 short-term and 15 long-term possible complications and asked how often these complications occur using a Likert scale and percentages: never (0% of abortions), very rarely ($<1\%$), rarely (1%–5%), occasionally (5%–20%), or frequently ($>20\%$). Short-term complications (“within one month”) included bleeding, infection, blood clots, emergency surgery, death, failed procedure, numbness, allergic reaction, and hair loss. Long-term complications (“more than one month after”) included anxiety, depression, chronic pain, breast cancer, other reproductive cancers, other (nonreproductive) cancers, drug addiction, cosmetic disfigurement, abnormal menstrual cycles, infertility, ectopic pregnancy, future miscarriage, maternal complications of subsequent pregnancies, future premature birth, and future fetal deformities.

We created histograms of the number of correct and incorrect responses to the short- and long-term abortion complication questions. For the long-term complications, responses were deemed incorrect when a participant selected that they occur rarely (1%–5%), occasionally (5%–20%), or frequently ($\geq 20\%$) given that all long-term complications are either very rare or not actual complications associated with abortion.^{1,6–8,21} Of the short-term items, similar criteria were applied for

the complications of bleeding and infection. For short-term bleeding and infection, a response was considered incorrect if the participant selected that the complication occurs occasionally (5%–20%) or frequently ($\geq 20\%$). On the basis of our histogram distributions, we chose to categorize our respondents using their performance based on 2 binary indicators that categorized the respondents as either responding to all questions incorrectly or responding to at least 1 question correctly. We created 1 binary indicator using the short-term complications of infection and bleeding because, of the short-term complications listed, we considered infection and bleeding the only rare, possible complications of abortion given that hemorrhage occurs in $<2\%$ of abortion procedures and infection occurs in 0% to 0.4% of procedures.^{1,3,6,8} We created a second binary indicator using all long-term complication questions, again categorizing by those who responded to all answers incorrectly and those who responded to at least 1 answer correctly.

We collected demographic information including age, gender identity, race/ethnicity, education level, health insurance type, state of residence, and community type (rural, urban, or suburban). We categorized individuals by geographic region using official United States Census Bureau categories.²² We also asked about political affiliation (liberal, somewhat liberal, neutral, somewhat conservative, conservative) and views on how restricted abortion should be (no restrictions, some restrictions, severe restrictions, fully illegal). In addition, we surveyed participants on personal abortion history (“Have you or your partner ever had a legal induced abortion?”), relation to someone who has had an abortion (“Do you personally know someone who has had an abortion?”), greatest concerns related to health risks when considering abortion, sources that affected these opinions, and past use of the internet to find information on abortion.

We excluded 73 individuals with missing outcome data (on the possible complications of abortion), leaving 1057 surveys in our analytical sample. First, we described our entire analytical sample

by demographics, reproductive history, views on abortion provision, and political affiliation. We next described the reported frequency (never [0% of abortions], very rarely [$<1\%$], rarely [1%–5%], occasionally [5%–20%], or frequently [$>20\%$]), of all individual short- and long-term possible complications. We then calculated the proportion of individuals who responded incorrectly to all questions in both the short-term infection and bleeding indicator and the long-term complication indicator, our 2 binary outcome measures. Finally, we developed 2 multivariable logistic regression models to identify factors associated with our binary indicators for short- and long-term complications. We included gender, age, race/ethnicity, education, community type, abortion history, and position on abortion restrictions in both models. We excluded political affiliation from these models because it was colinear with views about abortion restrictions. We used RStudio, Version 1.2.1335 (Posit, Boston, MA) for all analyses.

Results

Of our analytical sample (N=1057), 48% were women (Table 1). Our participants were predominantly White (59%) or Asian (22%), aged <35 years (63%), highly educated (at least some college) (91%), living in an urban setting (27% rural vs 40% urban vs 33% suburban), and from the geographic South (25.2% Midwest vs 14.3% Northeast vs 34.1% South vs 26.5% West). Participants received health insurance through a variety of sources (36% through work or school and 32% through public sources). When asked about abortion, most believed that there should be no limits on abortion (31%) or only some limits on abortion (45%), and 39% reported either having had an abortion or having a partner who received an abortion. Slightly more than half of participants (53%) previously used the internet to find information on abortion (Table 1).

For all 9 short-term and 15 long-term complication items, respondent estimates of risk were higher than risks found in the literature (Figures 1 and 2). A large proportion of respondents

TABLE 1

Sample characteristics of our analytical cohort of 1057 adults in the United States

Characteristics	Overall (N=1057)
Gender	
Women	509 (48.2%)
Men	545 (51.6%)
Transgender women	2 (0.2%)
Nonbinary/gender nonconforming	1 (0.1%)
Race	
White, non-Hispanic	628 (59.4%)
Black/African American	96 (9.1%)
Asian	231 (21.9%)
Other	102 (9.7%)
Age (y)	
<35	667 (63.1%)
≥ 35	390 (36.9%)
Education	
High school or less	99 (9.4%)
Any college	958 (90.6%)
Insurance	
Through work/school	379 (35.9%)
Other private	239 (22.6%)
Public	339 (32.1%)
No insurance	100 (9.5%)
Region of residence	
Midwest	266 (25.2%)
Northeast	151 (14.3%)
South	360 (34.1%)
West	280 (26.5%)
Community	
Rural	284 (26.9%)
Urban	421 (39.8%)
Suburban	352 (33.3%)
Abortion position	
No limits	328 (31.0%)
Some limits	478 (45.2%)
Severe limits	167 (15.8%)
Illegal	83 (7.9%)
Missing	1 (0.1%)
Personal abortion history (you or a partner)	
Yes	408 (38.6%)
No	649 (61.4%)

Chaiken. Public perception of abortion complications. Am J Obstet Gynecol 2023.

(continued)

TABLE 1
Sample characteristics of our analytical cohort of 1057 adults in the United States (continued)

Characteristics	Overall (N=1057)
Abortion history (anyone you know)	
Yes	766 (72.5%)
No	291 (27.5%)
Political stance	
Liberal	563 (53.3%)
Not liberal (neutral or conservative)	493 (46.6%)
Missing	1 (0.1%)
Used the internet to find abortion information	
Yes	564 (53.4%)
No	493 (46.6%)
Missing	73 (6.5%)

Chaiken. Public perception of abortion complications. *Am J Obstet Gynecol* 2023.

believed that short-term infection and bleeding occur occasionally or frequently (40.8% and 40.2%, respectively). Of the long-term complications, the highest proportion of respondents thought that depression and anxiety occur occasionally or frequently (64.8% and 63.8%, respectively). Complications not associated with abortion including hair loss, future pregnancy complications, breast cancer, and cosmetic disfigurement were also reported as possible complications. For example, only 23% of participants responded that hair loss never occurs and 21% indicated that breast cancer never occurs. In addition, 24% of participants responded that death occurs occasionally or frequently (Figures 1 and 2).

For the binary indicator for short-term infection and bleeding, 24.9% of individuals answered all questions incorrectly. For the binary indicator of all long-term complications, 19.5% of individuals answered all questions incorrectly (Table 2). In multivariable analysis of factors associated with all incorrect responses (compared with at least 1 correct response), participants aged ≥ 35 years had higher odds of incorrectly responding to both short-term infection and bleeding questions compared with those aged < 35 (adjusted odds ratio [aOR], 1.51; 95% confidence interval

[CI], 1.12–2.11). For long-term outcome questions, those who identify as Asian (aOR, 2.15; 95% CI, 1.40–3.30) or Black (aOR, 2.91; 95% CI, 1.72–4.84) had higher odds of answering all questions incorrectly compared with White participants (Table 2). Compared with respondents who indicated that abortion should have no limits, those who indicated that abortion should have severe limits were more likely to answer incorrectly for both the short-term (aOR, 2.27; 95% CI, 1.48–3.50) and long-term (aOR, 2.76; 95% CI, 1.68–4.58) indicators, as were those that indicated that abortion should be illegal (short-term [aOR, 2.36; 95% CI, 1.37–4.04], long-term [aOR, 2.91; 95% CI, 1.54–5.41]). Finally, those with a personal history of abortion were more likely to incorrectly answer all long-term complication items compared with those with no personal history (aOR, 1.70; 95% CI, 1.19–2.45). On multivariable analyses, gender, educational status, insurance type, and community (urban, suburban, rural) were not associated with incorrect short- or long-term risk perceptions.

Comment

Principal findings

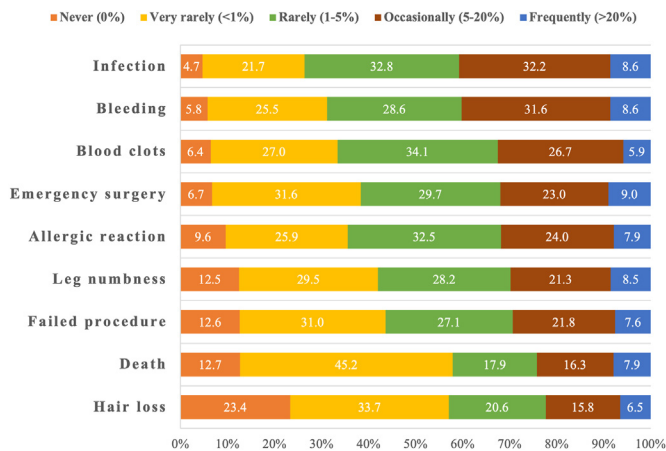
In our sample of over 1000 US individuals, we found that overall,

participants had low knowledge of specific possible abortion complications and greatly overestimated the risks of abortion. Many participants could not distinguish actual risks of abortion (eg, bleeding or infection) from risks completely unrelated to abortion (eg, cancer or hair loss). Within actual risks of abortion such as infection and bleeding, most participants consistently overestimated the frequency of these events. One-quarter of participants responded that death occurs occasionally or frequently. Finally, in our multivariable analysis, individuals who were Black or Asian, older, had a history of abortion, or views that abortion should be more restricted had higher odds of incorrectly answering questions related to abortion risks.

Results in the context of what is known

Our findings are consistent with existing literature about public misconceptions about the safety of abortion. A recent review article found that a large portion of adults in the United States believe that abortion is associated with breast cancer, infertility, and adverse mental health outcomes, although it did not determine how often the public believes these risks occur.¹⁴ In 2 convenience samples of patients presenting for abortion care, individuals responded incorrectly to half of questions related to risks of abortion.^{23,24} Another study reported that abortion patients believed that the health risks of abortion were at least equivalent to those of childbirth.²⁰ An online survey similar to ours found that most individuals overestimate their own knowledge about abortion.²⁵ Supporting our findings that beliefs about how restricted abortion should be are associated with risk perception, an analysis of online comments found that individuals use their previously developed narrative on abortion (“pro-choice” vs “pro-life”) to integrate new information related to abortion.²⁶ Taken together with our findings, the literature clearly demonstrates that misperceptions about the risks of abortion are pervasive and that they are associated with public views on abortion restrictions.

FIGURE 1
The 9 short-term (<1 month) complications assessed by participants



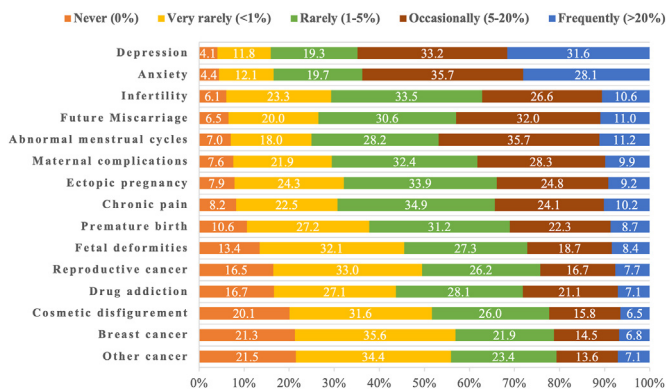
Outcomes are listed in order of responses of “never” occurring from least to greatest.

Chaiken. Public perception of abortion complications. *Am J Obstet Gynecol* 2023.

One notable finding was that those with a personal history of abortion were more likely to answer questions correctly about the true short-term complications of abortion but were less likely to correctly answer questions about the false, long-term complications that were presented. Short-term complications, particularly bleeding and infection, are specifically mentioned during the consent process; thus, it is not surprising that this group was more likely to estimate these risks correctly. However, it is unclear why this group was less likely to

estimate long-term complications correctly. One possible explanation is that patients who have sought or experienced abortions may be more likely to encounter or recall false information on websites and social media.²⁷ However, in our previous study, women were more likely to view abortion as safer after conducting an internet search on abortion safety and risks.²⁸ More work is needed to understand why a personal history with abortion would lead to a greater perception of risk and if and how information gaps may be occurring.

FIGURE 2
The 15 long-term complications assessed by participants



Long-term complications were defined as lasting >1 month after the procedure or those affecting future pregnancies. Outcomes are listed in order of responses of “never” occurring from least to greatest.

Chaiken. Public perception of abortion complications. *Am J Obstet Gynecol* 2023.

Clinical implications

In this study, we demonstrate that many individuals in the general public, including those who have a personal history of abortion, overestimate the risks of true abortion complications and falsely attribute many unrelated risks. These misperceptions of risk may affect individuals’ willingness to seek abortion or influence how they speak about abortion to others. Our work has identified specific limitations that providers may want to address, notably the risk of long-term mental health outcomes. According to our findings, it may be helpful to not only discuss the true risks of abortion, but perhaps also to preemptively dispel concerns regarding long-term sequelae such as mood disorders, disturbances to menstrual physiology, and cancer. In addition, the rarity of abortion complications may need to be further contextualized for patients. General health literacy and patient innumeracy of risks and benefits has been well demonstrated to influence health decisions.^{29,30} Comparisons to the risks of other common medical procedures or of activities in daily life may be helpful and appropriate to aid patients in their understanding of risk estimates.

In the wake of the *Dobbs* decision, which removed federal protections for abortion, risk perceptions may influence state policies and voter-enacted state legislation, either creating protective or restrictive abortion laws.¹⁶ Previously, laws that restricted abortion access framed their premise as protecting patients from false assertions of abortion risks.¹³ Our study further highlights the continued misalignment of public abortion-risk perceptions and true abortion-risk incidence. Correcting this alignment may play a significant role in shaping the formation of abortion policies and laws in the post-*Dobbs* era of state-by-state legislative regulation.

Research implications

Our cross-sectional study adds to the growing body of research about the general public’s perception of abortion by describing perceived risk estimates for

TABLE 2

Multivariable logistic regression analyses on odds of answering all items incorrectly compared with answering any items correctly

Characteristics	Short-term infection and bleeding				All long-term outcomes			
	Answered all incorrectly	Adjusted odds ratio	95% CI	<i>P</i> value	Answered all incorrectly	Adjusted odds ratio	95% CI	<i>P</i> value
Overall (N=1057)	24.9%				19.5%			
Age (y)								
<35	22.6%	Ref			21.9%	Ref		
≥35	28.7%	1.53	1.12–2.11	.009	15.4%	0.99	0.68–1.45	.974
Gender								
Men	22.0%	Ref			20.7%	Ref		
Women	27.8%	1.30	0.97–1.75	.081	18.0%	1.01	0.73–1.41	.938
Race/ethnicity								
White	22.9%	Ref			12.4%	Ref		
Black	29.2%	1.61	0.97–2.64	.061	32.3%	2.91	1.72–4.84	<.001
Asian	29.9%	1.83	1.23–2.71	.003	30.3%	2.15	1.4–3.3	<.001
Education								
No college	26.3%	Ref			15.2%	Ref		
Any college	24.7%	0.90	0.55–1.49	.662	19.9%	1.10	0.62–2.08	.755
Insurance								
No insurance	21.0%	Ref			14.0%	Ref		
Public	26.0%	1.29	0.74–2.32	.371	24.2%	1.33	0.71–2.64	.391
Work/school	26.1%	1.44	0.84–2.54	.194	16.4%	1.22	0.65–2.41	.552
Other private	23.0%	1.20	0.67–2.21	.537	20.1%	1.18	0.61–2.39	.636
Community								
Rural	27.8%	Ref			25.4%	Ref		
Suburban	23.0%	0.72	0.49–1.06	.098	20.7%	0.70	0.45–1.11	.129
Urban	24.5%	0.79	0.56–1.13	.201	13.4%	0.78	0.53–1.14	.203
Abortion position								
No limits	18.3%	Ref			11.3%	Ref		
Some limits	23.8%	1.41	0.99–2.03	.059	21.1%	1.78	1.17–2.74	.008
Severe limits	34.7%	2.27	1.48–3.5	<.001	26.9%	2.76	1.68–4.58	<.001
Illegal	36.1%	2.36	1.37–4.04	.002	26.5%	2.91	1.54–5.41	.001
Personal abortion history								
No	26.0%	Ref			14.2%	Ref		
Yes	23.0%	0.75	0.54–1.05	.097	27.9%	1.70	1.19–2.45	.004

The short-term compiled outcome includes bleeding and infection. The compiled long-term outcome includes all items: depression, anxiety, infertility, future miscarriage, abnormal menstrual cycles, maternal complications, ectopic pregnancy, chronic pain, premature birth, fetal deformities, reproductive cancer, drug addiction, cosmetic disfigurement, breast cancer, and other cancer.

CI, confidence interval.

Chaiken. Public perception of abortion complications. *Am J Obstet Gynecol* 2023.

specific possible short- and long-term complications. More research is needed to understand how these perceptions are

created and how they can be changed, including interventional studies that seek to address misinformation. In

addition, future studies should seek to further elucidate the demographic disparities in abortion perception and

misinformation, particularly among non-White populations.

Strengths and limitations

The findings of our study are not without limitations. First, we only included a limited number of possible “complications.” Although we created this list on the basis of previous surveys and expert experience, it is possible that our study did not capture all the risks that the public believes are associated with abortion.^{5,17} In addition, although we quantified which risks participants believed were the most likely, we did not capture which risks they believed were the most important or the risks they feared most. Furthermore, our study did not distinguish between medical abortion and abortion procedures. The surveys include some language that indicates that this information relates to abortion procedures (“within one month of procedure”), but generally only refers to abortion in general.

Previous studies support MTurk as a reliable platform for collecting survey responses^{31,32}; however, as typical for MTurk surveys, our sample skews more educated, younger, and less racially diverse than the US population.^{33–35} For instance, among our cohort, 61.3% of individuals were aged <35 years, as opposed to 45.4% of the overall population.³⁶ Furthermore, compared with other national surveys, a smaller proportion of our study population believed that abortion should be illegal in all or most cases (23.7% vs 37%).³⁷ Thus, our participant characteristics may limit generalizability to the general population. However, in anticipation of these differences, we recruited a large sample of respondents so that we could account for demographic characteristics with multivariable analysis. Finally, we collected data before the *Dobbs* decision; subsequent media attention and changes in state laws may have altered the public’s perceptions about the risks of abortion.

Conclusions

The public perceives abortion to be much riskier than it actually is. These results provide specific risks that the public might believe occur more often

than they do. We should use this information about perceived risks to further hone clinical and public health efforts aimed at correcting abortion misperceptions. In particular, active public health messaging campaigns may be needed to combat existing misperceptions and misinformation. ■

References

- American College of Pediatricians. Induced abortion: risks that may impact adolescents, young adults, and their children. *Issues Law Med* 2018;33:85–112.
- Nash E, Dreweke J. The U.S. abortion rate continues to drop: once again, state abortion restrictions are not the main driver. *Guttmacher Policy Review*. 2019. Available at: <https://www.guttmacher.org/gpr/2019/09/us-abortion-rate-continues-drop-once-again-state-abortion-restrictions-are-not-main>. Accessed May 3, 2023.
- Lee JK, Zimrin AB, Sufrin C. Society of Family Planning clinical recommendations: management of individuals with bleeding or thrombotic disorders undergoing abortion. *Contraception* 2021;104:119–27.
- Achilles SL, Reeves MF; Society of Family Planning. Prevention of infection after induced abortion: release date October 2010: SFP guideline 20102. *Contraception* 2011;83:295–309.
- Upadhyay UD, Desai S, Zildar V, et al. Incidence of emergency department visits and complications after abortion. *Obstet Gynecol* 2015;125:175–83.
- White K, Carroll E, Grossman D. Complications from first-trimester aspiration abortion: a systematic review of the literature. *Contraception* 2015;92:422–38.
- ACOG Committee Opinion No. 434: induced abortion and breast cancer risk. *Obstet Gynecol* 2009;113:1417–8.
- National Academies of Sciences E, Medicine. The safety and quality of abortion care in the United States. 2018. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK507236/>. Accessed May 3, 2023.
- Steinberg JR, Laursen TM, Adler NE, Gasse C, Agerbo E, Munk-Olsen T. Examining the association of antidepressant prescriptions with first abortion and first childbirth. *JAMA Psychiatry* 2018;75:828–34.
- Biggs MA, Upadhyay UD, McCulloch CE, Foster DG. Women’s mental health and well-being 5 years after receiving or being denied an abortion: a prospective, longitudinal cohort study. *JAMA Psychiatry* 2017;74:169–78.
- Raymond EG, Grimes DA. The comparative safety of legal induced abortion and childbirth in the United States. *Obstet Gynecol* 2012;119:215–9.
- Hoyert DL. Maternal mortality rates in the United States. 2020. Available at: <https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2020/maternal-mortality-rates-2020.htm>. Accessed May 3, 2023.
- Guttmacher Institute. Targeted regulation of abortion providers. 2023. Available at: <https://www.guttmacher.org/state-policy/explore/targeted-regulation-abortion-providers>. Accessed May 3, 2023.
- Patev AJ, Hood KB. Towards a better understanding of abortion misinformation in the USA: a review of the literature. *Cult Health Sex* 2021;23:285–300.
- Daniels CR, Ferguson J, Howard G, Roberti A. Informed or misinformed consent? Abortion policy in the United States. *J Health Polit Policy Law* 2016;41:181–209.
- Rader B, Upadhyay UD, Sehgal NKR, Reis BY, Brownstein JS, Hswen Y. Estimated travel time and spatial access to abortion facilities in the US before and after the *Dobbs v Jackson women’s health decision*. *JAMA* 2022;328:2041–7.
- Chaiken SR, Han L, Darney BG, Han L. Factors associated with perceived trust of false abortion websites: cross-sectional online survey. *J Med Internet Res* 2021;23:e25323.
- Bain LE. Mandatory pre-abortion counseling is a barrier to accessing safe abortion services. *Pan Afr Med J* 2020;35:80.
- Amazon Web Services. Welcome to the Amazon Mechanical Turk Requester UI guide. Overview of Mechanical Turk. 2019. Available at: <https://docs.aws.amazon.com/AWSMechTurk/latest/RequesterUI/OverviewofMturk.html>. Accessed May 3, 2023.
- Wiebe ER, Littman L, Kaczorowski J, Moshier EL. Misperceptions about the risks of abortion in women presenting for abortion. *J Obstet Gynaecol Can* 2014;36:223–30.
- Dreisler E, Kjer JJ. Asherman’s syndrome: current perspectives on diagnosis and management. *Int J Womens Health* 2019;11:191–8.
- U.S. Census Bureau. Census Bureau regions and divisions with state FIPS codes. 2015. Available at: https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf. Accessed May 3, 2023.
- Roberts SCM, Belusa E, Turok DK, Combellick S, Ralph L. Do 72-hour waiting periods and two-visit requirements for abortion affect women’s certainty? A prospective cohort study. *Womens Health Issues* 2017;27:400–6.
- Ralph LJ, Foster DG, Kimport K, Turok D, Roberts SCM. Measuring decisional certainty among women seeking abortion. *Contraception* 2017;95:269–78.
- Kavanaugh ML, Bessett D, Littman LL, Norris A. Connecting knowledge about abortion and sexual and reproductive health to belief about abortion restrictions: findings from an online survey. *Womens Health Issues* 2013;23:e239–47.
- Kimport K, Doty C. Interpreting the truth: how people make sense of new information about abortion. *Womens Health Issues* 2019;29:182–7.
- Han L, Boniface ER, Han LY, Albright J, Doty N, Darney BG. The abortion web

ecosystem: cross-sectional analysis of trustworthiness and bias. *J Med Internet Res* 2020;22:e20619.

28. Forbes M, Darney BG, Ramanadhan S, Earp M, Waldner-James L, Han L. How do women interpret abortion information they find online? *Contraception* 2021;103:276–81.

29. Schwartz LM, Woloshin S, Black WC, Welch HG. The role of numeracy in understanding the benefit of screening mammography. *Ann Intern Med* 1997;127:966–72.

30. Woloshin S, Schwartz LM, Moncur M, Gabriel S, Tosteson ANA. Assessing values for health: numeracy matters. *Med Decis Making* 2001;21:382–90.

31. Buhrmester M, Kwang T, Gosling SD. Amazon's Mechanical Turk: a new source of inexpensive, yet high-quality data? *Perspect Psychol Sci* 2011;6:3–5.

32. Levay KE, Freese J, Druckman JN. The demographic and political composition of

Mechanical Turk samples. *SAGE Open* 2016;6.

33. Mason W, Suri S. Conducting behavioral research on Amazon's Mechanical Turk. *Behav Res Methods* 2012;44:1–23.

34. Huff C, Tingley D. "Who are these people?" Evaluating the demographic characteristics and political preferences of MTurk survey respondents. *Res Pol* 2015;2.

35. Difallah D, Filatova E, Ipeirotis P. Demographics and dynamics of mechanical Turk workers; 2018: 135–43.

36. U.S. Census Bureau. Age and sex composition in the United States. 2020. Available at: <https://www.census.gov/data/tables/2020/demo/age-and-sex/2020-age-sex-composition.html>. Accessed May 3, 2023.

37. Pew Research Center. America's abortion quandary. 2022. Available at: https://www.pewresearch.org/religion/wp-content/uploads/sites/7/2022/05/PF_05.06.22_abortion.views_fullreport.pdf. Accessed May 3, 2023.

Author and article information

From the Department of Obstetrics and Gynecology, Warren Alpert Medical School of Brown University, Women & Infants Hospital of Rhode Island, Providence, RI (Dr Chaiken); Department of Obstetrics and Gynecology, Oregon Health & Science University, Portland, OR (Drs Darney and Han); OHSU-PSU School of Public Health, Portland, OR (Dr Darney); Family Medicine Department, University of Utah, Salt Lake City, UT (Dr Schenck); and National Institute of Public Health, Center for Population Health Research, Cuernavaca, Mexico (Dr Darney).

Received Feb. 22, 2023; revised July 10, 2023; accepted July 13, 2023.

The authors report no conflict of interest.

This research was funded, in part, by the Society of Family Planning (PPQ #: SFPRF11-II3.II3).

This study was presented orally at the 2021 Annual Meeting of the Society of Family Planning, held virtually, October 1–2, 2021.

Corresponding author: Sarina R. Chaiken, MD, MPH. SChaiken@wihri.org