

Original research article

What are people looking for when they Google “self-abortion”?

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ABSTRACT

Objective: To examine the motivations and circumstances of individuals seeking information about self-abortion on the Internet.

Study design: We identified 26 terms that we anticipated someone might use to find information about self-abortion on the internet. Users who entered these terms into the Google search engine were provided with a link to our survey via Google AdWords. We fielded the survey over a 32-day period; users were eligible if accessing the survey from a US-based device. We examined demographic characteristics of the sample, reasons for searching for information on self-abortion, knowledge of the legality of abortion and of nearby providers, and top performing keywords.

Results: Our Google AdWords campaign containing the survey link was shown approximately 210,000 times, and clicked 9,800 times; 1,235 respondents completed the survey. The vast majority of the sample was female (96%), and 41% were minors. Almost three-quarters (73%) indicated that they were searching for information because they were pregnant and did not or may not want to be. Eleven percent had ever attempted to self-abort. One-third of respondents did not know if abortion was legal in their state of residence, and knowledge of legality did not differ by age.

Conclusions: There is interest in learning more about self-abortion on the Internet. Our findings suggest that, among those who participated in our survey, online searches for information on self-abortion may be driven by adolescents and young adults facing an unintended pregnancy.

Implications: Young women, in particular, may have an unmet need for information about safe and accessible abortion options.

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1. Introduction

Although abortion is legal in the United States, some individuals may seek to terminate pregnancies outside of a clinical setting if clinical abortion services are unavailable, inaccessible, or unacceptable to them [1–3]. One barrier to accessing abortion is the lack of information about abortion options [4,5]. It is likely that many individuals who consider abortion, and self-abortion¹ in particular, turn to the Internet to find information. One study found that between 2011 and 2015 the number of Google searches using terms related to self-abortion increased from 119,000 to 700,000. These searches were more common in states with the highest number of abortion restrictions [6], though it was unknown whether searchers were looking for information to end their own pregnancies.

Among a nationally representative sample of abortion patients in 2014, just over 2% reported ever attempting to end a pregnancy on their own; slightly more than half of these reported using misoprostol, also known as Cytotec [7]. In Texas, where abortion has become highly restricted in recent years, one study estimated that at least 100,000 Texas residents had ever attempted to end a pregnancy on their own [8], though it is unknown what methods they used.

Misoprostol alone is a safe and effective abortifacient for pregnancies through 12 weeks of gestation [9], and was likely the main drug procured for self-abortion among users identified in earlier studies. Recent research suggests that a combined regimen of mifepristone and misoprostol, the main regimen used in early medication abortions in clinic settings, can be successfully purchased on the Internet in the United States [10].

Very little is known about how and why people use the Internet to search for information related to self-abortion and who is searching for this information in the United States. This exploratory study attempts to help fill this gap. We obtained survey data from 1,235 individuals who used Google to find information related to self-abortion, including interest in and knowledge of this topic to better understand

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¹ A variety of terms are used to refer to this practice: self-managed, self-sourced, self-directed abortions, or self-induced abortions. We use the term “self-abortion” in this study because it was the term most commonly used by respondents.

the circumstances that motivated these searches and the characteristics of some of the individuals seeking this information.

2. Materials and methods

We administered the online survey between May 30 and June 30, 2017, and only individuals who were accessing the internet from a U. S.-based, internet-accessible device were eligible; geographic location was determined by information from Google Analytics. To recruit respondents, we identified 26 English-language terms and keywords which we anticipated a Google user might enter as a part of their query if they were searching for information about self-abortion (Table 1). Keywords with a plus-sign (+) indicate a “broad match,” which captured misspellings, synonyms, and relevant variations of the search terms. For example, a search for “pill for abortion” would be encompassed by “+abortion +pill.” We employed these keywords in Google AdWords, an online advertising service that enabled our survey to be displayed to relevant users of Google’s search engine. Google searches including the keywords would return a link to our survey in the users’ search results, typically at the top of the page and appearing as a targeted ad (Fig. 1).

We designed and implemented the survey using REDCap software, a browser-based web application for building and managing online surveys and databases. In order to optimize search engine content validation such that Google would recognize the newly published survey page as a legitimate site, we placed links to the survey on the bottom of several Guttmacher Institute webpages. However, we deleted all surveys accessed and completed via these links, and we used only those surveys which users accessed via a Google query and directed to the survey via Google AdWords. To validate that respondents found the survey via the Google AdWords campaign and not through links accessed directly from any of the Institute’s webpages, we matched the REDCap timestamp to the Google Analytics timestamp.

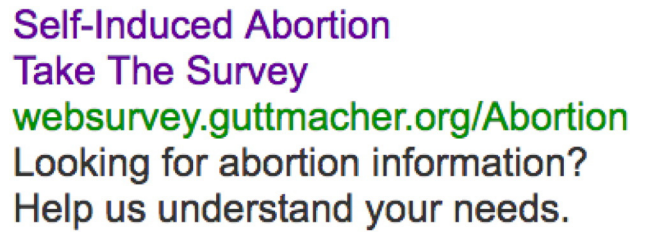


Fig. 1. Top performing ad copy

The survey, available in English only, consisted of 18 questions covering reasons for interest in self-abortion, abortion history, and knowledge of abortion legality and availability in the respondent’s area and several demographic characteristics (see Appendix A). The landing page provided a brief explanation of the survey, including a statement of implied consent, and three questions about respondents’ age, sex (including an “other” category), and which of nine broad keyword terms was the most important in their original Google query (Table 3). The search term selected by the respondent was used to autopopulate the wording on subsequent survey items to make wording specific to the user’s query. Respondents who indicated “female”, “other”, or who left the item blank received a survey with questions asking about personal experiences with pregnancy. Respondents who indicated “male” received questions worded such that they asked about the pregnancy and abortion experiences of someone they knew. Based on pre-testing among colleagues, we estimate that the survey took approximately five minutes to complete. Upon survey completion, respondents were shown a final “thank you” page, which allowed users to navigate back to their original search. It also contained links to the pregnancy options page of the National Abortion Federation [11], and the All-Options Hotline [12], which provides support for all pregnancy options, including parenting, abortion, and adoption. No financial incentives were

Table 1

Keywords used to recruit Google users searching for information about self-abortion and ad views, clicks, click-through rate, conversion rate, conversions, and proportion of all completed surveys

Keyword	Ad views	Clicks	Click-through rate	Conversion rate	Number of conversions	% of surveys
+abortion +pill	97,602	3,299	3%	13%	415	33.6%
+how +to +abortion	34,763	2,174	6%	11%	249	20.2%
+how +to +miscarriage	14,111	781	6%	17%	130	10.5%
+home +abortion	12,719	946	7%	11%	105	8.5%
+at +home +abortion	8,303	640	8%	10%	65	5.3%
+how +to +miscarry	5,998	388	6%	12%	45	3.6%
+how +terminate +pregnancy	2,362	170	7%	16%	27	2.2%
+how +miscarry	5,432	275	5%	9%	25	2.0%
+how +have +miscarriage	2,756	192	7%	11%	22	1.8%
cytotec	6,664	246	4%	8%	19	1.5%
+self +abortion	2,818	149	5%	9%	14	1.1%
+abortion +medication	3,710	81	2%	11%	9	0.7%
+home +pregnancy +termination	272	24	9%	25%	6	0.5%
+abortion +medicine	4,608	129	3%	5%	6	0.5%
+self +induced +abortion	1,087	31	3%	13%	4	0.3%
misoprostol	4,213	218	5%	1%	3	0.2%
+self-induced +abortion	574	21	4%	14%	3	0.2%
+how +natural +miscarriage	366	18	5%	11%	2	0.2%
+abortion +survey	188	5	3%	20%	1	0.1%
+home +terminate +pregnancy	278	17	6%	6%	1	0.1%
+misoprostol +abortion	16	1	6%	0%	0	0.0%
+self +miscarry	81	2	2%	0%	0	0.0%
+home +end +pregnancy	121	9	7%	0%	0	0.0%
+self-induced +miscarriage	192	1	1%	0%	0	0.0%
+self +induced +miscarriage	189	4	2%	0%	0	0.0%
+self +miscarriage	46	0	0%	0%	0	0.0%
Missing*	na	na	na	na	84	6.8%
Totals	209,469	9,821	5%	13%	1235	100

Note: the click-through rate (CTR) is calculated as the number of ad views divided by the number of clicks. The conversion rate is calculated as the number of conversions divided by the number of clicks. A conversion is a completed survey.

* Due to an error in the Google AdWords reporting system, 84 validated surveys were not tracked by keyword.

provided. The questionnaire and procedures were approved by the Guttmacher Institute's federally registered institutional review board.

We obtained a total of 3,642 surveys; we discarded 2,343 of these either because the user did not fully complete the survey ($n=1,348$) or because they did not access the survey through Google AdWords ($n=995$). We discarded another 36 surveys because they were submitted outside of the date range, 26 because they were duplicates, and two that were filled out inappropriately. The final sample consisted of 1,235 respondents.

Missing data ranged from 0.6% to 5% by survey item. This is a descriptive exploratory study, and we largely rely on univariate tabulations to present the findings, which include: Google Analytics data about the search terms, respondent characteristics and responses to the survey items. Because minor adolescents were substantially over-represented in the sample, we examined several characteristics by age group (<18 vs. 18 and older), using chi-square statistics to assess associations. We conducted all analyses using Stata version 14.

3. Results

The targeted ad was shown in response to approximately 210,000 searches (ad views) over the course of the 32-day fielding period (Table 1). Approximately 9,800 individuals followed the link (clicks) for a click through rate (CTR) of 4.7%. Of all the clicks, or visits to the website, we collected completed survey data (conversions) from 1,235 unique respondents, for an overall conversion rate of 13%.

Among completed surveys, those resulting from Google searches that included the words “+abortion +pill” were the most common, resulting in approximately 97,600 ad views, 3,300 clicks, and 415 completed surveys (34% of all surveys) (Table 1). More specific searches for “cytotec” and “misoprostol” ranked sixth and tenth, respectively, by number of ad views; however, their conversion rates were quite low, 8% and 1%, respectively.

3.1. Respondent characteristics

The sample was predominantly young and female (Table 2). Seventy-nine percent indicated they were under the age of 25, and 41% were minors (17 or younger). The vast majority of respondents (96%) were female. While no racial or ethnic group made up the majority of respondents, the largest proportion (44%) were white, followed by Black (27%) and Hispanic (22%). Similarly, no one educational group made up the majority of respondents, but the greatest proportion had not graduated from high school (43%).

Individuals from the South made up the greatest proportion of respondents (42%), similar to their overall representation in the United States, 38% [13]. Of all respondents, 94% submitted surveys via mobile phones, 6% via computers, and 1% via tablets.

3.2. Survey findings

When asked which of the search terms that lead them to the survey was the most important, the majority of respondents (56%) indicated self-abortion, followed by abortion pill (27%) and abortion (12%) (Table 3). A comparison of the self-reported search terms and actual keywords the respondents entered into Google were relatively well aligned. For example, 55% of respondents who entered the terms +abortion +pill indicated that “abortion pill” was the most important term in their search (not shown). Notably, 33% of respondents who searched for information on +abortion +pill indicated on the survey that “self-abortion” was the most important term as did 59% of respondents who landed on the survey searching for +how +to +abortion.

Eighty percent of respondents indicated that this was their first time searching for information related to their search term on the Internet. Some 64% of respondents provided an answer to the open-ended question “In your own words, please tell us a bit more about what you were

Table 2

Characteristics of survey respondents who used Google to search for information related to self-abortion

	%	N
Age group		
<15	5.6	67
15–17	35.4	427
18–19	16.4	198
20–24	21.5	260
25–29	10.8	130
30–34	6.1	74
35–39	3.4	41
40+	0.9	11
Sex		
Female	95.9	1,178
Male	3.8	46
Other	0.3	4
Race and ethnicity		
American Indian or Alaska Native	3.5	43
Asian	2.1	25
Native Hawaiian or Pacific Islander	0.6	7
Black or African American	26.5	323
White	43.6	532
Hispanic or Latinx	21.6	263
Other	2.1	26
Education		
<12th grade	43.4	517
HS grad or GED	34.8	415
Some college or associate degree	18.0	214
College graduate or above	3.9	46
Native or foreign-born		
Born in the United States	92.2	93
Born outside the United States	7.8	1,103
Region		
Northeast	11.5	142
Midwest	24.8	306
South	41.7	515
West	22.0	271
Survey submission device		
Mobile phone	93.5	1155
Computer	5.5	68
Tablet	1.0	12
Total	100	1235

hoping to find?” A total of 719 unique responses were provided (not shown), and the most common theme not directly related to “abortion”, “pill”, or “pregnancy” was price or cost (15% of write-in responses), and “self” (10%), for example “how to have a self-abortion” and “a way to terminate the baby myself.”

The majority of respondents were searching for this information because they were currently pregnant and did not want to be (62%), and an additional 10% were pregnant and unsure if they wanted to be; 15% were searching for someone else who was pregnant.

While abortion is legal in all 50 states and Washington, D.C., knowledge about legality and accessibility was mixed. Two-thirds of respondents knew that abortion was legal in their state, but one-quarter was unsure or did not know, and 7% thought it was illegal. A slight majority (52%) were also unsure if there was a health care facility where they could obtain an abortion within 50 miles of where they lived.

Eleven percent of respondents reported that they had ever had an abortion at a health care facility, and the same proportion (11%) reported that they had ever attempted to end an unwanted pregnancy on their own. There was little overlap in these two groups, and only 13 of the 237 respondents who reported either type of abortion reported both. Among the 124 respondents who reported past attempts to self-abort, the most common method used was herbs/vitamins (55%) followed by alcohol or drugs (36%). Only 1 respondent indicated Cytotec or misoprostol specifically (1%), though it is possible that the 10 respondents who indicated “abortion pill” were referring to these drugs.

Respondents under the age of 18 differed from all older respondents on only a few measures. A smaller proportion had ever had an abortion (4% vs. 15%, $p<.001$) though they did not differ in regards to prior

Table 3
Number and percent distribution of respondents for each survey item relating to self-abortion

	%	N
Which of these terms was most important in your search?		
Misoprostol	1.3	16
Abortion pill	27.3	337
Abortion	11.5	142
Self-abortion	56.4	696
Pregnancy	2.5	31
Periods	0.4	5
MTP kits	0.2	3
Other	0.4	5
Is this your first time searching for information about [search term] on the Internet?		
Yes	79.5	967
No	17.3	210
Not sure/Don't know	3.3	40
Why are you interested in [search term]?		
I want to learn more	4.0	49
I am currently pregnant and may not want to be pregnant	10.3	126
I am currently pregnant and do not want to be pregnant	62.3	761
I know someone who is pregnant and may not want to be pregnant	0.3	4
I know someone who is pregnant and does not want to be pregnant	14.3	174
Other	8.8	107
Is it legal for a woman to get an abortion in your state?		
Yes, abortion is legal	66.7	813
No, abortion is not legal	6.7	82
Not sure/Don't know	26.6	324
Are there any abortion providers within 50 miles of where you live?		
Yes	28.7	349
No	19.0	231
Not sure/Don't know	52.4	638
Have you ever had an abortion at a health care facility?		
Yes	10.7	126
Have you ever taken or used something on your own, without medical assistance, to try to end an unwanted pregnancy?		
What did you use?		
Cytotec/misoprostol	0.8	1
Abortion pill	8.1	10
Herbs/vitamins	54.8	68
Alcohol or drugs	35.5	44
Missing	0.8	1

attempts to self-abort (not shown). A smaller proportion of minors knew if there was a provider located within 50 miles compared to older respondents (24% vs. 32%, $p=.005$), but knowledge about legality did not differ by age. Finally, we also found no association between region of residence and knowledge of legality of abortion (not shown).

4. Discussion

The findings from this exploratory study reveal there is an interest to learn more about self-abortion on the Internet; especially among young women and women seeking to end a pregnancy. Over the course of the 32-day survey period, more than 200,000 searches were conducted for information that could be related to self-abortion. That the majority of the respondents were teenagers could suggest that young people may have a greater need or desire to learn about discreet abortion options, or that young people are more likely than their older counterparts to seek out information on the Internet, and/or complete online surveys. The latter may be supported by the age distribution of this sample as compared with the age distribution of a national sample of abortion patients, in which only 12% were younger than 20. However, interest in self-abortion may not necessarily translate to abortions obtained in healthcare facilities.

In some cases, it was unclear if the information being sought pertained to medication abortion involving a visit to a health care provider or self-abortion. For example, the most popular search terms were ones related to "abortion" and "pill." However, 33% of respondents who searched for information on +abortion +pill indicated on the survey that "self-abortion" was the most important term. Similarly, 59% of

respondents who landed on the survey searching for +how +to +abortion also indicated that "self-abortion" was the most important term. Thus, while we cannot assert that all respondents were seeking information on self-abortion, a majority of respondents in our study were.

A majority of respondents did not know if there was an abortion provider within 50 miles of where they lived, and one-third of respondents did not know if abortion was legal in their state of residence or thought it was illegal. The latter may reflect uncertainty around specific abortion restrictions, such as gestational length cutoffs or parental involvement laws that might make abortion "practically illegal" for some. These findings may also suggest that many individuals are somewhat uninformed about abortion until they are confronted with an unintended pregnancy.

Eleven percent of the respondents reported ever attempting to self-abort, a higher proportion than found in most studies [1,7,8]. This finding might indicate that young women have a greater interest in or are more reliant on self-abortion, though selection bias might also play a role, as prior research suggests that this practice is more common among older women [14]. Most of these respondents had attempted to end their pregnancies using herbs, vitamins, alcohol, or drugs suggesting that many such efforts were likely unsuccessful. However, now that it has been established that effective versions of mifepristone and misoprostol can be purchased on the Internet [10], individuals who attempt to self-abort may have more success.

The survey click-through rate of 4.7% is more than twice as high as the average click-through rate of 2% for all Google AdWords [15]. The survey conversion rate was also high, 13% compared to 2.4% [16]. Because the majority of respondents in our sample were pregnant, the high click-through and conversion rates might indicate that respondents were hoping to obtain more information about their options. Given this information, future studies should inform respondents that links to abortion providers and options counseling resources will be provided upon survey completion, as more than one-third of the individuals who started the survey did not complete it.

That the overwhelming majority of completed surveys were submitted via mobile phone is perhaps not surprising given the young age of the sample, as teenagers and young adults are more likely to rely on smartphones for online access than older adults [17]. It is also possible that many respondents did not want to search for this information on a shared computer with more easily discoverable browsing history, especially if they were living with their parents or other family members.

This study has several limitations. The questionnaire was provided only in English, and sample is not nationally representative; the findings cannot be generalized to any known population. Some individuals searching for information on self-abortion likely followed links more directly tailored to their search. For example, specific keyword searches of "Cytotec" and "misoprostol" yielded lower-than-average conversion rates (8% and 1%, respectively). This may suggest that users who had more knowledge about the drugs needed to self-abort were less likely to take the survey. Alternatively, these searchers may have been looking for a pharmacy that dispensed these drugs, particularly if they did not know that mifepristone can only be dispensed by a certified healthcare provider, and may not have conceptualized their search term as pertaining to "self-abortion". Finally, we did not ask respondents to distinguish between their sex and their gender; the survey item was broadly worded such that respondents could identify their sex or gender broadly. As such, it is possible that any gender nonconforming or transmen captured are obscured or misclassified in the data.

Although we do not know whether this study applies to any broader population, the high number of searches for information related to self-abortion indicate a high level of interest in the topic, especially among young women and women experiencing an unwanted pregnancy. Additionally, a number of individuals dealing with an unintended pregnancy lack basic information about the legality of abortion and whether they can obtain one at a clinic relatively nearby. These findings suggest that there is a large audience for online campaigns providing basic

information about abortion, including self-abortion and clinic based abortion services, and understanding their information needs may help to refine the delivery of existing information and services.

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Appendix A. Sample survey instrument

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.contraception.2018.02.006>.

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