Using Google Ads to recruit and retain a cohort considering abortion in the United States

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Abstract

Objective: The objective was to develop and test the feasibility of a methodology to recruit and retain individuals in the United States (US) who were considering abortion at the point of searching for an abortion clinic.

Study design: We conducted the Google Ads Abortion Access Study, a national cohort study using a novel recruitment method—recruiting people searching for abortion care on Google. Advertisements for the study were displayed in search results. Users who clicked on the advertisement were directed to a landing page explaining the study and then to a screening form. Participants were eligible if they reported being pregnant and considering abortion. They completed an online baseline survey and 4 weeks later were invited by email or text message to complete a follow-up survey.

Results: Over the course of 8 months, we recruited a racially/ethnically and geographically diverse cohort considering an abortion using Google Ads. After removing fraudulent cases, we recruited 1706 respondents, and among these, 1464 (86%) provided contact information for follow-up. Among those providing contact information, 1005 completed the follow-up survey, resulting in a 69% follow-up rate. Older age, white race, higher education, difficulty meeting basic needs, being not religious/spiritual and having no previous births were associated with higher follow-up. Total cost of the ads was $31.99 per completed baseline + follow-up survey.

Conclusion: Researchers can use online advertising to successfully recruit populations early in their abortion-seeking process to understand the barriers they face and how to improve abortion access. Disadvantages include high cost and a small potential for fraudulent data.

Implications: Google Ads is a feasible tool to recruit and follow a diverse sample of individuals who are considering abortion for studies investigating the barriers they face in obtaining a wanted abortion.

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1. Introduction

One major challenge of researching barriers to abortion care is that individuals who face the most insurmountable challenges are difficult to identify. They may never reach an abortion provider, so the full effects are difficult to measure. To address this concern, several studies [1–4] have used large state-level datasets to attempt to quantify changes in the number of abortion patients over time. One study found the number of abortions in Texas decreased by about 13% statewide after restrictions shuttered 21 abortion-providing facilities [4].

To date, no studies have been able to survey pregnant people while they are considering abortion to investigate the barriers they face. Internet recruitment is a logical way to reach this specific population. As many as 93–97% of Americans ages 12–49 use the Internet [5], and 50–66% of women search for health information on the Internet [6]. One national study demonstrated that the volume of Internet searches for abortion is greater in states with more restrictions and reduced availability of services [7], and more than half of women surveyed at a Nebraska abortion clinic reported finding the clinic through an online search [8].

Previous studies using Google Ads for participant recruitment have been relatively successful. Some of the limitations of these studies have been lack of incentives and limited monitoring of the specific search “keywords” that maximized the number of people who clicked on an ad and continued to the survey [9,10]. To our knowledge, only...
one previous abortion study used Google Ads to recruit survey respondents. This study documented substantial interest in learning more about self-managed abortion, particularly among adolescents [11].

In this methods paper, we describe a novel methodology to survey people considering abortion before they attempt to access care, employing Google advertising to recruit individuals searching the Internet for abortion providers. We present sufficient detail so that other researchers can adapt and utilize this method for a one-time survey or repeated surveys. We also describe the effectiveness of this method to recruit and retain participants over time.

2. Methods

2.1. Enrollment procedures

The Google Ads Abortion Access Study is a prospective study, recruiting people at the point of their online Google search using specific keywords related to abortion and following up 4 weeks later. The study was conducted to understand how state restrictions impact the likelihood of obtaining a wanted abortion and those findings will be reported in a separate paper. The study was approved by the University of California, San Francisco's (UCSF) Institutional Review Board (IRB; approval #: 16-20627). The IRB did not require parental consent for minors primarily because all participants were pregnant and could consent for their own care and, thus, decisions to participate in research.

We used Google Ads to recruit participants. Ads were displayed from August 2017 to April 2018. The ads appeared in the search results of people searching Google using specific keywords (generally at the top or bottom of the list of search results). In collaboration with a digital marketing firm, we used Google Ads Keyword Planner to determine keywords that would be both specific enough that they would genuinely be used by individuals searching for information on how to access abortion and broad enough to capture individuals at various stages in the decision-making process. We also used estimates of cost per ad click to determine the keywords that would provide the most engagement for the amount spent. Ad cost per click estimates were determined based on the average amount that other advertisers were simultaneously bidding per click for the same keywords.

Initially, we grouped our campaign keywords into three categories, termed “High Intent,” “Medication Abortion” and “Price Sensitive.” Examples of keywords in each of these categories are in Table 1 (a complete list is available from the authors upon request). Later in the campaign, we also started using what we termed “Broad” keywords to increase enrollment from specific states (described below).

The specific ad text was also optimized in consultation with the digital marketing company. We used two headlines and the description section of each ad to describe the key messages of the survey: the survey was for people considering abortion, it was confidential, it was being conducted by a university, and they would be eligible to receive up to $50 for participating. Some ads also included motivational text on how participation could help other women in a similar situation (see sample ads in Fig. 1).

Table 1

| Category                        | Sample keywords                                  |
|---------------------------------|--------------------------------------------------|
| High Intent (213)               | [abortion centers near me], + women's + abortion + clinic, + closest + abortion + clinic + to + me, “I need an abortion” |
| Medication Abortion (194)       | [where can i get abortion pills], “buy abortion pill online”, + where + can + i + get + an + abortion + pill + near + me |
| Price Sensitive (107)           | + how + much + is + abortion, [average cost of abortion], “cheap abortion clinics near me” |
| Broad (8)                       | “abortion”, “abortion centers” |

* Each category is mutually exclusive. We used a variety of search approaches, including that keywords could appear in any order (indicated by “+”), keywords that had to appear exactly as shown in the search string but could include additional words before or after (indicated by keywords in quotations “ “) and exact keyword matches with no additional words before or after it (indicated by keywords in brackets []).

Individuals who clicked on the link in the ad were randomly directed to one of two landing web pages (Fig. 2) with more information about the study. Having landing pages improved the quality score of the ads (as determined by Google), which subsequently reduced the amount we had to pay to rank higher in Google searches. The landing pages also clearly explained the purpose of the study to increase the likelihood that those clicking through to the survey would be eligible and consent to participate. People interested in participating clicked on a hyperlinked button on the landing page that led them to a Qualtrics form where they completed two eligibility questions: whether they were pregnant and whether they were considering abortion. Qualtrics then placed a “cookie” within their Internet browser which prevented them from re-entering the survey (even if they tried to follow the link through the ad additional times).

Those eligible for the study continued to a study description and provided electronic informed consent. They then completed a 10 minute baseline survey including questions on sociodemographics, gestation, pregnancy history, their relationship with the person they became pregnant with, abortion stigma and decision certainty regarding their abortion decision. Respondents were asked their city, state, and zip code. Finally, they were asked for an email address and/or cell phone number for their follow-up survey invitation. Initially, eligible participants were randomly directed to one of two remuneration arms of the survey: (1) they received $10 for completing the baseline survey, with the opportunity to receive $40 after completing the follow-up survey, or (2) they received $0 for completing the baseline survey, with the opportunity to receive $50 after completing the follow-up survey. After 10 days of study enrollment, there was no difference in enrollment between the groups, so all respondents were routed to the $0/$50 arm to maximize the reimbursement amount available to people who completed the follow-up survey.
2.2. Follow-up

Participants received an email or text message 2 weeks after enrollment reminding them that they would receive a link to complete the follow-up survey in 2 weeks. Then, 4 weeks after initial enrollment, each participant received a Qualtrics-generated email or text message inviting them to complete the follow-up survey. We chose 4 weeks because we hypothesized that would give most participants enough time to locate and visit an abortion provider for those who wanted to, yet still be soon enough for the participant to remember the process they went through. The first question in the follow-up survey asked if the participant was still pregnant. Depending on their response, most participants then completed a 15 minute survey, tailored for their pregnancy status. Participants were asked about barriers they faced accessing abortion, decision certainty, whether they had visited a crisis pregnancy center, and if they had tried to self-induce an abortion. We conducted cognitive
interviews with a sample of six patients seeking abortion care at the Women's Options Clinic at UCSF's Zuckerberg San Francisco General Hospital to pre-test interpretation and comprehension of both baseline and follow-up surveys.

After completing the follow-up survey, respondents were sent an e-gift card to their choice of either Target or Walmart. Respondents who reported they had had a miscarriage were not eligible to complete the follow-up survey, but received a $10 e-gift card, and those who responded that they had any other pregnancy outcome (e.g., birth, never pregnant) were not eligible to receive a gift card. Participants were contacted to complete the follow-up survey up to five times, with the final contact a phone call. All messages to participants came from a dedicated study email address and phone number and all communication was labeled as coming from UCSF with a generic study name that did not mention pregnancy or abortion.

2.3. Efforts to minimize fraud

We took several steps to reduce fraudulent responses. Within the Qualtrics survey platform, we required participants to complete a "captcha" before screening for eligibility to prevent automated software from taking the survey. We added a tag to the survey to prevent search engines from finding and presenting it in search results (separate from our ads). We also prevented participants from taking the baseline survey more than once by using embedded cookies within Qualtrics (mentioned above). While people who clear their cookies could in theory take the baseline survey again, our team also manually reviewed respondents to try to detect duplicates. Once a week, the study research assistants reviewed the IP addresses and phone numbers of enrolled participants and excluded duplicate entries. Additionally, at follow-up, when asked what happened with their pregnancy, participants who

![Figure 3. CONSORT diagram.](image-url)
initially reported an outcome that would make them ineligible to complete the follow-up (i.e., miscarriage, never pregnant) were not able or permitted to change their response to one that would make them eligible. Finally, we dropped from the analysis anyone who did not arrive at the Qualtrics survey from our landing web page or whose responses appeared otherwise fraudulent.

2.4. Data analysis

We described the number of people at each stage of the online recruitment and enrollment and associated costs. We then described the characteristics of the baseline and follow-up samples. Finally, we developed a multivariable logistic regression model to assess the baseline characteristics associated with completing the follow-up survey. All analyses were done in Stata 15.

3. Results

3.1. Recruitment

Throughout the 9 months of recruitment, the Google Ads made 678,256 impressions (the number of times they were shown in search results) with a total of 11,552 clicks on the ads, representing a click-through rate (CTR) of about 1.7% (Fig. 3). A total of 1982 people were eligible, consented to participate and started the baseline survey. While 1730 completed the baseline survey, 1485 of these provided contact information for follow-up. We removed 3 participants who reported living outside the US and 21 who were found to have made multiple attempts to take the survey or were referred to the survey from an external site.

The final baseline analytic sample included 1706 participants, and among these, 1464 (86%) provided contact information at the end of the survey for follow-up. A total of 1464 (66%) provided contact information, 1005 completed the follow-up survey for a 69% follow-up rate (Table 2). The total cost of these ads was $32,154. This breaks down to a cost per click of $2.78, a cost per completed baseline survey of $18.85, a cost per completed baseline survey with contact information of $21.98, and a cost per completed follow-up survey of $31.99. These costs do not include participant remunerations.

As recruitment efforts were based on a sampling strategy stratified by state, we recruited at least eight participants in every state. We recruited fewer than the target of 20 participants in 8 states, and these tended to be states with smaller populations (Fig. 4).

Table 2

| Characteristics of the complete sample providing baseline and follow up data, Google Ads Abortion Access Study | Completed baseline \( (n = 1706) \) | Completed baseline and provided contact information \( (n = 1464) \) | Completed follow-up \( (n = 1005) \) |
| --- | --- | --- | --- |
| Sociodemographic characteristics | % | % | % |
| Age | | | |
| 12–17 | 3.8 | 3.1 | 2.1 |
| 18–24 | 36.7 | 35.8 | 33.0 |
| 25–34 | 46.4 | 47.3 | 50.9 |
| 35+ | 13.2 | 13.9 | 13.9 |
| Race/ethnicity | | | |
| White | 47.5 | 49.5 | 53.1 |
| Black or African-American | 28.7 | 27.7 | 25.0 |
| Hispanic/Latinx | 14.3 | 13.3 | 12.1 |
| Asian | 2.1 | 1.9 | 1.7 |
| American Indian or Alaska Native | 1.9 | 1.8 | 1.9 |
| Native Hawaiian/Pacific Islander | 0.9 | 0.9 | 0.7 |
| Multiracial/other | 4.7 | 4.8 | 5.5 |
| Region | | | |
| West | 22.5 | 22.8 | 23.5 |
| Midwest | 26.3 | 26.3 | 26.1 |
| Northeast | 18.6 | 18.3 | 18.5 |
| South | 32.6 | 32.6 | 31.9 |
| Education | | | |
| Less than high school | 14.1 | 13.5 | 10.9 |
| High school graduate/GED | 39.3 | 38.4 | 34.9 |
| Associate degree, some college or technical school | 35.6 | 36.9 | 40.8 |
| College graduate or professional degree | 11.0 | 11.2 | 13.3 |
| Employed full or part time | 55.0 | 54.9 | 57.1 |
| Reported difficulty meeting basic needs most or all of the time | 51.9 | 50.9 | 54.1 |
| Health Insurance | | | |
| Private/state exchange | 21.9 | 22.1 | 24.0 |
| Medicaid/Medicare | 53.9 | 54.3 | 53.0 |
| None/other/not sure | 24.2 | 23.6 | 23.0 |
| Religiousity | | | |
| Not at all religious/spiritual | 28.1 | 28.3 | 29.2 |
| Somewhat religious/spiritual | 57.9 | 58.1 | 58.4 |
| Very religious/spiritual | 14.0 | 13.6 | 12.4 |
| Currently has a main partner | 72.1 | 72.3 | 73.0 |
| Gestational age at baseline | | | |
| ≤10 weeks | 78.0 | 78.3 | 79.0 |
| 10.1–14 weeks | 11.1 | 11.5 | 11.9 |
| 14.1–20 weeks | 6.5 | 5.9 | 5.2 |
| ≥20.1 weeks | 2.2 | 2.1 | 1.7 |
| Missing | 2.3 | 2.1 | 2.2 |
| Previously pregnant | 73.3 | 74.7 | 74.7 |
| Previously had an abortion | 27.0 | 27.9 | 28.4 |
| Previously had childbirth | 67.6 | 68.8 | 67.3 |
Among those who provided contact information, older age, white race, higher education, difficulty meeting basic needs, being not at all religious/spiritual and having no previous births were associated with higher follow-up (Table 3). Participants ages 25–34 were more likely to complete follow-up than those ages 18–24 [adjusted odds ratio (aOR) = 1.63, 95% confidence interval (CI): 1.22–2.18]. Black/African–American (aOR = 0.68, 95% CI: 0.51–0.90) and Hispanic/Latinx (aOR = 0.64, 95% CI: 0.45–0.91) participants were less likely to follow up than White participants. Those with an associate degree, some college or technical school (aOR = 1.77, 95% CI: 1.34–2.34) or college degrees (aOR = 2.16, 95% CI: 1.34–3.47) were more likely than those with a high school education to complete follow-up. Those reporting difficulty meeting basic needs most or all of the time (aOR = 1.49, 95% CI: 1.17–1.89) were more likely to follow up. Those identifying as very religious/spiritual (aOR = 0.59, 95% CI: 0.40–0.87) and those having had a previous childbirth were less likely to follow up (aOR = 0.59, 95% CI: 0.38–0.90).

4. Discussion

In this study, we found that recruiting and retaining people considering abortion are feasible using Google Ads and we recommend this methodology to other researchers to survey this hard-to-reach population. In particular, this methodology is useful to study the impact of specific abortion restrictions because it is possible to reach and recruit residents of specific states. Abortion research too often surveys individuals who have reached clinics or must rely on state-mandated abortion data. Recruiting respondents using the Internet enables researchers to reach people earlier in the care seeking and/or decision-making process to better understand how a variety of factors contribute to their decisions and ability to have an abortion.

Employing web-based advertising proved to be a useful methodology to recruit hard-to-reach populations and those most in need of outreach. This method is uniquely suited for reaching individuals living in the most restrictive states. It may also be particularly effective in recruiting adolescents, which is important when studying barriers to abortion care, as a previous study found that they demonstrate more interest in searching for abortion care on the Internet [11]. This method is most effective for cross-sectional surveys; however, it can also be used for following participants over time, with appropriate remuneration for participant time. The observed follow-up rate (69%) was consistent with other clinic-based studies [12–14]. Loss to follow-up was higher among people of color, reflecting structural barriers to participating in research, as well as historical systematic abuse and mistreatment in health care and medical research that can lead to distrust of research among people of color [15].

This methodology comes with a few disadvantages, particularly high costs. Recruiting the required number of participants in less populated states (which often have more abortion restrictions) within budget constraints proved to be our primary challenge. Another limitation is the limited ability to verify the authenticity of participants. However, we included several validity checks to minimize fraudulent responses and also excluded entire cases when we suspected the response was fraudulent.

The findings of this study have important implications for researchers of barriers to abortion. We were able to harness the power of online search tools to recruit a very specific population seeking abortion resources before attempting to reach an abortion provider. As barriers to abortion access increase [16,17], researchers must continue to innovate in their research designs. We encourage other researchers to use these and other creative methods to ensure that this population is represented in research.

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Table 3
Adjusted odds of completing follow-up among those who provided contact information at baseline, Google Ads Abortion Access Study (n = 1464)

| Variable                                           | %     | aOR   | 95% CI |
|----------------------------------------------------|-------|-------|--------|
| **Age**                                            |       |       |        |
| 12–17                                              | 46.7  | 0.56  | 0.28–1.12 |
| 18–24                                              | 63.4  | Reference |       |
| 25–34                                              | 74.0  | **1.63** | 1.22–2.18 |
| 35+                                                | 69.0  | 1.17  | 0.78–1.76 |
| **Race/ethnicity**                                  |       |       |        |
| White                                               | 73.7  | Reference |       |
| Black or African–American                           | 62.0  | **0.68** | 0.51–0.90 |
| Hispanic/Latino                                     | 62.6  | **0.64** | 0.45–0.91 |
| Asian                                               | 60.7  | 0.45  | 0.20–1.03 |
| American Indian or Alaska Native                   | 70.4  | 1.07  | 0.44–2.58 |
| Native Hawaiian/Pacific Islander                    | 53.9  | 0.48  | 0.15–1.51 |
| Multiracial/Other                                   | 77.5  | 1.41  | 0.77–2.60 |
| **Region**                                          |       |       |        |
| West                                                | 70.7  | 1.04  | 0.71–1.52 |
| Midwest                                             | 68.1  | 1.02  | 0.71–1.46 |
| Northeast                                           | 69.4  | Reference |       |
| South                                               | 67.3  | 1.04  | 0.74–1.47 |
| **Education**                                       |       |       |        |
| Less than high school                               | 55.6  | 0.84  | 0.58–1.21 |
| High school graduate/CED                            | 62.5  | Reference |       |
| Associate degree, some college or technical school  | 75.9  | **1.77** | 1.34–2.34 |
| College graduate or professional degree             | 81.7  | **2.16** | 1.34–3.47 |
| **Employment**                                      |       |       |        |
| Employed full or part time                          | 71.4  | 1.05  | 0.82–1.35 |
| Not employed                                        | 65.3  | Reference |       |
| **Difficulty meeting basic needs**                  |       |       |        |
| Most or all of the time                             | 73.0  | **1.49** | 1.17–1.89 |
| Some of the time, rarely, or never                  | 64.1  | Reference |       |
| **Health insurance**                                |       |       |        |
| Private/state exchange                              | 74.6  | Reference |       |
| Medicaid/Medicare                                   | 67.0  | 1.04  | 0.74–1.45 |
| None/other/not sure                                 | 66.8  | 1.08  | 0.74–1.56 |
| **Religiosity**                                     |       |       |        |
| Not at all religious/spiritual                      | 70.8  | Reference |       |
| Somewhat religious/spiritual                        | 69.0  | 0.86  | 0.65–1.13 |
| Very religious/spiritual                            | 62.8  | **0.59** | 0.40–0.87 |
| **Partnership status**                              |       |       |        |
| Current main partner                                | 69.3  | Reference |       |
| Does not have a main partner                        | 66.9  | 0.96  | 0.74–1.25 |
| **Gestational age at baseline**                     |       |       |        |
| ≤10 weeks                                           | 69.2  | Reference |       |
| 10.1–14 weeks                                       | 71.4  | 1.18  | 0.81–1.71 |
| 14.1–20 weeks                                       | 59.8  | 0.70  | 0.44–1.12 |
| ≥20.1 weeks                                         | 54.8  | 0.64  | 0.30–1.37 |
| Missing                                             | 71.0  | 1.17  | 0.52–2.62 |
| **Previous pregnancies**                            |       |       |        |
| 0                                                   | 68.7  | Reference |       |
| 1 or more                                           | 68.7  | 1.26  | 0.80–1.97 |
| **Previous abortions**                              |       |       |        |
| 0                                                   | 68.2  | Reference |       |
| 1 or more                                           | 69.9  | 0.87  | 0.65–1.16 |
| **Previous childbirths**                            |       |       |        |
| 0                                                   | 72.0  | Reference |       |
| 1 or more                                           | 67.1  | **0.59** | 0.38–0.90 |

The adjusted model includes all of the variables shown in the table. Bold aORs indicate statistical significance at p<0.05.

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