



Using Facebook ads with traditional paper mailings to recruit adolescent girls for a clinical trial



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HIGHLIGHTS

- Used Facebook ads and paper mailings to recruit adolescents for a clinical trial
- Recruitment procedures yielded a nationwide sample of 797 girls in 4.5 months.
- Facebook ad performance varied by ad type, month, and day of the week.
- Sample demographic and drug use data were largely comparable with national data.

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ABSTRACT

Introduction: Clinical trials require sufficient samples recruited within limited time and budget constraints. Trials with minors are additionally burdened by the requirement for youth assent and parental permission. This paper details the use of Facebook ads and traditional paper mailings to enroll 797 adolescent girls for a longitudinal, web-based, drug abuse prevention trial. Data on sample representativeness and retention are also provided.

Methods: Facebook ads appeared on the pages of females aged 13 or 14 years who reside in the U.S. Ads linked girls to a recruitment website. Girls who wanted more information submitted contact information and were mailed information packets to their homes containing, among other things, youth assent and parent permission forms. Returned forms were verified for accuracy and validity.

Results: The Facebook ad campaign reached 2,267,848 girls and had a unique click-through rate of 3.0%. The campaign cost \$41,202.37 with an average cost of \$51.70 per enrolled girl. Information packets were mailed to 1,873 girls. Approximately one-half of girls returned the forms, and 797 girls were enrolled. The Facebook campaign's success varied by ad type, month, and day of the week. Baseline data revealed comparability to national data on demographic and substance use variables.

Conclusions: Results suggest that Facebook ads provide a useful initial point of access to unparalleled numbers of adolescents. Clinical trials may benefit from a two-fold recruitment strategy that uses online ads to attract interested adolescents followed by traditional recruitment methods to communicate detailed information to adolescents and parents.

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1. Introduction

Clinical trials require sufficient sample recruitment in a timely manner and within budget. Trials of drug abuse prevention programs rely heavily on school- and community-based settings for recruitment. Limiting the sampling frame to a small geographic location restricts the generalizability of study findings to broader populations. With 95% of U.S. teens aged 14–17 years online (Pew Internet Research, 2010), and 94% of U.S. teens aged 12–17 years on Facebook (Madden, 2013),

new opportunities exist to recruit sufficiently large and representative samples of adolescents.

Internet recruitment is cost-effective and time-efficient (Miller & Sønderlund, 2010). Compared to other recruitment methods, internet approaches are fast and relatively inexpensive (Batterham, 2014). Internet recruitment methods have also successfully reached marginalized groups, such as participants with a genetic condition (Close, Smaldone, Fennoy, Reame, & Grey, 2013) or hidden populations of illicit drug users (Miller & Sønderlund, 2010). Among the available recruitment vehicles, the social networking site Facebook allows advertisers to target campaigns based on geographic location, gender, age, and keywords in user profiles.

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Evidence of Facebook advertising's utility in clinical trial recruitment is growing. Facebook advertising can be more cost-effective and time-efficient than other internet recruitment methods (Loxton et al., 2015; Ramo & Prochaska, 2012; Ramo, Rodriguez, Chavez, Sommer, & Prochaska, 2014). Studies have used Facebook to successfully recruit adult participants (Batterham, 2014; Nelson, Hughes, Oakes, Pankow, & Kulasingam, 2014) as well as adolescent participants (Altshuler, Storey, & Prager, 2015; Chu & Snider, 2013; Ellis et al., 2012; Fenner et al., 2012; Gilligan, Kypri, & Bourke, 2014; Mustanski, Greene, Ryan, & Whitton, 2015). With the exception of Mustanski et al. (2015), however, these studies were cross-sectional and did not require parental permission for adolescent participation.

Using Facebook advertising to recruit participants, however, is not without difficulties, particularly when studies with adolescents require parental permission (for a review on recruiting adolescents through Facebook, see Amon, Campbell, Hawke, & Steinbeck, 2014). Regardless of the method, sample recruitment in such studies necessitates informed assent procedures for youths as well as procedures that secure informed parental permission. Therefore, the potential ease of using Facebook ads to reach youths may be offset by the additional effort required to identify and reach parents or guardians.

Furthermore, the potential cost and time advantages conferred by recruiting adolescents via online advertising, such as Facebook, diminish considerably if the recruited sample suffers high attrition. Indeed, Bajardi et al. (2014), found that participants recruited online had lower follow-up rates than participants recruited through traditional methods. Perhaps the impersonal context of online recruitment that favors cost and time constraints also hinders rapport and relationship building (Temple & Brown, 2012). To date, little evidence exists that an adolescent sample recruited through online procedures such as Facebook can be successfully retained in a longitudinal clinical trial (Amon et al., 2014).

To our knowledge, no published studies have examined Facebook's utility for reaching and retaining adolescents in a longitudinal study that requires parental permission. Accordingly, the present study reports procedures used to recruit a nationwide sample of 797 early adolescent girls using Facebook advertising and traditional mailings. Data on sample demographic and drug use variables as compared with national data sets are also provided.

2. Methods

2.1. Participants

As part of a larger study testing the efficacy of a web-based, gender-specific, drug abuse prevention program (Schwinn, Hopkins, & Schinke, 2016; Schwinn, Schinke, Hopkins, & Thom, 2016), participants were Facebook users who registered as female, were 13 or 14 years of age, and were U.S. residents. Participants had to read and understand English and have access to a private computer with internet access. Study procedures were approved by the Columbia University Institutional Review Board.

2.2. Facebook recruitment

Facebook offers either a cost per click (the advertiser is charged each time an ad is clicked) or cost per impression (the advertiser is charged each time an ad is displayed) pricing unit. The cost per click pricing model is more cost effective for advertisers who wish to direct people to a website rather than to boost brand name recognition. Because we wanted to direct girls to our study recruitment website, we chose the cost per click model. For each ad in a campaign, Facebook suggests a bid range (e.g., \$0.45–\$0.55 per click). The bid range suggested by Facebook varies depending on the frequency with which the ad will appear, the size of the target audience, and competition

from others who are targeting the same audience. The maximum bid (the highest amount the advertiser is willing to pay per click) can be set lower, within, or higher than the suggested bid range. Ads set at the higher bid range should be more competitive with advertisers targeting the same audience. Further detail on ad campaign costs, set-up, management, and definitions can be found at the Advertiser Help Center under *Learn About Advertising* (<https://www.facebook.com/business/help/>).

Adhering to Facebook Business advertising guidelines, we created 12 ads with the goal of identifying the ones that generated the most actions at the lowest cost. The text for all the ads emphasized either earning money to take surveys, or earning money to take surveys plus the chance to do online activities. Six ads were designated as *study-focused* because their headline read "Join RealTeen!" The images for these ads were our study logo, our intervention's narrator, or stock photos of a teenage girl on her computer. The other six ads were designated as *incentive-focused* because the headline read "Get Paid to Take Surveys!" The images for these ads were gift cards, our study logo, or stock photos of a teenage girl on her computer.

Using Facebook filters (e.g., age, gender, geographic location), we targeted our ads to appear on the pages of 13- and 14-year-old females living in the United States. Each time an ad was clicked, the girl was directed to the study recruitment webpage. The webpage contained a brief description of the study and inclusion criteria (aged 13 or 14 years, U.S. residence, English speaking, and a private computer with internet access). Girls who attested to meeting the criteria and wanted more information entered their name and address. When a girl clicked on an ad and provided her name and address, Facebook analytics recorded this as an "action."

We initiated the ad campaign in April 2013 with a daily budget set at \$750–\$1000. We set the maximum bid for each ad slightly higher than Facebook's suggested bid range. For example, if Facebook suggested a bid range of \$0.45–\$0.55, we might set our maximum bid to \$0.60 or \$0.65. Ads did not run during school-day hours, but rather during hours and days that mirrored prime internet use time (i.e., weeknights, weekend days and nights, and holidays) for our sample demographic. After 1 week, we stopped running five ads that generated no action (four incentive-focused and one study-focused).

In early May, we paused the campaign (owing to a change in staff). Upon resuming the campaign in June, we decreased the daily budget to \$100, set the maximum bid per ad at, or below, the amount suggested by Facebook, and only ran four ads (Study-focused 1, Study-focused 2, Incentive-focused 1, and Incentive-focused 2; see Table 1). The two incentive-focused ads achieved clicks but yielded few actions. Therefore, from July to September, we ran only the two study-focused ads and set the daily budget to \$250–\$350. Ads ran during the day and night from June through August; in September, ads ran nightly during the week and all day on weekends.

2.3. Enrollment procedures

We used each action (receipt of a girl's name and mailing address) to mail an information packet home. The packet included: 1) a study overview for the girl that addressed potential questions and concerns, 2) a study overview for the parent(s) that addressed potential questions and concerns, 3) youth assent, parental permission, and contact information forms, and 4) a stamped, return envelope. If forms were not returned within 1 month, a second packet was sent.

Returned assent, permission, and contact information forms were verified for accuracy and validity. When parental and adolescent signatures were similar, we called parents to confirm permission. Once assent and permission were verified, we mailed copies of the forms to the parent, asking them to phone or email us if they had not provided permission for their daughter to participate or if their daughter was not 13 or 14 years old.

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