

Original Article

## Internet-Based Recruitment Strategies: Considerations in Populations with Chronic Illness

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### Abstract

**Background:** Study recruitment can be challenging, especially when targeting busy young adults with a chronic illness.

**Objective:** This article describes the challenges and successes encountered during internet-based recruitment of young adults with inflammatory bowel disease (IBD).

**Methodology:** This research employed a descriptive, correlational design by collecting anonymous data using internet-based recruitment without offering research incentives.

**Results:** The nationwide sample (n=284) recruited over a six-week period was initiated April 29<sup>th</sup>, 2019. From 772 registered clicks on Facebook and Google ads, the final recruitment cost of \$1,249.13 resulted in an average cost \$4.40 for each completed survey.

**Conclusions:** This study did not support recent literature describing successful collaborative methods with IBD-focused internet groups. Multiple internet-based IBD organizations and administrators of closed Facebook groups denied the researcher the opportunity to access group members through posting of the research link to the group site. Facebook ads outperformed Google ads and unpaid methods, including snowball recruitment through Facebook and Twitter. There were two deployments of Facebook ads campaigns during the 6-week data collection period. Facebook ads were the most effective for a young adult 18-35-year-old population with chronic illness. Lessons learned from a social media recruitment campaign may help other researchers recruiting similar populations with chronic illness.

**Keywords:** Internet-based recruitment, online survey, chronic illness, young adults

### Introduction

Given the ever-changing social media landscape, it is important to inform other researchers of effective and ineffective outreach methods to plug

into an organized patient population. Research requires effective recruitment of samples that reflect the target population. Internet-based methods have potential to access hard to reach

populations who seek health information and social support through internet-based options such as social media and online illness-specific organizations (Reich et al., 2016; Whitaker, Stevelink, & Fear, 2017; Wozney, Turner, Rose-Davis, & McGrath, 2019). Busy young adults with chronic illness, at risk for financial and social issues (Arnett, 2000), may be difficult to recruit from a clinic setting. This may be why little IBD research has focused on young adults (Rosen, Annunziato, Colombel, Dubinsky, & Benkov, 2016).

For some young adults with IBD, the internet may be a replacement for routine care. Reich et al. (2016) found that 55% of adults with inflammatory bowel disease (IBD) desired to receive IBD education through social media and 44% believed such information will help them manage their illness. This may explain why an online sample vs. a clinic sample had more disease activity (52% vs. 7%,  $p < .0001$ ), lower mean transition readiness scores (184.7 vs. 215.4,  $p < .001$ ), and lower mean disease-specific quality-of-life (IBDQ) (157.3 vs. 185.2,  $p < .0001$ ) (Keefer, Kiebles, & Taft, 2011). Higher levels of anxiety have also been associated with the desire to obtain IBD information by conducting broad internet searches (63% versus 45%) and specialty website searches (60% versus 43%) (Bernstein et al., 2017). Findings support the need to use internet-based recruitment to reach populations at higher risk for poor health outcomes. The purpose of this article is to describe the challenges and successes encountered during internet-based recruitment of young adults with inflammatory bowel disease (IBD).

## Background

Unpaid recruitment strategies have been found to be more successful than paid ads when recruiting young adults for a health intervention (Musiat et al., 2016). Researchers have successfully recruited patients with IBD without cost through collaboration with internet-based IBD organizations and Facebook administrators. For example, online surveys were used to recruit over 2,500 adults with IBD through collaboration with the Crohn's and Colitis Foundation Partners Internet cohort (Eluri et al., 2018) and Tabibian et al. (2015) recruited 136 adults through collaboration with several Facebook IBD support

groups. The use of paid advertisements in a young adult sample with IBD was not found in literature (Thornton et al., 2016).

In recent years, multiple studies have used paid advertisements to successfully recruit participants (Morgan et al., 2019; Prescott et al., 2016; Thornton et al., 2016; Watson, Mull, Heffner, McClure, & Bricker, 2018; Whitaker et al., 2017). Viable recruitment options include Facebook and Google ads. In a systematic review with 110 studies that used Facebook recruitment, researchers paid between \$1.36 and \$110 per completed participant (Thornton et al., 2016). The cost range narrowed when researchers ( $n=13$ ) targeted the sample by age, gender, location, and language (Range: \$1.36 - \$14.70; mean=\$8.93, median \$9.43, SD = 5.64) (Thornton et al., 2016). A second systematic review of 35 studies found the recruitment period on Facebook took about 3 months with a cost per click of \$0.51 and cost per completed participant of \$14.41 (Whitaker et al., 2017). Findings support that many interested individuals click the research link but then do not enroll or complete the research process and that recruitment cost vary greatly. While some research has shown Facebook to be less expensive and more effective than Google ads (Morgan et al., 2019; Murphy, Peltekian, & Gardner, 2018; Prescott et al., 2016), the potential for changing patterns of internet usage, and the desire to recruit participants conducting broad internet searches was desired. Moreover, Google ads have potential to recruit a more racial diverse sample (Watson et al., 2018). Research incentives have commonly been used to enhance recruitment in prior research using internet-based recruitment (Thornton et al., 2016). While research incentives may improve participant retention in longitudinal studies (Watson et al., 2018) and may not add to the cost of recruitment (Thornton et al., 2016), incentives may entice participation of those not meeting inclusion criteria. Such enticement would be enhanced when anonymous data is collected through internet-based recruitment strategies. Researchers seek to implement successful recruitment strategies that will power quantitative analysis. Internet-based recruitment methods have potential to reach young adults with chronic illness looking for health information or support. While findings from recent studies found unpaid and paid internet-based recruitment methods to be highly successful, there

is a need to understand more recent findings describing internet-based recruitment of young adults with a chronic illness. The successes and challenges learned from using a diverse internet-based recruitment plan is described.

## Methodology

### Study Design and Population

The research employed a descriptive, correlational design. Institutional Review Board (IRB) approval was obtained prior to the initiation of the study. Recruitment efforts included unpaid methods as well as Facebook and Google ads. No incentives were offered for participation. Research Electronic Data Capture (REDCap) was used for data collection and storage of the de-identified study information. One survey can have multiple pages in REDCap so participants can visualize survey questions on a page rather than scrolling down. The first page included the qualifying questions to exclude those without an IBD diagnosis for at least one year, those who were younger than 18 years-of-age or older than 35 years-of-age, and those living outside of the United States or who were unable to read English. The remaining three survey pages consisted of 38 survey questions to assess the concept of transition readiness (self-management ability), disease activity, healthcare utilization (HCU), and demographic information. All survey questions had dropdown menus with choices. Most participants generally took about 5 minutes for participants to answer the qualifying questions and the qualifying questions and the first 23 survey questions. REDCap does not provide a "timestamp" of when the final survey page was completed. Recruitment effectiveness was monitored daily in REDCap. Data was exported to SPSS 24.0 for cleaning and analysis.

### Measures

Data was collected utilizing a survey tool with three validated instruments along with a researcher generated demographic survey. The validated instruments were the Inflammatory Bowel Disease Self-Efficacy Scale for Adolescents and Young Adults (IBDSES-A), a 13-item instrument that measures self-efficacy for self-management of IBD (Izaguirre & Keefer, 2014), the Perceived Stress Scale (PSS-10), a 10-item instruments that measures the perception of stress over the prior

months, and the Manitoba Inflammatory Bowel Disease Index (MIBDI), a single-item instrument that measures IBD symptom frequency (Clara et al., 2009). *Healthcare utilization* (HCU) was measured by several questions regarding the occurrence of an IBD-related ED visits or inpatient hospitalization in the prior 12-months (Kim et al., 2018)

**Unpaid Methods:** Based on the literature review, the initial recruitment plan was to collaborate with IBD organizations such as the Crohn's and Colitis Foundation of America and through closed Facebook IBD group sites. Unfortunately, multiple IBD organizations denied the researcher the opportunity to collaborate, at times citing policy and at other times by not responding. After contacting many Facebook administrators of IBD sites, two administrators of IBD Facebook groups were willing to post the research on their site. One of the IBD-site administrators, from the same city as the researcher, became a recruitment consultant. While the two administrators had over 31,000 Facebook followers, the lack of regular postings and engagement of members made the response rate unpredictable. The reviewers decided that Facebook ads and Google ads were needed for successful recruitment.

Facebook ads work more effectively when the quality of the site is enhanced through increased exposure generated by unpaid methods. Friends of the researcher helped generate site exposure through "liking" and sharing the Facebook site. The employer where the researcher worked posted the research opportunity on the school's site three times. The Facebook administrator from another state was willing to post the ad only once, whereas the recruitment consultant posted three times as the administrator of the closed Facebook group page and twice on Twitter.

**Facebook Ads:** The study population was targeted through Facebook ads through specifying: (1) location as the United States; (2) those between 18-35 years of age; (3) English language, and (4) having an interest in the *Crohn's and Colitis Foundation, Crohn's and Colitis Foundation of America, Management of Crohn's disease, Management of Ulcerative Colitis, or Take Steps for Crohn's & Colitis – CCFA*. Using this strategy, Facebook endorsed reaching approximately 32,000

people with an estimated daily reach of 890 to 2,800 people. Facebook offers various campaigns, of which “*traffic*” was selected for this recruitment. Facebook does not offer personal support unless more than \$10,000 will be used, however recruitment recommendations are available on the website.

**Google Ads:** Google offers many types of ads including search ads, as well as the more complex display ads so that pictures and videos can be used. A landing site or page is required. Ideally, the site would have been the REDCap link; however, this was not possible due to the IRB requirement for the recruitment ad to contain adequate information. Search ads were chosen as the use of display ads and video advertisements appeared to be a complex procedure that would still require a landing page as an intermediate step to REDCap. Google affords the ability to monitor “clicks” from the landing page site to the data collection site (REDCap), but this ability required the researcher to upgrade the landing site and pay for a 12-month subscription. Because of the extra expense, this option was not exercised.

**Planned Recruitment Process:** The recruitment plan changed from relying on IBD groups and IBD Facebook administrators to obtaining grant funding for Facebook and Google ads. In an attempt to evaluate the efficacy of each of these methods, recruitment was to be rolled out in phases by first evaluating unpaid methods through friends and IBD site administrators, followed by a period of Facebook ads, and finally a brief period of Google ads.

## Results

Participants were from every state except Delaware, Idaho, North Dakota, Vermont, Hawaii, and Wyoming. Of the 400 participants who answered questions regarding inclusion criteria, 49 did not meet study criteria for various reasons, and an additional 11 that met study criteria did not begin the first survey. Reasons for exclusion included not having an IBD diagnosis (n=4), not needing medication in the last 12-months (n=16), being younger than 18 or older than 35 years (n=13), IBD diagnosis for less than one year (n=7),

and five either did not live in the United States or were unable to read English. While the inclusion criteria were clearly provided prior to the first question, findings demonstrate the ability of Facebook to effectively target the population. From the 340 participants that answered the first question in REDCap, 83.5% (n=284) of the surveys were completed to the point that they could be included in the study analysis.

**Demographics and Illness-Related Findings:** The majority of 284 participants that were recruited nationally using social media were female (83.1%), Caucasian (91.9%), and single (51.1%) (Table 1). The mean age of the sample was 27.6 years. The sample lacked racial diversity. Surprisingly, 72.6% had completed a college degree or higher.

**Actual Recruitment Process and Results:** Table 2 provides an overview of the recruitment timeline. The reader is reminded that the final column displays the number of participants which includes everyone that started the survey with the qualifying information. Some potential participants did not meet the qualifications for the study while others did not finish the survey. The following narrative provides the rationale for recruitment decisions.

**Unpaid methods.** The Facebook page was published and shared with the researchers Facebook friends. In the first four days following this action, only two surveys were completed. The researcher was aware that one of the surveys was completed by a personal acquaintance that had requested the research link and not from the activity of friends or a snowball recruitment from launching the page. In comparison, during the first four days of Facebook ads, 46 participants had started the survey. The administrator of one of the closed Facebook sites posted on 5/3 and Tweeted on 5/7. In the 12 hours after this Tweet, there were 28 new participants.

**Paid methods: Facebook and Google Ads.** Facebook ads were launched on May 2<sup>nd</sup> with final recruitment ended six weeks later on June 10<sup>th</sup>. In the first 27 days of recruitment using Facebook ads, 250 participants started the survey. Interestingly, more participants were recruited over the weekend.

**Table 1: Demographic and Illness-related Characteristics**

Characteristic	n	%
<b>Gender: (3 missing)</b>		
Female	236	83.1
Male	43	15.1
Genderfluid	2	.7
<b>Race/Ethnicity: (2 missing)</b>		
Hispanic/Latino	5	1.8
White / Caucasian	261	91.9
Black / African American	4	1.4
Asian	2	.7
American Indian / Alaskan Native	2	.7
More than one race	8	2.8
<b>Marital status:</b>		
Single, never married	145	51.1
Married or living as married	123	43.3
Separated or divorced	16	5.6
<b>Education: Highest level completed (1 missing)</b>		
Not completed high school	2	.7
High school	75	26.4
College	155	54.6
Master's degree	44	15.5
Doctoral degree	7	2.5

**Table 2 : Recruitment Timeline**

Method:	Date(s)	Date: REDCap participants (n)
Facebook landing site published/ shared with friends	April 29 <sup>th</sup>	May 2 <sup>nd</sup> : n=2
Facebook Ads	May 2-24	May 19 <sup>th</sup> : n=250
Google Ads	May 22-June 10	June 3 <sup>rd</sup> : n=350
Second Facebook Ads deployment	June 1-10	June 10 <sup>th</sup> : =399
Final survey from word of mouth	June 23	n=400

Figure 1 Facebook ads including the one most successful and least successful

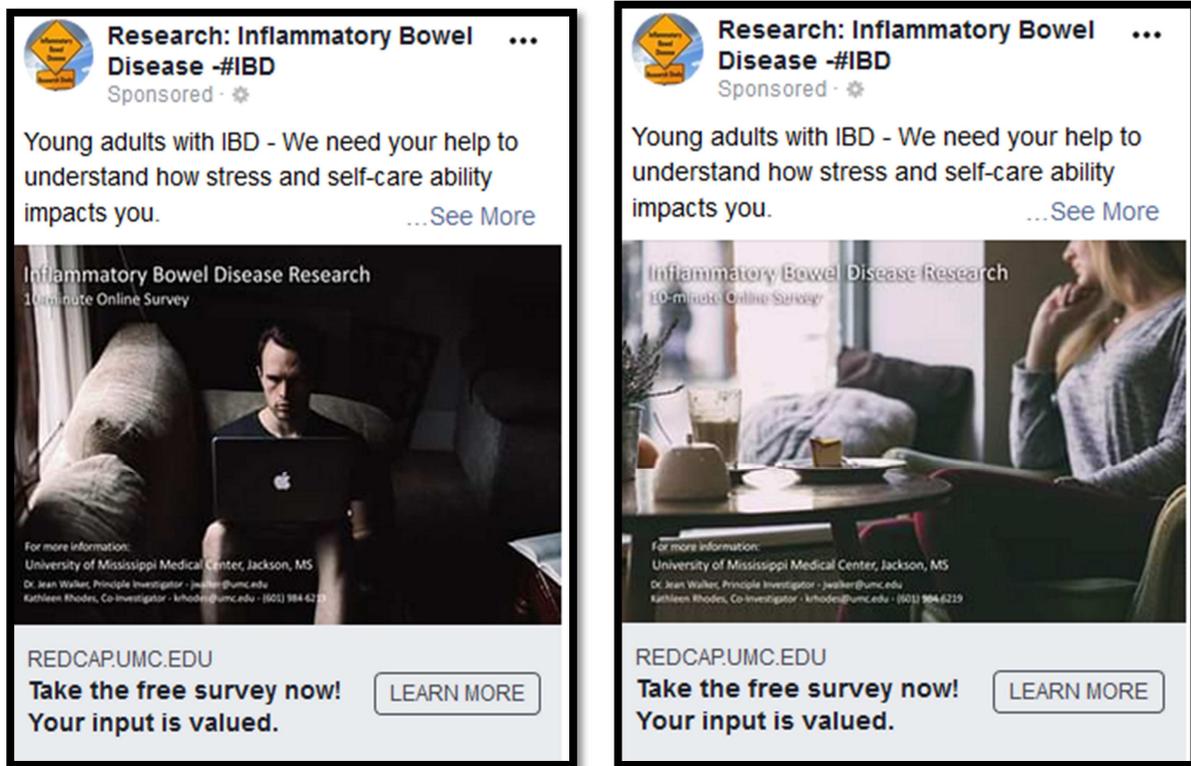
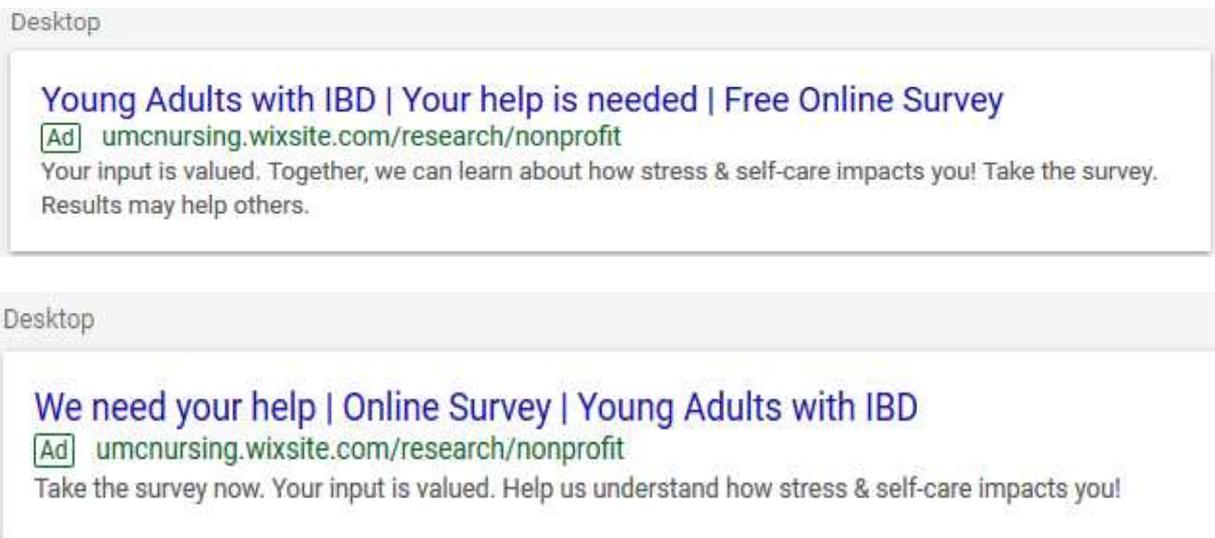


Figure 2 Examples of Google ads



Note: The first ad had the most clicks (n=106) and 2,968 impressions and a second ad had only two clicks and 83 impressions.

After the first week, Facebook ads appeared to have disappeared in the Ads Manager so the researcher created a new campaign with additional ads. Several months later, this campaign was discovered to be linked to a personal account rather than the research site. Most confusing was that the new ad groups had the correct name of the research Facebook page and a different account number. These ads continued to run in the background unbeknownst to the researcher until credit card charges continued after the primary ad account was discontinued. At no other time did the researcher have an issue accessing the primary Ads Manager account. Facebook customer support contacted the researcher after the credit card company was notified regarding potential fraud. To date, the only access to the account is from the link sent by Facebook providing billing information, therefore the researcher is unable to account for the metrics from the account. This error cost the researcher \$363.39 and may have resulted in the two ads competing which may have resulted in driving up the cost per click through competition for the same audience. Facebook has been unresponsive to provide the account activity.

Facebook ads were paused to assess the impact of Google ads. Google ads were started on May 22<sup>nd</sup>. At this time there were 289 participants. The primary Facebook campaign was stopped on May 24<sup>th</sup> and restarted on June 1<sup>st</sup> due to poor performance by Google ads during the memorial weekend when only six participants were recruited in a 5-day period. During this time the other Facebook ad was running in the background. Facebook recruitment slowed when new ads were launched following the failure of Google ad. The cost and examples of the ads used in Facebook and Google will be discussed. Results from the primary Facebook account include cost per 1,000 impressions was \$8.71; linked clicks 659; cost per linked click \$1.14; reach 17,583; and a total cost of \$714.81. Final recruitment cost was \$1,249.13 for 284 completed surveys resulting in an average cost of \$4.40 per completed survey from 772 registered clicks. While unable to fully capture the efforts of the administrators from closed IBD groups, Twitter, and Facebook friends, recruitment appeared to be enhanced by these efforts. Four different pictures were used in Facebook ads. These same pictures were used to update the

Facebook research home site. The most successful Facebook ad pictured a male below with 426 linked clicks at a cost between \$ 0.94 and \$1.26 per click while the least successful ad pictured a woman turning away from a piece of cake with only 21 linked clicks and a cost between \$1.23 and \$2.56 (Figure 1).

Google ads ran for 5 weeks with 113 clicks on the ad; 3,310 impressions; average cost-per-click \$1.17; and a total cost of \$131.58. Mobile phones accounted for 91.5% to 97% of the activity. Figure 2 shows the Google ads with the most and least clicks. The reason for the disparity in the number of impressions is unknown.

### **Discussion**

Facebook ads demonstrated to be most effective in recruitment of young adult between 18-35-year-old population with chronic illness. Facebook ads outperformed Google ads and unpaid methods, including snowball recruitment through Facebook and Twitter. Contrary to prior research (Musiat et al., 2016), unpaid methods were largely unsuccessful. The authors discovered that IBD organizations and most closed Facebook group administrators were not open to collaboration, a finding that was different from recent literature (Eluri et al., 2018; Musiat et al., 2016; Tabibian et al., 2015). Ironically, Facebook ads target people with interest in large IBD organizations such as the Crohn's and Colitis Foundation of America, the same population utilized from unpaid collaboration in prior research (Eluri et al., 2018). Understandably, IBD-specific organizations desire to protect group members from feeling harassed by multiple researchers when accessing the IBD site. A second alteration in the recruitment plan was the inability to identify how each paid method performed. While the cost of each method is known, the researcher was unable to pinpoint the success of each method due to the inability to track linked clicks from the landing page in Google, and because of the secondary Facebook account running in the background. Future researchers using Facebook ads should understand the potential for this and wait to see if the account will link appropriately on a different computer or wait a day or two, instead of building new ads. While Google ads performed poorly, the researcher found Google ads customer support to be helpful and

patient while Facebook ads customer support remained unreachable, except when potential fraud was reported.

### Conclusion - Recommendations

Social media platforms, primarily Facebook ads, recruited an adequate sample size in a relatively short period of time. Successful targeting through the selecting IBD organizations was apparent by the relatively small percentage not meeting inclusion criteria (12.3%). While no other Facebook option was evaluated, the utilization of "traffic" as the market objective in Facebook campaign was highly successful. Researchers utilizing Facebook ads should understand that campaigns build steam and disruption will likely increase the cost of recruitment. When using Facebook ads, the researcher queries key words and then selects applicable organizations from a dropdown menu. The site does not allow the researcher to add organizations outside of the existing list. Prior to starting a Facebook ad campaign, a key step would be to identify which organizations can be selected for recruitment and how many potential people will be reached using the chosen selection.

While Google search ads were found to be ineffective in the current study, results may be different if the ads were linked directly to the research survey rather than through a landing page because most of these young adults searched the ad utilized mobile devices such as a smart phone or iPad. Reliance on unpaid recruitment methods identified in prior studies would have resulted in prolonged recruitment time and an underpowered research study.

This study supports that Facebook ads performed well within a population of young adults with a chronic illness within a short period. Internet-based recruitment can be challenging. The successes and challenges learned from this study, using a diverse internet-based recruitment plan as described, may help future researcher to circumvent those challenges.

### Limitations

Internet-based methods appear to be highly variable and dependent on the characteristics of the targeted population. Self-selection bias was evident in this highly-educated sample composed primarily of Caucasian female recruited while accessing IBD

organizations. The limitations that posed the greatest threat to accuracy are that actual behavior may differ from stated behavior, study instruments are imperfect, and none of the participant information was validated with a medical record. Prior research has shown that participants with IBD have been able to accurately self-report hospitalizations, surgeries, diagnostics, and the use of certain IBD medications (Longobardi, Walker, Graff, & Bernstein, 2011; Severs, Petersen, Siersema, Mangen, & Oldenburg, 2016). We felt strongly that research incentives would have encouraged participation of those not meeting study criteria.

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