Recruitment of Generation Y into clinical trials

Soumya Balachandran

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Recruitment of Generation Y into Clinical Trials

by

Soumya Balachandran

Thesis
Submitted to the Department of Clinical Research Administration
Eastern Michigan University
in partial fulfillment of the requirements

for the degree of

MASTER OF SCIENCE
in
Clinical Research Administration

Thesis Committee:

Irwin Martin, Ph.D., Chair
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Ypsilanti, Michigan
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Abstract

Effective recruitment is key to any clinical trial success. Recruitment of Generation Y (18-34 years old) is quite challenging as they seem to be the least willing group to participate in a clinical trial. The purpose of this study was to find methods that are most appropriate for recruiting the 18-to 34-year-old (Generation Y) subgroup. To capture this information, an online survey was sent to over 2,000 graduate and undergraduate students. Through this survey, information was gathered regarding participant’s willingness to participate in a clinical trial and their preferred recruitment methods. The possible recruitment methods included newspaper advertising, news websites, television (TV) advertising, radio advertising, and social media. Of social media, the options were LinkedIn, Facebook, Twitter, Instagram, YouTube, or other (if none of the above). Of the 2,000 university addresses, 61 students in the age group 18-34 years completed the survey. The most preferred recruitment method was newspaper advertising, news website, and social media as compared to television or radio advertising. Across social media platforms, the preferred recruitment method of recruitment was Facebook. Among the respondents, undergraduate students were more willing to participate in a clinical trial than graduate students. Participant’s age, ethnicity, and academic major had no impact on their willingness to participate and their choice of recruitment method. Overall, the results indicate that the newspaper advertising, news websites, and social media (Facebook) were preferred methods to recruit this age group. The results of this study are tentative due to the small sample size and low response rate. Future studies will be required to definitively address this question.
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</tbody>
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Introduction

Patient recruitment is the first step to start a clinical trial. This is done through a process of identifying, and enrolling eligible participants in a trial, both of which are time consuming processes. According to InVentiv Health (2013), sponsors spend almost 30% of their time on patient recruitment and enrollment. Along with this, approximately 37% of sites in a clinical trial are unsuccessful in reaching patient recruitment objectives, and more than 10% of the sites never enroll a single patient (InVentiv Health, 2013). Among the people who are recruited, people aged 18-34 years, also known as Generation Y (or “millennials”; born after 1981), are least willing to participate (Nelson, Martin, & Getz, 2013; Bolton et al., 2013). According to the United States Census Bureau (2015), Generation Y represents over 25% of the U.S population. Given this sizeable representation, there is a need to investigate recruitment strategies to minimize recruitment time and also increase participation among this population in clinical trials.

Background

Generation Y constitutes the largest segment of the US population (75.4 million) compared to other generations (Fry, 2016). It is extremely important for the investigators to know how best to reach this age group. There are many ways to recruit patients either using traditional methods like newspaper, radio or television ads, and news websites, or new methods using social media. Recently, Internet and social media are gaining popularity as recruitment tools. According to InVentive Health (2013), 86% of people aged between 18 and 29 years and 72% of people aged between 30 and 49 years use social networking sites. Overall, 33% of U.S. adults use social media for health care information, making it crucial to know which social media platform the Generation Y would respond to best.
Despite the awareness of methods, recruiting participants is still a challenging task (Clinical Trials Week, 2013). In a study reported by the Clinical Trials Week (2013), the authors were unable to satisfy their participant target of 70 in a span of two years. This was a clinical weight loss trial where the targeted population were of the 18-to-25-year age group. The authors reported that recruitment for this trial was challenging and they were only able to recruit 50 of the targeted 70 participants required within 24 months. Among all the recruitment methods, they report that the distribution of flyers across an educational campus yielded the highest recruitment: 36%. This was followed by advertisements on local health service Intranet (26%) and in local and metropolitan newspapers (16%). With regards to recruitment methods, the authors commented, “Less rigorous selection criteria and reduced face-to-face intervention time may improve recruitment and retention rates into clinical trials for this age group” (Clinical Trials Week, 2013, p. 247).

The current study considered participants from a university in the Generation Y age group. Recruitment methods were selected based on prior studies which also looked at clinical research recruitment (Reyes, 2014). The recruitment methods were newspaper ads, news website, television (TV) ads, radio ads, and social media. Across social media, the choice of platforms were Linkedin, Facebook, Instagram, YouTube, and Twitter. The instrument in the current study was designed to be consistent with an earlier similar survey by Garapati (2015) at Eastern Michigan University (EMU). The present study examined the willingness of Generation Y to participate in clinical trials and their favored methods of recruitment in EMU.

**Purpose**

The purpose of this study was to investigate methods which might be most successful in recruiting 18-to-34-year-olds into a clinical study.
Research Questions

RQ1: Via what media are members of Generation Y most likely to seek additional information?

RQ2: Does the academic major or academic status influence willingness of Generation Y to participate in clinical trials?

RQ3: Do any of the social media platforms influence participant’s willingness to participate in clinical trials?
Research Design and Methodology

The University Human Subjects Review Committee (UHSRC) of EMU approved an electronic form of survey instrument in the late March 2016 (Appendix A). Two thousand active graduate and undergraduate students were randomly selected by the EMU’s Office of Institutional Research and Information Management (IRIM) to receive an email invitation to participate. The invitation included an informed consent form and a link to the survey instrument created in Qualtrics online survey software (Appendix B). To participate in this study, participants had to agree to the terms of the consent form (Appendix C) and also had to be between the ages of 18 and 34 years.

The survey included questions about participants’ overall willingness to participate in clinical research, their likelihood to seek additional information based on the type of recruitment method, and also their preferred social media platform to find more information about the research (Appendix D). All the question used a 5-point Likert scale ranging from Extremely Likely (5) to Extremely Unlikely (1). The survey concluded with the participant’s demographic information, which included their academic status and major. This information was captured to perform a correlation analysis between the student’s demographics, willingness to participate, and their preferred recruitment method in a clinical trial. The survey was active for 14 days.

Data Analysis

Data analysis was conducted using Spearman Rho correlations, Rank Bi-serial correlations and cross tabulations. Cross tabulations were used to examine trends in Likert responses among groups. The use of significance level was set at $p < 0.05$ which is consistent with existing work (Norman, 2010). Similarly, by convention, correlational (rho) $r$-value $r < .25$, $.26 \leq r \leq .6$, and $r > .6$, were considered weak, strong, and very strong, respectively.
(Norman, 2010). A perfect correlation of 1.0 indicates co-linearity, which occurs when any variable was compared to itself (Norman, 2010).
Results

The survey was sent via email to 2000 students. The email invitation bounced back as undeliverable for 18 students. To account for the loss of these 18, another 18 who were not considered initially were randomly chosen to replace them and were sent the email notification. Eighty-two students responded to the survey (4.1%), and of those, 64 completed the survey (3.2%). Three respondents were excluded as the reported age ranges were outside of the scope of this study, leaving 61 in the analysis (3.1%). Table 1 includes summary demographic data provided only from these 61 respondents.

Table 1:

Student's Demographic Results

<table>
<thead>
<tr>
<th></th>
<th>Frequency (f)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inclusion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>11</td>
<td>18.0%</td>
</tr>
<tr>
<td>Male</td>
<td>50</td>
<td>82.0%</td>
</tr>
<tr>
<td><strong>Ethnic Group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>1</td>
<td>1.6%</td>
</tr>
<tr>
<td>Black or African-American</td>
<td>3</td>
<td>4.9%</td>
</tr>
<tr>
<td>Asian</td>
<td>4</td>
<td>6.6%</td>
</tr>
<tr>
<td>Native Hawaiian or other Pacific Islander</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>White</td>
<td>48</td>
<td>78.7%</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>5</td>
<td>8.2%</td>
</tr>
<tr>
<td><strong>Academic Status (year in college)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First-year</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Sophomore</td>
<td>2</td>
<td>3.3%</td>
</tr>
<tr>
<td>Junior</td>
<td>7</td>
<td>11.5%</td>
</tr>
<tr>
<td>Senior</td>
<td>22</td>
<td>36.1%</td>
</tr>
<tr>
<td>Graduate</td>
<td>30</td>
<td>49.2%</td>
</tr>
<tr>
<td><strong>Academic Major</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Science</td>
<td>20</td>
<td>32.8%</td>
</tr>
<tr>
<td>Business</td>
<td>7</td>
<td>11.5%</td>
</tr>
<tr>
<td>Education</td>
<td>13</td>
<td>21.3%</td>
</tr>
<tr>
<td>Health &amp; Human Services</td>
<td>19</td>
<td>31.2%</td>
</tr>
<tr>
<td>Technology</td>
<td>2</td>
<td>3.3%</td>
</tr>
</tbody>
</table>
To address RQ1, the participants were asked about their willingness to participate in a clinical trial and their likelihood to seek additional information from different media. Their responses are reported in Table 2. Given a chance, the majority of the participants were willing to participate in the clinical trial: 63.9%, \( n = 39 \) (sum of responses to both *Likely* and *Extremely Likely*). For responses to Questions 2 to 6, in Table 2, it was found that the students were more likely to seek additional information about a clinical trial, with 65.6% \( n = 40 \) preferring news websites, 54.1% \( n = 33 \) preferring newspaper advertisements, and 51.7% \( n = 31 \) preferring social media. All the reported likelihoods are the sum of responses to both *Likely* and *Extremely Likely*.

Table 2

*Cross-tabulation of Generation Y survey responses to recruitment methods and willingness to seek additional information*

<table>
<thead>
<tr>
<th>Survey Item</th>
<th>Extremely Likely</th>
<th>Likely</th>
<th>Neutral</th>
<th>Unlikely</th>
<th>Extremely Unlikely</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( f )</td>
<td>( f )</td>
<td>( f )</td>
<td>( f )</td>
<td>( f )</td>
<td>( f )</td>
</tr>
<tr>
<td>1. Willingness</td>
<td>13 21.3%</td>
<td>26 42.6%</td>
<td>13 21%</td>
<td>6 9.8%</td>
<td>3 4.9%</td>
<td>61 100%</td>
</tr>
<tr>
<td>2. Newspaper Ad</td>
<td>12 19.7%</td>
<td>21 34.4%</td>
<td>8 13%</td>
<td>15 24.6%</td>
<td>5 8.2%</td>
<td>61 100%</td>
</tr>
<tr>
<td>3. News Website</td>
<td>14 23.0%</td>
<td>26 42.6%</td>
<td>9 15%</td>
<td>10 16.4%</td>
<td>2 3.3%</td>
<td>61 100%</td>
</tr>
<tr>
<td>4. TV Ad</td>
<td>7 11.7%</td>
<td>18 30.0%</td>
<td>13 22%</td>
<td>13 21.7%</td>
<td>9 15.0%</td>
<td>60 98.4%</td>
</tr>
<tr>
<td>5. Radio Ad</td>
<td>9 15.0%</td>
<td>14 23.3%</td>
<td>11 18%</td>
<td>20 33.3%</td>
<td>6 10.0%</td>
<td>60 98.4%</td>
</tr>
<tr>
<td>6. Social Media</td>
<td>13 21.7%</td>
<td>18 30.0%</td>
<td>17 28%</td>
<td>10 16.7%</td>
<td>2 3.3%</td>
<td>60 98.4%</td>
</tr>
</tbody>
</table>

Spearman’s Rho rank order was used to analyze non-parametric associations. These associations examine correlations between the different methods and participants’ willingness to
participate in the clinical trial. Associations between dichotomous nominal variables and ordinal variables were performed with rank bi-serial correlations, a subset of Spearman’s Rho test.

Table 3
Spearman’s Rho correlation- Willingness to participate Vs. Recruitment methods

<table>
<thead>
<tr>
<th></th>
<th>Willingness</th>
<th>Newspaper</th>
<th>News Website</th>
<th>Television Ad</th>
<th>Radio Ad</th>
<th>Social media posting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willingness</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Newspaper</td>
<td>.38**</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>News Website</td>
<td>.37**</td>
<td>.57**</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Television ads</td>
<td>.36**</td>
<td>.59**</td>
<td>.55**</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio ads</td>
<td>.25</td>
<td>.61**</td>
<td>.59**</td>
<td>.61**</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td>(N = 59)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social media posting</td>
<td>.30*</td>
<td>.33**</td>
<td>.58**</td>
<td>.46**</td>
<td>.51**</td>
<td>1</td>
</tr>
<tr>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td>(N = 59)</td>
<td>(N = 59)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Symbols ‘*’ and ‘**’ denote significance at the p < .05 and p < .01 level. By default the N in each correlation is 61. If otherwise for any N' < N, the value is shown as (N') besides the Spearman’s Rho correlation.

Table-3 shows the Spearman’s Rho correlation between the variables of willingness and different recruitment media. From the results, it is observed that there is a positive association between respondent’s willingness to participate to all recruitment methods other than radio ads. Next, there was a positive association between any two recruitment methods. This suggests that if a participant preferred a certain method of recruitment, they were likely to prefer any other method of recruitment.
Table 4

Academic status Vs. Willingness to participate

<table>
<thead>
<tr>
<th>Academic Status</th>
<th>Willing to participate in the CT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extremely likely</td>
<td>Likely</td>
</tr>
</tbody>
</table>
| Sophomore       | n                  | 0      | 1       | 0        | 1                  | 0     | 2
| %               | 0.00%              | 50.00% | 0.00%   | 50.00%   | 0.00%              | 100.00% |
| Junior          | n                  | 2      | 4       | 1        | 0                  | 0     | 7
| %               | 28.60%             | 57.10% | 14.30%  | 0.00%    | 0.00%              | 100.00% |
| Senior          | n                  | 6      | 12      | 3        | 0                  | 1     | 22
| %               | 27.30%             | 54.50% | 13.60%  | 0.00%    | 4.50%              | 100.00% |
| Graduate        | n                  | 5      | 9       | 9        | 5                  | 2     | 30
| %               | 16.70%             | 30.00% | 30.00%  | 16.70%   | 6.70%              | 100.00% |
| Total           | n                  | 13     | 26      | 13       | 6                  | 3     | 61
| %               | 21.30%             | 42.60% | 21.30%  | 9.80%    | 4.90%              | 100.00% |

Note. None of the first-year students participated in the survey.

To answer RQ2, a cross tabulation was created to describe the influence of academic status and academic major on willingness to participate in a clinical trial. Table 4 describes the influence of academic status on willingness to participate in a clinical trial. There were no responses from first-year students and very minimal responses from sophomores (2), or juniors (7). Juniors were more willing to participate (85.7%, n = 7) in a clinical trial compared to seniors (81.8%, n = 22) and graduates (46.7%, n = 30).
Table 5

*Rank-Biserial Correlations-Academic status Vs. Willingness and Recruitment methods*

<table>
<thead>
<tr>
<th></th>
<th>Willing to participate in the CT</th>
<th>Newspaper</th>
<th>News website</th>
<th>Television Ad</th>
<th>Radio Ad</th>
<th>Social media posting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduates or Graduates</td>
<td>.30*</td>
<td>.25</td>
<td>.15</td>
<td>.21</td>
<td>.27*</td>
<td>.09</td>
</tr>
<tr>
<td>(N = 60)</td>
<td></td>
<td></td>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td></td>
</tr>
<tr>
<td>Graduates or Undergraduates</td>
<td>-.30*</td>
<td>-.25</td>
<td>-.15</td>
<td>-.21</td>
<td>-.27*</td>
<td>-.09</td>
</tr>
<tr>
<td>(N = 60)</td>
<td></td>
<td></td>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td>(N = 60)</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Symbol ‘*’ denote significance at the p < 0.05 level. By default the N in each correlation is 61. If otherwise for any N’ < N, the value is shown as (N’) besides the Rank-Biserial correlation.

To understand the statistical strength of association between academic status, willingness, and recruitment method preference to participate in clinical trials, academic status was grouped into graduates and undergraduates. Undergraduates consisted of sophomores, juniors, and seniors. Rank-Biserial correlation was used to compare ordinal and dichotomous categorical data. The correlation of the data is shown in Table 5. Undergraduate students were more likely to participate in a clinical trial \((r = .30, p < .05)\) compared to graduate students and would likely seek additional information from a radio advertisement \((r = .27, p < .05)\).
Table 6:

Academic major Vs. Willingness to participate

<table>
<thead>
<tr>
<th>Academic Major</th>
<th>Willing to participate in the CT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extremely likely</td>
<td>Likely</td>
</tr>
<tr>
<td>Arts and Science</td>
<td>n=4</td>
<td>7</td>
</tr>
<tr>
<td>%</td>
<td>20.00%</td>
<td>35.00%</td>
</tr>
<tr>
<td>Business</td>
<td>n=2</td>
<td>4</td>
</tr>
<tr>
<td>%</td>
<td>28.60%</td>
<td>57.10%</td>
</tr>
<tr>
<td>Education</td>
<td>n=3</td>
<td>6</td>
</tr>
<tr>
<td>%</td>
<td>23.10%</td>
<td>46.20%</td>
</tr>
<tr>
<td>Health and Human Services</td>
<td>n=3</td>
<td>8</td>
</tr>
<tr>
<td>%</td>
<td>15.80%</td>
<td>42.10%</td>
</tr>
<tr>
<td>Technology</td>
<td>n=1</td>
<td>1</td>
</tr>
<tr>
<td>%</td>
<td>50.00%</td>
<td>50.00%</td>
</tr>
<tr>
<td>Total</td>
<td>n=13</td>
<td>26</td>
</tr>
<tr>
<td>%</td>
<td>21.30%</td>
<td>42.60%</td>
</tr>
</tbody>
</table>

Table 6 describes the influence of academic status on willingness to participate in a clinical trial. Fifty-five percent of the respondents majoring in Arts and Science and 57.9% (n = 11) majoring in Health and Human Services were willing to participate in the clinical trial. However, respondents from a non-health science majors like technology were 100% (n = 2) willing to participate, business majors were 85.7% (n = 6) willing to participate, and education majors were 69% (n = 9) willing to participate. Table 7 describes no statistical strength of association between academic status with willingness or recruitment method preference to participate in clinical trials.
Table 7:

*Rank-Biserial Correlations-Academic major Vs. Willingness and Recruitment methods*

<table>
<thead>
<tr>
<th>Academic major</th>
<th>Willing to participate in the CT</th>
<th>Newspaper</th>
<th>News website</th>
<th>Television Ad</th>
<th>Radio Ad</th>
<th>Social media posting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health &amp; Human Services Majors</td>
<td>.09</td>
<td>.19</td>
<td>.11 (N=60)</td>
<td>.11 (N=60)</td>
<td>.13 (N=60)</td>
<td>.003 (N=60)</td>
</tr>
</tbody>
</table>

*Note.* By default the N in each correlation is 61. If otherwise for any N' < N, the value is shown as (N') besides the Rank-Biserial correlation.

To answer RQ3, participant’s responses were compared to different social media. These comparisons were shown in Figure 1. Across all the social media platforms, 73.3% (n = 44) of the respondents indicated Facebook as their choice.

*Figure 1. Comparison of Generation Y response to different social media*

Rank-Biserial Correlation was used to test for significance. Correlations are shown in Table 7. Respondents who were likely to seek additional information on social media were more likely to use Facebook compared to other social media ($r = .30, p < .05$). There was a strong
positive association between all other social media and Facebook. None of the participants responded to Instagram. Respondents who were likely to seek additional information from Linkedin, Twitter, and other (Email and Reddit) were also likely to use Facebook to seek additional information. The corresponding p-value is < .05, rejecting the null hypothesis of no difference and accepting the alternative hypothesis that Facebook is the most likely option to seek additional information compared to other social media.

Table 8

*Spearman's Rho correlation - Comparison of willingness with different Social Media*

<table>
<thead>
<tr>
<th>Willingness</th>
<th>Social media posting</th>
<th>Linkedin</th>
<th>Facebook</th>
<th>Twitter</th>
<th>Youtube</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willingness</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Social media posting</td>
<td>.30* ((N = 60))</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Linkedin</td>
<td>0.11 ((N = 60))</td>
<td>.07 ((N = 59))</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Facebook</td>
<td>-.27* ((N = 60))</td>
<td>-.30* ((N = 59))</td>
<td>-.60** ((N = 60))</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Twitter</td>
<td>.06 ((N = 60))</td>
<td>.18 ((N = 59))</td>
<td>-.067 ((N = 60))</td>
<td>-.31* ((N = 60))</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Youtube</td>
<td>.14 ((N = 60))</td>
<td>.1 ((N = 59))</td>
<td>-.10 ((N = 60))</td>
<td>-.44** ((N = 60))</td>
<td>-.05 ((N = 60))</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>.18 ((N = 60))</td>
<td>.25 ((N = 59))</td>
<td>-.08 ((N = 60))</td>
<td>-.38** ((N = 60))</td>
<td>-.04 ((N = 60))</td>
<td>-.06 ((N = 60))</td>
</tr>
</tbody>
</table>

*Note.* None of the students responded to Instagram.
1. Symbols ‘*’ and ‘**’ denote significance at the \(p < 0.05\) and \(p < 0.01\) level.
2. By default the \(N\) in each correlation is 61. If otherwise for any \(N' < N\), the value was shown as \((N')\) besides the Spearman's Rho correlation.
**Discussion**

Patient recruitment involves a significant amount of time in clinical trials. According to InVentiv health (2013), almost 30% of the time of sponsors is spent on patient recruitment and enrollment. The aim of this study was to investigate methods that could increase the likelihood of recruiting the 18-to-34-year-old (Generation Y) subgroup. In this study, students were given a hypothetical situation and were asked to respond on their willingness to participate in a trial along with their likelihood to seek additional information based on type of recruitment method.

Most of the respondents (63.9%) replied that given a chance they were likely to participate in a clinical trial. They also replied that among all the methods of recruitment, they were most likely to seek additional information from a news website (65.6%), followed by newspaper advertisement (54.1%), and social media (51.7%). Most of the respondents preferred Facebook (73.33%) across all the social media platforms to seek additional information in this study. It has been suggested, however, that there could be also trust issues using social media. According to Reyes (2014), more than half of the respondents did not prefer social media as a potential option to seek additional information, stating they do not trust the advertisement and indicating privacy and confidentiality as an issue for social media. Privacy could be an issue as many people use Facebook to write their personal blogs like dairies and link their profiles to public putting themselves and others at a high risk (Hull, 2011). Ethical concerns must be addressed prior to performing research in Facebook. As Zimmer (2010) noted, researchers published data in 2008 from Facebook profiles of a complete cohort group of college students. Facebook is what most participants preferred among the social media platforms and could be a future approach for recruiting Generation Y subgroup. Recruitment for clinical trials is a sensitive topic, however, and there are ethical and privacy issues involved. So despite people
preferring this platform, this approach must be very guarded. Moving ahead this platform could be considered, but one must be also aware of the practicalities of this platform which can cause potential issues.

With an increase in academic class year, the willingness of the respondents to participate in a clinical trial decreased. Graduates were least willing to participate in clinical trials (46.7%) compared to under graduates (75.8%). This could be based on their level of knowledge and awareness about clinical research. In a study conducted at EMU, 819 of 1,869 survey respondents from EMU did not understand the difference between clinical research and clinical laboratory; only 52.1% graduate students understood the meaning of clinical research (Garapati, 2015). Based on the audience, it is very important to be precise and provide complete information for their level of understanding as lack of understanding of the language of clinical research could influence the willingness of the respondents to participate.

A major limitation for this study is the low response rate as the completion rate in this study was only 3.1% \((n = 61 \text{ of } 2,000)\). A larger sample size would have allowed confirmation of the statistical tests used and take this study in a different direction. G-power calculates the power of an instrument before the data collection and after the fact and the power of .80 is appropriate and .95 is ideal (Faul, Erdfelder, Lang, & Buchner, 2007). Based on the response rate, a post hoc power analysis indicated .077, which means that there is only 7.7% of finding an effect in the real population. In order to reach the power on .95, the required sample should be 1,457 or above. This would have been a 72.85% completion rate and the response rate being approximately 80% for the present study. Due to the low response rate, the results are likely not representative of the entire population. One of the reasons for low response rate could be that the survey was sent just before the final examination, hence it is possible that the students did not
have time for the survey. Future studies may receive better response if timing of the survey is more appropriate. Additionally, low response could be due to the content in the introductory paragraph of the survey. Many of the EMU students did not understand the difference between clinical laboratory and clinical research (Garapati, 2015). A more elaborate explanation about clinical research could help gain more responses and also help participants understand the questionnaire better. Also, the questionnaire designed for the present study could have used email as an option of recruitment, as the previous literature searches indicated that mass emailing as the most effective recruitment method compared to newspapers and social media (Bachour, Bachmann, Foster, Wan, Rawlinson, & Brown, 2016).
Conclusion

The survey results likely do not represent the student opinions at EMU due to the low response rate. The results indicated the willingness of a majority of the students to participate in a clinical trial if given a chance. Undergraduate students are more willing to participate than graduate students. The news websites are the most preferred method to likely seek additional information regarding a clinical trial, followed by newspaper ad, and social media (Facebook). Future studies will require larger sample sizes.
References


Findings from University of Sydney in the Area of Weight Loss Reported. (2013, June 3). *Clinical Trials Week, 247*. Retrieved December 11, 2016, from


APPENDICES
Appendix A: Approval letter from EMU UHSRC

RESEARCH @ EMU

UHSRC Determination: EXEMPT

DATE:     March 28, 2016

TO:       Soumya Balachandran
           School of Health Sciences
           Eastern Michigan University

Re:        UHSRC: # 870758-1
           Category: Exempt category 2
           Approval Date: March 28, 2016

Title:     Recruitment of Generation Y

Your research project, entitled Recruitment of Generation Y, has been determined Exempt in accordance with federal regulation 45 CFR 46.102. UHSRC policy states that you, as the Principal Investigator, are responsible for protecting the rights and welfare of your research subjects and conducting your research as described in your protocol.

Renewals: Exempt protocols do not need to be renewed. When the project is completed, please submit the Human Subjects Study Completion Form (access through IRBNet on the UHSRC website).

Modifications: You may make minor changes (e.g., study staff changes, sample size changes, contact information changes, etc.) without submitting for review. However, if you plan to make changes that alter study design or any study instruments, you must submit a Human Subjects Approval Request Form and obtain approval prior to implementation. The form is available through IRBNet on the UHSRC website.

Problems: All major deviations from the reviewed protocol, unanticipated problems, adverse events, subject complaints, or other problems that may increase the risk to human subjects or change the category of review must be reported to the UHSRC via an Event Report form, available through IRBNet on the UHSRC website.

Follow-up: If your Exempt project is not completed and closed after three years, the UHSRC office will contact you regarding the status of the project.

Please use the UHSRC number listed above on any forms submitted that relate to this project, or on any correspondence with the UHSRC office.

Good luck in your research. If we can be of further assistance, please contact us at 734-487-3090 or via e-mail at human.subjects@emich.edu. Thank you for your cooperation.

Sincerely,

Heather Hutchins-Wiese
Chair
CHHS Human Subjects Review Committee
Appendix B: Email invitation

Dear Students,

I invite you to take 5-7 minutes today to participate in an important study at Eastern Michigan University regarding finding new medical studies. The purpose of this survey is to investigate how students hear about research studies.

If you are at least 18 years old, please follow the link to the survey.

Please follow this link or click below to learn more about this survey. Your participation is voluntary and highly valued and will only take approximately 5 to 7 minutes of your time.

https://emuir.co1.qualtrics.com/SE?Q_DL=bNM4mJRVpy7Fz13_3geuHLFQvMnAwRf_MLRP_01JjKb1Ag8VPkln&Q_CHL=email

I appreciate your participation and time.

Thank you
Appendix C: Informed Consent

RESEARCH @ EMU

Consent Form

Purpose: The purpose of this research study is to investigate how students hear about research studies.

Funding: This research is non-funded.

Study Procedures: Participation in this study involves completing an online survey. It should take between 5 to 7 minutes in order to complete the survey.

Risks: The primary risk of participation in this study is a potential loss of confidentiality. Some of the survey questions may be considered personal in nature by some. You do not have to answer any questions that you do not want to answer.

Benefits: You will not directly benefit from participating in this research. The results of the study will help investigators recruit patients for a clinical trial.

Confidentiality:
All data gathered through the survey will be stored on a secure server and used exclusively for research purpose of this project. Once the project is complete, all the associated files will be permanently deleted. No identifiable information is associated with your responses.

The results of this research may be published or used for teaching. No identifiable information will ever be used.

Compensation: No compensation will be provided.

Contact Information: If you have any questions about the research, you can contact the Principal Investigator, Soumya Balachandran at sbalacha@emich.edu or by phone at 734-716-9250. You can also contact Soumya’s adviser, Dr. Irwin Martin, at imartin2@emich.edu or by phone at 734-487-2512.

For questions about your rights as a research subject, you can contact the Eastern Michigan University Office of Research Compliance at human.subjects@emich.edu or by phone at 734-487-3090.
Voluntary participation

Participation in this research study is your choice. You may refuse to participate at any time, even after signing this form, with no penalty or loss of benefits to which you are otherwise entitled. You may choose to leave the study at any time with no loss of benefits to which you are otherwise entitled. If you leave the study, the information you provided will be kept confidential. You may request, in writing, that your identifiable information be destroyed. However, we cannot destroy any information that has already been published.

Statement of Consent

I have read this form. I am 18 years of age or greater. I click “continue” below to indicate my consent to participate in this research study.
Appendix D: Survey Questionnaire

Finding a new medical treatment

Background:
To discover a new medical treatment, a clinical trial is performed. “In a clinical trial, participants receive specific interventions... They may be either medical products, such as drugs or devices; procedures; or changes to participants behavior, such as diet. Clinical trials may compare a new medical approach to a standard one that is already available, to a placebo that contains no active ingredients, or to no intervention. Some clinical trials compare interventions that are already available to each other. When a new product or approach is being studied, it is not usually known whether it will be helpful, harmful, or no different than available alternatives (including no intervention)” (clinical trials.gov, n.d.).

Situation: You have a disease and you are not happy with the currently available treatment. A new treatment is currently being developed but is not yet available. The treatment is being tested in a local center, however.

Please choose the answer that best represents your opinion:

1. How likely would you be interested in participation in the clinical trial?
   [ ] Extremely likely  [ ] likely  [ ] Neutral  [ ] Unlikely  [ ] Extremely unlikely

2. How likely are you to seek additional information on the trial after you see it described on a newspaper ad?
   [ ] Extremely likely  [ ] likely  [ ] Neutral  [ ] Unlikely  [ ] Extremely unlikely

3. How likely are you to seek additional information on the trial after you see it described on a news website?
   [ ] Extremely likely  [ ] likely  [ ] Neutral  [ ] Unlikely  [ ] Extremely unlikely

4. How likely are you to seek additional information on the trial after you see it described on a television ad?
   [ ] Extremely likely  [ ] likely  [ ] Neutral  [ ] Unlikely  [ ] Extremely unlikely

5. How likely are you to seek additional information on the trial after you hear it described in a radio ad?
   [ ] Extremely likely  [ ] likely  [ ] Neutral  [ ] Unlikely  [ ] Extremely unlikely
6. How likely are you to seek additional information on the trial after you see it described on a social media posting?

[ ] Extremely likely  [ ] likely  [ ] Neutral  [ ] Unlikely  [ ] Extremely unlikely

7. Of social media, to which would you most likely respond or prefer to hear of this study?

[ ] Linkedin
[ ] Facebook
[ ] Twitter
[ ] You Tube
[ ] Instagram
[ ] Other: _______________________

For classification purposes only, please state your

Age:
1. [ ] 18 - 34 years old
2. [ ] 35 or older

Gender:
1. [ ] Female
2. [ ] Male

Ethnicity:
1. [ ] American Indian or Alaska Native
2. [ ] Black or African-American
3. [ ] Asian
4. [ ] Native Hawaiian or other Pacific Islander
5. [ ] White
6. [ ] Prefer not to answer

Academic major or likely major in the College of:
1. [ ] Arts & Sciences
2. [ ] Business
3. [ ] Education
4. [ ] Health & Human Services
5. [ ] Technology
Year in college:
   1. [ ] First year
   2. [ ] Sophomore
   3. [ ] Junior
   3. [ ] Senior
   4. [ ] Graduate

Reference