

Comparison of digital recruitment strategies for Alzheimer's disease patients

DIGITAL HEALTH
Volume 10: 1–4
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DOI: 10.1177/20552076241229164
journals.sagepub.com/home/dhj



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Abstract

Objectives: Clinical trials studying Alzheimer's Disease (AD) face the challenge of recruiting participants with significant barriers to entering research studies. The objective of this study is to compare digital recruitment strategies' ability to recruit older adults with cognitive impairment (CI).

Methods: Older adults with CI were recruited for a clinical trial studying vestibular therapy in reducing falls and improving balance and cognition in older adults with CI. Potential participants were recruited via two different digital recruitment methods, a direct messaging campaign using established patient records and a social media campaign. Potential participants then filled out surveys to determine eligibility for the study.

Results: The direct messaging campaign contacted 3060 potential participants and the social media campaign resulted in 8265 instances of unique engagement. Of the number of people reached, the direct messaging campaign had a higher percentage of people who submitted the survey compared to the social media campaign (8.3% vs. 1.2%, $p < 0.001$). There was no significant difference in age, race, ethnicity, education, household income, and insurance status between the recruitment groups ($p > 0.05$). Direct messaging recruitment proved more cost-effective at \$21.74 per eligible participant compared to the social media campaign at \$859.58 per eligible participant.

Conclusion: This study found that direct messaging recruitment using established patient records was more cost-effective compared to social media recruitment for this clinical trial. In this sample size, similar demographics were reached by both recruitment methods. Future studies should continue to explore the use of social media and alternative methods to recruit representative participant populations for ongoing AD research.

Keywords

Clinical trials, social media, participant recruitment

Submission date: 3 September 2023; Acceptance date: 10 January 2024

Introduction

There are an estimated 6.7 million Americans living with Alzheimer's Disease (AD) in 2023.¹ Ongoing clinical trials studying AD face the challenge of recruiting a difficult to reach patient population. Barriers to recruitment include lack of clinical trial awareness, study partner requirements, and primary care physicians' lack of capacity and resources to assess cognition in potential participants.^{2,3} Traditional recruitment strategies have included recruitment via medical professional referral,

mail, television, and radio advertisements.⁴ While these have been shown to be effective at recruiting participants,

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they have shown varying ability to reach diverse patient populations to appropriately represent those suffering from AD in certain communities.^{4,5}

With the increase in usage of computers and social media by older adults, digital recruitment strategies are promising for this older population.⁶ Digital recruitment methods can include direct messaging methods based on patient's medical records at research institutions, or digital advertisement on social media platforms both of which have been shown to be effective at reaching older adults for clinical trials.^{4,7,8} Among these different forms of digital recruitment, it is still unclear which of these forms of digital recruitment is more effective at reaching older adults with cognitive impairment (CI) as well as their ability to reach a diverse participant population.^{4,7}

To determine the efficacy of both patient record digital recruitment and social media recruitment strategies, this paper examined two digital recruitment strategies targeting older adults with CI for a clinical trial studying the use of vestibular therapy in patients with CI.

Methods

Study sample and design

Participants were recruited to participate in the Johns Hopkins Institutional Review Board approved research study "Clinical trial of vestibular therapy to reduce falls in patients with Alzheimer's Disease" (Identifier: NCT03799991). This study aimed to determine the efficacy of vestibular therapy in reducing falls and improving balance and cognition in older adults with CI. Participants were recruited between April 2022 and February 2023 for this randomized controlled trial.

The recruitment for this study utilized two primary digital methods including a direct-messaging campaign through Epic MyChart Recruitment and a social media campaign through Facebook. The direct messaging campaign recruited potential research participants by sending messages through Epic MyChart to Johns Hopkins patients that were identified using a query of Electronic Medical Records for ICD codes matching cognition and age criterion. The social media recruitment campaign advertised the clinical trial on Facebook. The Facebook advertisement targeted adults aged 60+ years old that lived in Baltimore City and neighboring counties. Both recruitment campaigns were performed by the Institute of Clinical and Translational Department of Johns Hopkins University whose costs covered time to select and message potential participants and ran the advertisement on Facebook. The potential participants from both recruitment methods were invited to complete an eligibility survey that screened for the following inclusion criteria: are ambulatory, 60+ years old, have CI, have a caregiver, and not taking medications that would affect vestibular function.

Statistical analyses

The following metrics were used to compare the two recruitment methods: the number of participants screened and enrolled, engagement rate, and demographics. Student's t-test and chi-squares were used to compare significance and $p < 0.05$ was considered statistically significant. Analyses were performed using Stata 18 (College Station, TX).

Results

Table 1 describes the recruitment findings. The direct messaging campaign identified and contacted 3060 potential participants and the social media campaign resulted in 8265 instances of unique engagement of Facebook users clicking the advertisement. Of the number of people reached, the direct messaging campaign produced a higher percentage of people who submitted the survey compared to the social media campaign (8.3% vs. 1.2%, $p < 0.001$). There was no significant difference in age, race, ethnicity, education, household income, and insurance status between the recruitment groups ($p > 0.05$). However, a trend toward significance was seen for the direct messaging campaign to have a lower percentage of participants identifying as white, to have a greater percentage identifying as Hispanic or Latino, to have an education above high school, and to have a higher income (White: 78.1% vs. 87.1%, $p = 0.084$; Hispanic or Latino: 3.5% vs. 0%, $p = 0.072$; Education: 89.5% vs. 81.9%, $p = 0.063$; Income: \$112,967 vs. \$91,064, $p = 0.081$). The social media campaign reached a higher percentage of females compared to the direct messaging campaign (81.1% vs. 58.6%, $p < 0.001$). There were significantly more eligible participants from the direct messaging compared to the social media campaign (31.5% vs. 7.4%, $p < 0.001$). The recruitment through direct messaging proved more cost-effective at \$21.74 per eligible participant compared to the social media campaign at \$859.58 per eligible participant.

Discussion

This study found that when recruiting participants with CI, a social media recruitment strategy reached a wider audience than the direct-messaging participant recruitment. However, the direct messaging MyChart campaign had a higher eligibility rate of potential participants that submitted the screening survey. Additionally, the direct messaging campaign through MyChart was more cost-effective at targeting appropriate participants compared to the social media campaign. The higher yield of participants both taking the eligibility survey and being eligible participants in the direct messaging via MyChart is likely related to the use of reaching out to patients based on appropriate coding in the medical records, as well as the fact that those participants have established care provided by the institution performing the research.⁸

Table 1. Recruitment campaign table.

		Direct Messaging	Social Media	p value
Engagement		3060	8265	–
Submitted Survey		257 (8.3%)	97(1.2%)	<0.001
Age ± SD		72.7 ± 7.98	70.9 ± 8.80	0.071
Females		140 (58.6%)	77 (81.1%)	<0.001
Race	White	185 (78.1%)	81 (87.1%)	0.084
	American Indian or Alaskan Native	1 (0.4%)	0	0.529
	Asian	9 (3.8%)	3 (3.2%)	0.798
	Black or African American	35 (14.7%)	8 (8.6%)	0.132
	More than one option	2 (0.8%)	0	0.373
	Other	5 (2.1%)	1 (1.1%)	0.524
Ethnicity	Not Hispanic or Latino	207 (90.8%)	86 (97.7%)	0.252
	Hispanic or Latino	8 (3.5%)	0	0.072
	Unknown	15 (5.7%)	2 (2.3%)	0.189
Education Beyond High School		212 (89.5%)	77 (81.9%)	0.063
Income ± SD		112,967 ± 89,091	91,064 ± 74,498	0.081
Health Insurance Status		232 (100%)	88 (98.9%)	0.106
Eligible at survey screening		76 (31.5%)	7 (7.4%)	<0.001
Cost per eligible participant		\$21.74	\$859.58	-

Engagement: Number of potential participant messaged via MyChart vs. Number of people who clicked advertisement on Facebook. Percentages reported out of ones who filled out that question of survey. SD: Standard deviation.

Both recruitment methods predominately reached a white, non-Hispanic or Latino population with similar demographics except for a predominance of females in the Facebook recruitment campaign. However, there were non-significant differences that showed the direct messaging campaign reached more non-white and Hispanic or Latino participants. The direct messaging campaign also showed a trend towards reaching a population with higher household incomes and more participants with an education beyond high school. However, further studies with larger sample sizes would be required to determine the significance of these findings.

The population of non-white residents in Maryland is about 42% while this study was only able to reach 22% and 13% across the direct messaging and social media

campaigns, respectively.⁹ Therefore, this study's recruitment methods were still limited by their ability to reach a representative participant population for the area they were studying. This indicates a need for further study into alternative recruitment methods to achieve a more representative population in AD research. Previous research in AD recruitment has indicated preferences among certain minority groups for newspaper recruitment, community referrals, or text messaging.^{10,11} Additionally, certain community outreach programs have been shown to be more effective methods of recruiting these diverse populations compared to this study's experience.^{10,11}

This study was limited by its ability to compare the digital recruitment methods against more traditional methods for this specific clinical trial. The costs of the

recruitment methods may also depend on the internal rates offered by Johns Hopkins University, and other research institutions may have different costs to complete similar recruitment methods. Further studies may expand on the role of different digital recruitment methods and their ability to reach more representative patient populations.

Conclusions

Digital recruitment methods can be an effective tool for reaching older adults with CI. Targeted methods using established care relationships were shown in this study to be more cost-effective, but social media advertising reached a larger overall population. This study found that both recruitment methods recruited mostly similar participant demographics which were largely White and not Hispanic or Latino. Therefore, a combination of digital recruitment and conventional recruitment methods should be considered to recruit adults with CI to reach a more representative sample of participants in a cost-effective manner.

Acknowledgements: The contents of this article are solely the responsibility of the authors and do not necessarily represent the official view of the Johns Hopkins ICTR, NCATS or NIH.

Conflict of interest: The authors have no conflicts of interest to declare.

Contributions: CPH analyzed results, wrote, and approved the final manuscript. MP and CW contributed equally in the data collection, editing, and approval of the final manuscript. YA analyzed the data, edited, and approved the final manuscript.

Ethical Approval: Ethical approval was obtained from Johns Hopkins Institutional Review Board (IRB00273752).

Funding: This project was funded by (R01 AG065259-03). This publication was made possible by the Johns Hopkins Institute for Clinical and Translational Research (ICTR) which is funded in part by Grant Number UL1 TR003098 from the National Center for Advancing Translational Sciences (NCATS) a component of the National Institutes of Health (NIH), and NIH Roadmap for Medical Research.

National Center for Advancing Translational Sciences, NIH Clinical Center, (grant number Grant Number UL1 TR003098 , R01 AG065259-03).

Guarantor: CPH.

Informed consent: Informed Consent for the “Clinical trial of vestibular therapy to reduce falls in patients with Alzheimer’s

Disease” was obtained either remotely or in-person. Data was collected and stored in a password protected cloud-based server.

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