Social Media as a Platform for Recruitment to a National Survey during the COVID-19 Pandemic: Feasibility Analysis

Heidi Lord, Ritin Fernandez, Catherine MacPhail

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Abstract

Background: With the improved accessibility to social media globally, health researchers are capitalising on this method to recruit participants for research studies. This has particularly been the case during COVID-19, when traditional methods of recruitment have not been able to be used. Despite this, there is limited evidence on the feasibility of social media for recruiting a national sample.

Objective: This paper describes the use of social media as a tool for recruiting a national sample of adults to an online survey during the COVID-19 pandemic.

Methods: Between August – October 2020, participants were recruited through Facebook via two advertisement campaigns into an online survey exploring the relationship between social determinants of health and wellbeing of adults during the COVID-19 pandemic. Data were analysed using SPSS version 25 and Facebook metrics auto generated in the Facebook Ads Manager. Post stratification weights were calculated to match the Australian population on the basis of gender, age and state or territory based on 2016 Australian census data.

Results: In total, 9594 people were reached nationally with the paid option and potentially 902000 people through the no cost option resulting in 1211 online survey responses. The total cost of the advertisement campaign was $649.66, resulting in an overall cost per click of $0.25 AUD.

Conclusions: Facebook is a feasible and cost-effective method of recruiting participants into an online survey, enabling recruitment of population groups considered hard to reach or marginalised. Recruitment through Facebook facilitated diversity, with participants varying in socioeconomic status, geographical location, educational attainment and age.

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Keywords: Social Media; Survey; Online recruitment; COVID-19; Pandemic; Methodology

INTRODUCTION

Numerous strategies such as newspaper advertisements, random mail out of surveys and random digit dialling have been used to recruit participants into population health research. However, implementation of these traditional strategies in modern society has limitations due to the reduced use of landline phones and increased postage costs [1, 2], which make these recruitment methods less feasible. Additionally, these approaches have low participation rates ranging from 7.5%[3] to 30%[4]. With improved access to the internet globally, particularly through mobile phones, social media has become an active part of modern society[5]. Public health researchers have harnessed social media and online platforms as a modality for recruitment into population health research [6, 7]. Used as more than just a method to connect with friends and family, social media platforms are increasingly used for sharing content, engaging with news content, entertainment, and receiving health information. The most popular social media platforms globally are Facebook, Twitter, YouTube and Instagram[8], with over 4 billion users. Social media platforms enable users to connect and share information through both traditional and interactive methods, with most platforms allowing free use[9].

According to the Australian Communications and Media Authority[10], in 2018-19 approximately 91% of all Australians had access to the internet. In 2016-17, 80% of Australians used the internet for social networking[11] compared with 66% in 2011[12], with an average of 1.2 social media accounts per Australian [8]. Facebook is the most popular social media platform for Australians, with approximately 93% of Australian social media consumers using this platform, followed closely by Instagram at 73%[13]. Almost 60% of Australians use social media daily[8].

Given the increased prevalence of daily social media use among Australians, social media platforms have been increasingly used as a viable method for recruiting participants into health research[14]. More specifically, social media platforms allow researchers to access hard to reach populations as well as targeting recruitment through the use of advertising campaigns to specific users based on gender, geographical location, interests and age[9]. Social media use has been harnessed by heath researchers to recruit participants into a range of studies including cross-sectional studies, observational studies and interventional studies[5], particularly, due to the cost -effectiveness of this method. There is evidence in the literature that health researchers have recruited participants and delivered health behaviour interventions on a variety of topics. The success of these interventions has demonstrated the efficacy of social media as a suitable method for accessing participants [1, 5, 15-17]. However, a substantial number of studies use a localised sample.

Our study engaged the use of social media with the purpose of generating a national sample of Australian adults to explore the relationship between the social determinants of health and wellbeing during the COVID-19 pandemic. There is currently limited evidence on the feasibility of social media for recruiting a national sample, therefore, the aim of this paper is to describe the feasibility of using social media as a tool for recruiting a national sample of adults to an online survey during the COVID-19 pandemic. Feasibility was assessed in terms of reach, time invested in recruitment, number of surveys completed, cost effectiveness and recruitment of diverse sample of participants.

METHODS

Study overview

The research study was undertaken to investigate the relationship between social determinants of health and wellbeing in adults during the COVID-19 pandemic. Ethical approval to conduct this study was received from University of Wollongong Human Ethics Committee (2020/306). The inclusion criteria for the study were individuals aged 18 years and over with the ability to read English and residing in any state or territory within Australian. Participants were recruited using Facebook over a nine-week period between August and October 2020. Participants were required to complete an online survey comprising of 49 questions exploring social determinants of health. Participants were invited to enter a draw to win one of 10 $50 gift vouchers at the end of the survey with winners selected randomly using SPSS version 25.

Recruitment strategy

Recruitment for this study using Facebook was achieved by: 1) joining existing community noticeboard groups in Facebook *(no cost option)*, and 2) through a paid Facebook advertisement campaign *(paid option)*. Both methods enabled snowball sampling where users could like, share and circulate the social media post to others.

Joining existing community noticeboard groups in Facebook (no cost option)

A specific Facebook page was created for the study using the study image. To ensure national representation, the primary author identified existing Facebook community noticeboard groups, according to Australian states and territories and secondly based on urban, regional and remote areas. The author contacted the administrators of each individual community group for permission to join. Each week, if permitted by the administrators, the advertisement was re-posted on each of the community noticeboard groups' page. Posting on the existing community noticeboard groups began

on 20 August 2020 and ended on 14 October 2020.

Facebook advertising campaign (paid option)

To supplement the no-cost Facebook community noticeboard group approach, a paid advertisement through Facebook, which included Instagram, was designed to recruit participants. Two consecutive advertisement campaigns were set up, with the first campaign used to establish the feasibility of this strategy.

The Facebook advertisement platform, Facebook Ads Manager, was used to create paid advertisements. The features available for a payment allows the advertisement to be customised based on objective (links/clicks to online survey), target audience (location, age, gender, interests and behaviours), budget and schedule [18]. Selecting the 'automatic placements' when setting up the advertisement in Facebook Ads Manager, allowed the advertisements to run across associated services such as Instagram, Messenger and Facebook Audience Network (off-Facebook in-app advertising network for mobile applications).

The Facebook advertisements comprised of a main text (Tell us how the COVID-19 pandemic has affected your health and wellbeing. Take our survey and go in the draw to WIN 1 of 10 $50 gift vouchers), an image (study image and university logo) and display link (Figure 1).

Figure 1: Paid Facebook/Instagram Advertisements

A budget of $650 AUD was set as the maximum recruitment spend for the paid campaigns, with a daily limit of $25 AUD. The cost per click can vary depending upon the number of clicks on the advertisement and the amount of the daily budget reached.

The first campaign was set as "Engagement" (targeting people most likely to engage with the post through one of the following mechanisms: share, like and click). The target audience for the first campaign was: 1) people residing in Australia; 2) ages 18-35 years inclusive; 3) all genders; and 4) people residing within certain postcodes. The primary researcher used Australian Bureau of Statistics (ABS) Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) to set the postcodes. These postcodes were used to ensure the distribution of the ad campaign targeted potential participants in both relative advantaged and disadvantaged locations. The "automatic placements" option on Facebook was used, which allows the campaign to maximise the set budget and dissemination of the advertisement to a larger sample relevant to the inclusion criteria [18].

Next, the "post engagement" strategy was selected enabling delivery to the people who are likely to share, like and comment on the post at the lowest cost [18]. The first Facebook advertisement campaign ran from 25 August 2020 – 1 September 2020.

The second campaign employed the same strategies as the first advertisement campaign; however, the target audience locations were identified using suburbs set by ABS's IRSAD. This was undertaken as suburbs can contain multiple postcodes thus increasing the target audience. The use of the ABS's IRSAD suburbs allowed a general representation of both advantaged and disadvantaged locations, enabling diversity in targeting potential participants. The second campaign ran from 6 September 2020 – 22 September 2020.

Throughout the recruitment period, the Facebook posts were monitored daily to ensure that any comments, including individuals opportunistically using the advertisement to promote businesses, were hidden from other Facebook users. This was undertaken to ensure potential respondents were not influenced to either participate or be discouraged from participating in the survey. Additionally, monitoring the comments and hiding them from other potential participants was conducted for ethical reasons as a way of protecting any potential participants' identities. Automatic hiding of comments is not available as an option within Facebook's delivery system and therefore had to be conducted manually.

Data analysis

Data were analysed using SPSS version 25. Post stratification weights were calculated to match the Australian population on the basis of gender, age and state or territory based on the 2016 Australian

census [19], to account for over or under representation of certain people.

Facebook metrics were collected through Facebook Ads Manager, which auto generates the engagement activity for each advertisement campaign [18]. Summary and descriptive statistics including reach, impressions and cost per click were analysed for each campaign and for the overall campaign. 'Reached' refers to the number of people who were shown the advertisement, Impressions refers to the number of times the advertisement was on-screen for the target audience and could include multiple views of the advertisement by the same individual. The cost per click is derived from the total advertisement campaign spend divided by the number of clicks on the advertisement or the link [18].

RESULTS

Recruitment through *Facebook (no cost option)*

A request was made by the primary researcher to the administrators of 110 existing Facebook community noticeboard groups to join. All community groups approached approved the request to join. Posts and reposts to the existing community noticeboard group Facebook pages were conducted 10 times over the nine-week period commencing on 21 August 2020 and the last repost occurring on 14 October 2020. Using this option means that no data on the individuals reached or impressions is available to researchers through Facebook Ads Manager, however the number of members in each community noticeboard group were available with a potential reach of 902000 individuals. Nationally, each community noticeboard group had on average 8205 people as members of the group, with Queensland and Australian Capital Territory having slightly higher than the national average at 11097 and 12230 average members per noticeboard community group respectively. In contrast, South Australia and Victoria had marginally lower average members per group than the national average with 6480 and 6287 members respectively. Additionally, a comparison between the no cost and paid options to indicate which the most cost-effective option is not possible, as both recruitment methods sent participants to the same survey link, therefore no disaggregation between the options the participants used to reach the survey.

Recruitment through *Facebook (paid option)*

An aggregated 9594 individuals were reached with the two paid advertisement campaigns, however, there were 14232 impressions. The Facebook advertisement campaign reached 5316 (55.4%) males, 4062 (42.3%) females, and 216 (2.3%) people with uncategorised gender. Using the automatic

placements option, most placements were conducted through Instagram reaching 5846 individuals, while Facebook reached 3856 individuals. The remainder of individuals were reached through Facebook Audience Network.

Strengths and Limitations of the *Facebook (no cost option)*

The greatest advantage in using the no cost option is that there are no monetary costs associated with recruiting participants. However, it must be noted that the researchers had to continually repost the ad to the community noticeboard groups to ensure visibility, as the post would move down a user's feed once posts had been posted by another group or member, this in turn proved to be labour intensive. Additionally, during the first few days of recruitment, responses from the no cost option were received predominately from individuals aged 35 years and over. Therefore to supplement this approach, the paid option was used and intentionally designed to target younger potential respondents.

Strengths and Limitations of the *Facebook (paid option)*

The paid option allowed the researchers to specifically target younger potential respondents across not only Facebook but through Instagram, Messenger and Facebook Audience Network. Furthermore, the paid option allows the researcher to customise the ad based on their purpose and create a specific schedule of when the ads will be seen [18].This was particularly important to recruit a diverse national sample of participants. The drawback with using the paid option was the associated monetary costs, albeit being able to design the campaign to have a daily limit, reach of potential participants did not guarantee actual respondents.

Overall response to survey

A total of 1211 individuals responded to the survey, with 100% meeting the eligibility criteria. The survey took respondents approximately nine minutes to complete. Of the 1211 who commenced the survey, 1137 (93.89%) completed it.

The number of responses varied per day among the paid and no cost options, with the highest number of responses (n=178) received on 21 August 2020 and the lowest (n=0) on 21 October 2020. In the first week the survey was live, a total of 326 responses were received, which was the most responses received over the nine-week period. Due to the no cost and paid options running concurrently for the first five weeks, using the same survey link, the numbers of participants recruited through each option are unknown. Overall response to the survey per week for the no cost and paid options are outlined in Figure 2.
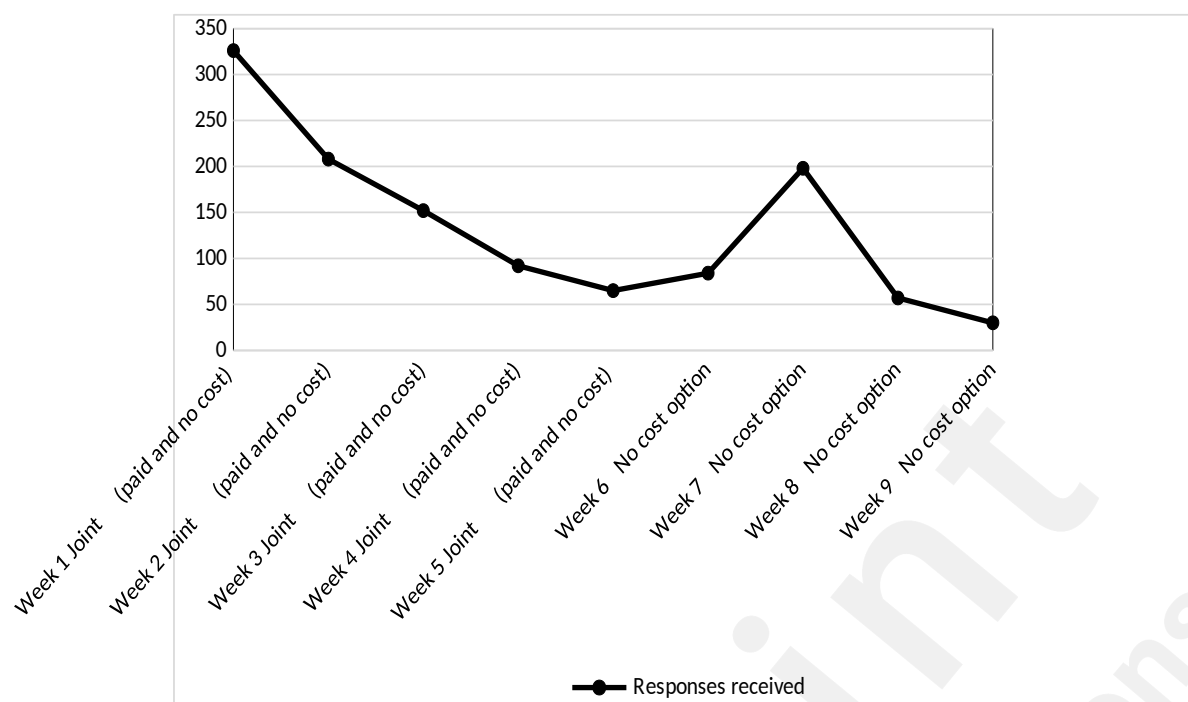
Figure 2: Overall response to the survey (no cost and paid options)

Cost analysis

For the paid option, the total amount spent on the Facebook advertisement campaigns was $649.66 AUD, with the average overall cost per click (per post engagement) $0.25 AUD. Individuals aged 18-24 years accounted for $419.79 (64.6%) of the total advertisement budget, while individuals in the 25-34 age group accounted for $192.49 (37.1%), those aged 35 years accounted for $37.38 (7.6%). The majority of the advertisement spend was using Instagram, with a total spend of $598.39. Facebook advertisement total spend was $50.79, while $0.48 of the total spend was through Facebook Audience Network. The lowest cost per click day was on the 8 September 2020 at $0.16 AUD, with the highest cost per click of $0.32 AUD on the 18 September 2020.

More males engaged with the Facebook advertisement campaign compared to females, with males accounting for 60.4% ($392.35) of the total spend. Women in the 25-34 age group account for the highest cost per click at $0.28.

Time

Economically, Facebook advertising campaigns are a feasible method to recruit participants into an online survey, requiring the use of a single researcher to create, manage and maintain the recruitment strategy. The total number of hours spent by the researcher, including management of the no cost

option of posting on existing community noticeboard groups within Facebook, was a total of 30 hours over the nine-week period. The benefit of using Facebook's features of selecting a target audience, and posting on existing community noticeboard groups enabled recruitment of a large sample within a short timeframe, with a relatively low cost of $649.66 AUD. The cost effectiveness and ability to recruit a large sample provides evidence to suggest that Facebook recruitment is a feasible option for public health researchers.

Distribution of respondents

Participants from diverse geographic, education, and employment backgrounds were recruited through these two Facebook methods. Responses were received from all States (n=6) and Territories (n=2) within Australia. Based on weighted data from 1211 participants, most responses received from New South Wales (NSW) 34.4% (n = 387), while 0.4 % (n = 5) were received from the Northern Territory. Responses were received from 40.4% (n = 447) participants living in locations classified as having the two lowest socioeconomic status brackets and 41.2% (n=646) participants living in locations classified as having two highest socioeconomic status brackets. Responses were received from 662 (58.8%) residents in major cities, 373 (23.1%) residents in inner or outer regional areas and 70 (6.2%) residents in remote or very remote areas of Australia. Educational attainment varied among respondents with 36.1% (n= 406) having at least a Bachelor's degree, 20.2% (n=239) having a completed technical college, while 22.2% (n= 250) had completed years 7 to 12 high school. Responses received from those aged 25 - 39 years and 40- 59 years was 30.2% (n=340) and 35.5% (n=40) respectively. The mean age of the respondents was 46.3±16.3 years. Responses received from females accounted for 51.7% (n=582) and men 48.3% (n=545).Unweighted data for transgender/non-binary population was 2.6% (n=30). Weighted and unweighted distribution of respondents are detailed in Table 1.

Table 1: Distribution of respondents (non-weighted and weighted)

	Mean	SD	Mean[a]	SD[a]
Mean Age (Years)	43	14.2	46.3	16.3
	N	**%**	**N[a]**	**%[a]**
Age				
18-24	118	9.7	101	8.9
25-40	413	34.1	340	30.2
41-60	464	38.3	400	35.5
61-75	135	11.1	227	20.2
76+	7	0.6	59	5.2
Gender				
Woman	938	80.7	582	51.7
Man	194	16.7	545	48.3
Non-binary/Trans	30	2.6	-	-
Education				
Completed years 7 to 12 high school	240	20.7	250	22.2
Vocational	253	21.8	239	21.2
Bachelors	437	37.7	406	36.1
Postgraduate	230	19.8	230	20.4
State/Territory				
New South Wales	695	59.8	387	34.4
Victoria	181	15.6	305	27.0
Queensland	127	10.9	219	19.4
Western Australia	91	7.8	118	10.5
South Australia	17	1.5	57	5.1
Northern Territory	19	1.6	5	.4
Australian Capital Territory	19	1.6	18	1.6
Tasmania	13	1.1	19	1.7
Remoteness				
Major cities	709	62.1	662	58.8
Inner regional	256	22.4	224	19.9
Outer regional	112	9.8	149	13.2
Remote	20	1.8	12	1.1
Very remote	45	3.9	58	5.1
Socioeconomic Status				
Lowest (most disadvantaged)	157	13.8	188	16.6
Low	252	22.1	259	23.0
Middle	210	18.4	194	17.2
High	193	16.9	182	16.1
Highest (most advantaged)	328	28.8	282	25.1

[a] Calculated using weighted data

DISCUSSION

This study reports on the feasibility of using Facebook to recruit a national sample of participants. The findings demonstrate Facebook to be an efficient and effective method to recruit both a large and diverse sample of respondents. We recruited a total of 1211 respondents, with weighted data demonstrating recruitment was representative of the Australian population. The average cost per click for the paid option was $0.25 AUD with 9594 people reached. The no cost option potentially reached 902000 people, with an average number of 8205 members in each community noticeboard group. The findings of this study have implications for public health researchers seeking to recruit through social media sites such as Facebook and contributes to the emerging evidence regarding the ability of social media to reach diverse populations groups.

Overall, the no cost and paid Facebook advertisements used in this study proved to be an effective method for recruiting a large national sample of the Australian population. While concerns have been raised in the literature regarding the digital divide [20], the accessibility of Facebook and Instagram, globally and nationally refutes this notion [8]. The literature confirms that social media advertisement is a viable method to recruit marginalised population groups and those considered hard to reach [21, 22]. A diverse national sample of adults was the focus of this recruitment strategy. The targeted paid advertisements for this study were achieved using the ABS's IRSAD postcode and suburbs to target a diverse audience, which proved effective, with respondents varying in socioeconomic status, remoteness, educational attainment and age. The representation of regional and remote area participants shows the potential benefit of using social media to recruit a segment that traditionally has been quite difficult to reach [14], this can also be said from those from low socioeconomic backgrounds [17]. However, it must be noted that gender was not diverse in this study with females overrepresented. This similar to the experience of other studies, in which males, non-binary and transgender people are underrepresented [23, 24]. Traditionally, females have been overrepresented in surveys and interviews, suggested to be due to the gender differences in communication [25]. Surveys require a willingness to disclose some personal information and often having to express more socio-emotional behaviours. These are traits that are historically characterised by females, and may therefore contribute to their greater participation in survey research [25]. Moreover, when engaging online, females are more likely to communicate and exchange information, whereas males prefer to information seek [26].

The advantage of using Facebook's paid advertisement campaigns is that it can be set to target a specific audience, and set a daily cost limit. This is especially useful for researchers who are working

within limited funding arrangements. Minimising research costs and maximising recruitment opportunities can be achieved with the use of social media for population health research. Social media recruitment desirability has also increased during the COVID-19 pandemic [27, 28], with traditional methods unable to be used to recruit participants due to the public health measures used to combat the transmission of COVID-19.

Compared with the paid advertisement, the no cost Facebook method of recruitment was time intensive, by virtue of having to contact administrators for permission to join groups and the ongoing posts and reposts to the group pages to ensure continued visibility. However, it can be said that traditional methods of participant recruitment such as mailed survey are often more labour intensive and expensive [29]. A number of studies have been conducted comparing social media recruitment and traditional methods, suggesting that social media is more effective for cost and time [16, 17, 30]. Indeed, social media recruitment through both the paid and no cost options as demonstrated in this study, represents a cost effective method of recruitment into a population health survey.

Surprisingly, in week 7, a total of 198 responses were received, this coincided with a long weekend in 3 Australian States (NSW, Queensland and South Australia) and one territory (Australian Capital Territory) and may have increased the response rates in this week. This suggests that targeting social media recruitment over weekends and when people have spare time, particularly during the COVID-19 pandemic when people may have been in lockdown over the long weekend may provide a good opportunity for recruitment.

Limitations

While this study used robust methods, there are some limitations that need to be acknowledged. Firstly, there is potential for bias due to exposure to the advertisement being associated with time spent on Facebook (and therefore not the same for each user), especially with the community noticeboard groups where visibility of the post depended on when potential respondents were on Facebook.

Secondly, the feasibility of Facebook as a recruitment tool can be impacted by Facebook's automated advertising algorithms and metrics. Facebook sets advertising algorithms to determine the most appropriate advertisements to show to a specific audience. However, this is also impacted by Facebook as a business wanting to provide the user with a good experience. The metrics used by Facebook can be difficult to comprehend, which in turn can be challenging for researchers particularly when they are not familiar with interpreting the metrics or following previously published social media recruitment protocols.

Thirdly, only one online survey link was established for this study, which meant that being able to track respondents from each recruitment option was impossible. Future research employing both no cost and paid options should use two separate links to enable a more robust comparison of the two options.

Despite males engaging with the Facebook advertisement campaigns more than women, they are underrepresented in this study. Approaches to increase male participation in online surveys needs to be explored.

Finally, further qualitative studies need to be conducted to understand why individuals choose or decline to participant in research advertised through social media.

CONCLUSION

Recruitment through social media, specifically Facebook, allowed for a cost-effective and efficient method for recruiting a national sample of participants into an online survey regarding the relationship between wellbeing and the social determinants of health during the COVID-19 pandemic. The diversity of participants recruited in this study, in terms of socioeconomic status, remoteness, educational attainment and age, promotes and confirms the feasibility of social media to recruit hard to reach population groups as well as a diverse sample of the national population. The benefits of using Facebook should be considered by population health researchers when implementing health research in the future.

CONFLICTS OF INTEREST

None to declare.

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Supplementary Files

Revised manuscript with highlighted changes.
URL: http://asset.jmir.pub/assets/38ed931afcebe3376505cafb3d59aac6.docx

Figures

Paid Facebook/Instagram Advertisements.

Overall response to the survey (no cost and paid options).