Brief report

Effectiveness and costs of strategies to recruit Australian adults with type 2 diabetes into a text message intervention (DTEXT) study

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Article history

Introduction

Despite the growing evidence for type 2 diabetes text message interventions, few studies have explored challenges involved in recruiting participants, with some evidence suggesting recruitment into these research studies is the biggest limitation.[1]

This study describes the effectiveness and costs of different strategies used to recruit community-dwelling Australian adults with type 2 diabetes into a text message intervention (DTEXT) randomised controlled trial.

Methodology

The study required 340 participants for sufficient power to detect expected effects of the text message intervention. Eligible participants were: community-dwelling adults residing in New South Wales (NSW), Australia; with a diagnosis of type 2 diabetes; aged 18 years and older; owned a mobile phone; English literate; provided informed consent; had medical clearance from their doctor; and were not pregnant. The study protocol outlining the methodology in detail is published elsewhere.[2] The study was approved by the University of Wollongong and Illawarra Shoalhaven Local Health District Human Research Ethics Committee (Health and Medical) (2016/343), and registered with the Australian New Zealand Clinical Trials Registry (ACTRN 12617000416392).

The initial 8-month recruitment plan targeted the Illawarra and Shoalhaven regions with traditional recruitment methods: an invitation from the Local Health District (LHD) Diabetes Service, Renal Unit and Chronic Disease Management Program; referrals from general practices, endocrinologists, practice nurses, pharmacists and pathology services; flyer and poster distribution throughout community venues; local newspaper advertisements; and an interview broadcast on local radio and television stations.

Due to slower than anticipated enrolments, the recruitment period was extended for an additional 8 months and two new strategies were added to the initial recruitment plan. Paid Facebook advertising campaigns (non-traditional recruitment method) were placed across NSW, and a one-off postal mass-mailing (traditional recruitment method) invited 8003 National Diabetes Services Scheme (NDSS) members with type 2 diabetes residing in the Illawarra Shoalhaven to join the study. See Supplementary File 1 (available from: doi.org/10.6084/m9.figshare.15140847) for example advertisements.

Results

A total of 1231 people registered interest in the study. From this, 395 (32%) people were eligible and enrolled into the study, and 836 (68%) people were excluded (56% not eligible; 44% unable to be contacted/declined participation). Study completion was high (95%), with minimal withdrawal (1%) and loss to follow up (4%). Outcomes on the effectiveness and acceptability of DTEXT are published elsewhere.[3] The initial 8 months of recruitment using traditional methods alone achieved 23% of the required sample size, equating to an average of 10 enrolments per month. The second 8-month recruitment period resulted in the required sample size being exceeded, with the addition of Facebook achieving an average of 31 enrolments per month (months 9–11), which further increased to an average of 42 enrolments per month (months 12–16) with the addition of the NDSS mail-out.

The number of enrolments and costs per recruitment strategy are outlined in Table 1. Facebook recruitment resulted in the highest enrolment response and lowest cost per enrolment. The NDSS mail-out was also effective, but all other traditional methods had limited to no effectiveness.

Demographic data and the dominant recruitment source are presented in Supplementary Table 1 (available from: doi.org/10.6084/m9.figshare.15140847). Most participants were older adults (55–75 years); born in Australia; had obesity; from disadvantaged areas; located in major cities; unemployed/retired; and had completed TAFE or a diploma. There were slightly more males than females and 5.3% of participants identified as Aboriginal and/or Torres Strait Islander. Facebook was the dominant recruitment source (68%) across demographic categories when compared to traditional methods (32%). Facebook advertising campaign themes and outcomes

Table 1.   Number and costs of enrolments by recruitment strategy, *N* = 395[a]

Strategy	Method	Attributes	Enrolled *n* (%)	Cost per enrolment
Facebook	Non-traditional	Highly effective Advantages: low effort; easy to manage targeted campaign; high population reach. Disadvantages: moderating of public posts required.	116 (29.4)	$110
NDSS mail-out	Traditional	Highly effective Advantages: minimal effort; one targeted mailing conducted by external agency; signed paperwork returned directly from mail-out; high reach. Disadvantages: high one-off cost.	98 (24.8)	$128
LHD Diabetes Service	Traditional	Limited effectiveness Advantages: direct screening and invitation of eligible patients. Disadvantages: resource intensive; low response.	46 (11.6)	$388
Newspaper	Traditional	Limited effectiveness Advantages: low effort. Disadvantages: high cost; low response.	28 (7.1)	$605
Total			**288 (72.9)**	**$209[b]**

LHD = Local Health District; NDSS = National Diabetes Services Scheme

[a]   All other recruitment strategies (traditional methods) had limited effectiveness (health professional (other): 6.8%; general practitioner/endocrinologist: 5.3%; renal unit: 4.8%; family/friend: 3.8%; pathology collector: 2.3%; flyer/poster: 2.0%; email/internet: 1.0%; radio/television: 0.5%; unsure: 0.5%) and have not been included in the table.

[b]   Average cost per total enrolment.

are presented in Supplementary Table 2 (available from: doi.org/10.6084/m9.figshare.15140847). Analysis of individual advertisements showed mixed results with no clear outcome on which advertisements were the most successful. When analysed by campaign theme, factual/informative advertisements were more cost-effective for link clicks, reach and impressions. Campaigns with negative emotional appeal were the most cost-effective for results (number of outcomes the advertisement achieved e.g. link clicks) and post engagement (e.g. likes, shares, comments, reactions). Campaigns with positive emotional appeal/testimonials had the greatest post engagement relative to the number of times an advertisement was seen.

Discussion and implications

This is the first study to examine methods for recruiting Australian adults with type 2 diabetes into a text message intervention study, and can be used to provide researchers with effective strategies for future recruitment efforts.

Facebook recruitment is the preferred strategy due to having the most enrolments (in total and across demographic groups), the lowest cost per enrolment, and being straightforward to manage. Our Facebook outcomes confirm previous findings on social media recruitment which report accelerated enrolments, high reach (especially hard-to-reach populations), cost effectiveness and usability when compared with traditional methods.[4-6] Facebook was the dominant recruitment source for older-aged adults in DTEXT, suggesting this group is engaged with digital media, as also found by Reuter.[4] Factual/informative Facebook advertising campaigns and those appealing to negative emotion were more cost-effective than testimonials or those appealing to positive emotion, however testimonials and advertisements with positive emotional appeal showed greater viewer engagement. Further exploration of Facebook recruitment is needed.

Mass mail-out through the NDSS is also an effective recruitment strategy, and comparably cost-efficient to Facebook advertising. Similar to DTEXT, mass mail-outs have shown success for diabetes prevention programs and with male participants[6,7], with high effectiveness and low overall cost.[7]

All other traditional recruitment methods had limited recruitment effectiveness and were expensive. These outcomes have been found in other studies, with limited success reported from newspaper advertising[6], health professional referrals[8] and recruitment into a type 2 diabetes lifestyle program by health services and staff.[9]

Conclusion

Our findings suggest that the majority of traditional recruitment methods may be ineffective in recruiting

Australian adults with type 2 diabetes into a text message intervention study. Paid Facebook advertising followed by a mass mail-out are recommended strategies due to accelerated and high enrolments, low costs, ease of management and success across demographic categories. Our study provides researchers with effective strategies for type 2 diabetes text message intervention recruitment.

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Peer review and provenance

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Competing interests

None declared.

Author contributions

KW was responsible for the design, drafting, analysis of data and editing the manuscript. SF and AB were responsible for contributing to the design of the manuscript, reviewing and editing the manuscript and providing analytical advice. RC, MAF, SC, LF and RM were responsible for reviewing and editing the manuscript. AW was responsible for reviewing the manuscript.

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