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Research paper

Effective recruitment strategies in primary care research: a systematic review

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ABSTRACT

Background Patient recruitment in primary care research is often a protracted and frustrating process, affecting project timeframes, budget and the dissemination of research findings. Yet, clear guidance on patient recruitment strategies in primary care research is limited. This paper addresses this issue through a systematic review.

Method Articles were sourced from five academic databases – AustHealth, CINAHL, the Cochrane Methodology Group, EMBASE and PubMed/Medline; grey literature was also sourced from an academic library and the Primary Healthcare Research & Information Service (PHCRIS) website. Two reviewers independently screened the articles using the following criteria: (1) published in English, (2) reported empirical research, (3) focused on interventions designed to increase patient recruitment in primary care settings, and (4) reported patient recruitment in primary care settings.

Results Sixty-six articles met the inclusion criteria. Of these, 23 specifically focused on recruitment strategies and included randomised trials ($n = 7$), systematic reviews ($n = 8$) and qualitative studies ($n = 8$). Of the remaining articles, 30 evaluated recruitment strategies, while 13 addressed the value of recruitment strategies using descriptive statistics and/or qualitative data. Among the 66 articles, primary care chiefly included general practice ($n = 30$); nursing and allied health services, multiple settings, as well as other community settings ($n = 30$); and pharmacy ($n = 6$). Effective recruitment strategies included the involvement of a discipline champion, simple patient eligibility criteria, patient incentives and organisational strategies that reduce practitioner workload.

Conclusion The most effective recruitment in primary care research requires practitioner involvement. The active participation of primary care practitioners in both the design and conduct of research helps to identify strategies that are congruent with the context in which patient care is delivered. This is reported to be the optimal recruitment strategy.

Keywords: primary healthcare, research design, research subject recruitment

How this fits in with quality in primary care

What do we know?
Recruitment delays are common in primary care research. Delays can adversely impact the research and the enthusiasm for research in primary care. Few studies report on successful strategies for patient recruitment to primary care research.

What does this paper add?
The recruitment of primary care sites can be aided by the involvement of a discipline champion. Patient recruitment can be aided by simple patient eligibility criteria, patient (rather than clinician) incentives and organisational strategies that reduce practitioner workload.

Introduction

The effective recruitment of patients for research typically involves identifying eligible populations, securing an adequate and/or representative sample, retaining participants until study completion and minimising the cost–benefit ratio, all while maintaining ethical standards.[1] The focus of this article is on strategies that help to recruit patients to primary care research. This includes both direct strategies that engage the patient, as well as indirect strategies that engage clinicians and/or their practices.

Patient recruitment in primary care research is often a protracted process.[2,3] This is largely due to barriers at three levels – the organisational, the professional and the patient. Organisational barriers include inadequate resource allocation,[4] governance arrangements that hamper decision making,[2,5,6] ineffective communication channels[5] and administrative issues.[7] A systematic review of participation in randomised controlled trials identified a number of professional and patient barriers. The authors reported:

> Clinician barriers included: time constraints; lack of staff and training; worry about the impact on the doctor-patient relationship; concern for patients, loss of professional autonomy; difficulty with the consent procedure; lack of rewards and recognition; and an insufficiently interesting question. Patient barriers included: additional demands of the trial; patient preferences; worry caused by uncertainty; and concerns about information and consent.[8]

To this list, others have added patients' assumptions that they have little to contribute, as well as concern over research processes.[9] Collectively, these barriers can impede the effective recruitment of patients to primary care research.

Ineffective patient recruitment can be costly. These include: economic costs, knowledge costs and personal costs. Economic costs include the resources required to extend projects (including staff time and research materials) to identify and execute innovative recruitment strategies.[10] Knowledge costs include missed opportunities for clinical innovation[11,12] and publication delays, thus hindering the dissemination of research findings. Personal costs can include delayed patient access to innovative treatments, because results may not be generalisable and valid,[13] which in turn can prolong ill-health and/or burden carers.

There is limited empirical research to guide patient recruitment to primary care research. With few exceptions,[2] most research that reports on the effectiveness of recruitment strategies focuses on general practices within academic settings,[14] and whether lessons garnered from these non-conventional sites readily translate to other primary care settings is yet to be determined. Given the paucity of empirical research, this paper presents a systematic review of extant literature to identify effective recruitment strategies in primary care research. For the purpose of this review, effectiveness is understood to bolster: the identification of eligible patients, the representativeness of the sample, participant retention or cost efficiencies.

Methods

The aim of this systematic review was to identify effective patient recruitment strategies in primary care research. A search strategy was developed and tested to electronically source articles published in English from six academic databases – AustHealth (an Australian catalogue of nine repositories of health information), CINAHL, the Cochrane Methodology Group, EMBASE, the Primary Health Care Research & Information Service (PHCRIS) and PubMed/Medline. These were searched in July 2010, employing the following strategy using Medical Subject Headings (MeSH):

- Family practice [mh] OR primary healthcare [mh] AND
- Epidemiologic Study Characteristics as Topic [mh] OR Evaluation Studies as Topic [mh] OR health

services research [mh] OR research design [mh] OR research [mh] AND
- Patient selection [mh] OR patient participation [mh] OR patient recruitment.

In total, 1025 references were identified after using the search strategy, all of which were added to an EndNote library for review.

Using keywords (namely, primary healthcare, recruitment, primary healthcare practitioner, patient participation and patient recruitment), this was complemented by a search of grey literature sourced from both the Curtin University library and the PHCRIS website. Eighty references were found using this strategy, which were added to the EndNote library. All duplicates were removed, yielding a total of 945 references.

Titles and abstracts of the 945 references were independently reviewed by two reviewers (IN and MJ) using the following inclusion criteria:

- article represents a research article (rather than a letter or commentary)
- research context is primary care; that is, settings in which health practitioners are the first point of consultation for patients
- primary focus is to determine the effectiveness of a patient recruitment strategy – this includes those targeted at the patient, the practitioner, and/or the health service.

Following this, 879 articles were excluded for not meeting the inclusion criteria or not addressing the recruitment strategy *per se*. The reviewers reached consensus on the remaining 66 articles, all of which were included in the review (see Figure 1). Divergent opinion was resolved by reviewing the full text of the article to determine whether it met the selection criteria.

From the identified articles, the following information was extracted (when available) and tabulated for narrative interpretation: study design (randomised controlled trial, RCT, systematic review or qualitative study); research setting (general practice, community or pharmacy); recruitment method(s) (post, waiting room or telephone); and duration of recruitment. Only the reported effectiveness of recruitment strategies on patient recruitment is presented here.

Results

Of the 66 articles that met the inclusion criteria, the largest proportion reported RCTs ($n = 23$), followed by qualitative studies ($n = 19$) and systematic reviews ($n = 15$). The remaining articles reported cross-sectional studies ($n = 5$), case-control studies ($n = 2$) and retrospective studies ($n = 2$).

Approximately one-third of the articles focused solely on recruitment strategies ($n = 23$). Their capacity to recruit patients was tested via RCTs ($n = 7$), systematic reviews ($n = 8$) and qualitative studies ($n = 8$). The remaining articles conveyed the effectiveness of chosen recruitment strategies as part of the methodology or results ($n = 43$).

Among the 66 articles, research settings primarily included general practice ($n = 30$), pharmacies ($n = 6$)

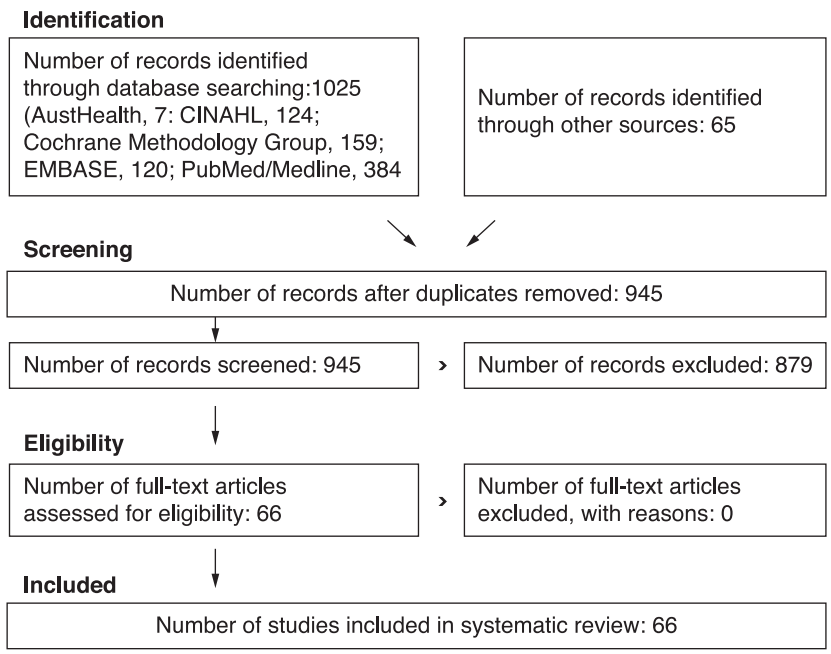

Figure 1 PRISMA flowchart

and a combination of nursing and allied health services, multiple settings and other community settings ($n = 30$). Reflecting the mico-, meso- and macrolevels of the healthcare system, the recruitment strategies described in the articles were categorised at one of three levels – the patient, the practitioner and the organisation. Each is addressed in turn.

Patient level

All of the articles in this review alluded to patient recruitment strategies. Even for those articles that addressed recruitment strategies at practitioner or organisation level, patient recruitment was either the primary or the secondary focus. Moreover, increasing patient participation in research through a recruitment strategy was reported directly or indirectly as the ultimate goal of these studies.

Mode of recruitment appears to be a determining factor in their effectiveness. For example, Davey and colleagues[15] compared two strategies – the use of practitioner databases to identify suitable patients and the use of one local newspaper article to solicit volunteers. The study found that the only statistically important outcome measure was gender, with a greater number of women recruited through the newspaper article (78%; $P < 0.05$). This was attributed to the gendered nature of health and interest in group exercise. However, the newspaper article proved to be both expeditious and inexpensive. It took one month to recruit 66 participants via the newspaper article at a cost of £2.72 per patient; this compares with the recruitment of 242 participants via the practitioner databases over six months, at a cost of £27.66 per patient. The cost differential was attributed to issues with the practitioner databases – namely, 'poor administration practices, difficulties in accessing patient information and difficulties in contacting patients'.[15]

Another article[16] compared waiting room patient screening and a practice mail-out. According to the study, the former resulted in a higher recruitment rate, with relatively more patients willing to be involved in the study ($P < 0.001$). However, this strategy proved cumbersome and less time-efficient.

Unlike most of the identified articles, two – both of which aimed to recruit mature-aged patients – reported the effectiveness of a range of recruitment strategies.[17,18] These included media advertising, community stalls, approaches to community groups, mail-outs via general practices, an electoral roll and a council central call service, as well as snowball sampling. Both articles indicated superior results through a mail-out. One article reported this to be the case when general practices were used as the conduit to potential participants[18] – more specifically, approximately 40% more participants were recruited via the practices, relative to all other strategies. Although the second article also found general practices to be effective conduits (with 100% participant recruitment), a mail-out using an electoral roll proved more cost-effective, costing $71.53 per participant, relative to $241.29 per participant. Newspaper advertising was also cost-effective at $74.61 per participant;[17] such efficiencies were partly attributed to the broad inclusion criteria of the study.

Twelve of the 66 articles noted the use of patient incentives.[2,13,19,20] Of these, seven reported and/or recommended paying incentives to participants or meeting the costs for their participation.[13,20–23] Despite limited support for practitioner incentives, the evidence suggests that patient incentives can bolster recruitment rates.[13] One intervention trial compared three financial incentives to recruit young people – a $2 incentive for joining the study, $15 pending survey completion or the chance to win a $200 prize.[24] Although all three incentives increased patient recruitment relative to a control group ($P < 0.01$), the $15 incentive pending survey completion yielded the greatest effect – resulting in a 20% increase, compared with a 14% increase using the $2 incentive and an 8% increase using the $200 prize. The benefits afforded by patient incentives do not appear to be context-bound. In their study on community pharmacy, Kennedy and colleagues[19] found that more customers were recruited by pharmacies that provided free medication ($P < 0.01$) – furthermore, customer participation was sustained. During the first phase of data collection, 88.5% of customers who were offered free medication returned a completed survey ($n = 383$). This compares with 70.1% of customers who were not offered free medication ($n = 384$). Similarly, during the second phase of data collection, 68.9% of customers who were offered free medication returned a completed survey ($n = 383$). This compares with 54.2% of customers who were not offered free medication ($n = 384$).

The articles reviewed in this section suggest that efficiencies of patient recruitment may be bolstered through the use of newspaper articles, mail-outs and patient incentives. However, the effectiveness of these strategies may be influenced by patient attributes, including age and gender.

Practitioner level

Sixteen of the 66 articles noted the recruitment of practitioners.[25–36] For example, Goodyear-Smith and colleagues[37] reported the use of peer recruitment or snowball sampling. Following the random selection of both general practices and general practitioners (GPs), the researchers invited GPs to recruit colleagues to the study. This resulted in an overall practice recruitment rate of 60%; furthermore, these practices were gener-

ally representative of the national cohort, which helped to optimise the validity of the findings. Although peer recruitment can result in an unrepresentative sample and as such introduce bias,[28] this approach facilitated researcher access to research sites.

The use of opinion leaders can help to recruit both GPs and pharmacists. Howard and colleagues[29] used influential persons to introduce researchers to practitioners – these were typically individuals who were respected by practitioners and collaborated with researchers as a co-investigator. This hybrid role enabled these individuals to champion the project and support practitioner involvement. Although the use of opinion leaders cannot be underestimated in primary care research, they can be monomorphic – that is, function within single specialised areas[38] and thus be difficult to identify.[29] As such, the use of opinion leaders is unlikely to be an effective strategy for all primary care research.

Also valuable are recruitment efforts that assign relatively greater responsibility to researchers, rather than practitioners. Following a narrative review of 70 trials, Bower and colleagues[2] found that when GPs were responsible for gaining patient consent, only 12.5% of trials recruited within 50% of the planned time – this compares with 61.5% when GPs did not assume this role. This was largely attributed to limited practitioner time and concern about jeopardising the patient relationship. This finding was supported by Campbell and colleagues;[32] following a mixed-method study comprised of an epidemiological review of trials, case studies of trials and an in-depth case study, the authors concluded that releasing practitioners from much of the research workload increases participation rate.

Others suggest that practitioner interest in the research topic facilitates recruitment.[30,32,39] In their study on *Chlamydia* testing, Dormandy and colleagues[39] reported a participation rate of 93% among GPs with a special interest in the topic – this compares with 23% among those who did not share this interest. Similarly, Campbell and colleagues found that recruitment was bolstered when the research has clinical relevance to potential participants. Comparable lessons are garnered from research involving pharmacists – Saini and colleagues[31,40] found the recruitment of pharmacists was enhanced when potential participants: (1) were interested in the topic under investigation, (2) had high regard for research, and (3) recognised the potential value of such research for their customers. Although this study did not determine the effect of each of these factors, the authors noted a 'significant' increase in participant numbers when participants were interested in the research topic.[31]

Some recruitment strategies appear to have little evidence of effect. For example, Brealey and colleagues[41] reported an 'insignificant' difference between the recruitment of practitioners via telephone randomisation (45%) and postal randomisation (43%; $P = 0.62$). Similarly, despite the common use of incentives such as funds and lotteries, there is limited support for their role in practitioner recruitment.[19,42,43] Studies that reviewed recruitment methods concluded that it was not possible to assert the value of practitioner incentives largely because of dissimilar intervention and control groups, as well as limited sample sizes.[13,44,45–47]

Given the limited evidence for particular strategies at the practitioner level, some authors have found value in a multifaceted approach. To recruit both GPs and pharmacists, Howard and colleagues[29] used a range of strategies including opinion leaders, registered mail, the letterhead from professional organisations such as Divisions of General Practice and incentives. Together, these strategies appear to have bolstered recruitment rates. The authors reported that recruitment rates either exceeded expectation or were congruent with the available literature. For example, they successfully recruited more than two-thirds of the GPs and over half of the pharmacists.

Collectively, the articles reviewed in this section suggest four key strategies to optimise recruitment in primary care research. These include peer recruitment, enlisting opinion leaders, assigning research responsibility to researchers rather than practitioners, and recruiting practitioners who share an interest in the research topic. Given the dearth of empirical research, the relative strength of each strategy cannot be determined.

Organisational level

Of the 66 articles reviewed, five noted the use of recruitment strategies tailored to organisations.[12,31,32,39,41,48] Collectively, these studies suggest that patient recruitment can be bolstered by strategies that support primary care services. Efforts that help to simplify processes, avert duplication and optimise efficiencies increase the likelihood that key decision makers within an organisation will respond positively to research opportunities. Such efforts include the use of simple patient eligibility criteria, efficient methods to identify eligible patients, reducing practitioner workload to afford greater research time and the use of alternative recruitment methods, such as existing databases.

Beyond the immediate research site, patient recruitment can also be facilitated by engaging support from professional bodies. In one cluster randomised trial, general practices were recruited from a Division of General Practice – 'a state and federally-funded organisation that provides administrative, technical and professional development/educational support to local area practices'.[41,48] The authors found the organisation

to be an effective conduit to practices, practitioners, and ultimately, patients. Among the practitioners, 88.7% were recruited, while 72.6% of patients were also recruited.

The articles reviewed in this section suggest that recruitment efforts can be bolstered by supporting primary care services directly, or by enlisting assistance from professional bodies whose role is to support these services.

Discussion

This systematic review reveals several key strategies that can bolster recruitment efforts within primary care research. At the patient level, strategies include: the use of newspaper articles, mail-outs – including those from primary care services – and patient incentives. At the practitioner level, these include: peer recruitment, enlisting opinion leaders, minimising the research responsibilities of practitioners and recruiting practitioners who are interested in the research topic. At the organisational level, strategies include: those that optimise the effectiveness and/or efficiency of a service and enlisting assistance from professional bodies that support primary care services.

Given the dearth of empirical research, it is not possible to determine the relative strength of each recruitment strategy. The studies included in this systematic review were limited by:

- their scope, whereby the effectiveness of recruitment strategies was part of standard reporting, rather than the focus of the study[31]
- confounding variables[15,28,41,44]
- dissimilar comparison groups[13,15,44,49]
- small sample sizes – for example, some of the studies included response rates of 8.9%.[50]

This highlights a need for further research comparing different recruitment strategies in primary care research. This reflects the recommendations of Treweek and colleagues[51] following their systematic review of recruitment strategies to RCTs. The authors stated:

> Triallists should include evaluations of their recruitment strategies in their trials and funders should support this ... There is a clear gap in knowledge with regard to effective strategies aimed at recruiters and research into how to increase recruitment by sites participating in trials would be beneficial.[51]

An additional gap is the seeming inattention to practitioner and patient attributes. For instance, there was limited, if any attention given to cultural background or socio-economic status – yet both are known to influence recruitment efforts.[52,53]

Given the complexities associated with community based research, identified gaps in extant research might be addressed using cluster randomised controlled trials.[54,55] This might involve testing the effectiveness of a recruitment strategy for the same cohort in two locales, distinguished primarily by racial composition. Yet, this is not to suggest that this design is problem-free.[56,57]

Collectively, the strategies identified in this systematic review highlight the importance of practitioner engagement. *Bona fide* engagement with primary care practitioners is a crucial step towards sound research. Although alternative approaches (like direct patient contact via practice databases and greater public engagement) might also facilitate patient access, practitioner engagement can ensure that research is clinically relevant and potentially useful to both practitioners and the patients they support. Towards this aim, it is important to clearly convey to practitioners: (1) the rationale for the research; (2) potential benefits, particularly as they relate to practitioners and their patients;[43] (3) their role within the research; and (4) the implications associated with their involvement – both positive and negative. Although the provision of this information is often mandated by ethics committees,[58] sometimes information deemed crucial by practitioners is muted by the bureaucratic process – this in turn can discourage their participation. Equally important is practitioner guidance – given their experiential wisdom and professional networks, practitioners are well-placed to provide advice on effective recruitment strategies – this was aptly demonstrated by Howard and colleagues[29] through their use of opinion leaders. However, regardless of the recruitment strategy, it is important to be mindful of associated implications. For instance, peer recruitment and newspaper articles can generate sample bias.[15,28,39]

Despite the value of these findings, several methodological aspects warrant mention. First, the review is limited by the paucity of robust research in this area, as well as the indexing systems used by databases to code publications. Related to the latter is the challenge of identifying all relevant publications. Although comprehensive academic databases were searched, the key search terms have multiple synonyms and multiple definitions. Finally, the findings represent the authors' understanding and interpretation of the identified articles, rather than a valid reliability check. Although the information extracted from the articles was substantiated through regular discussion between the authors, it does not constitute a valid reliability check. This might have been achieved through the use of inter-rater reliability measures.[59]

Conclusion

Recruitment in primary care research can be challenging. This systematic review identifies several strategies that may bolster recruitment efforts at the practitioner, organisational, and patient levels. Given the limited availability of robust research, recruitment efforts are likely to be strengthened via a multifaceted approach.

However, underpinning this approach should be practitioner support. As gatekeepers to both services and patients, it is important to enlist practitioner support – this requires researcher ability to 'sell' the proposed research and obtain 'buy-in'. Future research on various ways to involve practitioners while minimising their experience of research burden would be beneficial.

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