

Updated systematic review identifies substantial number of retention strategies: using more strategies retains more study participants

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Abstract

Background and Objective: The retention of participants in studies is important for the validity of research. We updated our prior systematic review (2005) to assess retention strategies for in-person follow-up in health care studies.

Methods: We searched PubMed, Cumulative Index of Nursing and Allied Health Literature, Cochrane Controlled Trials Register, Cochrane Methodology Register, and Embase (August 2013) for English-language reports of studies that described retention strategies for in-person follow-up in health care studies. We abstracted each retention strategy, and two authors independently classified each retention strategy with one of the themes developed in our prior review.

Results: We identified 88 studies (67 newly identified studies), six of which were designed to compare retention strategies, whereas the remainder described retention strategies and retention rates. There were 985 strategies abstracted from the descriptive studies (617 from new studies), with a median (interquartile range) number of strategies per study of 10 (7 to 17) and a median (interquartile range) number of themes per study of 6 (4 to 7). Financial incentives were used in 47 (57%) of the descriptive studies. We classified 28% of the strategies under the theme of “contact and scheduling methods,” with 83% of the identified studies using at least one strategy within this theme. The number of strategies used was positively correlated with retention rate ($P = 0.027$), but the number of themes was not associated with retention rate ($P = 0.469$).

Conclusion: The number of studies describing retention strategies has substantially increased since our prior review. However, the lack of comparative studies and the heterogeneity in the types of strategies, participant population and study designs, prohibits synthesis to determine the types of cohort retention strategies that were most effective. However, using a larger number of retention strategies, across five or six different themes, appears to retain more study participants. © 2015 Elsevier Inc. All rights reserved.

Keywords: Retention strategies; Follow-up studies; In-person follow-up; Systematic review; Methods

1. Introduction

Retention of participants plays an important role in ensuring the validity of a study and is particularly challenging in longitudinal research. Studies with a high loss to follow-up or attrition are generally judged to be of lower quality because of the increased risk of selection bias, particularly if those remaining in the study differ from those who left the study, or if there is differential attrition across the study groups being compared [1,2].

Thus, optimizing retention of participants is an important consideration in the design and conduct of studies. This systematic review updates a prior review we conducted in 2005 on strategies to retain study participants for in-person follow-up [3]. At that time, we identified no comparative studies and 21 descriptive studies of retention strategies. We abstracted and classified each of the 368 strategies in these studies to one of 12 iteratively developed themes, finding that studies reported a median (interquartile range [IQR]) of 17 (IQR, 9 to 25) strategies across a median of six (IQR, 4 to 7) themes. Furthermore, we found that studies with a retention rate above the mean of 86% reported using more strategies (21 vs. 12; $P = 0.05$).

We identified two systematic reviews of retention strategies completed since the publication of our review. Both

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What is new?**Key findings**

- Since our prior review, there has been a substantial increase in the number of studies describing retention strategies for in-person follow-up
- We identified and classified 985 strategies across 12 themes

What this adds to what was known?

- This updates a prior systematic review, confirming that using a larger number of strategies is associated with a higher retention rate
- We synthesize relevant strategies and themes to be considered in the design of cohort retention plans for future studies

What is the implication and what should change now?

- Investigators should use many strategies across different themes to optimally retain research participants for in-person follow-up
- Studies explicitly comparing the efficacy of retention strategies are needed; such studies could be embedded within in-person follow-up studies

reviews were limited to studies comparing different retention methods and both considered a variety of types of follow-up (eg, in-person, phone based). Booker et al. [4] identified 28 studies, including 11 randomized controlled trials (RCTs) comparing retention strategies. This review categorized strategies as incentives, reminders, or other methods and found that incentives of cash or gifts increased retention rates in population-based cohort studies. However, only three studies included in this review considered in-person follow-up. A Cochrane review identified 38 RCTs or quasi-RCTs conducted within RCTs. The authors concluded that financial incentives increased responses to questionnaires but were unable to draw conclusions about in-person follow-up as 34 of the 38 eligible studies evaluated response to questionnaires [5,6].

Hence, our objective was to update our prior systematic review of retention strategies for in-person follow-up in health care studies.

2. Methods

To conduct this update, we used the same methods as in our prior review [3]. Briefly, we searched PubMed, Cumulative Index of Nursing and Allied Health Literature, Cochrane Controlled Trials Register, Cochrane Methodology Register,

and Embase (all August 2013) for English-language reports of studies that described retention strategies for in-person follow-up in health care studies. We also hand-searched the reference list in all eligible studies and in the two existing systematic reviews [4–6]. All retrieved citations were screened independently by two reviewers to determine eligibility. Disagreements regarding eligibility were resolved through consensus or adjudicated by a third reviewer.

Two reviewers abstracted information from each eligible study, such as target population and health condition, into a project-specific database (Microsoft Access, Redmond, WA). We also abstracted, verbatim, each retention strategy as well as the retention rates at all follow-up time points that were reported.

In our original systematic review, we completed a data-driven thematic analysis of the retention strategies in a multistep iterative process (Table 1). In this update, two authors independently classified each retention strategy with one of the themes developed in our prior review. A third person adjudicated discrepancies in the theme assigned.

We used Stata (StataCorp LP, College Station, TX) for analysis. We calculated Pearson correlation (r) to separately assess the linear association between retention rate and the number of strategies and the number of themes.

3. Results

We identified 67 studies (reported in 64 articles) since our last review conducted 8 years ago. Combined with the 21 studies from our prior review, we identified a total of 88 studies of retention strategies (Fig. 1). As shown in Fig. 2, the number of strategies and number of themes per study have remained relatively constant, but the number of studies assessing retention strategies has increased substantially. Between 1985 and 1990, only one study of retention strategies was published, whereas in the 5 years between 2008 and 2013, 47 studies were published. Six (7%) of these 88 studies were designed to compare retention strategies, whereas the remaining studies described retention strategies and retention rates.

3.1. Comparative studies

Four RCTs, one quasi-RCT, and one uncontrolled trial empirically compared retention strategies (Table 2). Different types of interventions, in different study populations, were evaluated over 6 to 36 months of follow-up. Bowen et al. [7] randomized visit days so that participants in a lung cancer prevention RCT received one of two types of nonfinancial incentives or no incentive. High retention rates were achieved for all groups with no differences between groups at 1- and 2-year follow-up visits.

Using patient identification numbers, Ford et al. [8] allocated participants in one arm from a cancer screening RCT to case management vs. a usual-care control group. The case managers provided resources and referrals for participants,

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