INPLASY PROTOCOL

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Conflicts of interest:
None declared.

Protocol for a hybrid systematic review and network meta-analysis of randomised controlled trials investigating interventions designed to increase response rates to postal and electronic questionnaires

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Review question / Objective: **To systemically review methods intended to increase response rates to postal and electronic questionnaires and perform a network meta-analysis of these, if possible, to compare the relative efficacy of these different interventions.**
Condition being studied: **Systematically reviewing randomized controlled trials that investigate methods to increase response rates to postal and electronic questionnaires published after 2008.**
Information sources: **Four electronic health-related databases CINAHL, PsycInfo, MEDLINE and EMBASE were used to extract relevant articles. In addition, Google Scholar 'cited by' function was utilised to search for other relevant studies not found using the main four databases.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 July 2021 and was last updated on 20 July 2021 (registration number INPLASY202170062).

INTRODUCTION

Review question / Objective: **To systemically review methods intended to increase response rates to postal and electronic questionnaires and perform a network meta-analysis of these, if possible, to compare the relative efficacy of these different interventions.**

Rationale: The rapid spread of the internet has given rise to the emergence of the 'internet generation' (Sackmann & Winkler, 2013). Consequently, online platforms have also become a more common means of data collection for research purposes (Wright, 2005). Accordingly, there are advantages in utilising web-based or electronic surveys for research including time and cost efficiency as well as reaching remote or unique populations. However, the disadvantages can include lack of response leading to sampling and respondent biases (Wright, 2005). A Cochrane review by Edwards et al. (2009) systematically reviewed the methods used to increase response rates to postal and electronic surveys. This review is now over 10 years old and is therefore in need of a timely update. Hence, the purpose of the present systematic review is to update that Cochrane review and if possible, to conduct a network meta-analysis of the evidence in the included randomized controlled trials to directly and indirectly compare the efficacy of different interventions for increasing response rates to postal and electronic questionnaires.

Condition being studied: Systematically reviewing randomized controlled trials that investigate methods to increase response rates to postal and electronic questionnaires published after 2008.

METHODS

Search strategy: A hybrid umbrella review and systematic review methodology will be conducted as follows: 1) a search for systematic reviews published since 2008 and extraction of studies included in these review reference lists; 2) an additional comprehensive search for individual randomized controlled trials published over the previous 2-5 years (depending on the dates of the most recently published systematic reviews retrieved). We will search CINAHL, PsycInfo, MEDLINE and EMBASE electronic databases and interfaces using the following keywords: (questionnair* OR survey* OR (data collection)) AND (respon* OR return*) AND (remind* OR letter* OR postcard* OR incentiv* OR reward* OR money* OR monetary OR payment* OR lottery OR raffle OR prize OR personalis* OR sponsor* OR anonym* OR length OR style* OR format OR appearance OR color OR colour OR stationery OR envelope OR stamp* OR postage OR certified OR registered OR telephon* OR telefon* OR notice OR dispatch* OR deliver* OR deadline OR sensitive) AND (control* OR randomi* OR blind* OR mask* OR trial* OR compar* OR experiment* OR 'exp' OR factorial). The search terms and hybrid strategy are adapted from Edwards et al. (2009) and Doyle et al. (2021), respectively. In addition, Google Scholar's 'cited by' function will be utilised to search for other relevant studies not found using the aforementioned databases. References will be downloaded and managed in EndNote X9 software and duplicates removed. Two independent reviewers will screen study titles and abstracts for eligibility, and any discordance will be discussed and adjudicated by a third reviewer.

Participant or population: Any population, including patients or healthcare providers as well as studies unrelated to healthcare.

Intervention: Any intervention employed to increase response rates to postal or electronic surveys.

Comparator: Any comparison, whether an active intervention or not.

Study designs to be included: All randomized controlled trials published about methods intended to increase the response to postal or electronic questionnaires.

Eligibility criteria: Methods that require telephone for follow-up were included; others that require home visit were excluded. Non-English language or articles not available as full texts are also excluded.

Information sources: Four electronic health-related databases CINAHL, PsycInfo, MEDLINE and EMBASE were used to extract relevant articles. In addition, Google Scholar 'cited by' function

was utilised to search for other relevant studies not found using the main four databases.

Main outcome(s): • Number of incomplete or completed returned surveys after the first mailing. • Number of incomplete or completed returned surveys after all mailings. • Number of participants who logged in or visited the hyperlink of the online questionnaire. • Number of participants who submitted the online questionnaire. Odds ratios and/or standardized mean differences of response from comparisons of treatment groups vs. control groups.

Additional outcome(s): Rates of non-response.

Data management: All articles were collated using EndNote X9 and two authors independently review the titles, abstracts, and keywords. Any disagreements are discussed and resolved in consultation with a third reviewer.

Quality assessment / Risk of bias analysis: The Revised Cochrane risk-of-bias tool for randomized trials (RoB 2) is used by each of the two reviewers. In addition, the I-squared test is also used to assess heterogeneity, Egger's weighted regression method is used to assess potential publication bias via funnel plot asymmetry and the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) framework is used as a tool to grade the quality of evidence.

Strategy of data synthesis: A narrative synthesis will be conducted and a random effects network meta-analysis will be performed if possible, providing that the included studies are sufficiently comparable. Data will be extracted under the following headings: type of survey, sample size and population characteristics, interventions, any follow-up/reminders, interventions and results/outcomes. Authors of the RCTs may be contacted for any missing information. STATA v16 software will be used to perform the statistical analyses.

Subgroup analysis: The primary subgroup analysis will explore the relative impact of methods intended to increase response rates for postal and electronic surveys separately.

Sensitivity analysis: Sensitivity analysis will explore the treatment effects according to different subgroup analyses e.g. study year, study design, level of risk bias, and sample and comparator groupings.

Language: English language only.

Country(ies) involved: Ireland.

Keywords: Surveys, Questionnaires, Response rates, Randomized controlled trial, Network Meta-analysis, Systematic Review.

Dissemination plans: Findings will be disseminated in a peer-reviewed academic journal and presented at scientific conferences.

Contributions of each author:

Author 1 - An Vu - Performed all preliminary searches, formal screening of search results against eligibility criteria, data extraction, risk of bias assessment, qualitative data analysis and drafting of manuscript.
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