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Using different approaches to conducting postal questionnaires affected response rates and cost-efficiency

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Abstract

Objective: To compare three different approaches for consent in postal questionnaire in terms of response rate, time consumption, and cost-efficiency, and to collect a demographic questionnaire for dropout analyses.

Study Design and Setting: Population survey in Sweden. Mothers and fathers ($n = 600$) of three hundred 3-year olds were divided into three groups. One group was asked to *Actively Agree* to participate in a cover letter and send consent back to receive the main questionnaire. The second group received the cover letter, the consent, and the main questionnaire in the initial mailings, *Direct Delivery*. The third group received the cover letter and consent form in which they were asked to *Actively Decline* participation within 7 days if they did not want to participate. Otherwise, they were sent the main questionnaire. All parents were asked to fill in a demographic questionnaire regardless of whether they wanted to complete the main questionnaire.

Results: The highest response rate was in the *Actively Decline* mode. The cost-efficiency for this approach was 1.52 compared with *Direct Delivery* and 1.29 compared with *Actively Agree*.

Conclusion: Researchers can improve the response rate, time consumption, and cost-efficiency and obtain a demographic questionnaire for dropout analysis by using the *Actively Decline* approach for postal questionnaires.

Keywords: Survey methodology; Questionnaire design; Response rate; Cost; Efficiency; Dropouts

1. Introduction

Postal questionnaires are widely used for conducting surveys when collecting data from large, geographically dispersed populations in both cross-sectional and cohort studies. Questionnaires are considered to have a relatively low cost compared with other research methods, and are simpler to distribute to participants [1].

Response rates appear to have declined during 1970−2003 for all the study designs. Participation has declined most steeply after 1990 for controls in population-based, case−control studies [2]. The trends in response rates differ by country [3].

A low response rate increases the risk of bias in the results [4], and the external validity of epidemiologic studies can be threatened by self-selection bias resulting from differences between those who participate in a study and those who do not [5]. Nonresponse can, but need not, induce nonresponse bias in surveys [6].

A recent study shows that nonrespondents to a greater extent have a lower socioeconomic standard [7]; the response rates are particularly low among men [7,8], not married, younger and older than middle-aged persons [5], and immigrants [9]. The lower participation for disadvantaged socioeconomic groups when they have a poorer health status fits the *leverage-saliency* theory. Leverage-saliency theory states that the probability of response for the individual is a combination of leverage of a survey attribute and salience of the same survey attribute [10]. For instance, disadvantaged respondents may perceive the topic of a questionnaire as less important than do other respondents.

A range of strategies have been the subject of research to increase the response rates, including advancing saliency, having a relevant sender, using a diversity of follow-up strategies, and offering incentives [1,4,11,12]. The more salient the respondents find the specific topic, the more likely that they will submit a response. It is also important to design an interesting questionnaire and a personalized cover letter with an assurance of confidentiality [8]. In terms of relevant senders, academic surveys generate higher response rates than commercial surveys [13]. Repeated mailings of the

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What is new?

Previous studies have investigated methods to increase response rates for postal questionnaires, but different types of consent have not been evaluated for response rate, time consumption, or cost-efficiency.

The present study investigated three different types of consent given for participation. When the respondents had to *Actively Decline* to participate in the survey, the response rate, time consumption, and cost-efficiency were improved. The cost-efficiency for the *Actively Decline* mode of consent was 1.29 compared with the *Actively Agree* and 1.52 compared with *Direct Delivery.*

Allowing respondents to *Actively Decline* participation appears to not only be a good strategy for a high response rate, but also more effective for the time and cost.

questionnaire increase the response rate among initial nonrespondents [14], and among minorities and socioeconomically disadvantaged populations [15]. Another study suggests a mailing followed by—preferably—telephone contact, allowing the respondents to feel important [11].

The use of monetary incentives such as cash or a small gift is also an effective strategy to increase response rates [1,12]. According to a Cochrane review on the topic, odds of responses were almost doubled using monetary incentives [8], preferably already in the first mailing [11]. A promise of the incentive when the questionnaire is returned has less impact on the response [16]. One study included a study-logo pen or pencil in the second questionnaire mailing to nonrespondents where an increased response rate was noticed, and the method was estimated to be cost-efficiency [17].

There is evidence that participation in health surveys is influenced by the questionnaire length, where a short survey generates more responses [18,19]. However, there are findings indicating that questionnaire length has no impact on response rates, but that it is more important that the respondents find the topic important and interesting [20].

Contacting participants before sending questionnaires by an advance letter, increases response rates [1,8]. A number of studies have also examined the effect of different modes of delivery [12,20]. One study reports that early response is higher when the questionnaire is mailed than when it is given to the respondents directly [12]. In contrast, a more recent study finds that response rates in epidemiological research are higher for hand-delivered questionnaires than for questionnaires delivered by standard post, but it is considerably more costly [20].

In sum, getting good response rates in questionnaire studies is a concern to researchers in many different disciplines and quite some effort goes into finding out ways to decrease dropout and, thus, bias. No one has yet come up with the ultimate solution and although we will not argue that we have, empirical studies are needed to advance the art of postal questionnaire surveys. The present study had two well-defined aims. One was to evaluate how three different modes of consent for participation in a study affected the response rate, time consumption, and cost-efficiency in a population-based self-administered questionnaire study. The second was to determine if it was possible to make those invited to participate return a demographic questionnaire as a basis for the dropout analyses, even if they did not wish to complete the main questionnaire.

2. Methods

2.1. Sample

The Child Public Health Unit in Uppsala County maintains a register over children 0–5 years old in the county called BASTA. The database includes health measures, information on breast feeding, parental smoking, vaccinations, height, and weight, collected by nurses during the regular family visits to Child Health Centers.

From BASTA, parents of all children born during the period 15th of July to 15th of November, 2004, in Uppsala County, Sweden, were invited to participate in a study regarding family stress and children's body mass index (BMI; weight in kilograms (kg), height in meters (m) squared) [21]. The number of children born during that period was 1,300. The main study was conducted in the autumn of 2007, when the children were 3 years old. The present study was conducted as a preliminary investigation before the main study to determine how to best conduct the study effectively in terms of engaging parents in the survey. Thus, the population in the present study was composed of both mothers and fathers ($n = 600$) of 300 children who were selected by the children's birthdays, consecutively. There was no reason to expect systematic demographic differences between children born on different dates, or their parents; thus, the division into study groups was not random, but consecutive: the first 100 children on the list composed of group nr 1, the second 100 made up group nr 2, etc. Mothers and fathers received their own copies of both questionnaires (two sets per child) and were both encouraged to respond. When parents were not living together, questionnaires were sent to both addresses.

2.2. Questionnaire

The questionnaire consisted of five validated instruments, measuring parental stress, parental attitudes to children's eating habits, and physical activity; parents' own eating habits; and parents' child feeding strategies. The questionnaire included 12 pages with 101 items.