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Cash incentives improve participation rate in a face-to-face survey: an intervention study

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Abstract

Objectives: Our study examined the effect of a ChinaYuan (CNY) 10 cash incentive on the participation rate in a face-to-face health survey among the general Chinese population.

Study Design and Setting: Subjects older than 15 years of age and had been living in the two selected districts for more than 6 months were selected using multistage random sampling. Participants from only one district received a cash incentive (CNY 10) for completing the survey.

Results: The participation rates in the nonincentive and incentive groups were 39.9% and 61.2%, respectively, $P < 0.01$. In the nonincentive group, the 65–74 years age group had the highest participation rate (54.4%); no significant difference was found between men (39.4%) and women (40.5%), $P = 0.59$. In the incentive group, the highest participation rate was observed in the ≥75 years (78.1%) age group. The cost for a completed interview was CNY 34.5 in the incentive group and CNY 35.8 in the nonincentive group.

Conclusion: Cash incentives might increase participation rates in face-to-face surveys in China. The absolute cost was higher for the incentive group, whereas cost for a completed interview was actually the lowest. Furthermore, participation rate did not differ between men and women, but elders were more likely to participate in health surveys.

Keywords: Cash incentive; Participation rate; Health surveys; Face-to-face surveys; Investigations; Chinese population

1. Introduction

Prospective research study participants are being asked to engage in increasingly complex and demanding research protocols within a climate of increased participation opportunities, declining volunteerism, and diminishing trust in science [1]. Consequently, it is unsurprising that participation rates for epidemiologic studies have been declining since the 1980s, with a sharper decline in recent years [1].

For example, the Behavioral Risk Factor Surveillance Survey (BRFSS) has been conducted by the Centers for Disease Control and Prevention (CDC) since 1984. The BRFSS median participation rate was 71.4% in 1993, 48.9% in 2000, and 51.1% in 2005, the most recent year for which data are available [2]. Similar declines have been reported by the Chinese Multi-provincial Cohort Study; participation rates were 82% in 1992 and 75% in 1999 [3].

Low participation rates reduce the effective sample size and might lead to selection bias [4]. Because random sampling is impeded by low participation, bias might be introduced and consequently undermine the external validity of the survey. Given that a low participation rate is perceived as a sign of study inferiority in epidemiology, investigators are reluctant to report participation rates. A recent review of peer-reviewed studies published in 10 high-impact journals showed that a substantial number did not report information on study participation [5].

In the past two decades, there have been attempts to challenge the presumption that lower participation rates directly equate to lower study validity [6]. In particular, several recent studies have demonstrated that validity is not directly correlated with participation rate. Participation rate alone does not determine the extent to which bias is present in a particular study, and low participation rates do not necessarily indicate a high level of bias inherent in a study [7,8].

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What is new?

Key findings

- This study provides evidence that a ChinaYuan (CNY) 10 cash incentive yielded a 21.25% absolute increase and a 53.20% relative increase in participation rate in a face-to-face survey conducted in China. The absolute cost was higher for the incentive group, whereas cost for a completed interview was actually the lowest.

What does this add to what was known?

- Participation rate and the effect of the incentive did not differ significantly between men and women. Relatively speaking, older individuals were more likely to participate in studies, both with and without incentive. Young people (15–24 years of age) were least likely to participate, even with incentive.

What are the implications and what should change now?

- This study was based on cardiovascular disease survey in Chongqing. Further research should concentrate on confirming the generalizability of these findings in other surveys and areas.

Although a low participation rate does not automatically mean that the study results have low validity, it is not suggested that we should accept low participation rates because a low participation rate decreases statistical power. With a smaller sample size, the probability of making a type-2 error increases [9]. Simply comparing participating and nonparticipating samples with regard to available variables does not preclude the possibility of bias [10]. In survey-based investigations, researchers strive to obtain the highest response rates in an attempt to ensure sample representativeness and enhance the inferential value.

Typical measures used to increase participation include advance letters, more extensive follow-up, generous financial incentives, repeated contact attempts, and more extensive tracking to locate participants. All these strategies contribute to the higher costs associated with population-based surveys [1,11]. Edwards et al. found that enclosing a monetary incentive with the questionnaire is an easily implemented strategy that might increase return rate [11]. However, the use of monetary incentives in health care research is uncommon because of strict budget constraints and ethical concerns. The participants might view their ability to provide their personal input to the study, rather than merely an incentive, as the motivator to respond. More importantly, previous investigations have typically focused on postal questionnaires intended for doctors and patients, rather than the general population [11–13]. Thus, the effectiveness of monetary incentives on participation rate for face-to-face investigations is not yet known, particularly among the general Chinese population.

Given these, we conducted the present investigation for two purposes: (1) reporting the participation rates for China's important cardiovascular disease survey, along with a detailed description of how these rates were calculated, to facilitate the evaluation of methodological quality and representativeness for readers and academic institutions and (2) evaluating the efficacy of monetary incentives for improving participation rates in face-to-face investigations among the general Chinese population.

2. Methods

2.1. Background

This study was part of a larger study organized by the Ministry of Health and the National Cardiovascular Center investigating the prevalence and distribution of hypertension, obesity, coronary events, stroke, and other major cardiovascular diseases among individuals aged 15 years or more. In the large study, 500,000 people across twenty-two provinces, five autonomous regions, and four municipalities were selected through multistage stratified random sampling, with a probability of 1 in 2,000 of the country's population.

Data were collected by questionnaire and physical examination. The 11-page questionnaire assessed basic personal information; alcohol consumption, smoking, and dietary habits; physical activity level; and disease history. It took approximately 20 minutes for participants to complete the survey. In the physical examination, height, weight, percentage of body fat, waist circumference, and blood pressure were measured. The nationwide investigation, launched in September 2012, was expected to be completed by the end of 2014.

2.2. Procedure

In Chongqing municipality, there are 38 districts, eight of which were sampled for the survey. We selected Liangping district as the incentive group and Yongchuan district as the control group because the economic development of the two districts is comparable, but they are situated far enough apart to avoid mutual interference. In each district, two counties were extracted through simple random sampling (SRS). Three villages and/or communities were extracted from each county through SRS in the same way. Individuals aged 15 years or more who lived in the local area for more than 6 months were eligible to participate (Fig. 1).

To ensure standardized survey methods and survey quality, the questionnaires and medical equipment were unified and provided by the National Project Office. The