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## Evacuation after the Great East Japan Earthquake was associated with poor dietary intake: The Fukushima Health Management Survey

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### ABSTRACT

**Background:** Few studies have investigated the relationship between living arrangements and dietary intake among evacuees after disasters.

**Objectives:** To examine the relationship between living arrangements and dietary intake using the data of a large-scale cohort survey of evacuees after the Great East Japan Earthquake in 2011.

**Methods:** 73,433 residents in evacuation zones responded to the Fukushima Health Management Survey questionnaire. Subjects were excluded if they did not report their living conditions or were missing more than three pieces of information about dietary intake. The data of 52,314 subjects (23,149 men and 29,165 women  $\geq 15$  years old) were used for the analyses. Evacuees' living arrangements were characterized into three categories: evacuation shelters or temporary housing, rental houses or apartments, or a relative's home or their own home. Dietary intake was characterized in terms of grains, fruits and vegetables, meat, soybean products, dairy products, and fish. Daily consumption of the third quartile (Q3) or higher for each food group was defined as 'high consumption'. Prevalence ratios (PRs) and 95% confidence intervals (CIs) were estimated using modified Poisson regression analyses.

**Results:** Modified Poisson regression analyses showed that, compared with respondents living in a relative's home or their own home, the PRs and 95% CIs for the people living in rental apartments of high consumption of fruits and vegetables (non-juice), meat, soybean products, and dairy products were 0.69 (95% CI, 0.61–0.77), 0.82 (95% CI, 0.73–0.91), 0.89 (95% CI, 0.83–0.94), and 0.83 (95% CI, 0.74–0.93) respectively. The corresponding PRs and 95% CIs for people living in evacuation shelters or temporary housing were 0.83 (95% CI, 0.78–0.88), 0.90 (95% CI, 0.86–0.95), 0.94 (95% CI, 0.91–0.97), and 0.91 (95% CI, 0.86–0.96) for high consumption of fruits and vegetables (non-juice), meat, soybean products, and dairy products, respectively.

**Conclusion:** The present study suggests that, after the earthquake, living in non-home conditions was associated with poor dietary intake of fruits and vegetables (non-juice), meat, soybean products, and

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dairy products, suggesting the need for early improvements in the provision of balanced meals among evacuees living in non-home conditions.

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## 1. Introduction

The Great East Japan Earthquake of March 11, 2011, which was followed by a gigantic tsunami and the radiation release of the

Fukushima Daiichi Nuclear Power Plant, was a historic and tremendous disaster in Japan. The radiation dose was estimated to be quite low.<sup>1</sup> However, evacuees began to suffer day-to-day, long-lasting anxiety and deterioration of quality of life due to worries

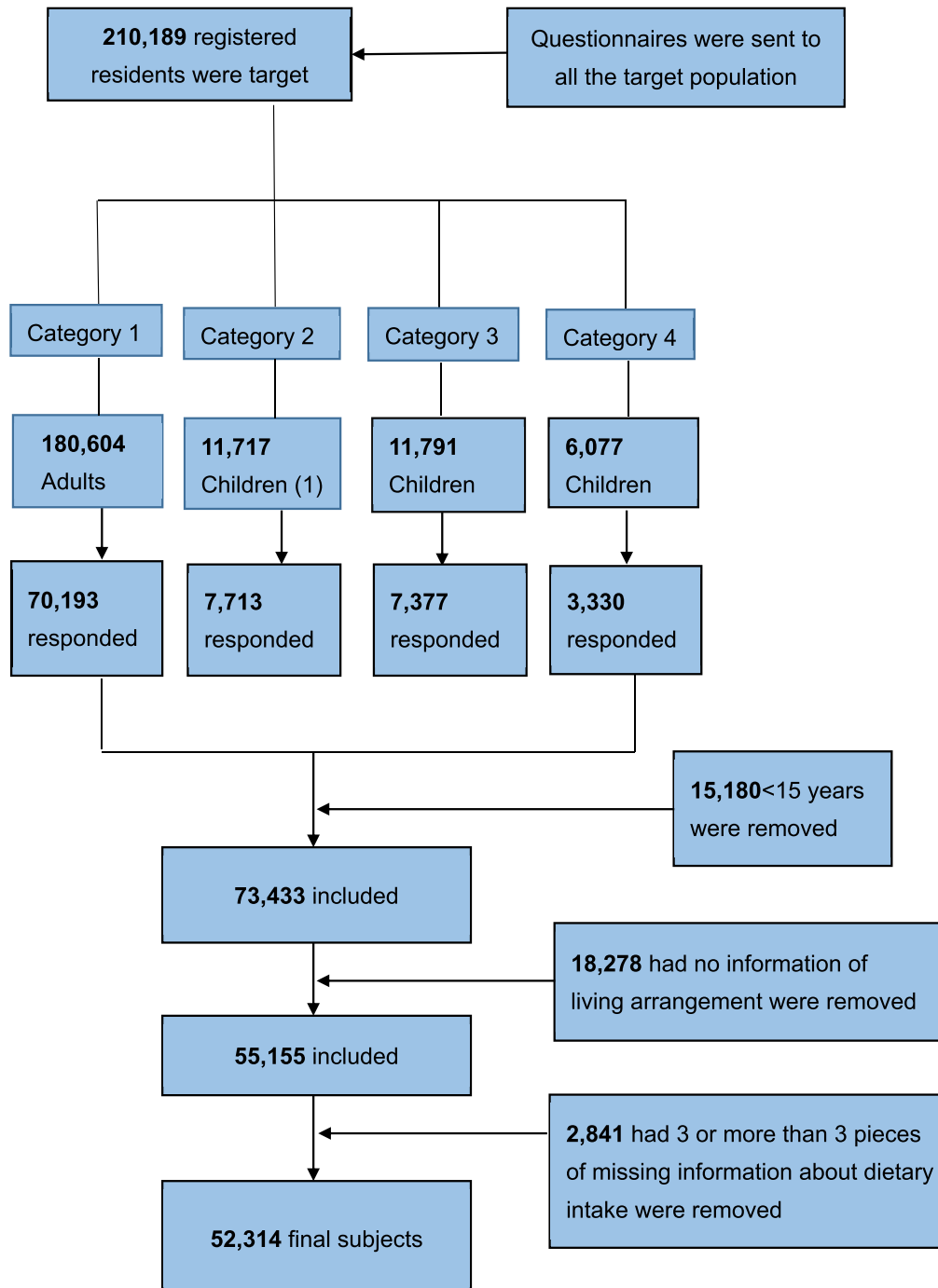


Fig. 1. Flow chart of collection of the subjects.

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