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# Effect of the Crisis Assistance Program on poverty transition for seriously ill people in South Korea: A quasi-experimental study

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# ABSTRACT

The Crisis Assistance Program (CAP) is a newly developed social protection scheme in South Korea. It was implemented in 2006 in order to assist individuals experiencing a sudden or temporary financial emergency. CAP provides temporary assistance to cover the direct user fees associated with inpatient care up to three or six million KRW (US \$2673-5346). In this study, we aimed to compare the poverty dynamics in recipients versus non-recipients and to determine whether there is an association between participation in CAP and poverty transition. For the purpose, we analyzed longitudinal data from 2009 to 2011 from 55,710 people who requested CAP during a serious illness at local governmental offices throughout South Korea. During the 1.6 years of follow-up, 8712 (15.6%) of those who requested CAP fell into absolute poverty. Results showed that there was a 16% reducing effect of CAP on poverty transition (hazard ratio [HR] 0.84, 95% confidence interval [CI] 0.79–0.90, p < 0.001) and there was a 33% delay in the time to falling into poverty (time ratio [TR] 1.33, 95% CI 1.20–1.47, p < 0.001) after adjusting for covariates. In this analysis model, the risk of poverty transition induced by experiencing a serious illness decreased rapidly with time (ancillary parameter [AP] 0.61, 95% CI 0.59-0.62). The results were essentially unchanged even after performing a rigorous propensity analysis, which limited the analyses to 12,944 propensity-matched subjects (HR 0.84, 95% CI 0.77–0.91, p < 0.001; TR 1.38, 95% CI 1.18–1.61, p < 0.001; AP 0.54, 95% CI 0.52–0.57). Our findings provide additional evidence for recommending the use of a payment strategy that relieves out-of-pocket payments so as to reduce medical impoverishment. A temporary assistance scheme for people experiencing a serious illness may be an alternative healthcare financing strategy to confront the issue of health inequality among the medically and socioeconomically vulnerable.

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# Introduction

To be poor and sick is not only a common condition, but perhaps among the most degrading and intolerable conditions, even in relative wealthy societies (Blaxter, 1983). The economic consequences of serious illness have been well documented and are regarded as one of the important risky life course events that can leave people trapped in a state of poverty (Gannon & Nolan, 2007; Jenkins & Rigg, 2004; McIntyre, Thiede, Dahlgren, & Whitehead, 2006). Until now, it seemed obvious that when a household's healthcare expenditures exceeded a certain threshold based on their income or total expenditures, health spending was considered to be catastrophic (van Doorslaer et al., 2007; Xu et al., 2003). Households are forced to reduce their basic expenditures over a period of time to cope with the health cost and, as a consequence, the risk of transitioning to a state of poverty increases (Kim & Yang, 2011; Song & Shin, 2010. However, the association between relieving the out-of-pocket burden and its effect on alleviating poverty has not been well-defined, except in low- to middle-income countries (Garg & Karan, 2009; Pradhan & Prescott, 2002; Ranson, 2002; Somkotra & Lagrada, 2008; Xu et al., 2006; Yip & Hsiao, 2009). Although previous studies suggest that access to healthcare (Hardeman et al., 2004; James et al., 2006; Lagarde & Palmer, 2008; Xu et al., 2009), and health status (Lagarde et al., 2007) would improve after implementing a user fee relief scheme, there is a paucity of empirical studies that definitively address the efficacy of such a system on poverty transition.

Can a user fee relief scheme administered by a public finance entity prevent people in a health crisis from transitioning to a state of poverty? In this study, we sought to determine whether the





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recently developed Crisis Assistance Program (CAP) in South Korea was associated with a reduction in poverty transition among people with a serious illness. The data analysis presented in this paper has two goals. The first aim is to describe the poverty dynamics experienced by people during a serious illness in order to compare those who participated in the direct user fee relief scheme with those who requested assistance but were rejected. The second aim of the study is to determine if there is an association between CAP and poverty transition and draw causal inference from this observational data by using a propensity score analysis. Before outlining and testing our analytic model, we begin with a brief discussion of the healthcare setting in South Korea.

### Healthcare in Korea

Since 1989, South Korea has had a national health insurance system that offers universal coverage. However, the health insurance system does not seem to sufficiently protect South Koreans from catastrophic health expenses (Ruger & Kim, 2007). In a comparative study of Asian countries, South Korean's out-of-pocket payment share of total health expenditures was found to be 49.9%, and for 2.6% of Koreans direct healthcare expenses were found to comprise 25% of total household expenditures (van Doorslaer et al., 2007). This is similar to other high incidence countries in terms of catastrophic payments where there is no national risk pooling scheme, such as China (2.8%) or Vietnam (2.9%) (van Doorslaer et al., 2007). This is reflective of the extensive use of copayments, non-coverage for many treatments and, in particular, partial coverage for expensive inpatient care provided by the Korean health insurance system.

CAP, implemented in 2006, is a newly developed social protection scheme in South Korea aimed at assisting individuals who are experiencing a sudden or temporary financial emergency. This scheme was introduced due to one poor child's tragic death. On December 16, 2004, a four-year-old child with spinal muscular atrophy was found dead in a closet due to starvation. But, it was not until 37 h later that anybody knew what had happened to the child. The case was brought to the public's attention through the mass media and became a political issue. Consequently, the president of South Korea was pressured to declare the implementation of a new social protection scheme for the poor to be able to respond to life event crises. One year later, the Crisis Assistance Act was officially legislated and put into practice.

From the beginning, CAP was intended to act as a complementary social security network by mitigating burden and expanding coverage of formerly existing social safety nets, such as social insurance and public assistance programs. In South Korea, there are approximately 1.5 million people (3.1% of the total population) who are unable to pay a social insurance premium over six months (Kim, Kim, Choi, & Lee, 2009). There are another 1.8 million Koreans (3.8% of the population) living beneath the absolute poverty line who lack benefits from public assistance programs because of ambiguous exclusion criteria, such as the Intrafamilial Financial Support Obligation (Kim, 2009).

There are several characteristics distinct to CAP compared with former social safety nets. First, compared with public assistance programs, CAP widened the income criteria to over 150% of the absolute poverty line and abolished exclusion criteria of Intrafamilial Financial Support Obligation. As a substitute, risky life course events stipulated in the Crisis Assistance Act became the most important criteria for receipt of CAP benefits. Examples of such events include the death or disappearance of the primary income earner, a serious illness, desertion or noninterference by a family member, domestic or sexual violence, housing trouble due to disaster, divorce, and so on. Second, in order to secure urgent assistance, it is stipulated that a means test, a potentially lengthy process, must be postponed until after providing the financial assistance. According to a survey from CAP administrators in 2011, financial assistance was executed within two days in 80.1% of all cases (Kim et al., 2011). Third, on the basis of the principle of temporary assistance, CAP financial benefits can only be provided, as a general rule, for one month. Fourth, for people with a serious illness, substantial benefits are provided to cover direct user fees only for hospitalization up to the amount of three million KRW (US \$2673). However, this can be exceptionally expanded to a second admission for up to six million KRW (US \$5346). The average direct user fee for inpatient care per admission in South Korea was estimated to be 1.16 million KRW (US \$1033) (Choi, Baek, Lim, Lee, & Chang, 2009).

Table 1 shows the annual CAP budget for expenditures and the number of recipients between 2006 and 2010. Based on 2010 statistics, 92.3% of the total CAP budget or 46,603 million KRW (US \$41,647,006) was spent assisting people with serious illnesses who needed hospitalization (Kim et al., 2011). Table 2 summarizes the top 20 diseases most frequently benefited by CAP. An average proportion of CAP benefits paid to cover total direct user fees was 66.7%, ranging from 52.8% for subarachnoid hemorrhage to 82.0% for arthrosis of the knee (Kim et al., 2011). These results demonstrate that, in South Korea, having a serious illness could be regarded as the most demanding risky life course event.

## Methods

## Data source and study subjects

The study subjects were derived from the 133,165 people who applied to receive CAP benefits for various reasons between March 1, 2009 and August 15, 2011. Because the support criteria for CAP were changed on February 6, 2009, we limited the study subjects to only those people who requested assistance after March 1, 2009. The basic characteristics of the applicants and related information were collected by the CAP administrators and recorded in the Korea Health and Welfare Information Service's electronic database. The application process was carried out at a local government office, located in all 256 administrative districts throughout the country. Information regarding the date of receiving benefit from the public assistance program was taken from the database of the National Basic Livelihood Security Program. This date was defined as the date the recipient fell into absolute poverty. Using residents' registration numbers to combine the two datasets, we were able to generate a complete retrospective cohort dataset.

Table 1

Flow of total expended budget and the number of Crisis Assistance Program recipients in South Korea (2006–2010).

	2006	2007	2008	2009	2010
Total budget expended, million KRW	17,987	30,381	34,238	79,450	50,473
Number of recipients	19,487	24,932	27,205	94,683	45,278
Total budget expended for serious illness, million KRW	15,854	28,417	31,907	52,056	46,603
Number of recipients for serious illness	14,232	21,273	23,143	40,095	35,617
Proportion of budget expended for serious illness, %	88.1	93.5	93.2	65.5 <sup>a</sup>	92.3

Note: 1 million KRW = 892.22 US dollars.

<sup>a</sup> In 2009, the Korean government drew up a special budget for unemployment responding to the global financial crisis of 2008–2009. This special budget was not prepared in 2010. Note that there was no decline in the total budget expended for serious illness in 2009.

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