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HEALTH POLICY ANALYSIS

Eliciting Public Preference for Health-Care Resource Allocation in South Korea

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ABSTRACT

Objectives: To identify the principles the public considers important and the trade-offs between different values in health-care resource allocation practices. **Methods:** This study approached the issue in both qualitative and quantitative ways. In a qualitative study, two focus groups discussed the issues of resource allocation in health care. To facilitate the discussion, a simple ranking task and a series of pairwise choice practices were implemented. A discrete choice experiment survey questionnaire was also administered to a sample of the general population. Attributes and levels were determined through literature reviews and the results from the focus group interview. We used a random-effect probit model to assess the effects of each attribute. **Results:** Through the focus group interviews, we found strong public support for the principle of equal opportunity. The participants thought that the severity of disease was the most important criterion when setting priorities. The majority supported the idea that the most disadvantaged should have the highest priority even when their health gains are less than those of others. The discrete choice experiment results showed that the severity of disease, health gains, and patients' socioeconomic status significantly influence their choices, with each parameter having an expected sign. **Conclusion:** The results showed that Koreans support not only health maximization but also equal opportunity, fair resource allocation, and equality.

Keywords: discrete choice experiments, focus group interviews, priority setting, social value.

Introduction

In most countries, health-care resources are limited and therefore do not meet the health needs of all, necessitating the setting of priorities. One of the most common prioritization criteria is the rule of "health maximization": if the goal of heath care is to promote health, resource allocation should be made to maximize health gains.

Studies of public preference, however, confirm that the general public shows a reserved attitude toward any extreme health maximization position [1–5]. They think that although the health gains may be relatively small, those in an emergency situation should get help with the first priority, or fair opportunities for better health should be guaranteed even for those with a low potential for health improvement.

In this regard, attempts are being made to reflect social values by pointing out the limitations of health maximization [6,7]. Schwappach [4] places the various factors of social values related to health care into two categories: 1) factors related to patients' characteristics, such as age, health condition before treatment, social role, health-related lifestyle, and health-care costs in the past; and 2) factors related to the health effect, which include the size of the health effect, the duration of benefits, and the direction of the health effects.

In some cases, the findings of previous studies are inconsistent. For instance, in many studies, the general population is willing to sacrifice some amount of health gain to support patients of a lower health status [8,9]. In other studies, however, health improvements and value for money were considered to be more important than the severity of disease or the existence of alternative therapy [10,11]. Regarding age, Baker et al. [12] found that the public prefers to save the young compared with the old. In contrast, Zweibel et al. [13] found that the public felt that all ages should be treated equally.

In Korea, few studies have explored the preferences of the general population on the issue of distributive justice in health care, despite the fact that important resource allocation decisions are continually being made. This study aimed to identify the principles that Korean people consider important and the aspects of trade-offs between different values in resource

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allocation practices. The findings from this study will contribute to proper resource allocation decisions in the Korean health-care system, because they will reflect social values appropriately.

Methods

We adopted both a qualitative approach and a quantitative approach to elicit the preferences of the general population on health-care resource allocation.

Focus group interviews

Focus group interviews, a qualitative study method, were conducted to identify resource allocation criteria that the general public thinks are important and to explore the reason why they think so.

A total of 15 participants (7 men and 8 women) were recruited and divided into two focus groups by gender. As criteria for selecting the participants, education, age, job, health status, and household income were taken into account.

The topics for discussion were as follows: a patient's health condition before treatment; whether a patient is suffering from a rare disease; whether a patient has family dependents; the degree to which a patient shows improvement in his or her health after treatment; a patient's age when the disease occurred; whether alternative therapy is available; and a patient's socioeconomic status and health-related lifestyle.

Experienced modulators led the entire discussion process. Semistructured questionnaires were used to facilitate the discussions of the focus groups. Before the discussion, the priority-setting criteria for the resource allocation described above were presented. Participants were asked to rank the criteria in the order of priority and to provide the reasons for their ranking. After this ranking process, participants were given two extreme scenarios for each criterion and were asked which scenario has a priority in treatment and why they thought so. After discussing the scenarios, they were given the same criteria again with which to repeat the ranking process. Those who ranked them differently from the first ranking were asked to explain the changes. The entire process was videotaped, and the discussions were transcribed into text at a later stage. The participants were informed in advance that the process would be recorded.

Choice experiment

Discrete choice experiments (DCEs) were conducted to check whether an expanded sample and method would bring the same results as those of the focus group interview and to identify the relative level of importance among the criteria.

DCEs as a survey method are used to elicit stated preferences from hypothetical choice experiments. Hypothetical scenarios are created by randomly combining attributes and levels, and respondents are then asked to choose between alternative scenarios. The relative importance of the attributes can be determined through this process [14].

Attributes and levels. The attributes for the choice experiments were as follows: the severity of disease (the level of the quality of life [QOL] without treatment; life years remaining without treatment); the health improvement effect (survival gain after treatment; QOL gain after treatment); and the patient's household income level. The selections of the attributes were informed by the results of literature reviews and the focus group interviews (see Table 1 in Supplemental Materials found at doi:10.1016/j.jval.2011.11.014). Levels by attribute were determined considering the values used in precedent studies including the study by Baker et al. [12].

Choice sets. There are a total of 5184 ($6 \times 6 \times 6 \times 6 \times 4$) profiles when combining the selected attributes and levels in a full factorial design. It would be impossible for the respondents to answer such a large number of profile questions; therefore, it is more common to use an orthogonal design with a limited number of profiles [15]. Among the plausible profiles, orthogonal and balanced designs were determined through computer algorithms (SAS version 8.2, SAS Inc., Cary, NC) to obtain the optimal set of profiles [16,17]. Finally, 16 choice sets were extracted on the basis of this process. One additional choice set was added to check whether the respondents rationally answered the questionnaires (rationality test questions), making the overall total 17 sets. All choice sets were given with an explanation and simple diagrams to aid the respondents' understanding.

Sample/data collection. An Internet survey was conducted from March 26 to April 1, 2010, targeting the panels of the general population secured by a survey agency in Seoul, South Korea. In the selection of the sample, the distributions of age, gender, and area of residence were considered identical to those of the general population in South Korea. The survey was finalized when the target number of respondents was reached. Responses from the same IP addresses were regarded as cheating, and they were excluded.

Model. A theoretical base for choice experiments is the random utility theory [18]. According to this theory, the utility (U_i) of an alternative (i) can be expressed by the following formula:

$$U_i = V_i + \varepsilon_i$$

where V_i is a deterministic component and ε_i is a stochastic component. V_i can be expressed as a function of the attribute levels for each selected alternative. V in this study was expressed as follows:

$$V = f(\mathrm{QALY}, B_{\mathrm{length}}, B_{\mathrm{QOL}}, \mathrm{Income})$$

where QALY refers to an increase in quality-adjusted life-years (QALYs). B_{length} is the number of life years remaining without treatment and B_{QOL} is the QOL level before treatment. Income is a patient's household income.

The following is a utility function for the difference in the attribute levels:

$$\triangle U = \beta_0 + \beta_1(\triangle \mathrm{QALY}) + \beta_2(\triangle B_{\mathrm{length}}) + \beta_3(\triangle B_{\mathrm{QOL}}) + \beta_4(\triangle \mathrm{Income}) + \varepsilon$$

where ΔU depicts the difference in utility between patients A and B in a selected choice set. If ΔU is greater than 0, it can be interpreted that A is chosen over B in terms of treatment priority. ΔQALY, $\Delta B_{\mathrm{length}}$, ΔB_{QOL}, and ΔIncome indicate the differences between the two scenarios (patients A and B) for each choice set regarding QALY, expected life years remaining without treatment, QOL before treatment, and household income, respectively. β_0 is the constant term and β_1 to β_4 are coefficients for the differences in the attribute levels. ε is the error term. The above equation was estimated by using a random-effect probit model to adjust the correlation and relax the IIA (Independence if irrelevant alternatives) assumptions.

Results

Results based on the focus group discussion

Although the rank changed slightly after the participants discussed extreme scenarios for each criterion, the highly prioritized criteria for the male group were the patient's socioeconomic status, the severity of the disease, and the improvement in health after treatment. For the female group, the severity of the disease had higher priority than a patient's socioeconomic status (see