



Socioeconomic differences in the perception of inequalities in healthcare utilization and health in South Korea

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ABSTRACT

This study investigated the lay perception of inequalities in society, healthcare utilization, and health in Korea. We also examined the association between socioeconomic status (SES) and perception of inequalities. Data from an online survey on the perception of health and healthcare inequalities related to cancer conducted between October 19, 2021, and November 12, 2021, were used. Data of 3,769 participants aged 20 to 74 years from 17 provinces were analyzed. We examined the perceived level of inequalities according to SES or residential area using frequency analysis, a *t*-test or analysis of variance (ANOVA), multiple linear regression analysis, and multiple logistic regression analysis. The mean score for perception of social inequality was 5.99 [Standard Deviation (SD) = 1.95] and that for perception of healthcare utilization inequality was 4.75 (SD = 1.96). The perception rate of health inequality according to SES and residential area was approximately 59 % and 61 %, respectively. Higher the income level, lower the level of perception of social inequalities ($\beta = -0.22$, $p < 0.01$). Higher the education level, higher the level of perception of healthcare utilization inequalities ($\beta = 0.21$, $p < 0.01$). Higher the education level, higher the level of perception of health inequalities according to SES or residential area [adjusted odds ratio (aOR): 2.33 (95 % CI: 1.48, 3.66); aOR: 2.73 (95 % CI: 1.73, 4.31)]. Socioeconomic inequalities were observed in the perception of inequalities in healthcare utilization and health. Policymakers should establish policies to bridge the gap between perceived healthcare utilization inequalities and health inequalities. Future research should investigate the perception of healthcare utilization and health inequalities.

1. Introduction

Korea establishes a National Health Plan (HP) every 10 years and prepares a supplementary plan every five years under the National Health Promotion Act (Ministry of Health and Welfare, Korea Health Promotion [Ministry of Health and Welfare and Korea Health Promotion Institute, 2022](#)). Social discussions on health equity indicators were not properly conducted from the National Health Plan 2010 (HP2010) in 2002 to the establishment of National Health Plan 2020 (HP2020) in 2016 ([Kim, 2021](#)). Accordingly, for National Health Plan 2030 (HP2030), announced in January 2021, “health equity improvement” is set as the overall goal, recognizing inequality between income and regions and continuing policy efforts to improve it ([Oh, 2021](#)).

Many studies deal with inequality and the social problems that arise from it, such as those pertaining to health, happiness, and fairness. In the field of healthcare, socioeconomic status (SES) is associated with differences in mortality rates and the prevalence of chronic diseases, disparities in health behavior, and differences in healthcare utilization ([Ahn et al., 2015](#); [Chun et al., 2007](#); [Dadipoor et al., 2023](#); [Kang et al., 2020](#); [Kim et al., 2004](#); [Kim et al., 2007](#); [Son, 2002](#); [Wilkinson and Pickett, 2009](#); [Yoon et al., 2000](#)). It is speculated that individuals with low SES are more likely to smoke or drink and are less likely to attend cancer screening, compared to those with high SES ([Cao et al., 2023](#); [Ishii et al., 2023](#); [Huang et al., 2023](#); [Huckle et al., 2010](#)).

In addition, people in different socioeconomic strata may perceive objective inequality in a differential manner, which in turn may affect

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their health outcomes differently (Han, 2014; Peretti-Watel et al., 2016; Shankardass et al., 2012). In relation to this, a study by Gugushvili et al. (2020) reported that people were more likely to report worse health outcomes when they experienced an increase in perceived inequality.

However, there are few studies focusing on the perception of inequality (Lee and Im, 2014) and the socioeconomic factors that influence it. Existing domestic studies on inequality perception mainly focus on the relationship between political and social characteristics (Kang, 2012; Kim, 2011a), perception of subjective class (Hwang et al., 2018), and effect on welfare attitudes (Lee, 2015; Yeo, 2016). In addition, while there is a study investigating inequality awareness among the youth in Seoul, Korea (Kim and Park, 2021), there is no nationally representative study dealing with inequality awareness in South Korea.

Therefore, the purpose of this study is to investigate the perception of inequalities in society, healthcare utilization, and health in Korea. This study also aimed to identify the association between SES and the perception of inequalities in society, healthcare utilization, and health in Korea.

2. Materials and methods

2.1. Data source and study participants

This study used data from the “Online Survey on the Perception of Cancer-Related Health and Healthcare Utilization Inequality in Korea” conducted by the National Cancer Center. Data were collected by professional research institutes through an online survey of adult men and women between the ages of 20 and 75 nationwide using a structured questionnaire from October 19 to November 12, 2021.

The survey was conducted to understand the general public’s perception of inequalities in health and healthcare utilization, as there were no other studies on inequalities in cancer-related health and healthcare utilization.

A total of 4,000 individuals were drawn through quota sampling using population proportionality based on sex, age, and region (see Supplementary Table S1). Among the 4,000 individuals who participated in the 2021 survey, we excluded 231 individuals who responded “Don’t know” or did not provide their income level. The final study population comprised 3,769 individuals. This study was approved by the National Cancer Center Institutional Review Board of Korea (approval number: NCC2021-0264).

2.2. Independent variables

In this study, the independent variables were socioeconomic factors, namely, education level, monthly income, occupation, and residential area. Level of education was classified into four categories: middle school graduation or lower, high school graduation, university graduation (including junior college), and graduate school graduation or higher. Average monthly income level was classified into four categories (less than 1 million won, less than 100–299 million won, less than 300–499 million won, and more than 5 million won), and 231 people who did not know or did not respond (5.78 %) were treated as missing values. Occupations were classified into non-manual, manual, or unemployed/other. Managers, professionals, and clerks were classified as non-manual workers. Service workers, sales workers, skilled agricultural, forestry, and fishery workers; craft and related trades workers; plant machine operators; assemblers; and workers in elementary occupations were classified as manual workers. Soldiers, students, housewives, unemployed individuals, and workers in other occupations were classified as unemployed/other. Residential areas were divided into five categories: Seoul/Gyeonggi/Incheon, Gangwon, Daejeon/Sejong/Chungbuk/Chungnam, Gwangju/Jeonbuk/Jeonnam/Jeju, and Busan/ Daegu/Ulsan/Gyeongbuk/Gyeongnam.

Table 1

The general characteristics of the study participants in South Korea, October 19, 2021 - November 12, 2021 (n = 3,769).

		Number of participants	Percentage (%)
Total		3,769	100.0
Sex	Male	1,959	52.0
	Female	1,810	48.0
Age (years)	20–29	616	16.3
	30–39	658	17.5
	40–49	783	20.8
	50–59	842	22.3
	≥ 60	870	23.1
Education level	≤ Middle school	131	3.5
	High school	807	21.4
	College	2,484	65.9
	≥ Graduate school	347	9.2
Monthly income (KRW) [†]	< 1 million	768	20.4
	1–2.99 million	1,345	35.7
	3–4.99 million	1,063	28.2
	≥ 5 million	593	15.7
Occupation	Non-manual	1,890	50.2
	Manual	861	22.8
	Unemployed/Others	1,018	27.0
Residential area	Seoul/Gyeonggi/Incheon	1,929	51.2
	Gangwon	111	3.0
	Daejeon/Sejong/Chungbuk/Chungnam	396	10.5
	Gwangju/Jeonbuk/Jeonnam/Jeju	406	10.8
	Busan/Daegu/Ulsan/Gyeongbuk/Gyeongnam	927	24.6
Perception of social inequalities (Mean (SD))	1 (completely equal)–10 (completely unequal)	5.99 (1.95)	
Perception of healthcare utilization inequalities (Mean (SD))	1 (completely equal)–10 (completely unequal)	4.75 (1.96)	
Perception of health inequalities according to SES	Perceived	2,234	59.3
	Not perceived	1,535	40.7
Perception of health inequalities according to residential area	Perceived	2,311	61.3
	Not perceived	1,458	38.7

Note: **Monthly income**: Individual’s monthly income; **KRW**: Korean Won; **SD**: Standard Deviation; **SES**: Socioeconomic Status. [†] Missing data: Don’t know/no response (n = 231).

2.3. Dependent variables

The dependent variables in this study involved the perception of inequality, which was divided into the following three dimensions: 1) perception of inequality in society; 2) perception of inequality in healthcare utilization; and 3) perception of inequality in health. For the perception of inequality in society, the question was, “How equal do you think our society is?” and respondents had to select the degree of perceived inequality (ranging from 1 = *not equal at all* to 10 = *completely equal*). For the perception of inequality in healthcare utilization, the question was, “Do you think all citizens are equal in using medical

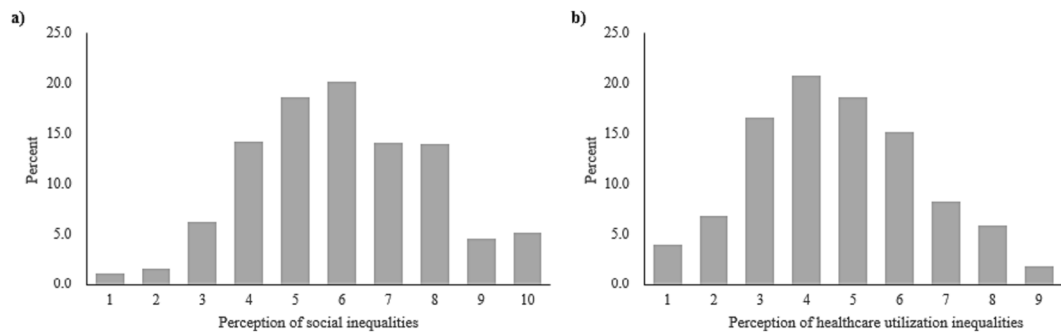


Fig. 1. Distribution of a) perception of social inequalities and b) perception of healthcare utilization inequalities of the study participants in South Korea, October 19, 2021 - November 12, 2021 (n = 3,769).

services in Korea?” and respondents had to select the degree of perceived inequality (ranging from 1 = *not equal at all* to 10 = *completely equal*). For the perception of health inequality according to SES, the question was, “Do you think the health of people with low income or education is worse than that of those with high income or education?” and respondents had to select the degree of perceived inequality (1 = *not at all*, 2 = *no*, 3 = *normal*, 4 = *yes*, 5 = *very much*). If the response was “1–3,” it was classified as “not perceived,” and if the response was “4–5,” it was classified as “perceived.” For the perception of health inequality according to residential area, the question was, “How much do you think the characteristics of the residential area will affect the health of people in the area?” and respondents had to select the degree of perceived inequality (1 = *not at all*, 2 = *no*, 3 = *normal*, 4 = *yes*, 5 = *very much*). If the response was “1–3,” it was classified as “not perceived,” and if the response was “4–5,” it was classified as “perceived.”

2.4. Analytical approach and statistics

In this study, frequency analysis, *t*-test and analysis of variance (ANOVA), multiple linear regression analysis, and multiple logistic regression analysis were performed as analysis methods. For the perception of social and healthcare utilization inequalities, *t*-test and ANOVA were performed. Multiple linear regression analysis was performed after adjusting for sex, age, education level, monthly income, and occupation. Multiple logistic regression analysis was performed after adjusting for sex, age, education level, monthly income, occupation, and residential area.

For all analyses, the criterion for statistical significance was set as two-tailed $p < 0.05$. All analyses were performed using SAS statistical software package (version 9.4; SAS Institute, Cary, NC, USA).

3. Results

Table 1 presents the general characteristics of the study participants. A total of 3,769 participants were studied, with 1,959 men (52.0 %) and 1,810 women (48.0 %). In terms of age, those in their 60 s or older (23.1 %) and those in their 20 s (16.3 %) were the most and least common, respectively. The most common education level was college graduation (65.9 %). The most common monthly income level was between 1 and 2.99 million won (35.7 %). The most common occupation was non-manual (50.2 %). The most and least common residential areas were Seoul/Gyeonggi/Incheon (51.2 %) and Gangwon (3.0 %), respectively. The score for perception of social inequality was 5.99 (1.95), and that for perception of healthcare utilization inequality was 4.75 (1.96). The distribution of perceptions of social inequality and healthcare utilization inequality is shown in **Fig. 1**. The rates of recognizing health inequality according to SES and residential area were 59.3 % and 61.3 %, respectively.

Table 2 shows the results of the *t*-test and ANOVA. It was found that women had a higher perception of social inequality than men.

Furthermore, the lower the education level, the higher was the perception of social inequality. The lower the income level, the higher was the perception of social inequality. Those residing in Seoul/Gyeonggi/Incheon had a higher estimate of the perception of social inequality compared to those residing in other regions.

Regarding the perception of healthcare utilization inequality, unlike the perception of social inequality, there was a significant age difference. It was found that the lower the age, the higher was the perception of healthcare utilization inequality. In addition, unlike the perception of social inequality, the higher the level of education, the higher was the perception of healthcare utilization inequality. Those residing in Seoul/Gyeonggi/Incheon had a higher estimate of the perception of healthcare utilization inequality compared to those residing in other regions.

Table 3 shows the results of the multiple linear regression analysis. Only the average monthly income level of an individual was related to high perception. In addition, the higher the income level, the lower was the level of perception of social inequalities ($\beta = -0.22$, $p < 0.01$).

For the perception of healthcare utilization inequality, only the level of education was related to the recognition of healthcare utilization inequality. The higher the education level, the higher was the level of perception of healthcare utilization inequalities ($\beta = 0.21$, $p < 0.01$).

Table 4 reports the results of the multiple logistic regression analysis. Those in their 50 s [adjusted odds ratio, aOR: 2.29 (95 % confidence interval, CI: 1.83, 2.86)] and those who graduated from graduate school or higher [aOR: 2.33 (95 % CI: 1.48, 3.66)] showed higher levels of health inequality perception than those in other age groups and those who studied till high school, respectively. In contrast, women [aOR: 0.85 (95 % CI: 0.74, 0.98)] compared to men and those living in Busan/Daegu/Ulsan/Gyeongbuk/Gyeongnam areas compared to those living in other areas [aOR: 0.82 (95 % CI: 0.70, 0.97)] showed lower levels of health inequality perception.

The perception of health inequality per residential area was higher for those in their 50 s when compared to those in other age groups [aOR: 2.16 (95 % CI: 1.73, 2.71)] and those who graduated from graduate school or higher [aOR: 2.73 (95 % CI: 1.73, 4.31)] when compared to those who studied till college or below. In contrast, compared to those in non-manual jobs, those who were unemployed or engaged in other jobs [aOR: 0.76 (95 % CI: 0.61, 0.94)] showed a lower level of awareness of health inequality.

4. Discussion

Unlike healthcare utilization inequality, social inequality was perceived in groups with low SES in this study.

There are few studies on the perception of social inequality. In the 2020 Seoul Youth Inequality Survey, 36.8 %, 33.8 %, 16.0 %, and 5.6 % of asset, income, housing, and employment inequality, respectively, were reported (Kim and Park, 2021), and the perception of health inequality was perceived as less severe than in other areas. According to a study dealing with fairness, young people with higher SES were more

Table 2

T-test or analysis of variance (ANOVA) on factors associated with the perception of social inequalities and perception of healthcare utilization inequalities among 3,769 study participants in South Korea, October 19, 2021 - November 12, 2021.

		Perception of social inequalities		Perception of healthcare utilization inequalities	
		Mean (SD)	p-value	Mean (SD)	p-value
Sex	Male	5.87 (1.98)	<0.01	4.77 (1.99)	0.49
	Female	6.11 (1.91)		4.73 (1.93)	
Age (years)	20–29	5.87 (1.98)	0.21	4.72 (1.93)	<0.01
	30–39	6.08 (1.92)		4.98 (1.96)	
	40–49	5.91 (1.91)		4.85 (1.89)	
	50–59	6.02 (1.92)		4.68 (1.96)	
	≥ 60	6.04 (2.01)		4.59 (2.03)	
Education level	≤ Middle school	5.76 (2.24)	0.01	3.69 (2.04)	<0.01
	High school	6.17 (1.98)		4.70 (2.06)	
	College	5.96 (1.90)		4.83 (1.89)	
	≥ Graduate school	5.84 (2.08)		4.69 (2.05)	
Monthly income (KRW) †	< 1 million	6.21 (1.97)	<0.01	4.77 (2.07)	0.94
	1–2.99 million	6.16 (1.89)		4.76 (1.97)	
	3–4.99 million	5.78 (1.94)		4.72 (1.91)	
	≥ 5 million	5.70 (2.02)		4.76 (1.88)	
Occupation	Non-manual	5.92 (1.95)	0.09	4.77 (1.93)	0.47
	Manual	6.02 (1.96)		4.78 (1.99)	
	Unemployed/Others	6.08 (1.94)		4.69 (2.00)	
Residential area	Seoul/Gyeonggi/Incheon/Gangwon	6.07 (1.94)	0.01	4.87 (1.92)	<0.01
	Daejeon/Sejong/Chungbuk/Chungnam	6.01 (1.94)		4.60 (2.05)	
	Gwangju/Jeonbuk/Jeonnam/Jeju	5.67 (1.92)		4.30 (2.01)	
	Busan/Daegu/Ulsan/Gyeongbuk/Gyeongnam	5.95 (1.98)		4.81 (1.95)	

Note: SD: Standard Deviation; **Monthly income**: Individual's monthly income; **KRW**: Korean Won. † Missing data: Don't know/no response (n = 231).

likely to perceive that opportunities are given fairly (Lee and Park, 2021). As perceptions of fairness contribute to social conflicts, research on this topic is important: fairness in opportunities (e.g., employment and educational opportunities) plays an important role in forming attitudes toward social inequality among members of society.

There have been several studies on the perception of healthcare

Table 3

Multiple linear regression analysis on factors associated with the perception of social inequalities and perception of healthcare utilization inequalities among 3,769 study participants in South Korea, October 19, 2021 - November 12, 2021.

	Perception of social inequalities			Perception of healthcare utilization inequalities		
	β	SE	p-value	β	SE	p-value
Intercept	6.22	0.25	<0.01	4.55	0.26	<0.01
Sex	0.12	0.07	0.06	-0.05	0.07	0.48
Age	0.04	0.02	0.08	-0.04	0.02	0.08
Education level	0.03	0.06	0.60	0.21	0.06	<0.01
Monthly income (KRW) †	-0.22	0.04	<0.01	-0.07	0.04	0.10
Occupation	-0.06	0.05	0.18	-0.01	0.05	0.83

Note: SE: Standard Error; **Monthly income**: Individual's monthly income; **KRW**: Korean Won. † Missing data: Don't know/no response (n = 231).

utilization inequality according to SES. It is necessary to address healthcare utilization inequality because differences in healthcare utilization due to social class can lead to differences in health levels (Kim, 2011b).

It was observed that groups with higher levels of education were more likely to perceive inequality in healthcare utilization than those with lower levels of education; in fact, cancer patients with higher levels of education spent more on average per capita on total medical expenses per year before death than cancer patients with lower levels of education (Choo et al., 2007). In this study, there was no statistical significance between income level and perception of healthcare utilization inequality. However, Kim et al. (2014) found that those with a low income utilized more healthcare services than those with a high income, but in terms of medical expenditure, those with a high income spend more on outpatient or emergency medical care than those with a low income. Another study showed that the higher the income level, the slightly more opportunities there are for healthcare utilization (Van Doorslaer et al., 2006). Studies have also shown that people with low income and education levels are less likely to use specialists than middle-class or high-income earners and those with higher education levels (Dunlop et al., 2000). In contrast, studies have shown that there is a relationship between health insurance subscriptions and healthcare utilization, not only among low-income individuals and non-insured individuals with restricted healthcare, but also among high-income individuals (Ross et al., 2006). In addition, one study highlighted gaps in healthcare utilization between urban and rural areas. Rural respondents said that they had more doctors' visits and fewer hospital visits than urban respondents. In particular, rural males, older people working in agriculture, rural respondents with low education, and rural insured persons were found to have statistically significantly lower hospital utilization rates than urban respondents (Liu et al., 2007).

Previous studies have focused on the phenomenon of health inequality according to SES; however, to date, few studies have been done on the perception of health inequality. In addition, the results of these studies varied depending on the researcher and research method. According to Kim et al. (2016), the higher the level of education, the higher was the level of health inequality perception according to SES; however, there was no statistical significance in the level of education. Quantitative research by Macintyre et al. (2005) found that people living in low SES or deprived areas were less likely to think that their health was worse than it actually was compared to those who did not live in such areas. They also found that the wealthy were less likely to live healthier and longer than those with low SES. In contrast, Davidson et al. (2006) presented qualitative research results showing that people living in more deprived areas were more aware of health inequalities due to socioeconomic conditions than those living elsewhere.

In 2016, the perception rate of health inequality according to one's SES and residential area was about 80 % and 82 %, respectively (Chae, 2017). However, in this study, the perception rate of health inequality

Table 4

Multiple logistic regression analysis on factors associated with the perception of health inequalities according to SES and perception of health inequalities according to residential area among 3,769 study participants in South Korea, October 19, 2021 - November 12, 2021.

		Perception of health inequalities according to SES		Perception of health inequalities according to residential area	
		adjusted OR (95% CI)		adjusted OR (95% CI)	
Sex	Male	Ref		Ref	
	Female	0.85	(0.74, 0.98)	1.09	(0.94, 1.26)
Age (years)	20–29	Ref		Ref	
	30–39	1.21	(0.96, 1.51)	1.17	(0.93, 1.47)
	40–49	1.89	(1.51, 2.36)	1.73	(1.38, 2.16)
	50–59	2.29	(1.83, 2.86)	2.16	(1.73, 2.71)
	≥ 60	1.69	(1.35, 2.11)	2.01	(1.61, 2.52)
Education level	≤ Middle school	Ref		Ref	
	High school	1.83	(1.23, 2.71)	1.48	(1.00, 2.19)
	College	2.17	(1.46, 3.22)	2.19	(1.48, 3.25)
	≥ Graduate school	2.33	(1.48, 3.66)	2.73	(1.73, 4.31)
Monthly income (KRW) †	<1 million	Ref		Ref	
	1–2.99 million	1.07	(0.85, 1.33)	0.98	(0.78, 1.22)
	3–4.99 million	0.88	(0.69, 1.12)	0.82	(0.65, 1.05)
	≥ 5 million	0.78	(0.59, 1.03)	0.90	(0.68, 1.19)
Occupation	Non-manual	Ref		Ref	
	Manual	0.93	(0.77, 1.12)	0.69	(0.58, 0.83)
	Unemployed/Others	1.01	(0.82, 1.25)	0.76	(0.61, 0.94)
Residential area	Seoul/Gyeonggi/Incheon	Ref		Ref	
	Gangwon	0.96	(0.65, 1.43)	1.38	(0.92, 2.09)
	Daejeon/Sejong/Chungbuk/Chungnam	0.91	(0.73, 1.14)	1.17	(0.93, 1.47)
	Gwangju/Jeonbuk/Jeonnam/Jeju	0.77	(0.62, 0.96)	1.08	(0.86, 1.35)
	Busan/Daegu/Ulsan/Gyeongbuk/Gyeongnam	0.82	(0.70, 0.97)	1.16	(0.98, 1.37)

Note: **SES**: Socioeconomic Status; **OR**: Odds Ratio; **CI**: confidence interval; **Monthly income**: Individual's monthly income; **KRW**: Korean Won. † Missing data: Don't know/no response (n = 231).

according to SES and residential area was about 59 % and 61 %, respectively. Although the perception rate of health inequality was somewhat high in the previous study, it has decreased significantly over the last five years. Therefore, it can be said that it is necessary to raise public awareness of the problem of health inequality.

This study has certain limitations. First, this is a cross-sectional study, and it is difficult to identify a clear causal relationship between

the independent variables and the perception of inequality. Second, other variables, such as marital status, were not taken into account. Third, the level of perception of health inequality was measured using only a single question. It is necessary to develop a more comprehensive measurement method.

However, despite these limitations, this study is significant in that it confirms the gap in inequality perception based on education level, income level, occupation, and residential area. It is especially meaningful because it is the first study in Korea to identify factors influencing the nation's perceptions of inequality in society, healthcare utilization, and health. In addition, it is a representative study, as data on 4,000 adult men and women aged 20 to 74 in Korea were extracted using quota sampling and applying population proportion by sex, age, and region.

5. Conclusions

This study confirmed that those with low SES are rather unaware of healthcare utilization and health inequality. Therefore, measures to close the gap in the perception of healthcare utilization and health inequality are proposed as follows. First, a program to improve the awareness of healthcare utilization and health inequality should be developed; in particular, groups with low education levels should be selected for the program first. Second, we propose a health inequality awareness improvement program for vulnerable groups such as women, youth, and unemployed/other workers. To this end, a follow-up study on the perception of inequalities in healthcare utilization and health is needed. It would be meaningful to learn how the public perceives inequality and to uncover any differences in perceptions of inequality between social classes or regions. This is expected to help policymakers establish policies to narrow the gap in the public's perception of inequality.

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CRediT authorship contribution statement

Nayeon Kim: Conceptualization, Formal analysis, Methodology, Visualization, Writing – review & editing. **Hye-won Yun**: Conceptualization, Writing – review & editing. **Juwon Park**: Formal analysis, Writing – review & editing. **Fatima Nari**: Methodology, Writing – review & editing. **Hee Jin Wang**: Project administration. **Jaе Kwan Jun**: Supervision. **Kui Son Choi**: Supervision. **Mina Suh**: Conceptualization, Supervision, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.pmedr.2023.102445>.

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