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Variations in Healthcare Spending, Care Access, and Health Status by Care Need: Evidence from South Korea

Care Need in South Korea

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There are substantial variations in healthcare spending by care need.[1,2] However, higher healthcare spending does not necessarily lead to better care access and care quality.[3,4] Understanding the relationship between healthcare spending, care access, and health status across and within levels of care need could inform policy to improve the efficiency of care. This is particularly relevant to South Korea as healthcare spending has grown at nearly 8% each year, more than double the annual average of countries in the Organization for Economic Cooperation and Development (3.6%).[5] In this study, we examined variations in healthcare spending, care access, and health status by care need among South Korean adults.

METHODS

We used the Korea Health Panel Data from 2017 to 2018. The annual survey recruits a representative sample of households (6000–7000 households) using a stratified 2-stage cluster sampling method. It collects information on respondents' demographic and socioeconomic characteristics, health status, and healthcare utilization. We included all adults (aged ≥ 18 years). This deidentified, publicly available data was exempt from institutional review.

Our outcome variables were healthcare spending, care access, and health status. Our primary independent variable was a categorization of groups by level of care need. Following prior research,[1] we stratified the sample into those with low needs (relatively healthy and those with minor chronic conditions) and those with high needs (major chronic conditions, the frail, and the disabled). We used a generalized linear model (gamma family and log link) to model healthcare spending and a linear probability model to model care access and health status, adjusting for age, sex, education, household income, employment status, marital status, receipt of medical aids, smoking status, and drinking status. From the regression results, we estimated the adjusted values of the outcome by group based on care need. We used survey weights to adjust sample characteristics to be representative of the adult population in South Korea.

RESULTS

Our sample included 23,079 adults; 49.7% were classified as relatively healthy, 26.1% had minor chronic conditions, 12.6% had major chronic conditions, 6.5% were frail, and 5.0% were disabled (Table 1). Total healthcare spending was higher among those with high need than those with low need, but the highest was found among the frail ($2925 [95% CI: 2587–3262]) (Table 2). Health status was worse among those with high need than those with low need, but was particularly low in both the frail and the disabled with only 69.2% [95% CI: 65.1–73.4] and 70.7% [95% CI: 66.5–74.9] reporting good health. Care access was better among those with high need than those with low need, but disabled adults tended to report worse care access than those with major chronic conditions or the frail. While the likelihoods of reporting having a usual place of care and a usual provider among disabled adults were only 56.5% [95% CI: 52.2–60.9] and 27.1% [95% CI: 23.0–31.2], the likelihood of reporting having unmet medical needs was relatively high (13.4% [95% CI: 10.7–16.1]).

DISCUSSION

Among South Korean adults, those with higher needs had both greater healthcare spending and worse health status. However, there were variations in healthcare spending, care access, and health status among those with high needs. The frail and the disabled reported low care access and health status despite high healthcare spending.

Those with high needs are not a homogeneous population, but rather a diverse group with widely varying clinical and social needs.[1,2,4] Consistent with prior research from the USA, our findings for poor care assess and health status among the frail and the disabled suggest the need for developing targeted interventions to improve care. The finding

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Table 1 Characteristics of Sample Characteristics by Care Need

Characteristics	Relatively healthy ($N=11,476$)	Minor chronic ($N=6032$)	Major chronic ($N=2917$)	Frail ($N=1500$)	Disabled ($N=1154$)
Age, mean (SD)	41.7 (12.8)	58.6 (12.2)	66.5 (10.9)	76.6 (6.8)	61.6 (14.9)
Female, %	52.8	55.9	64.1	66.1	46.3
Education, %					
High school or lower	10.2	43.8	64.1	79.5	60.8
College graduate	34.2	33.7	25.5	14.6	26.1
Advanced degree	55.6	22.5	10.4	6.0	13.1
Household income, %					
1st quantile (lowest)	5.1	18.6	32.8	49.1	39.9
2nd quantile	15.4	22.8	27.5	26.2	26.5
3rd quantile	23.2	19.6	16.6	13.6	15.3
4th quantile	28.3	20.6	13.1	6.1	10.3
5th quantile (highest)	28.0	18.3	10.1	5.0	8.0
Employed, %	69.6	61.7	44.0	28.8	37.5
Married, %	64.4	79.5	68.2	61.1	62.6
Medical aids, %	1.1	2.6	5.4	8.8	14.2
Smoking, %					
Never	65.4	61.6	65.2	67.4	55.1
Quit	20.2	14.0	10.7	7.5	14.7
Currently smoking	14.4	24.4	24.0	25.0	30.2
Drinking, %					
Never	17.9	30.4	39.3	50.0	37.6
Less than once per week	61.4	50.1	46.8	41.4	47.4
More than twice per week	20.7	19.5	14.0	8.6	15.0

We categorized adults (18 years and older) into the following five mutually exclusive groups: the relatively healthy (those without any chronic conditions, frailty, and disability), those with minor chronic conditions (those with 1–2 chronic conditions, but without frailty and disability), those with major chronic conditions (those with 3 or more chronic conditions, but without frailty and disability), the frail (those with 2 or more conditions based on a modified list of the following 12 specific claims-based diagnoses potentially indicative of frailty [gait abnormality, malnutrition, failure to thrive, cachexia, debility, difficulty walking, history of fall, muscle wasting, muscle weakness, decubitus ulcer, senility, or durable medical equipment use]), and the disabled (those classified as disabled based on the Korean government's assessment system). Twenty chronic conditions were identified according to criteria set developed by a multiple chronic condition group within the US Department of Health and Human Services Office of the Assistant Secretary of Health

Table 2 Adjusted Values of Healthcare Spending, Care Access, and Health Status by Level of Care Need

Outcomes	Adjusted values, estimates (95% CI)				
	Relatively healthy	Minor chronic	Major chronic	Frail	Disabled
Healthcare spending*					
Annual total annual spending, $	758 (708 to 807)	1861 (1718 to 2004)	2580 (2332 to 2827)	2925 (2587 to 3262)	2636 (2255 to 3017)
Annual out-of-pocket spending, $	295 (276 to 314)	651 (603 to 700)	861 (779 to 943)	907 (796 to 1017)	614 (520 to 707)
Care access in the last 12 months†					
Having a usual place of care, %	31.3 (29.9 to 32.7)	55.5 (53.4 to 57.6)	64.3 (61.3 to 67.2)	62.6 (58.5 to 66.7)	56.5 (52.2 to 60.9)
Having a usual provider of care, %	12.3 (11.3 to 13.3)	30.1 (28.1 to 32.0)	38.4 (35.2 to 41.5)	33.1 (28.7 to 37.4)	27.1 (23.0 to 31.2)
Having unmet medical care, %	11.6 (10.8 to 12.4)	10.8 (9.7 to 12.0)	9.8 (8.0 to 11.6)	11.1 (8.5 to 13.8)	13.4 (10.7 to 16.1)
Health status‡					
Having good perceived health status, %	92.0 (91.3 to 92.8)	87.3 (85.9 to 88.6)	76.1 (73.4 to 78.7)	69.2 (65.1 to 73.4)	70.7 (66.5 to 74.9)
Having good health compared with same-age people, %	92.4 (91.6 to 93.2)	86.3 (84.8 to 87.7)	74.8 (72.1 to 77.5)	71.5 (67.4 to 75.6)	68.5 (64.3 to 72.7)

*Healthcare spending was measured through claims and survey data. An exchange rate of Korean won 1100 to $1 was used to convert the value to USD

†Respondents were asked about care access in the last 12 months through survey data. Care access was measured in two levels for the first two measures (yes or no) and three levels for the last measure (yes, no, or irrelevant). We then categorized care access as yes or no (no or irrelevant)

‡Respondents were asked about health status at the time of survey completion through survey data. Health status was measured in five levels: poor, fair, good, very good, or excellent. We then categorized health status as good (good, very good, or excellent) or poor (fair or good)

that the frail and the disabled incur high healthcare spending but have poor care assess and health status is paradoxical; further research is warranted to examine the underlying mechanisms.

Study limitations include relying on self-report and lack of patient and system-level information to explore the reasons for our findings.

Our results demonstrate variations in healthcare spending, care access, and health status across and within levels of care need among South Korean adults, but the frail and the disabled are of particular interest due to low care access and health status. Thus, policymakers need to develop targeted approaches to improve the delivery of care for the frail and the disabled.

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Declarations

Conflict of Interest *The authors declare that they do not have a conflict of interest.*

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