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**Sociodemographic Characteristics, Out-of-pocket Expenditure, and  
Catastrophic Health Expenditure between Disabilities with Dialysis and those  
with Kidney Transplant due to End Stage Kidney Disease: Based on the  
Korean Health Panel**

**Hee Woo Lee**<sup>1</sup>, Shin Sun Mi<sup>2</sup>

<sup>1</sup>Department of Hemodialysis Unit, Lee Hee Woo Internal Medicine Clinic , Korea, Republic of

<sup>2</sup>Department of Nursing, Joongbu University, Korea, Republic of

**Objectives :** This study compared sociodemographic characteristics and financial burdens between registered persons with kidney disabilities based on treatment modality: dialysis and kidney transplantation (KT). We tested three hypotheses: (1) those with dialysis-related disabilities face greater sociodemographic vulnerability, (2) their out-of-pocket (OOP) expenditures are higher, and (3) their prevalence of catastrophic health expenditure (CHE) is higher than the KT group.

**Methods :** We analyzed 10 years of longitudinal data (2009–2018) from the Korea Health Panel, extracting 282 observations of registered persons with kidney disabilities. Household income and expenses were equalized by size. CHE was defined as OOP medical expenditures exceeding 40% of the household's capacity-to-pay.

**Results :** Hypotheses 1 and 2 were supported, while Hypothesis 3 was rejected. Among 282 observations (83.3% dialysis and 16.7% kidney transplant), the dialysis group showed significantly higher sociodemographic vulnerability ( $p < .05$ ). They were older (62.9 vs 56.7 years), had higher rates of living without a spouse (34.0% vs 14.9%), higher economic inactivity (89.4% vs 74.5%), and were more likely to be in the lowest income quintile (39.7% vs 12.8%). They also had more comorbidities (5.1 vs 4.2). After adjusting for these sociodemographic covariates, annual out-of-pocket expenditure remained significantly higher for the dialysis group (1,999 USD) than the kidney transplant group (1,038 USD). However, despite the higher raw percentage of catastrophic health expenditure in the dialysis group (65.5% vs 39.6%), no statistically significant difference was found.

**Conclusions :** Registered persons with dialysis-related disabilities exhibit significantly worse sociodemographic profiles and higher OOP expenditures compared to those with KT. These results suggest that current health and welfare policies should be re-evaluated to determine whether the provision of differential benefit structures is a reasonable and necessary policy intervention.

Table 1.jpg



Table 1. Sociodemographic characteristics of observations with kidney disability

| Classification                  |                   | Total<br>n=282           |       | Dialysis disabled<br>n=235        |        | Kidney<br>transplant<br>disabled<br>n=47        |        | t or Chi-square/<br>p-value |
|---------------------------------|-------------------|--------------------------|-------|-----------------------------------|--------|-------------------------------------------------|--------|-----------------------------|
| Disabled<br>observations        | Total             | 282                      | (100) |                                   |        |                                                 |        |                             |
|                                 | Dialysis          |                          |       | 235                               | (83.3) |                                                 |        |                             |
|                                 | Kidney transplant |                          |       |                                   |        | 47                                              | (16.7) |                             |
| Mean age ± SD                   |                   | 61.9 ± 12.0              |       | 62.9 ± 12.3                       |        | 56.7 ± 9.0                                      |        | 3.32 / 0.0001               |
| Classification                  |                   | Total<br>n=282<br>(100%) |       | Dialysis disabled<br>n=235 (100%) |        | Kidney<br>transplant<br>disabled<br>n=47 (100%) |        | t or Chi-square/<br>p-value |
| Gender                          | Male              | 124                      |       | 117                               | (49.8) | 7                                               | (14.9) | 19.36 / <.0001              |
|                                 | Female            | 158                      |       | 118                               | (50.2) | 40                                              | (85.1) |                             |
| Age group                       | <65               | 154                      |       | 117                               | (49.8) | 37                                              | (78.7) | 13.23 / 0.0003              |
|                                 | ≥65               | 128                      |       | 118                               | (50.2) | 10                                              | (21.3) |                             |
| Presence of<br>Spouse           | Yes               | 195                      |       | 155                               | (66.0) | 40                                              | (85.1) | 6.73 / 0.0095               |
|                                 | No                | 87                       |       | 80                                | (34.0) | 7                                               | (14.9) |                             |
| Economic<br>activity            | Active            | 37                       |       | 25                                | (10.6) | 12                                              | (25.5) | 7.62 / 0.0058               |
|                                 | Inactive          | 245                      |       | 210                               | (89.4) | 35                                              | (74.5) |                             |
| Household<br>income<br>quintile | 1 Lowest          | 99                       |       | 93                                | (39.7) | 6                                               | (12.8) | 37.94 / <.0001              |
|                                 | 2                 | 98                       |       | 88                                | (37.6) | 10                                              | (21.3) |                             |
|                                 | 3                 | 33                       |       | 22                                | (9.4)  | 11                                              | (23.4) |                             |
|                                 | 4                 | 30                       |       | 20                                | (8.6)  | 10                                              | (21.3) |                             |
|                                 | 5 Highest         | 21                       |       | 11                                | (4.7)  | 10                                              | (21.3) |                             |
| Number of multimorbidity ± SD   |                   | 4.9±2.5                  |       | 5.1 (2.4)                         |        | 4.2 (2.5)                                       |        | 2.15 / 0.04                 |

Table 1.jpg

Table 2. Annual household income, living expenses, household payment ability, out-of-pocket costs, and catastrophic health expenditure for persons with kidney disability

| Classification                                   |     | Total              |  | On Dialysis        |  | Received<br>Kidney<br>transplant |  | t of Chi-square/<br>p-value |
|--------------------------------------------------|-----|--------------------|--|--------------------|--|----------------------------------|--|-----------------------------|
| Annual household income <sup>1)</sup>            | ±SE | 12,102.7<br>±522.0 |  | 12,148.4<br>±275.0 |  | 12,134.0<br>±656.4               |  | 104.67/<br><.0001           |
| Annual living expenses <sup>1)</sup>             | ±SD | 9,685.6<br>±312.9  |  | 9,351.5<br>±194.5  |  | 11,483.4<br>±464.3               |  | 17.02/<br><.0001            |
| Household's ability to pay <sup>1),2)</sup>      | <65 | 2,417.1<br>±329.7  |  | 2,796.9<br>±285.4  |  | 650.7<br>±681.4                  |  | 8.01/<br>0.005              |
| Out-of-pocket expenditure <sup>3)</sup>          |     | 1,866.8<br>±149.0  |  | 1,999.8<br>±157.9  |  | 1,038.5<br>±377.0                |  | 5.25/<br>0.0227             |
| Catastrophic health<br>expenditure <sup>4)</sup> | Yes | 182<br>(64.5)      |  | 154<br>(65.5)      |  | 28<br>(59.6)                     |  | 0.61/<br>0.49               |
|                                                  | No  | 100<br>(35.5)      |  | 81<br>(34.5)       |  | 19<br>(40.4)                     |  |                             |

<sup>1)</sup> Covariate variables: gender, age group, presence of spouse, economic activity, household income quintile, number of multimorbidity.

<sup>2)</sup> Household ability to pay: Annual household income - Annual living expenses

<sup>3)</sup> Out-of-pocket expenses: Out-of-pocket expenses used for hospitalization, outpatient, emergency room, and medication + indirect expenses such as transportation expenses

<sup>4)</sup> Catastrophic medical expenditure: When the out-of-pocket cost is more than 40% of the household's ability to pay.