

An Empirical Study on Factors Determining Poverty among Older Women with Disabilities in Korea

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Abstract

This study uses the Andersen Model of Health Service Utilization to analyze factors that affect poverty among households with older women who have disabilities. The major findings based on the analysis are as follows. First, in terms of predisposing characteristics, the probability of poverty increased when the subjects had fewer years of education, mild disability, sensory, mental, and internal physical disabilities, and no spouse. Second, in terms of enabling resources, the probability of poverty became higher when older women with disabilities did not own their place of residence, and the household members' participation rate in economic activity was lower. Third, perceived needs were found to have an insignificant effect on poverty among older women with disabilities. Policy measures are presented based on these findings.

Key words: older women with disabilities, poverty, panel logit model

1. Introduction

Older people with disabilities include those who are aging with a disability, where one develops a disability at an early stage of life, as well as developing a disability while in middle or older age(Verbrugge & Yang, 2002). In a society that is experiencing unprecedented aging, the population of people with disabilities in Korea is aging alongside the global population, which is due to the fact that aging with a disability increases with the life expectancy of people with disabilities, and

having a disability while aging increases in line with disabilities in the growing senior population. Moreover, with the changing family structure, diminished private support due to alleviation of the family-responsible system, an immature national pension system, and insufficient public transfer income due to limited public assistance programs all occurring simultaneously, older people are becoming increasingly impoverished, and poverty issues surrounding older Koreans have reached an extremely severe level(Bae, *et. al.*, 2008; Roh & Paik, 2012). In fact, the income gap between the

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older population in Korea (age 65 or over) and the country's entire population is the largest among OECD member states with a Gini coefficient of 0.094, followed by Mexico (0.048), Israel (0.027), Slovenia (0.026), Iceland (0.025), and Switzerland (0.023).

Aging and poverty issues are particularly severe for older women with disabilities, who have a longer average lifespan than men and are more likely to be excluded from the labor market. Moreover, older women with disabilities are highly likely to become socially disadvantaged as they simultaneously face difficulties from having disabilities, discrimination as women, and being older (Forman, 1998; Glen, 2001).

Disability and poverty are closely and complexly interconnected. Disabled persons have been regarded as a vulnerable group, and are consistently excluded from society. Furthermore, society is likely to view the disabled as a dangerous and dependent group without considering why they have been socially and economically excluded. Poverty has often been used to show the innate dependence of persons with disabilities on others. This approach is criticized for forcing persons with disabilities to rely on public assistance programs and to spiral into becoming socially and economically dependent. This phenomenon is more common among older women with disabilities. Thus, we should find out why persons with disabilities are impoverished and come up with effective countermeasures to lift them out of poverty and erase the social stigma of being innately dependent.

Most studies on poverty have not considered the

additional needs or costs of disability that leads vulnerable persons with disabilities to impoverishment. Disability itself, however, often incurs high costs and forces people to live in poverty. Research dealing with the poverty of people with disabilities include studies on the relationship between disability and poverty or the causes of poverty (Kang, 2009; Gentle, 2005; Lee, 2009; Saunder, 2007; She & Livemore, 2009), income security policies for people with disabilities who cannot work (Lee, 2011; Park, 2004), determinants of poverty in housing people with disabilities (Lee, 2005), selection criteria of low-income citizens with disabilities and a survey of poverty among them (Byeon, *et. al.*, 2007; Jeong & Han, 2007), and determinants of poverty among workers with disabilities (Kim, 2011; Kim, 2007). However, most of the studies above discussed disabilities and poverty as separate issues, and did not deal with these topics simultaneously. This means that disability experts find it difficult to quantitatively measure how having a disability affects poverty, while not recognizing that having a disability is one of the most important factors causing poverty (Saunders, 2007). Therefore, this study will use longitudinal panel data to determine the poverty level of households with older women with disabilities and the factors that make them the most vulnerable group among persons with disabilities.

Therefore, this study determines the household characteristics of older women with disabilities as well as the key influential factors that led them to poverty, and present policy measures for reducing such poverty.

II. Theoretical Discussion

1. Factors Related to the Poverty of Older Women with Disabilities

The Andersen Model of Health Service Utilization is a conceptual scheme that is most commonly used for analyzing health behaviors. This scheme is grounded on the logic that health-related behaviors stem from an individual's perceived needs; they become feasible through enabling resources for individuals; and are affected by individual biological, social, and psychological dispositions(i.e., predisposing characteristics) (Andersen, 1995; Andersen & Newman, 1973).

In this context, the present study analyzed factors that lead older women with disabilities to poverty, in terms of predisposing characteristics, enabling resources, and perceived needs.

2. Predisposing characteristics factors

After expanding the scope of research to impoverished people with disabilities due to the limited research on impoverished older women with disabilities, it was found that studies mostly discussed education level, type of disability, degree of disability, and the spouse as the predisposing characteristics of poverty. The level of education is often mentioned as a factor related to poverty, and older individuals with a low education level are more likely to become impoverished(Slack & Jensen, 2008). Moreover, as Argyle(2001) claimed, many people with disabilities do not receive a sufficient education or enter the workforce, and people with disabilities are even more likely to be impoverished, and poverty further deteriorates their disabilities. Concerning the degree of disability, Roh(2012) stated that those with milder disabilities show a

higher participation rate in economic activities, although the difference is not significant. Jeon & An(2011) also produced the same results, while Kim(2007) also found that severe disabilities are more likely to lead to poverty than mild disabilities. Keum(2006) analyzed the characteristics of low-income workers using the Korean Labor and Income Panel Study data and claimed that people are more likely to belong to low-income households if they are divorced, bereaved, or separated.

Households of persons with disabilities are highly dependent on public transfer income, and this type of income can alter the poverty status of such households by supplementing low household income(Burchardt, 2003; Jenkins & Rigg, 2004). Households of persons with disabilities cannot help but depend on transfer income to make up for the additional costs of disability. Transfer income partially complements the low household income of persons with disabilities.

3. Enabling resources factors

Based on a dynamic analysis of poverty, Hong(2004) stated that employment and the transition to poverty are closely related. Hong claimed that income from employment is the only way to overcome poverty because the Korean income security system is insufficient at an absolute level. It was found that the type of residence has a significant effect on the poverty status of households in Seoul(Kim, 2010), as those living in rented housing are more likely to face poverty due to the low household income of households disabled persons(Hyeon, 2010). Moreover, an increase in the number of employed members in a household may influence escaping poverty by increasing the

household income.

Kemp, *et. al.* (2005) interviewed 51 middle-aged and older women with disabilities, and claimed that social status and preparing for old age are critical factors in the economic improvement of a poor living environment.

III. Method

1. Subjects

This study analyzed raw data from Years 4 to 6 (2011–2013) of the Panel Survey of Employment for the Disabled (PSED). The PSED is a longitudinal survey that annually tracks economic activities, vocational abilities, employment services, vocational training, income, consumption, and the daily life of 5,092 panel samples representing people registered with disabilities in Korea. The first survey was taken in 2008, and the Year 7 survey was completed in July 2014 (Min & Choi, 2014). The survey participants were 1,554 women with disabilities who were aged 60 or over as of 2011, all of whom participated in the Years 4, 5, and 6 surveys.

2. Measurements

1) Dependent variable

The dependent variable of this study was absolute poverty. Absolute poverty is conceptualized as the poverty line which defines the minimum basic needs to live in a society. Korea adopted this concept in the National Basic Living Security Act. Among the missing values of the average monthly household income, those who responded that they had no income were coded as 0. Impoverished households were defined as those in which the average monthly

household income per household did not reach the minimum cost of living per member in 2011, 2012, and 2013. Accordingly, if the average monthly household income of households with older women with disabilities was less than the minimum cost of living, it was coded as 1 for poverty, and if it was more than the minimum cost of living, it was coded as 0.

2) Independent variables

(1) Predisposing characteristics

Predisposing characteristics included years of education, type of disability, degree of disability, and spouse. First, years of education, which is a continuous variable, was created by using the variables of the highest level of education attainment, graduation status, and year of attainment. Second, for the type of disability, external physical disabilities were coded as 0, and sensory disabilities, mental disabilities, and internal physical disabilities were coded as 1. Third, for the degree of disability, mild was coded as 0, and severe was coded as 1. Fourth, no spouse, unmarried, divorced, separated, and bereaved were coded as 0, and married with a spouse was coded as 1.

(2) Enabling resources

Enabling resources included employment status, the economic activity rate of household members, and public transfer income. First, for employment status, unemployment was coded as 0, and employment as 1. Second, for residence type¹⁾ was coded 0, if the subject did not own the place of residence, and 1 otherwise. Third, the economic activity rate of household members was coded as

the percentage obtained from dividing the total number of household members by the number of employed members. Fourth, the public transfer income, and the amount including national basic living wage, the special support fund for people with disabilities, and other public transfer income was converted to logs and was coded.

(3) Perceived needs

Perceived needs included subjective socioeconomic status, and preparation for old age. First, for subjective socioeconomic status, lower class and lower-middle class were coded as 0, and upper-middle class and upper class were coded as 1. Second, for preparation for old age, not preparing for old age was coded as 0, and preparing for old age was coded as 1.

3. Data Analysis

Panel logit analysis was conducted to analyze the factors affecting the poverty of households with older women who have disabilities, as a panel logit model is an appropriate analytical method if the dependent variable is a binomial variable. Its mathematical formula is as below:

$$y_{it} = \begin{cases} 1, & y_{it}^* > 0 \\ 0, & y_{it}^* \leq 0 \end{cases}$$

$$y_{it}^* = \alpha + \beta X_{it} + u_i + e_{it}$$

In the formula, the error term could differ according to the panel unit. Within one panel unit, however, the error term is permanent regardless of time. Conversely, the error term could differ

according to panel units or time. Panel logit analysis can be categorized as a fixed effect model or random effect model depending on which of the two effects—fixed or random—the error term is assumed as. The random effect model assumes that it—follows a probability distribution, which is generally the case with survey data collected by random sampling (Min & Choi, 2009; Roh & Paik, 2012; Kim & Jeon, 2016: 141–142). Thus, this study conducted a panel logit analysis based on the random effect model and analyzed the factors that determined poverty among households with older women with disabilities using STATA 14.0 and SPSS 19.0.

IV. Results

1. Descriptive Statistics

The descriptive statistics for analysis are shown in <Table 1>. First, regarding predisposing characteristics, years of education are higher in the non-poverty group (M=6.19, SD=3.54) than in the poverty group (M=5.09, SD=3.34). As for the type of disability, the poverty rate of those with external physical disabilities (34.4%) is the highest, followed by sensory disabilities (31.3%), mental disabilities (22.9%), and internal physical disabilities (19.5%). Concerning the degree of disability, the poverty rate of those with mild disabilities is slightly higher (32.7%) than those with severe disabilities (32.0%). The poverty rate is also slightly higher for those who have no spouse (32.8%) than for those who have a spouse (32.2%).

1) When older women with disabilities own a house in their name, it is assumed that they have a certain amount of assets in their possession, which suggests a possible reduced probability of poverty. Therefore, owning a house was considered to be an enabling resource.

Table 1. Descriptive statistics

Category		Non-poverty	Poverty	Total	
Predisposing characteristics	Years of education	Average (standard deviation)	6.19 (3.54)	5.09 (3.34)	5.83 (3.51)
	Type of disability	External physical disabilities	65.6%	34.4%	100.0%
		Sensory disabilities	68.7%	31.3%	100.0%
		Mental disabilities	77.1%	22.9%	100.0%
		Internal physical disabilities	80.5%	19.5%	100.0%
	Degree of disability	Severe	68.0%	32.0%	100.0%
		Mild	67.3%	32.7%	100.0%
	Spouse	No	67.2%	32.8%	100.0%
		Yes	67.8%	32.2%	100.0%
	Enabling resources	Employment status	Unemployed	66.0%	34.0%
Employed			73.7%	26.3%	100.0%
Residence type		Not owned	63.7%	36.3%	100.0%
		Owned	71.4%	28.6%	100.0%
Economic activity rate of household members		Average (standard deviation)	21.10 (24.84)	12.30 (20.58)	18.25 (23.88)
Public transfer income	Average (standard deviation)	340.62 (303.93)	355.57 (293.65)	346.27 (300.00)	
Perceived needs	Subjective socio-economic status	Lower class, Lower-middle class	66.8%	33.2%	100.0%
		Upper-middle class, Upper class	86.2%	13.8%	100.0%
	Preparation for old age	No	66.3%	33.7%	100.0%
		Yes	82.1%	17.9%	100.0%

※ Note: n (obs) = 1554, n (group) = 518

Second, in enabling resources, the unemployed (34.0%) have a higher poverty rate than the employed(26.3%) regarding employment status. As for residence type, those who do not own their residence(36.3%) have a higher poverty rate than those who do(28.6%). The percentage of economic activities of household members is higher in the non-poverty group(M=21.10, SD=24.84) than the poverty group(M=12.30, SD=20.58). However, the poor group(M=355.57, SD=293.65) showed a higher result than the non-poor group(M=340.62, SD=303.93) in the case of public transfer income.

Third, the lower and the lower-middle class (33.2%) showed a higher poverty rate than the higher-middle and the upper class(13.8%) concerning subjective socioeconomic status within the recognized needs. Moreover, those who do not prepare for old

age(33.7%) showed a higher poverty rate than those who do(17.9%).

2. Absolute Poverty Rate and Ordinary Income

<Table 2> shows the results of the absolute poverty rate of households with older women with disabilities by year. The absolute poor, which constitutes those with less household income than the minimum cost of living, composes 35.0% of the

Table 2. Absolute poverty rate of households with older women with disabilities

Category	2011	2012	2013
Non-poverty	65.0%	67.6%	69.8%
Poverty	35.0%	32.4%	30.2%
Total	100.0%	100.0%	100.0%

※ Notes: n (obs) = 1554, n (group) = 518, This result applied the weighted values, This is the change in the poverty status of households with older women with disabilities.

sample in 2011, 32.4% in 2012, and 30.2% in 2013, proving that the poverty rate is gradually decreasing. The study by Kim and Park(2007) on all households of people with disabilities also found that the absolute poverty rate is slowly decreasing, as the absolute poverty rate was 43.3% in 2008, 43.6% in 2009, and 38.9% in 2010.

〈Table 3〉 shows the results of analyzing the

Table 3. Ordinary income analysis of households with older women with disabilities

Category	2011	2012	2013
Earned income	821.78 (59.5%)	789.22 (56.8%)	786.82 (55.8%)
Social insurance income	133.83 (9.7%)	154.78 (11.1%)	155.75 (11.0%)
Property income	55.20 (4.0%)	52.03 (3.7%)	51.00 (3.6%)
Private transfer income	146.85 (10.6%)	169.46 (12.2%)	181.28 (12.9%)
Public transfer income	233.44 (16.2%)	226.01 (16.3%)	235.26 (16.7%)
Total	1380.26 (100.0%)	1390.06 (100.0%)	1490.56 (100.0%)

ordinary incomes of households with older women who have disabilities. The annual ordinary income is 1380.26 million KRW in 2011, 1,390.6 million KRW in 2012, and 1,490.56 million KRW in 2013. The percentage of earned income, which accounts for the majority of ordinary income, tends to slowly decrease, totaling 59.5% in 2011, 56.8% in 2012, and 55.8% in 2013. Conversely, public transfer income is constantly increasing, totaling 16.2% in 2011, 16.3% in 2012, and 16.7% in 2013.

3. Factors Affecting Poverty Households with Older Women with Disabilities

To analyze factors affecting poverty in households with older women who have disabilities, a panel logit analysis was conducted, as shown in 〈Table 4〉. The results of the analysis show that predisposing characteristics have the greatest effects on poverty. More specifically, years of education (among the predisposing characteristics) have a

Table 4. Factors affecting the poverty of households with older women with disabilities

Category	B	S.E.	Wals	Exp(B)
(Constant)	-0.081	0.017	23.119	0.922
Predisposing characteristics				
Years of education	-0.081	0.017	23.119***	0.922
Type of disability	-0.242	0.122	3.899**	0.785
Degree of disability	-0.257	0.126	4.173**	0.774
Spouse	0.392	0.126	9.660***	1.480
Enabling resources				
Employment status	-0.044	0.159	0.078	0.957
Residence owned	-0.143	0.125	1.304	0.867
Economic activity rate of household members	-0.017	0.003	37.160***	0.983
Public transfer income	0.080	0.024	11.173***	1.083
Perceived needs				
Subjective socio-economic status	-0.808	0.403	4.014	0.446
Preparation for old age	-0.413	0.270	2.343	0.662

N = 1,554

$\chi^2 = 125.572^{**}$

Nagelkerke $R^2 = 0.108$

Cox and Snell $R^2 = 0.078$

※ Notes: **p<0.05, ***p<0.01

negative effect at a 1% significance level, and type of disability has a negative effect at a 5% significance level. Moreover, the degree of disability has a negative effect at a 5% significance level, and having a spouse also has a negative effect at a 1% significance level. Among enabling resources, the rate of household members' economic activity had a negative effect at 1% significance level, while public transfer income had an equally positive effect at 1% significance level.

First, among the predisposing characteristics, the result showed that the possibility of poverty decreased by 8% when the years of education for older women with disabilities increased by one year. If older women with disabilities have external physical disabilities, the possibility of poverty rate decreased by 21.5% when compared to those with sensory impairments, mental disabilities, and internal physical disabilities. These results coincide with previous related studies(Lee, 2001; Schiller, 2003; Strax, *et. al.*, 2010). Furthermore, if older women with disabilities are severe, the probability of poverty decreases by 22.6%, and if they have a spouse, the probability of poverty increases by 48%.

Studies by Kim(2007) and Kim & Park(2007) claimed that people with severe disabilities were more likely to fall into poverty, but this study produced contrary results. This may be due to the characteristics of older women with disabilities, as those from households in absolute poverty are less likely to be engaged in economic activities, and thus depend on public transfer income; therefore, if their disabilities are severe, they are less likely to be poor compared with those with mild disabilities.

Second, the possibility of poverty rate decreased by 1.7% if the household members engaged in

economic activities. Hong(2004) discussed that the out of poverty rate gets higher if the number of the employed is higher in all households with no disabilities and hence his discussion supports the result of this study. However, whether older women with disabilities were employed did not produce a meaningful result. In other words, there has been a tendency for older women with disabilities to be satisfied with the public transfer income and not wanting to find jobs instead of engaging in economic activities like employment to escape poverty. Therefore, the Korean government is applying a relative poverty rate in determining eligibility for receiving a national basic living wage as well as special support funds for people with disabilities to overcome such limitations.

In terms of enabling resources, the probability of poverty decreased by 9.6% in cases where household members were engaged in economic activity. Additionally, it was found that the probability of poverty increased by 8.3% when public transfer income was greater. Nam(2016) also reported that the probability of entering poverty is higher when persons with disabilities receive public assistance than it is otherwise.

Third, among perceived needs, socioeconomic status and preparation for old age did not have any significant effect on the factors determining poverty in older women with disabilities.

V. Discussion and Conclusion

To determine the status and factors that affect the poverty rate of households with older women who have disabilities, this study used the integrated data of the PSED from Years 3, 4, and 5; selected

1,554 women with disabilities who were aged 60 or over; and used a panel logit analysis to analyze factors affecting their poverty.

As a result of analyzing factors affecting the poverty of households with older women who have disabilities it was found that :among predisposing characteristics, women with fewer years of formal education, a mild degree of disability, sensory, mental, and internal physical disabilities, or no spouse were more likely to be poor. Besides, as the economic activity rate of the household members becomes low, and the public transfer income becomes high, the possibility of poverty rate becomes high. Based on such results, the following measures are needed to reduce poverty of the households with disabled elderly females.

First, the absolute poverty rate of households with older women with disabilities was 35.0% in 2011, 32.4% in 2012, and 30.2% in 2013, proving that the poverty rate is gradually decreasing, but it is necessary to focus on the fact that their income level is also low. In other words, the government must focus on taking older women with disabilities into consideration when establishing poverty measures for people with disabilities and pay attention to not only reducing poverty, but also preventing it.

Second, to reduce poverty amongst older women with disabilities, it is necessary to increase their education level in the long term. Considering the reality in which the average education level of people with disabilities is much lower than that of people without disabilities, the government must show some policy drive for improving the education level of women with disabilities to reduce their level of poverty later in life.

Third, poverty reduction measures must be established in consideration of an older women's type and degree of disability. As indicated by the findings of this study, poverty reduction measures are necessary for people with sensory disabilities, mental disabilities, and internal physical disabilities. Additionally, older women with disabilities are less likely to have jobs due to the three limitations of having a disability, being female, and being older; thus, it is necessary to establish measures to reduce poverty for older women with mild disabilities who may not benefit from public transfer income.

Fourth, it is necessary to improve public assistance programs such as public transfer income, which increases the probability of poverty in older women with disabilities. The probability of poverty increased when older women with disabilities received a greater amount of public transfer income. This is understood to originate in the systemic limitation of the national basic living wage, which deducts increased income from social insurance income or disqualifies the beneficiary as soon as the beneficiary participates in economic activity and generates income(Kwak & Shin, 2006). Therefore, it is important to reinforce this institution to reduce medical costs and complement earned income, as in the example of the American Ticket to Work and Work Incentives Improvement Act, 1999(TWIIA), so as to strengthen work incentives for older women with disabilities. Further, it is necessary to consider raising the upper cap for total income for households of older women with disabilities, and expanding the range of eligibility in the Earned Income Tax Credit(EITC) for low-income workers(Oh, 2008; Nam, 2016).

This study is significant in that it analyzed the

status and factors affecting the poverty of older women with disabilities. However, there were many limitations in clarifying how high the poverty rate of households with older women who have disabilities was, as there were insufficient data for comparative analysis due to a lack of previous studies of older people with disabilities (especially older women with disabilities). Therefore, future research is necessary to compare the poverty rate among older women with and without disabilities.

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여성장애노인의 빈곤실태와 결정요인에 관한 연구

국문초록 세계적으로 유례를 찾아볼 수 없을 정도로 빠르게 진행되고 있는 고령화 가운데 한국의 노인 빈곤문제는 매우 심각한 수준에 처해있다. 특히, 여성장애노인의 고령화와 빈곤문제는 더욱 심각하다. 따라서 본 연구는 앤더슨 모형을 기반으로 장애인들 중에서도 여성이라는 이유로 이중차별을 받고 있는 여성장애노인가구의 빈곤실태와 빈곤 결정요인을 분석하였다. 이를 위해서 장애인고용패널조사 4, 5, 6차년도 자료를 활용하여 60세 이상 여성장애노인 1,554명을 분석대상으로 하였다. 주요 분석결과 첫째, 소인적 특성에서 여성장애노인의 교육년수가 짧고 장애정도가 경중이며 장애유형이 감각장애, 정신적 장애, 신체내부장애이고 배우자가 없는 경우 빈곤할 확률이 높아지는 것으로 나타났다. 둘째, 가용자원 특성에서 여성장애노인이 주택을 소유하지 않고 가구원의 경제활동 비율이 낮고 공적이전소득이 많을수록 빈곤할 확률이 높아지는 것으로 나타났다. 셋째, 인식된 필요 요인들은 여성장애노인의 빈곤에 유의미한 결과를 주지 못하는 것으로 나타났다. 이러한 결과를 바탕으로 여성장애노인가구의 빈곤을 감소시키기 위한 정책방안을 제시하였다.

주제어 : 여성장애노인, 빈곤, 패널로지분석

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