

Are Persons with disabilities happy? : The Effects of Poverty and Gender on Happiness

Mi Ok Kim, Si Kyung Nho, Jun Young Jeong

Abstract--- *We ask in this study “Are Persons with disabilities happy indeed?” and perform a comparative analysis of the factors that affect happiness according to poverty and gender. To this end, this study used the third survey (2018) data from the Second-Wave Panel Survey of Employment for the Disabled and analyzed data on 3,778 disabled person aged 20 or older. Groups were classified into four groups of no-poverty males with disability, no-poverty females with disability, males with disability suffering poverty, and females with disability suffering poverty. Descriptive statistical analysis shows that happiness, health status, household income, housing satisfaction, interpersonal relationships, and self-esteem are all above median values, that the level of participation in social activities is around average, and that socioeconomic status and discrimination experience are below average. Comparative analysis of differences of groups shows that there exist statistically significant differences for all the major variables among all groups. Multi-regression analysis confirms that health status, socioeconomic status, housing satisfaction, and self-esteem are factors that affect the happiness of all groups. It is also confirmed that chronic diseases and interpersonal relationships are statistically significant only among groups of the disabled in non-poverty, that employment is statistically significant among disabled males in non-poverty only, that participation in social activities has a statistically significant effect among the group of disabled males in non-poverty and the group of disabled females in poverty, and that experiencing discrimination has a statistically significant negative effect on happiness among disabled females only. The study suggests that providing the disabled with customized supports that take different characteristics of disability into consideration is required. Further, the implementation of the pertinent welfare system and institutional support according to poverty and gender for the disabled is also suggested.*

Keywords--- *persons with disabilities, happiness, poverty, gender*

I. INTRODUCTION

Happiness is the most universal value that humanity pursues. Humans have long been looking for ways to live happy lives and trying to realize happy lives. In particular, in recent years, happiness has become an important institutional goal beyond personal values. It is more than just a subjective concept. Rather, it is one of the important visions that society must guarantee institutionally. The United Nations (UN), through ‘the Universal Declaration of Human Rights’ stipulates that all human beings have an equal right to human rights and happiness. The Korean Constitution also stipulates in Article 10 Right to Pursue Happiness that the right to pursue happiness is a basic

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human right and the nation must endeavor to provide happy lives for the citizens[1]. As such, happiness is a very important factor in a human being's life.

The health factor[2], economic factor[3][4], housing factor[5] and psychosocial factor[2][3][4][6] are reported to be more important factors that affect the happiness of humans. Among them, poverty is a very significant factor affecting happiness[4][5], and it is reported that happiness levels and predictive factors vary according to gender. It is expected that person with disabilities also have different characteristics depending on poverty and gender[7], which may result in different levels of happiness and predicting factors[4][6]. However, there has been little study of comparative analysis of happiness between different groups classified according to poverty and gender among person with disabilities. The lack of such a study is probably a reflection of society's attitude that does not look at persons with disabilities from the perspective of happiness.

Disability has been long defined as a condition of unhappiness, unfortunateness and avoidance, and person with disabilities have only been viewed as the socially disadvantaged living in our society in the face of discrimination and negative gaze[1][2]. Moreover, the criterion of poverty and gender has also been a factor in branding person with disabilities as even more unfortunate[4]. However, some studies report that person, who became disabled and fell to poverty after suffering medically severe disabilities, have found a second life or discovered the true value and new meaning of life[2]. It can be said that how the disability is accepted or perceived subjectively critically affects the happiness of the disabled. Furthermore, an individual's happiness is a subjective concept which may vary according to how the individual perceives his/her happiness[1][2].

Despite the fact that the importance of happiness on the effect of humans' lives is increasingly more emphasized, there have not been sufficient studies on the happiness of the disabled. Therefore, we ask in this study "Are person with disabilities happy indeed?" and perform a comparative analysis of the factors that affect happiness among different groups according to poverty and gender. The study suggests that providing the disabled with customized supports that take different characteristics of disability into consideration is required. In particular, the implementation of the pertinent welfare system and institutional support according to poverty and gender for persons with disabilities is suggested, which may serve as a basic resource for the promotion of the happy life of persons with disabilities.

II. METHODS

2.1 Data for Analysis

This study utilizes the 2018 Disability Employment Panel Survey Data (the third survey of the second wave)[8] of the Korea Employment Agency for the Disabled and analyzes predicting factors of the happiness of the disabled. The survey was conducted by the Korea Employment Agency for the disabled on the registered disabled person. This study utilizes data on 3,997 persons with disabilities over 20 years old. Those disabled who receive National Basic Livelihood Security benefits are classified as the disabled in poverty. The entire group was divided into 4

subgroups according to poverty and gender as follows: disabled males in non-poverty (2,017), disabled females in non-poverty (996), disabled males in poverty (593), and disabled females in poverty (391).

2.2 Measures

Table 1. shows the explanations and measurement units for the variables used in the data analysis.

Table 1. Composition and content of variable

Variable		Content
Outcome variable	Happiness	Single question asking about the degree of happiness of a respondent (scales of 1 to 10), from 1 being very unhappy to 10 being very happy
	Age	Continuous variables
Control Variables	Education level	non, elementary graduates, middles school graduates, high school graduates, college graduates or higher
	Degrees of disability	severe, mild
Health Factor	healthiness	Single question about the status of health (scales of 1 to 4), from 1 being very poor to 4 being very good
	presence of chronic illness	had, none
Predictors	household income	Household income is input after natural log transformation
	socioeconomic status	Single question about subjectively perceived socioeconomic status, low class, low to middle class, middle to high class, and high class
	status of employment	had, none
Home Factor	housing ownership type	had, none
	residential satisfaction	Single question about the level of satisfaction for life and housing (scales of 1 to 5), from 1 being very unsatisfactory to 5 being very satisfactory.
Psycho-social Factor	interpersonal relationships	7 Questions to measure interpersonal relationship ability, measures originally designed by Schlein&Guerny, modified and complemented by Jeon SeokGyun (1994), and selectively adopted by Park Hyun Sun (1998), from 1 being not-at-all to 4 being very-much-so.

self-esteem	Rosenberg Self-Esteem Scales (RSES) 10 Questions, originally developed by Rosenberg (1965) and adapted by Jeon ByungJei (1974) , from 1 being not-at-all to 4 being very-much-so.
participation in social activities	Single Question about the level of participation in social activities (scales of 1 to 4), from 1 being no participation at all to 4 being very active participation.
experience of discrimination	Single question about experiencing discrimination due to disability (scales of 1 to 4), from 1 being not experiencing at all to 4 being experiencing all the time.

2.3 Statistical Analyses

This study utilizes SPSS 22.0 and employs the following methods. Firstly, frequency analysis and descriptive statistical analysis are conducted to investigate the general characteristics of the surveyed subjects and major variables. Secondly, ANOVA analysis is performed to investigate the differences among the major variables including levels of happiness of different groups. Thirdly, a multi-regression analysis is conducted to verify happiness predicting factors according to poverty and gender.

III. RESULTS

3.1 General Characteristics of the Subjects

The studied subjects are 20 years or older and their general characteristics are shown in Table 2.

Table 2.General Characteristics of the Subjects

Variable		N	%	Total (N,%)
Poverty	non-poverty	3013	75.4	3997 (100)
	poverty	984	24.6	
Gender	Male	2611	65.3	3997 (100)
	Female	1387	34.7	
Age	20 - 39 years	1330	33.3	3997 (100)
	40 – 59 years	2059	54.5	
	60 years ~	608	15.2	
Education Level	Middle school graduates or lower	910	22.8	3997 (100)

	High school graduates	1830	45.8	
	Colleges graduates or higher	1257	31.4	
Degrees of disability	Severe	2715	67.9	3997 (100)
	Mild	1284	32.1	

3.2 Descriptive Statistical Analysis of Major Variables

The results of descriptive statistical analysis of major variables used in this study are shown in Table 3.

Happiness is measured in scales of 1 to 10. The bigger the number, the bigger the happiness of a person with disabilities. The mean value in this study is 6.13 (sd=1.545).

Predictors consist of health, economic, home, and psychosocial factor. As for the health factor, the status of health is measured in scales of 1 to 4, with higher numbers indicating better health. The mean value is reported to be 2.48 (sd=.646). The presence or absence of chronic disease is a dummy variable. The default value is the absence of chronic disease. Household income, after natural logarithm conversion, is used as an economic factor. Bigger numbers indicate higher household incomes. The mean value is 7.71 (sd=.699). Socioeconomic status is measured in scales of 1 to 4, with higher numbers meaning higher subjective perception of his/her own status. The reported mean value is 1.72 (sd=.699). Employed or unemployed is a dummy variable, with the default value being unemployed. As for home factor, owning or not owning a house is a dummy variable, with not owning being the default value. Housing satisfaction is measured in scales of 1 to 5, with 5 being the highest satisfaction. The mean value is 3.60 (sd=.782). An interpersonal relationship is used as a psychosocial factor and measured in scales of 1 to 4, where the higher the number, the higher the ability for interpersonal relationships is. The reported mean value is 2.73 (sd=.650). Self-esteem is measured in scales of 1 to 4, with higher numbers indicating higher self-esteem. The mean value is 2.73 (sd=.381). Participation in social activities is measured in scales of 1 to 4, with higher numbers meaning higher levels of participation. The reported mean value is 2.20 (sd=.777). Discrimination experience is measured in scales of 1 to 4, with higher numbers indicating encountering more discriminations. The mean value is 1.81 (sd=.786).

Table 3. Descriptive Statistical Analysis of Major Variables

(N=3997)

Variable		Minimum value	Maximum value	Mean	Standard Deviation	
Outcome Variable	Happiness	1	10	6.13	1.545	
Predictors	Health	healthiness	1	4	2.48	.646
	Factor	presence of chronic illness	0	1	.30	.458

Economy Factor	household income	3.40	11.44	7.71	.699
	socioeconomic status	1	4	1.72	.699
	status of employment	0	1	.52	.499
Home Factor	housing ownership type	0	1	.47	.499
	residential satisfaction	1	5	3.60	.782
Psycho- social Factor	interpersonal relationships	1	4	2.73	.650
	self-esteem	1	4	2.73	.381
	participation in social activities	1	4	2.20	.777
	experience of discrimination	1	4	1.81	.786

*p<.05, **p<.01, ***p<.001

Household income is input after natural log transformation

3.3 Comparisons of group differences per poverty and gender

3.3.1 Comparisons of demographic sociological characteristics of the studied individuals per poverty and gender

Comparisons of demographic sociological characteristics of the groups of individuals per poverty and gender are shown in Table 4.

Age groups consist of a group of individuals aged between 40 and 59 (males in non-poverty 49.2%, females in non-poverty 47.4%, males in poverty 62.6%, and females in poverty 57.0%), a group of individuals aged between 20 and 39 (males in non-poverty 37.9%, females in non-poverty 32.4%, males in poverty 22.8%, and females in poverty 27.6%), and a group of individuals aged 60 or older (males in non-poverty 12.9%, females in non-poverty 20.2%, males in poverty 14.7%, and females in poverty 15.3%).

The study shows final education levels vary according to whether being in poverty or not. In the case of the disabled person in non-poverty, the final education levels are in the order of high school graduation (males 45.5%, females 43.2%) college graduation or higher (males 40.5%, females 28.7%), and middle school graduation or lower (males 13.9%, females 27.3%). On the other hand, in the case of the disabled person in poverty, the final education

levels are in the order of high school graduation (males 50.1%, females 47.3%), middle school graduation or lower (males 34.2%, females 37.6%), and college graduation or higher (males 15.8%, females 15.2%).

With respect to the severity levels of disabilities, the disabled person in poverty report the higher levels of severity compared with those in non-poverty as follows: males in non-poverty 22.9%, females in non-poverty 26.7%, males in poverty 56.3%, and females in poverty 56.5%.

Tabel 4. Comparisons of demographic sociological characteristics of the studied individuals per poverty and gender

(N ,%)

Variable		Group			
		non-poverty		poverty	
		males with disabilities (N=2017)	females with disabilities (N=996)	males with disabilities (N=593)	females with disabilities (N=391)
Age	20 - 39 years	764(37.9)	323(32.4)	135(22.8)	108(27.6)
	40 – 59 years	993(49.2)	472(47.4)	371(62.6)	223(57.0)
	60 years ~	260(12.9)	201(20.2)	87(14.7)	60(15.3)
Education level	Middle school graduates or lower	281(13.9)	279(27.3)	203(34.2)	147(37.6)
	High school graduates	918(45.5)	430(43.2)	297(50.1)	185(47.3)
	Colleges graduates or higher	818(40.5)	287(28.7)	93(15.8)	59(15.2)
Degrees of disability	Severe	1555(77.1)	730(73.3)	259(43.7)	170(43.5)
	Mild	462(22.9)	266(26.7)	334(56.3)	221(56.5)

3.3.2 Comparisons of group differences per poverty and gender

Comparisons of group differences regarding major variables per poverty and gender are shown in Table 5.

Happiness levels for different groups are in the order of the males in non-poverty group (6.41 score), the females in non-poverty group (6.32 score), the females in poverty group (5.42 score), and the males in poverty group (5.35 score). This is shown to be statistically significant ($F=175.068$, $p<.001$). Post verification of each group shows that there exist statistically significant differences among the group of disabled person in poverty, the group of disabled females in non-poverty, and the group of disabled males in non-poverty.

Health status for different groups are in the order of the males in non-poverty group (2.65 score), the females in non-poverty group (2.51 score), the females in poverty group (2.09 score), and the males in poverty group (2.09 score), which is shown to be statistically significant ($F=50.881$, $p<.001$). Post verification of each group shows that there exist statistically significant differences among the group of disabled person in poverty, the group of disabled females in non-poverty, and the group of disabled males in non-poverty. Regarding chronic diseases, the orders are the males in non-poverty group (.75 score), the females in poverty group (.44 score), the males in poverty group (.43 score), and the females in non-poverty group (.32 score). This is shown to be statistically significant ($F=478.954$, $p<.001$). Post verification of each group shows that there exist statistically significant differences among the group of disabled person in poverty, the group of disabled females in non-poverty, and the group of disabled males in non-poverty.

Regarding household incomes, the orders are the males in non-poverty group (8.01 score), the females in non-poverty group (7.93 score), the females in poverty group (6.90 score), and the males in poverty group (6.80 score), which is shown to be statistically significant ($F=284.469$, $p<.001$). Post verification of each group shows that there exist statistically significant differences between the group of disabled person in poverty and the group of disabled person in non-poverty. Concerning socioeconomic status, the orders are the males in non-poverty group (1.89 score), the females in non-poverty group (1.86 score), the females in poverty group (1.22 score), and the males in poverty group (1.19 score). This is shown to be statistically significant ($F=499.725$, $p<.001$). It is confirmed through post verification of each group that there exist statistically significant differences among the group of disabled person in poverty, the group of disabled females in non-poverty, and the group of disabled males in non-poverty. Employment status for different groups are in the order of the males in non-poverty group (.75 score), the females in non-poverty group (.48 score), and the disabled person in poverty group (.11 score), which is shown to be statistically significant ($F=272.532$, $p<.001$). Post verification of each group shows that there exist statistically significant differences between the group of disabled person in poverty and the group of disabled person in non-poverty.

Regarding housing ownership, the orders are the females in non-poverty group (.61 score), the males in non-poverty group (.58 score), the males in poverty group (.12 score), and the females in poverty group (.09 score). This is shown to be statistically significant ($F=104.397$, $p<.001$). Post verification of each group shows that there exist statistically significant differences between the group of disabled person in poverty and the group of disabled person in non-poverty. With regard to housing satisfaction levels, the orders are the females in non-poverty group (3.74 score), the males in non-poverty group (3.71 score), the females in poverty group (3.29 score), and the males in

poverty group (3.19 score), which is shown to be statistically significant ($F=168.989$, $p<.001$). Post verification of each group shows that there exist statistically significant differences between the group of disabled person in poverty and the group of disabled person in non-poverty.

Interpersonal relationship levels are in the order of the males in non-poverty group (2.85 score), the females in non-poverty group (2.84 score), the females in poverty group (2.37 score), and the males in poverty group (2.32 score), which is shown to be statistically significant. Post verification of each group shows that there exist statistically significant differences between the group of disabled person in poverty and the group of disabled person in non-poverty. Regarding self-esteem, the orders are the disabled person in non-poverty group (2.80 score), the females in poverty group (2.53 score), and the males in poverty group (2.52 score). This is shown to be statistically significant. Post verification of each group shows that there exist statistically significant differences among the group of disabled person in poverty, the group of disabled females in non-poverty, and the group of disabled males in non-poverty. Participation in social activities levels are in the order of the males in non-poverty group (2.35 score), the females in non-poverty group (2.26 score), the females in poverty group (1.84 score), and the males in poverty group (1.79 score), which is shown to be statistically significant. Post verification of each group shows that there exist statistically significant differences between the group of disabled person in poverty and the group of disabled person in non-poverty. Regarding experience in discrimination, the orders are the disabled person in poverty group (2.15 score), the females in non-poverty group (1.75 score), and the males in non-poverty group (1.69 score). This is shown to be statistically significant. Post verification of each group shows that there exist statistically significant differences between the group of disabled person in poverty and the group of disabled person in non-poverty.

Table 5. Comparisons of group differences per poverty and gender
 (M, SD)

Variable	Group				F	Scheffe/ Dunn ett
	non-poverty		poverty			
	males with disabilities (N=20 17)	female s with disabilities (N=99 6)	males with disabilities (N=593)	female s with disabilities (N=391)		
Happiness	6.41(1.40)	6.32(1.48)	5.35(1.58)	5.42(1.72)	175.06 8 ***	a>b>c,d

Health Factor	healthiness	2.65(.59)	2.51(.61)	2.09(.66)	2.14(.62)	50.881 ****	a>b>c,d
	presence of chronic illness	.75(.43)	.32(.47)	.43(.50)	.44(.50)	478.95 4 ***	a>b>c,d
Economy Factor	household income	8.01(.79)	7.93(.85)	6.80(.83)	6.90(.89)	284.46 9 ***	a,b>c,d
	socioeconom ic status	1.89(.70)	1.86(.70)	1.19(.46)	1.22(.49)	499.72 5 ***	a>b>c,d
	status of employment	.75(.434)	.48(.50)	.11(.31)	.11(.31)	272.53 2 ***	a,b>c,d
Home Factor	housing ownership type	.58(.50)	.61(.49)	.12(.36)	.09(.29)	104.39 7 ***	a,b>c,d
	residential satisfaction	3.71(.72)	3.74(.70)	3.19(.84)	3.29(.78)	168.98 9 ***	a,b>c,d
Psycho- social Factor	interpersonal relationships	2.85(.58)	2.84(.61)	2.32(.68)	2.37(.74)	136.87 2 ***	a,b>c,d
	self-esteem	2.80(.36)	2.80(.37)	2.52(.34)	2.53(.38)	120.74 0 ***	a>b>c,d
	participation in social activities	2.35(.76)	2.26(.75)	1.79(.71)	1.84(.72)	81.207 ***	a,b<c,d

	experience of discrimination	1.69(.74)	1.75(.76)	2.15(.84)	2.15(.81)	115.669***	a,b>c,d
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*p<.05, **p<.01, ***p<.001

3.4 Factors affecting happiness per different groups according to poverty and gender

A comparative analysis of factors affecting happiness per different groups according to poverty and gender is performed and the results are shown in Table 6.

The results show that health status, socioeconomic status, housing satisfaction level, and self-esteem have a statistically significant positive effect on the happiness of all groups.

The existence of chronic diseases results in a negative effect on the disabled person in non-poverty (males: $\beta = -.052$, $p < .05$, females: $\beta = -.090$, $p < .01$). An interpersonal relationship is confirmed to have a positive effect on the disabled person in non-poverty (males: $\beta = -.053$, $p < .05$, females: $\beta = -.068$, $p < .05$), while the experience in discrimination appears to have a statistically significant negative effect on the disabled females (in non-poverty: $\beta = -.088$, $p < .01$, in poverty: $\beta = -.147$, $p < .01$).

It is also confirmed that employment has a positive effect on the males in non-poverty group ($\beta = .055$, $p < .05$) and that participation in social activities appears to have a positive on the happiness of the males in non-poverty group ($\beta = .088$, $p < .001$) and the females in poverty group ($\beta = .119$, $p < .05$).

Table 6. Factors affecting happiness per different groups according to poverty and gender

Variable		Group							
		non-poverty				poverty			
		males with disabilities (N=2017)		females with disabilities (N=996)		males with disabilities (N=593)		females with disabilities (N=391)	
		β	S.E	β	S.E	β	S.E	β	S.E
Control Variables	Age	.015	.003	.034	.003	-.034	.006	-.032	.007
	Education level	.004	.033	.062	.045	-.039	.056	-.074	.069
	Degrees of	.053*	.073	.026	.099	-.005	.121	.031	.166

	disability								
Health Factor	healthiness	.142 ***	.053	.199 ***	.077	.151 ***	.097	.160 **	.133
	presence of chronic illness	-.052 *	.071	-.090 **	.092	-.042	.122	-.048	.161
Economy Factor	household income	.005	.039	.032	.043	.044	.074	.051	.086
	socioeconomic status	.126 ***	.047	.093 **	.065	.091 *	.134	.094 *	.155
	status of employment	.055 *	.072	-.040	.084	-.029	.198	.001	.250
Home Factor	housing ownership type	.003	.058	.052	.087	.059	.186	.022	.262
	residential satisfaction	.231 ***	.041	.181 ***	.059	.210 ***	.073	.250 ***	.091
Psycho- social Factor	interpersonal relationships	.053 *	.061	.068 *	.084	.054	.102	.022	.125
	self-esteem	.141 ***	.090	.162 ***	.121	.242 ***	.194	.295 ***	.243
	participation in social activities	.088 ***	.041	.052	.063	.076	.091	.119 *	.113
	experience of discrimination	-.035	.042	-.088 **	.055	-.069	.073	-.147 **	.092
R ²		.287		.327		.288		.392	
adjusted R ²		.282		.317		.270		.368	
F		54.776***		32.352***		15.404***		16.066***	

*p<.05, **p<.01, ***p<.001

Base variable : degrees of disability – severe, presence of chronic illness – none, status of employment – Unemployed, Housing ownership type – not own house

Household income is input after natural log transformation

IV. CONCLUSION AND DISCUSSION

We have asked in this study “Are Persons with disabilities happy indeed?” and performed a comparative analysis of the factors affecting happiness according to poverty and gender. For this purpose, we have utilized the data of 3,997 person with disabilities over 20 years old who responded to the 2018 Disability Employment Panel Survey (the third Survey of the second Wave). The results of our comparative analysis of the factors affecting the happiness of different groups are as follows:

First, a descriptive statistical analysis of major variables has been performed. The results show that a mean score of the level of happiness is 6.13 on the 10-point scale, which may not be satisfactory but is above average. This score, however, is very low compared with 7.69 in the previous study[9] using the same measures. These results indicate that person with disabilities still do not feel a high level of happiness. Thus, it suggests a need to enhance the social and institutional support for the disabled to a higher level than the current level to raise the happiness of the disabled. Health status, household income, housing satisfaction, interpersonal relationships, and self-esteem are all found to be above the median values. In addition, the level of participation in social activities is found to be around the average, whereas socioeconomic status and discrimination experience are reported to be lower than the average.

Secondly, we have divided all individuals aged 20 or older into subgroups according to poverty and gender and analyzed the general characteristics of each group. The results show that the middle-aged person between 40 and 59 years of age have a high poverty population among both females and males with disabilities. Although this result may reflect the high proportion of the middle-aged population in the demographic distribution of person with disabilities, it raises the need to enhance the policy regarding the middle-aged person with disabilities in poverty nonetheless. Poverty is more common among both females and males whose final education level is high school graduation, and among person with severe disabilities. These demographic characteristics should be taken into account in devising the policies for disabled person in poverty in the future. In addition, a comparative analysis of differences per group according to poverty and gender shows the existence of statistically significant differences for all the main variables among the groups. This finding may be useful to reduce the differences in the main variables among different groups, which should then help reduce the gap among different groups according to poverty and gender.

Thirdly, we have performed a comparative analysis of factors affecting happiness per different groups according to poverty and gender. The results show that health status, socioeconomic status, housing satisfaction level, and self-esteem have a statistically significant positive effect on the happiness of all groups, which supports the previous research report that socioeconomic status and self-esteem have a positive effect on the happiness of the

disabled[2][6]. That is, regardless of poverty and gender, the happiness of the disabled increases in proportion to the health, own perception of socioeconomic status, housing satisfaction, and self-esteem.

However, chronic diseases and interpersonal relationships are found to be statistically significant only among groups of the disabled in non-poverty.

This result may be attributable to the severity of disabilities and the poor state of the general health of disabled person in poverty, which may result in a situation where the effect of chronic diseases other than the disability itself on life is not as big as that of disabled person in poverty. Also, when the basic elements of life, such as food, clothing and shelter, are not adequately provided, interpersonal relationships may not significantly affect the happiness of disabled person in poverty. Therefore, these results indirectly support the previous research report of a positive effect of interpersonal relationships on the happiness of the disabled[4].

In addition, employment is found to have a statistically significant effect on the happiness of disabled males in non-poverty only. It may be expected that this may be associated with the social role as a 'man' granted to a disabled male person[4] as well as the previous study report[3][10] about the positive effect of employment on the happiness of the disabled. Moreover, this study shows that the employment rate of disabled males in non-poverty, 74.8%, is markedly higher than that of disabled males in poverty, 10.8%. It is presumed that because the employed disabled males in non-poverty may feel that they are fulfilling their granted social role as a 'man' well, employment can positively affect the happiness of disabled males in non-poverty.

It is confirmed that participation in social activities has a statistically significant effect among the group of disabled males in non-poverty and the group of disabled females in poverty. This result indirectly supports the previous study[11] that reports a positive effect of economic ability on participation in social activities. In addition, it supports the previous study report[5] that the participation by disabled females in poverty positively affects their happiness and provides a sense of belonging. As such, whether disabled person's participation in social activities affects the happiness of the disabled or not varies according to the poverty of disabled males and females.

It is found that experiencing discrimination has a statistically significant negative effect on happiness among disabled females only. This finding supports the previous study[12] that reports a negative effect of discrimination experience on the happiness of disabled females. It is presumed that it happens because disabled females experience double discriminations both as a woman and as a disabled person[13].

Based on our analysis, we suggest as follows:

First, it is important to provide practical and institutional supports for the factors affecting the happiness of all disabled person, which are common among all groups. Health status, socioeconomic status, housing satisfaction, and self-esteem are happiness affecting factors in common among all groups. Therefore, these factors should be prioritized in providing practical and institutional supports for the disabled's happy lives. For this purpose, it is necessary to properly link it with programs associated with the happiness affecting factors of the disabled. Otherwise, new programs should be provided. For example, to maintain good health, it is necessary to support programs such as visiting medical services in conjunction with local community hospitals, or to provide connection

of income security systems and related consultations to improve the socioeconomic status. In addition, it can be linked to the residential condition improvement projects by local governments to improve housing satisfaction levels, and to provide related programs to improve self-esteem. Also, it is noted that chronic disease, employment, interpersonal relationships, and discrimination experience, as happiness affecting factors, vary according to different groups. Providing additional support for these factors according to different groups as well as the common happiness affecting factors may help person with disabilities to be nearer happy life.

Secondly, qualitative supplementation of the employment support system is required to improve the socioeconomic status of the disabled. Improvement of socioeconomic status is a common happiness affecting factor among all groups. Socioeconomic status can be improved through economic activities and employment makes these activities possible. However, this study confirms that employment is a factor that affects happiness among disabled males in poverty only. This can be predicted in relation to the employment rate of the disabled males in non-poverty group among the four groups, which is considerably higher than that of the other groups. Therefore, in order to improve the socioeconomic status of person with disabilities, economic activities through employment should be given priority. Since 2019, the integrated system for employment support between the Employment Agency and local governments has been established so that employment services, which were previously available only at the Employment Agency, can now be obtained by visiting community service centers. As a result, access to employment services is expanded. However, despite these changes, a lack of public relations has led to the under-utilization of the new system or shortage of good jobs. Therefore, qualitative supplementation of the existing employment support system, such as creating good quality jobs, connection with sound businesses, and easy delivery of job-related information via push alarm, should be made together.

Lastly, it is necessary to try to improve the perception of females with disabilities. Disabled females experience double discriminations both as a woman and as a disabled person, which adversely affects the happiness of disabled females. This experience of females with disabilities results from the discriminatory perceptions of person. As such, it is required to improve the perceptions of females with disabilities to promote their happiness. Recently, education on human rights for the disabled has been quite active and established in ordinances of local governments. If gender factors are reflected in the education on human rights for the disabled, it may be quite effective in improving the perceptions of females with disabilities. However, there exist problems such that the curricula of the education are various and lack consistency and levels of lectures vary depending on the organizations and individual lecturers. Therefore, it is important to develop a consistent curriculum for education on human rights for the disabled reflecting gender factor and to improve the quality of lectures and lecturers and to educate person to improve the perception of females with disabilities.

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