The Effect of Interpersonal Relationships on the Employment of People with Developmental Disabilities: The Mediating Effect of Self-esteem

Mi Ok Kim , Hye in Kang , Jeong won Song

Abstract--- The purpose of this study was to examine the effect of interpersonal relationships on the employment of people with developmental disabilities by focusing on the mediating effect of self-esteem and to provide support for those with developmental disabilities in poor employment conditions. The subjects for analysis were 402 people with developmental disabilities (371 individuals with intellectual disabilities and 31 individuals with autism) aged 18 or older who responded to the third survey of the second wave of the Employment Panel for the Disabled at the Korea Employment Agency for Persons with Disabilities in 2018. For analysis, SPSS 22.0 and AMOS 22.0 were utilized according to the purpose of the study. A technical analysis of the major variables was conducted, and structural equations and bootstrap analysis were performed to examine whether self-esteem mediates the effects of interpersonal relationships on the employment of people with developmental disabilities. The main results of this study are as follows. First, the interpersonal relationships among people with developmental disabilities were found to have a positive (+) effect on employment. Second, such relationships were found to have a positive (+) effect on self-esteem. Third, self-esteem was found to have a partial mediating effect on the relationship between the interpersonal relationships among people with developmental disabilities and employment. The research findings suggested the necessity of establishing networks within local communities for people with developmental disabilities, the need to revitalize self-esteem improvement programs, and the implications for employing said people. This study is meaningful in that it identified the employment-related factors of people with developmental disabilities through psychosocial variables and provided the necessary data.

Keywords--- people with developmental disabilities, employment, interpersonal relationships, self-esteem

I. INTRODUCTION

Employment provides people with economic incomes that are used to satisfy the basic elements of living such as food, clothing and shelter. Employment can be a means for self-development to share social roles and exercise one's personality and, hence, has an important significance in one's life[1]. Economic, psychological and social utilities that employment can provide are common among all people. In particular, employment offers an opportunity for people with disabilities to live his/her life as an independent person rather than as a dependent person who needs protection all the time[2].

The Korean government has been creating an employment environment through the 「Act on Employment Promotion and Vocational Rehabilitation for Disabled People」 which helps people with disabilities find and

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maintain suitable employment. Such legal arrangements are to ensure the economic independence of people with disabilities and to promote human dignity and social participation, and to secure the right to develop their abilities and functions[3]. In particular, specifically for people with developmental disabilities, 「Act on the Protection and Support of the Rights of the People with Developmental Disabilities」 stipulates that Korea's central and local governments should make such measures available that are necessary for people with developmental disabilities to perform properly at their workplaces and to maintain employment[4]. However, intellectual disabilities and autistic disorders, which are the types of disability belonging to the people with developmental disabilities, are accompanied by limited communication skills and sensory disorders, as well as under-development of intellectual ability and limited social interaction[5]. Due to this characteristic disability, people with developmental disabilities have limited social relationships since childhood, and have difficulties in establishing and maintaining social relationships as adults[6].

On the other hand, self-esteem is defined as 'respecting oneself and viewing oneself as being desirable and valuable'[7][8]. This is a subjective evaluation of oneself, which is one's own feeling which helps expect a productive life through positive evaluation of oneself in relation to physical, psychological and social variables. In addition, people with developmental disabilities develop low self-esteem due to negative perceptions of society, prejudice and discrimination[9]. Self-esteem is suggested to be an important factor that affects individual behavior and social activities beyond emotional satisfaction[10].

The above-mentioned meaning and importance of employment apply with equal emphasis to people with disabilities. There have been several studies to analyze the factors that affect the employment of people with disabilities. Through these studies, it is found that interpersonal relationships of people with developmental disabilities have a positive effect on employment[11][12] as well as on self-esteem[13]. Also, a study concerning women with no disabilities has shown that self-esteem has a positive effect on employment[14]. However, there have been only a few studies that review the relationship between employment, interpersonal relationships and self-esteem among people with developmental disabilities. Moreover, while each variable's relationship with other variables may be found in a few studies, it is difficult to find a study that explores the various indirect effect variables that can appear in these relationships. Therefore, under the assumption that the interpersonal relationships of people with developmental disabilities positively affect employment through self-esteem, this study constructs a model to analyze the structural relationship of the variables. In our analytical model, we use the variables that have not been actively studied so far to expand the research on the employment of people with developmental disabilities and ultimately contribute to seeking ways to promote their employment.

The purpose of this study is to investigate the effects of interpersonal relationships of people with developmental disabilities on employment, and to examine how the relationship between interpersonal relationships and employment may vary according to self-esteem.

Questions for our study are as follows:

First, do interpersonal relationships of people with developmental disabilities affect employment?

Secondly, do the interpersonal relationships of people with developmental disabilities affect self-esteem?

Thirdly, is there a mediating effect of self-esteem on the relationship between interpersonal relationships and employment of people with developmental disabilities?

II. METHODS

2.1. Data

This study uses the raw data of the 2018 Disability Employment Panel Survey (the third survey of the second wave) of the Korea Employment Agency for the Disabled. The population of the sample data is 15 - 64 years olds with disabilities who have at least one of the 15 disability types under the Welfare Act of the Disabled. The total number of people with disabilities who participated in the third survey of the second wave of the Disability Employment Panel Survey was 4,577, of which we have selected responses of 402 people who are people with developmental disabilities (intellectual disabilities 371 people and autistic disorders 31 people).

2.2. Measures

The composition and operational definitions of the variables used in this study are as follows: Measurement of interpersonal relationship, an independent variable, consists of 7 questions. Responses are measured in scales of 1 to 4, from not-at-all to very-much-so, where bigger numbers indicate the higher level of interpersonal relationship. The reliability coefficient for interpersonal relationship is Cronbach α=.983. Measurement of self-esteem, a mediating variable, consists of 9 questions. Responses are measured in scales of 1 to 4, from not-at-all to very-much-so, where bigger numbers indicate the higher level of self-esteem. The reliability coefficient for self-esteem is Cronbachα=.694. Employment status, a dependent variable, consists of a single question. Responses are either 'employed (1)' or 'unemployed (0)' and dummy treated.

2.3. Statistical Analyses

In this study, we have selected necessary variables from the 2018 Disability Employment Panel Survey (the third survey of the second wave) and restructured them. We have then utilized SPSS 22.0 and AMOS 22.0 to analyze the data.

Firstly, in order to confirm the demographic sociologic characteristics of the study subjects, such as gender, age, education level, the severity level of disability, whether or not receiving National Basic Livelihood Security benefits, and employment status, we have conducted frequency analysis and descriptive statistical analysis of major variables.

Secondly, we have performed a structural model analysis to verify the mediating effect of self-esteem on the relationship between interpersonal relationships and employment of people with developmental disabilities. Bootstrap has been performed to verify the mediating effect.

III. RESULTS

3.1 General characteristics of subjects

The demographic sociological characteristics of the subjects of this study are as shown in <Table 1> below. There are more male respondents (266 people, 66.2%) than female respondents (136 people, 33.8%). As for age groups, there are 187 in 20's (46.5%), 101 in 30's (25.1%), 71 in 40's (17.7%), 34 in 50's (8.5%) and 9 in 60's (2.2%). The final education levels are in the order of high school graduation (244 people, 60.7%), middle school graduation or lower (136 people, 33.8%). and college graduation or higher (22 people, 5.5%). As to the severity level of disability, there are 165 mild people (41.0%), 137 moderate people (34.1%), and 100 severe people (24.9%). The number of respondents who do not receive the National Basic Livelihood Security benefits (254 people, 63.2%) is more than those who receive the benefits (148 people, 36.8%). As to employment status, the number of unemployed (289 people, 71.9%) is greater than the number of employed (113 people, 28.1%).

<Table 1> General characteristics of subjects

(n=402)

Variable		Frequency (%)	Variable		Frequency (%)
Employment Status	Employed	113(28.1)	Educational background	Junior high school graduate or below	136(33.8)
	Unemployed	289(71.9)		High School Graduation	244(60.7)
Gender	Male	266(66.2)		College graduation or higher	22(5.5)
	Female	136(33.8)			

Age	20s	187(46.5)	Degrees of disability	Severe	100(24.9)
				moderate	137(34.1)
	30s	101(25.1)		mild	165(41.0)
	40s	71(17.7)	National basic living Security	Received	148(36.8)
	50s	34(8.5)		Not received	254(63.2)
	60s	9(2.2)			

3.2. Descriptive statistical analysis of main variables

The descriptive statistical analysis of the main variables used in this study is shown in <Table 2> below. Interpersonal relationship, an independent variable, consists of 7 questions. Responses are measured in scales of 1 to 4. The mean value is obtained from the response scores and confirmed as a measured value. Interpersonal relationship, an independent variable, has ranged from a minimum of 1.00 to a maximum of 3.86, with the mean value of 2.00(SD = .71). Self-esteem, a mediating variable, has ranged from a minimum of 1.00 to a maximum of 3.60, with the mean value of 1.91(SD = .67). Employment status, a dependent variable, shows the mean value of less than .5, which indicates that the proportion of unemployed is higher than that of employed whose default value is set at 1. In addition, the values of all the variables do not exceed the skewness absolute value 3 and the kurtosis absolute value 7, which satisfies the criteria for normality.

<Table 2> Technical analysis of main variables

(n=402)

Variable	Minimum	Maximum	Mean	Standard Deviation	Skewness	kurtosis
Interpersonal relationship	1.00	3.86	2.00	.71	.078	-.889
Self-esteem	1.00	3.60	1.91	.67	.260	-.746
Employment	0.00	1.00	.281	.45	.978	-1.050

3.3. Analysis of Measurement Model

Structural equations are used to verify the mediating effect of self-esteem on the relationship between interpersonal relationships and the employment status, of people with developmental disabilities. Before analyzing the structural model, we have analyzed the measurement model to confirm whether the interpersonal relationship and self-esteem, which are used as latent variables in this study, appropriately reflect the concept of latent variables.

The goodness-of-fit of the measurement model is X^2=22.903 (df=12) and statistically significant (p<.05), which indicates a relatively poor goodness-of-fit between the data and the model. However, other goodness-of-fit indices are taken into account as the X^2 statistic, which is sensitive to the number of cases, tends to increase as the sample size increases. As a result, GFI=.984, CFI=.993, NFI=.986, TLI=.989, and RMSEA=.048, all showed good suitability.

3.3.1. Reliability and Convergent Validity Analysis

Since the constructed concepts used in this study are measured by multiple items, the reliability and convergent validity of the measured items are analyzed. In order to examine the convergent validity, the standardized factor load, significance, construct reliability (composite reliablity, CR), and average variance extracted (AVE) of the measurement model have all been verified. The results are shown in <Table 3> below. The standardized factor loads appear to be .670 ~ .938, all of which are statistically significant, the construct reliability (CR) of each construct is above .7, and the average variance extracted (AVE) is above .5. As such, it is confirmed that the reliability and convergent validity are secured.

<Table 3> Measurement model analysis results

Latent variable	Measured variable	Estimate B	β	Standard error	C.R.	CR	AVE
Interpersonal relationship	Interpersonal relationship 1	1.000	.928			.949	.862
	Interpersonal relationship 2	1.094	.919	.034	32.079 ***		
	Interpersonal relationship 3	1.092	.938	.032	33.951 ***		
Self-esteem	Self-esteem 3	1.000	.670			.771	.531
	Self-esteem 2	1.341	.829	.113	11.821 ***		
	Self-esteem 1	1.131	.676	.103	10.995 ***		

X^2=22.903*(df=12), GFI=.984, CFI=.993, NFI=.986, TLI=.989, RMSEA=.048
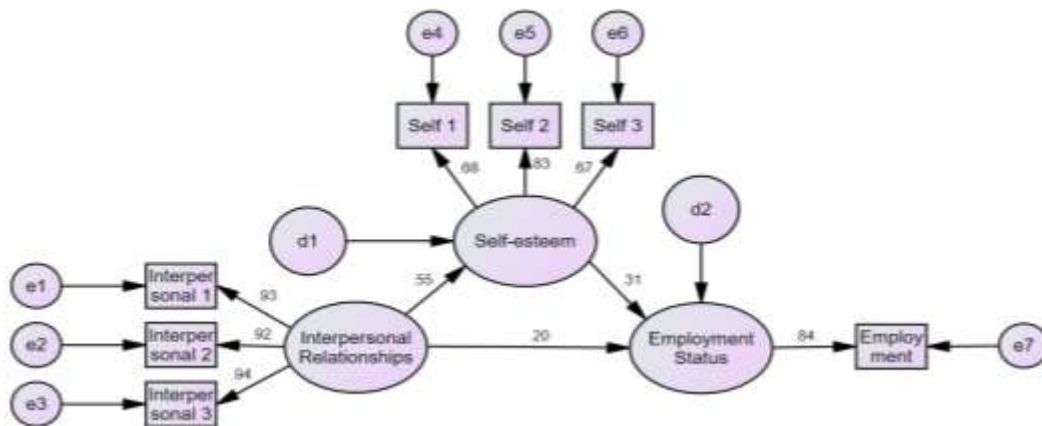
*p<.05, **p<.01, ***p<.001

3.3.2. Discriminant Validity

We have employed the following method to verify the discriminant validity of the measurement model. First, we have performed a confirmatory factor analysis to check if the average variance extracted (AVE) exceeds the square value of the derived correlation coefficient. The result shows that the square value of the correlation coefficient is smaller than the value of AVE .862 and .531. In addition, we have examined if the resulting values include 1 from calculations of the correlation coefficients between all the constructs ± 2 multiplied by the standard error. It is found that it does not include 1 in all pairs, which confirms that the criterion for discriminant validity is satisfied.

3.4. Structural model analysis

We have conducted a structural model analysis to find out whether the direct path of this study model is statistically significant through path coefficients and standard errors which are estimates for population parameters. The path coefficients are shown in <Table 4> below. The goodness-of-fit of the measurement model is X^2=22.903 (df=12) and statistically significant (p<.05), which means the X^2 goodness-of-fit criterion is not satisfied. However, other goodness-of-fit indices, such as GFI=.984, CFI=.993, NFI=.986, TLI=.989, and RMSEA=.048, satisfy the required goodness-of-fit criteria.

The results of our analysis show that the interpersonal relationships of people with developmental disabilities have a positive (+) and significant effect on self-esteem(ß=.555, p<.001). That is, it is found that the better the interpersonal relationships are, the higher the self-esteem is. The analysis also confirms that self-esteem has a positive(+) and significant effect on employment (ß=.308, p<.001) and that interpersonal relationships have a positive(+) and significant effect on employment as well (ß=.204, p<.01). That is, it is found that the higher the self-esteem is and the better the interpersonal relationships are, the higher the chances of employment are.

<Figure 1> Structural model

<Table 4> Structural model analysis results

Path	Estimate		Standard error	C.R.
	B	β		
Interpersonal relationship → self-esteem	.245	.555	.027	8.998***
Self-esteem → employment	.400	.308	.106	3.771***
Interpersonal relationship → employment	.117	.204	.042	2.772**

X^2=22.903*(df=12), GFI=.984, CFI=.993, NFI=.986, TLI=.989, RMSEA=.048

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

3.5. Mediating effect analysis

The structural model confirms that self-esteem plays a partial mediating role between interpersonal relationships and the employment status of people with developmental disabilities. Therefore, we have conducted Bootstrapping, which is one of the verification methods of significance of mediating effect, to verify the mediating effect. The analyzed total effects, direct effects and indirect effects are shown in <Table 5>. All paths are significant and it is found that total effects, direct effects, and indirect effects are 215(β=.375), 204(β=117), and .098(β=171), respectively. Since the total effects coefficients are found to be greater than those of the direct effects, the partial mediating effect of self-esteem on the relationship between interpersonal relationships and employment status is confirmed. it is confirmed that self-esteem plays a partial mediating role between interpersonal relationships and the employment status of people with developmental disabilities.

<Table 5> Indirect effect bootstrap result of final model

Path	Total Effects B(β)	Direct Effects B(β)	Indirect Effects B(β)
Interpersonal relationship → (self-esteem) → employment status	.215(.375)**	.204(.117)**	.098(.171)**

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

IV. CONCLUSIONS AND DISCUSSIONS

This study has examined the mediating effect of self-esteem on the relationship between interpersonal relationships and the employment status of people with developmental disabilities. The results and suggestions are as follows:

First, it is found that interpersonal relationships and self-esteem of people with developmental disabilities have a positive effect on employment. This finding is consistent with the previous study[11][12] that shows a positive correlation between interpersonal relationships and employment of people with developmental disabilities and with another previous study[14] that shows a positive correlation between self-esteem and employment. This study confirms a need to take interpersonal relationships and self-esteem into consideration to promote the employment of people with developmental disabilities. People with developmental disabilities have difficulty with decreased cognitive ability and in communicating and properly expressing oneself. This difficulty often leads to conflicts in the course of social interactions[15]. It is not easy for them to form and maintain a smooth interpersonal relationship. Conversely, integration or contact experience may rather enhance the negative perceptions of people with developmental disabilities by people with non-disabilities. Indeed, after they find employment or get out of an institutional facility, they often end up giving up on employment and going back to home or the institutional facility because of loneliness or conflicts arising out of interpersonal relationships. In light of this situation, it is very important to help people with developmental disabilities to form and maintain their interpersonal relationships and to improve the ability to solve conflicting problems. In particular, the results of this study confirm the importance of employment. In several previous studies related to the interpersonal relationship of people with developmental disabilities, it has been reported that certain activities have a positive effect on promoting interpersonal relationships and improving the self-esteem of people with developmental disabilities. These activities may include various group activities such as play, art, music, and sports, direct social skills education and training programs such as exchange of greetings and listening, and community experiences such as volunteer activities[16]. It is necessary to further utilize such methods to improve the interpersonal relationship and self-esteem of people with developmental disabilities. Further, given that people with developmental disabilities are likely to be socially isolated, the social network in their community should be expanded and the opportunity to participate in social activities through various groups should be created. In addition, self-esteem is not just a matter of mental health aspect, but also a protective mechanism to deal with the negative events that may occur in life. Therefore, in order to promote the employment of people with developmental disabilities, it is important to be attentive to their psychological needs as well as promoting their physical ability, and to support them actively.

Secondly, it is found that self-esteem plays a partial mediating role between interpersonal relationships and the employment status of people with developmental disabilities. That is, it is confirmed that the better the interpersonal relationships are, the higher the self-esteem is and that such self-esteem thus indirectly affects the employment. This result shows that interpersonal relationships of people with developmental difficulties not only directly affect the

employment but also indirectly affect employment through self-esteem. It is necessary to expand the experience of respecting oneself as an important person through positive interactions with other people. In other words, it is important to actively develop and utilize new and diverse methods to improve interpersonal skills and self-esteem of people with developmental disabilities, and furthermore, to even intervene to support employment activities continuously in the long term.

Following the social model of disability and the idea of normalization, interest in employment has been raised for the independence of people with disabilities and as the basic economic and social requirements to achieve independence. Reflecting on this trend, there have been many studies on the employment of the disabled. However, the employment status of disabled people is still very poor. In particular, people with developmental disabilities are facing even worse employment situation due to lack of social interest in their difficulties[12]. This study has limitations in that it has not taken the quality of employment into consideration as only the employment status is considered in its analysis. The implications of this study are to find out the influence of variables that have not been actively studied for the employment of people with developmental disabilities and seek ways to intervene accordingly. Nonetheless, the implications of this study are to investigate the influence of certain variables that have not been actively studied previously for the employment of people with developmental disabilities and further seek ways to intervene accordingly.

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