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## Mediating Effect of Kindergarten Teachers' Psychological Burnout in the Relationship Between Their Grit and Teacher-Child Interactions

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### Abstract

*The purpose of the study was to examine the mediating effect of kindergarten teachers' psychological burnout in the relationship between grit and teacher-child interactions. We conducted a cross-sectional study with 191 kindergarten teachers in South Korean. To measure the major variables, Grit scale [1], teacher-child interaction scale [2], and psychological burnout scale [3] were used. Hayes' PROCESS macro was used to test mediation effects of psychological burnout in the relationship between grit and teacher-child interactions. Indirect effects were tested using bootstrapped confidence intervals. As the results, kindergarten teachers' teacher-child interactions were found to have a significantly positive correlation with their grit but a significantly negative correlation with their psychological burnout. In addition, the relationship between grit and teacher-child interactions was mediated by psychological burnout.*

**Keywords:** Kindergarten teachers, Teacher-child interactions, Psychological burnout, Grit

## 1. INTRODUCTION

Due to an increase of dual-income families in South Korea, the Korean government has tried to improve quality of early childhood education as part of public support system for working mothers. The scholars assure that a teacher is one of the most important factors to improve quality in terms of quality child care and education. Early childhood teachers play various roles of educators such as planning and implementing the curriculum along with caring in daily routines [4]. In order to practice these roles, teachers in early childhood education actively interact with young children so that they become a decisive factor for children's development and education [1]. Furthermore, since kindergarten teachers interact with young children and have a great influence on their growth and development, the quality of teacher-child interaction is a factor that determines the quality level [2]. Therefore, we focused on the importance of teacher-child interactions in early childhood education and investigated the related factors.

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One of the variables that has been reported to affect kindergarten teachers' interactions with young children is grit. Grit is defined as an individual trait that overcomes disabilities, regulates itself, and takes it as an opportunity for development even in difficult situations [5]. Although there are only a few prior studies on the grit and teacher-child interactions of early childhood teachers, significant statistic correlations between grit and teacher-child interactions have been reported [6]. People with a high level of grit do not easily give up even in difficult situations, control themselves, overcome difficulties, and set up negative situations as a stepping stone for leaping [1]. Thus, we infer that grit would have a positive effect on kindergarten teachers' interactions with young children.

While the importance of the teacher-child interactions is emphasized, the level of psychological exhaustion of kindergarten teachers is reported to be quite high. Early childhood teachers experience excessive stress due to low wages and excessive labor, and these factors would lead to psychological exhaustion [7]. If kindergarten teachers are exposed to stress for a long time and psychologically exhausted, they experience emotional exhaustion and loss of achievement, which would ultimately negatively affect teacher-child interactions. The results of previous studies show that early childhood teachers' psychological exhaustion is related to the quality of teacher-child interactions. According to the previous studies, early childhood teachers' psychological burnout had a negative correlation with teacher-child interactions [8, 9]. Furthermore, the results of empirical research showed that psychological burnout negatively affected teacher-child interactions [9-12]. Therefore, we investigated the effect of kindergarten teachers' psychological burnout on their interactions with young children.

On the other hand, teachers with low grit levels feel stressed when they face failure and adversity, while teachers with high grit levels feel relatively low stress and do not give up using it as an opportunity for growth [13]. In addition, grit acts as a positive psychological competency, and positive psychological competency can serve as a stepping stone to overcome and take another leap forward in negative situations that occur when interacting with children [14]. Therefore, it is inferred that kindergarten teachers' level of grit affect their psychological burnout.

Based on the results of previous studies as described above, it can be inferred that kindergarten teachers' grit affect their interactions with young children and psychological burnout mediates this relationship. Therefore, this study focuses on teacher-child interactions as an important factor that determines the quality of early childhood education, and investigate the effects of grit as independent variable and psychological burnout as mediating variable. For the purpose of the study, two research questions were set.

Research question 1. Are there the relationships between kindergarten teachers' grit, psychological burnout, and teacher-child interactions?

Research question 2. Is there mediating effect of kindergarten teachers' psychological burnout in the relationship between grit and teacher-child interactions?

## **2. RESEARCH METHODS**

### **2.1 Subjects**

The population includes kindergarten teachers of South Korea. We used simple random sampling technique and randomly selected 191 kindergarten teachers in South Korea. As for the background information of the subjects, 77.1% ( $n = 147$ ) were single and 23.0% ( $n = 44$ ) were married. In terms of their teaching experiences, 30.9% ( $n = 59$ ) worked under 3 years, 23.6% ( $n = 45$ ) worked for 3-5 years, 17.3% ( $n = 33$ ) worked for 5-7

years, 15.2% ( $n = 29$ ) worked for 7-10 years, and 13.1% ( $n = 25$ ) worked over 10 years. As for the educational levels, 29.3% ( $n = 56$ ) graduated from 2-3 year colleges, 54.5% ( $n = 104$ ) graduated from 4 year colleges, and 16.2% ( $n = 31$ ) graduated from graduate schools. For the ages of young children that the participants taught, 23.6% ( $n = 45$ ) were three, 34.6% ( $n = 66$ ) were four, and 31.4% ( $n = 60$ ) were five.

## 2.2 Measures

**Grit.** The Grit-Original scale (Grit-O) was used to measure an independent variable, kindergarten teachers' grit. Grit-O scale was developed by Duckworth et al. [5] and translated into Korean language with validation of validity and reliability by Lee [1]. Grit-O consists of 12 items rated on a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*). Two sub-factors are interest (6 items, e.g., "My interests change from year to year") and perseverance (6 items, e.g., "I have overcome setbacks to conquer an important challenge"). The reliabilities of two consecutive sub-factors and the total of the Grit-O in this study were Cronbach's  $\alpha = .70, .69$ , and  $.74$ , respectively.

**Teacher-Child Interactions.** Teacher-Child Interaction (TCI) scale was used to measure a dependent variable, kindergarten teachers' teacher-child interactions. Lee [2] developed TCI with verification of validity and reliability. TCI consists of 30 items rated on a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*). Three sub-factors are emotional interactions (10 items), verbal interactions (10 items), and behavioral interactions (10 items). The reliabilities of three consecutive sub-factors and the total of the TCI in this study were Cronbach's  $\alpha = .88, .83, .83$ , and  $.94$ , respectively.

**Psychological Burnout.** The Korean version of Maslach Burnout Inventory (K-MBI) was used to measure a mediating variable, psychological burnout [3]. K-MBI was originally developed by Maslach and Jackson [15], translated into Korean language by Oh [16] with verification of validity, and revised for early childhood teachers by Park [3]. The K-MBI consists of 16 items rated on a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*). Three sub-factors are depersonalization (4 items), emotional exhaustion (7 items), and reduction of personal accomplishment (5 items). The reliabilities of three consecutive sub-factors and the total of the K-MBI in this study were Cronbach's  $\alpha = .75, .89, .70$ , and  $.90$ , respectively.

## 2.3 Statistical Approach

The statistical analyses were performed using the SPSS version 25.0. One hundred ninety-one cases with complete data on all three measures (Grit-O, TCI, and K-MBI) were included in the analyses. We calculated the mean and standard deviations for continuous variables and frequencies and percentages for categorical variables. Cronbach's  $\alpha$ s were calculated to verify the reliabilities of measures.

Following Hayes [17] guidelines, we conducted SPSS PROCESS macro for testing hypotheses on the mediation effects. The mediating effect of perceived psychological burnout was tested in five steps: (i) direct effect of mediator (psychological burnout) on teacher-child interactions, (ii) direct effect of predictor (Grit) on mediator (psychological burnout), (iii) total effect of predictor (Grit) on teacher-child interactions, (iv) direct effect of predictor (Grit) on teacher-child interactions with inclusion of mediator (psychological burnout), and (v) a 1000-sample bootstrap procedure to estimate bias-corrected 95% confidence intervals (CIs) to test the significance of indirect effect of the relationships. If CIs do not contain 0, indirect relationships are significant, indicating significant mediating effect [17]. As mentioned by Hayes [17], this bootstrapping procedure overcomes the limitations of the approaches highlighted by Baron and Kenny [18] and Sobel [19], yielding results that are more accurate and less affected by sample size [17]. Full mediation is presented when the beta weight is reduced and the  $p$ -value is not significant, while partial mediation is presented when the beta weight is reduced but the  $p$ -value is significant [18].

### 3. RESULTS AND CONCLUSION

Before we conducted data analysis, data screening was performed to investigate the missing values, outliers, normality, and common method variance. The mandatory requirement for all survey items to be answered has ensured the absence of missing values in this study. The Z-Score was calculated for each respondent in SPSS version 25. It can be concluded that there was no outlier in this study as the values of Z-Score for all respondents were less than 2.63 [20]. Additionally, skewness and kurtosis criteria were used to check the normality of data. Normality of data occurs when skewness and kurtosis vary from -3 to +3 [21]. Evidence from the study suggested that the skewness values varied from -.42 to .24 and the kurtosis values varied from -.53 to -.10 (Table 1). Hence, we concluded that normality of data was present in this research.

According to Sekaran and Bougie [22], mean values of equal or less than 2.99 are low, 3 to 3.99 are moderate, and mean values greater than 4 are deemed high in the case of five-point Likert scale. Based on Table 1, the participants in this study show a moderate level of Grit ( $M = 3.33$ ,  $SD = .47$ ), a low level of psychological burnout ( $M = 2.61$ ,  $SD = .67$ ), and a high level of teacher-child interactions ( $M = 4.05$ ,  $SD = .47$ ).

**Table 1. Descriptive statistics and correlations between major variables ( $N = 191$ )**

Variables	①	②	③	LLCI	ULCI
① Grit	-			.30	.60
② Psychological burnout	-.37**	-		.08	.17
③ Teacher-child interaction	.52**	-.47**	-	.42	.60
<i>M(SD)</i>	3.33(.47)	2.61(.67)	4.05(.47)		
<i>Skewness</i>	-.42	-.28	.24		
<i>Kurtoses</i>	-.10	-.53	-.52	.42	.60

\*\* $p < .01$

For the research question 1, the correlation analyses were conducted. Table 1 shows that kindergarten teachers' grit had a statistically significant negative correlation with psychological burnout ( $r = -.37$ ,  $p < .01$ ) and a statistically significant positive correlation with teacher-child interactions ( $r = .52$ ,  $p < .01$ ). Kindergarten teachers' psychological burnout showed a statistically significant negative correlation with teacher-child interactions ( $r = -.47$ ,  $p < .01$ ).

For research question 2, the PROCESS macro was utilized to verify the mediating effect of kindergarten teachers' psychological burnout in the relation between their grit and teacher-child interactions. As shown in the table 2, kindergarten teachers' psychological burnout demonstrated the statistically significant direct effect on teacher-child interactions. In order to verify the statistical significance of the mediating effect of psychological burnout in the relation between grit and teacher-child interactions, bootstrapping with 10,000 of re-extracted samples was performed. The results showed that the mediating effect coefficient was .12 along with the lower and upper limits of the confidence interval of the mediating effect coefficient were .08 and 0.17, respectively. As pointed out by Preacher and Hayes [23], since zero is not included in this section, the mediating effect of psychological burnout is found to be statistically significant.

**Table 2. Results of PROCESS macro testing mediating effects of psychological burnout in the relation between grit and teacher-child interactions**

Relations	Effects	S.E.	<i>t</i>	LLCI	ULCI
Direct effect	.39	.05	8.59***	.30	.60
Indirect effect	.12	.02		.08	.17
Total effect	.51	.05	11.32***	.42	.60

\*\*\**p* < .001

In conclusion, kindergarten teachers' interaction with young children was found to have a negative correlation with psychological burnout but a positive correlation with grit. The result also showed that kindergarten teachers' psychological burnout mediated the relationship between grit and teacher-child interactions. Based on these results, we suggest the importance of kindergarten teachers' grit not only as a direct factor affecting teacher-child interactions but also as a protective variable to decrease psychological burnout.

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