The Effect of Job Stress, Emotional Commitment, and Job Satisfaction on Child-care Center Teachers’ Turnover Intention: The Moderated Mediation Effect of Grit

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Abstract
Because child-care teachers in Korea have heavy workloads and worse treatment than in other teaching positions, their job stress level and turnover rate are high. There is a need for research to alleviate the turnover rate of child-care teachers. Therefore, our purpose was to verify the roles of grit in the influences of job stress on turnover intention through emotional commitment and job satisfaction of Korean child-care teachers. We used SPSS Win. 25.0 and PROCESS macro for SPSS version 3.5 programs to carry out frequency analysis, reliability analysis, correlation analysis, and moderated mediation effect analysis.

First, as a result of correlation analysis, there was a statistically significant correlation between all variables. Second, the moderated mediating effect of grit on the double mediating effect of emotional commitment and job satisfaction in the link between job stress and turnover intention was verified. This results can be used as a basic model using grit to reduce child-care center teachers’ turnover intention.

KEYWORDS: job stress, emotional commitment, grit, job satisfaction, turnover intention, moderated Mediation, PROCESS macro

Introduction
Job stress is a concept that considers stress experienced by humans in a job. Job stress has a negative effect on one’s psychological and physical health. It is an important concept in organizational behavior and management, because it negatively affects organizational outcomes. In particular, the job stress of child-care center teachers negatively affects the infants, parents, and child-care centers in charge [1].

Job stress also affects job satisfaction [2], burnout [3], and organizational commitment [4], which is a major variable that affects [5] and therefore it merits receiving much attention.

Turnover intention is a major variable that has the most decisive influence on turnover [6]. In particular, when a child-care teacher's turnover intention increases, the sensitivity in
communication with infants and toddlers decreases [7]. Teachers who work at child-care centers with high turnover intention have lower morale, resulting in reduced job performance [8].

The reasons for this study are as follows.

First, it is obvious that job stress will promote turnover intention. However, research on how job stress affects turnover intention is insufficient. Therefore, we set emotional commitment and job satisfaction as mediators in the link between job stress and turnover intention, and the mechanism between job stress and turnover intention needs to be identified.

Second, previous studies were limited in that they dealt separately with the relationships between job stress, emotional commitment, grit, job satisfaction, and turnover intention. An alternative study is needed to comprehensively verify the relationships of the variables in a single model and, in particular, to examine the role of where, when, and how each variable works.

Therefore, this study will provide a new model for reducing child-care teachers’ turnover intention by verifying the moderated mediating effect of grit on the link between job stress, emotional commitment, job satisfaction, and turnover intention.

To achieve this purpose, we set up the following research questions. First, what are the correlations between job stress, emotional commitment, grit, job satisfaction, and turnover intention? Second, does grit have a moderated mediation effect on the link between job stress, emotional commitment, job satisfaction, and turnover intention?

**Theoretical Background**

1. Relationship between job stress and turnover intention

Job stress breaks one's physical and psychological homeostasis, and is a negative result caused by excessive work, role conflict and ambiguity, poor working conditions, and threatening work environments [9]. In addition, job stress is a dysfunctional perception or emotion of a condition perceived in a job environment or event [10].

Job stress is an important factor in determining the success or failure of an organization, because it lowers job satisfaction and productivity, and negatively affects job integrity [11]. In particular, job stress is important, because it can be a cause of turnover intention [12,13].

Turnover intention is an organization member’s decision to leave the organization and is the most important factor that directly affects turnover [14]. Moreover, child-care teachers with turnover intention tend to be less sensitive to the needs of infants and young children, and to reduce the quality of their interactions with infants [15]. This can negatively affect children's growth and development [16]. Not only that, turnover requires the time and cost of hiring a new employee [8].

When reviewing previous studies on turnover intention and job stress, we found studies showing that there is a positive and significant correlation between turnover intention and job stress [17,18], and that job stress affects turnover intention [12,13,16,19].

Based on the previous studies, this study attempts to identify the roles of related variables in the influence of job stress of child-care teachers’ turnover intention.

2. Mediating effects of emotional commitment and job satisfaction

Emotional commitment means that members feel emotionally attached to the organization
and feel unity with it while working [20]. Emotional commitment is the most important dimension between the components of organizational commitment [21] and is a representative variable of organizational attitude. Meyer and Allen [21] identified the lower dimensions of organizational commitment as affective commitment, continuance commitment, and normative commitment. After the validity of measurements has been proven, it is used as the most representative in the field of organizational behavior [22].

In particular, emotional commitment is a desirable characteristic of the organizational members that a company wants [23], because it affects work performance [24] or work quality [25].

On the other hand, job satisfaction refers to a positive emotional state that members of an organization feel about their job or job experience [26]. If a child-care teacher is not satisfied with his or her job, that worsens the organization's overall performance and child-care services [27]. In addition, since the job satisfaction of child-care teachers affects the learning outcomes of infants and young children, it acts as a major factor in providing quality child-care services to infants [28].

In this study, we set emotional commitment and job satisfaction as mediators. Therefore, we reviewed the related studies. Emotional commitment mediated in the link between communication within the organization and turnover intention [29], between organizational fairness and voluntary turnover [30], and between authentic leadership and turnover intention [31]. Job satisfaction has a mediating effect in the relationship between job stress and turnover intention [11,32,33] and between job exclusivity and turnover intention [34,35].

As such, some studies have been accumulated to verify the mediating effects of emotional commitment and job satisfaction, but few studies have verified the serial mediating effects of the two. Therefore, in this study, we want to grasp the roles of emotional commitment and job satisfaction in the link between job stress and turnover intention.

3. The moderating effect of grit

Grit is a passion and perseverance for long-term goals [36]. People with ample grit set long-term goals and continue to strive and challenge themselves even if they encounter difficulties in the process of pursuing their goals [36].

Grit is a trait of people with outstanding achievements in various fields [36] and relieves stress, because it acts as a buffer against failure or difficult situations [37].

In a study of early childhood teachers, there was a significant difference in job satisfaction and turnover intention between the high-grit group and the low-grit group, and grit had increased job satisfaction, but reduced turnover intention [38].

Grit has been used as a moderating variable in recent studies. Grit moderated the association between employment anxiety and customer orientation of hotel employees [39], and constant persistence, a sub-variable of grit, had a moderating effect on the link between mother's overprotection and infant's performance function [40].

There is no research showing that grit played a moderating role in the link between emotional commitment and job satisfaction. However, there are reports that the grit of office workers is closely related to their longevity rate [41]. And the grit of elementary-school teachers is also closely related to the retention rate of the teaching profession [42]; the higher
the grit of child-care teachers, the lower the turnover intention [43].

Therefore, we expect that the influence of job stress on turnover intention through emotional commitment and job satisfaction will be moderated by grit.

Methods
1. Research Model

The main analytical method we used is moderated mediating effect analysis, using model 91 of the PROCESS macro ver.3.5. The concept of our research model is shown in Figure 1.

![Conceptual Research Model](image)

2. Research subjects and Data collection

The subjects of the survey were intentionally sampled using purposively sampling method. These were child-care center teachers in D city and S city in Chungcheongnam province in Korea. Child-care teachers in Korea must constantly have interpersonal relationships with infants with difficulty in communication, and with parents, directors, and colleagues. Because of heavy workloads and worse treatment than in other teaching positions, their job stress level and turnover rate are high. For this reason, we set a child-care teacher as the subject of the study.

We collected data using a questionnaire and conducted the survey for a month around October 2019. Before the survey, after explaining the purpose and method of this study to the subjects, the survey was conducted only with those who agreed to it. Of the collected data, a total of 234 copies were used for analysis, excluding unscrupulous responses, duplicate responses, and non-responses.

Of the survey subjects, 78.6% were married, 21.4% unmarried. In age, the 40s were the most at 49.1%, the 30s were 23.6%, 20s were 15.0%, and 50s and older 12.3%. In working experience, those with 5 years or less accounted for the most at 49.7%, followed by 37.1% with 6 to 10 years, 6.6% with 11 to 15 years, and 6.6% with more than 16 years.

3. Research Tools

3.1. Job stress

We measured job stress with a scale developed by Parker and DeCotiis [10] and used by Ahn [44]. This scale has 13 questions and uses a 5-point Likert scale. The higher the score, the
higher the job stress. In this study, Cronbach's $\alpha$ of the job stress was .877.

3.2. Emotional commitment
We measured emotional commitment with a scale developed by Meyer and Allen [45] and translated by Kim [46]. This scale has 7 items and uses a 5-point Likert scale. The higher the score, the higher the level of emotional commitment, and in this study, Cronbach's $\alpha$ was .817.

3.3. Job satisfaction
We measured job satisfaction selecting 5 of the items related to job satisfaction from the scale developed by Brayfield and Rothe [47]. This scale uses a 5-point Likert scale; the higher the score, the higher the satisfaction with the job. In this study, the job satisfaction reliability by Cronbach's $\alpha$ was .918.

3.4. Turnover intention
To measure turnover intention, we used a scale developed by Mobley [48] and used by Kang & Jyung [49]. This scale has 5 questions, using a 5-point Likert scale. The higher the score, the higher the turnover intention. In this study, reliability of the turnover intention by Cronbach's $\alpha$ was .877.

3.5. Grit
We measured the grit using the scale developed by Duckworth and Quinn [50] and used by Hwang and Lee [51]. This scale has 8 questions on a 5-point Likert scale. The higher the score, the higher the passionate interest and persistence. In this study, the grit reliability by Cronbach's $\alpha$ was .725.

4. Data Analysis
For data analysis, we did descriptive statistics analysis and reliability analysis using SPSS Win.25.0 and moderated mediating effect analysis using SPSS PROCESS macro 3.5.

Results
1. Correlation and Descriptive Statistics
We used Pearson's correlation analysis to find the correlations between all variables. The results are shown in Table 1. There was a statistically significant correlation between all variables. The correlation coefficient between emotional commitment and job satisfaction was the highest at .583 ($p < .01$), and the correlation coefficient between grit and turnover intention was the lowest at -.298 ($p < .01$).

The mean score of emotional commitment, job satisfaction, and grit exceeded the median value of 3 points. In particular, the mean score of emotional commitment was the highest, at 3.9413, and the mean score of the turnover intention was the lowest, at 2.2560.
Table 1. Correlation and Descriptive Statistics

<table>
<thead>
<tr>
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</thead>
<tbody>
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</tr>
<tr>
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<td>2. Emotional commitment</td>
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<td>.371**</td>
<td>.451**</td>
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<td>5. Turnover intention</td>
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<td>-.577**</td>
<td>-.528**</td>
<td>-.298**</td>
</tr>
</tbody>
</table>

M | 2.3537 | 3.9413 | 3.7308 | 3.4985 | 2.2560 |
SD | .73074 | .64213 | .69857 | .48612 | .88672 |

*p < .01

2. Moderated mediating effect verification

To verify the moderated mediating effect of grit in the effects of job stress, emotional commitment, and job satisfaction on Korean child-care teachers’ turnover intention, we analyzed using model 91 of the PROCESS macro for SPSS proposed by Hayes [52].

To verify the moderated mediating effect, before the analysis, the values of the emotional commitment and grit variables were average-centered, the number of bootstrapping samples was set at 5,000, and the confidence interval was set to 95%. The analysis results are shown in Figure 2 and Table 2.

First, in the mediating variable model, job stress had significant negative effects on emotional commitment (-.3144, *p < .001) and on job satisfaction (-.1253, *p < .05). Emotional commitment had a significant positive effect (.5290, *p < .001) on job satisfaction. Grit also had a significant positive effect on job satisfaction (.2863, *p < .001), and the interaction term between emotional commitment and grit had a significant positive effect on job satisfaction (.2414, *p < .05). The increase in $R^2$ according to the interaction term was also significant ($\Delta R^2 = .0117, p < .05$), indicating that grit had a moderating effect. The conditional effect according to the grit value, the moderating variable, is significant when the grit value is at M - 1 SD, M, or M + 1 SD.

We used the Johnson-Neyman method, which is a floodlight method, to find out in which area the conditional effect according to the value of the moderating variable is significant. By identifying the significance area of the conditional effect of the interaction between emotional commitment and grit according to the grit value, we found that grit moderated emotional commitment and job satisfaction in the area where the grit value was greater than -1.1552.

Second, in the model where turnover intention is the dependent variable, job stress significantly increased turnover intention (.3665, *p < .001), and both emotional commitment (-.4796, *p < .001) and job satisfaction (-.2622, *p < .01) significantly decreased turnover intention.

Third, conditional and unconditional indirect effects were analyzed in the link between job stress and turnover intention. The path of job stress to turnover intention through
emotional commitment (.1508, .0809~.2319) was significant, because there was no 0 in the 95.0% confidence interval; so there was a mediating effect. The path from job stress to turnover intention via job satisfaction (.0329, .0009~.0776) also had a significant mediating effect, because 0 did not exist in the 95.0% confidence interval.

In the link between job stress and turnover intention, the conditional indirect effects (Job stress→Emotional commitment→Job satisfaction→Turnover intention) were significant when the value of grit, the moderating variable, was at $M - 1 SD$, $M$, or $M + 1 SD$.

Therefore, we verified that grit moderated the effect of job stress on turnover intention through emotional commitment and job satisfaction, which indicate the moderated mediating effect of grit.

![Fig. 2] Effect size for each path

<Table 2> Analysis of the moderated mediating effect of grit

<table>
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<tr>
<th>Mediating variable model 1</th>
<th>Variables</th>
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<th>ULCl</th>
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$R^2$ increase with interaction
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<th>Interaction item</th>
<th>$\Delta R^2$</th>
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Conditional effects of the focal predictor at values of the moderator(s):

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Conditional effect of focal predictor at values of the moderator:

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Dependent variable model (DV: Turnover intention)

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Direct effect of Job stress on Turnover intention

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Conditional and unconditional indirect effects of Job stress on Turnover intention:

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intention

<table>
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<table>
<thead>
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<th>Job stress → Emotional commitment → Job satisfaction → Turnover intention</th>
<th>Grit</th>
<th>Effect</th>
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<td>.0188</td>
<td>.0191</td>
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</table>

*LLCI = The lower bound of the indirect effect within the 95% confidence interval
**ULCI = The upper bound of the indirect effect within the 95% confidence interval

The moderating effect of grit was confirmed, and in the relationship between emotional commitment and job satisfaction, the result of dividing grit into a low group, a middle group, and a high group, and drawing the slope as a picture is shown in Figure 3. The group with high grit showed a steeper slope of increase in job satisfaction when emotional commitment increased than did the group with low grit. In other words, even if the emotional commitment was high, the low-grit group had less job satisfaction than the high-grit group had; and even if the emotional commitment was low, the higher-grit group still showed higher job satisfaction than did the low-grit group.

Discussion and Conclusion

We conducted this study to grasp the moderated mediating effect of grit in the link between emotional commitment, job satisfaction, job stress, and turnover intention for Korean childcare teachers. The discussion and conclusions of the study are as follows.

First, there were significant correlations between job stress, emotional commitment, job
satisfaction, grit, and turnover intention. This is in the same vein as the results of studies showing that the higher the job stress, the higher the turnover intention [53], and that there was a correlation between job satisfaction and the turnover intention [54].

Second, by analyzing the moderated mediating effect, we found that grit moderated the relationship between job stress, emotional commitment, job satisfaction, and turnover intention. In other words, the moderated mediating effect of grit was verified in the relationship between job stress and turnover intention through emotional commitment and job satisfaction.

This result is supported by studies which show that job stress influences turnover intention through organizational commitment [55], that job stress affects emotional commitment [56], that emotional commitment affects job satisfaction [57], and that job satisfaction influences turnover intention [58,59].

In addition, our result is also in line with a study showing that the teacher's grit is closely related to the retention rate of the teaching profession [42], and that the higher the grit, the lower the turnover intention [43].

In other words, the job stress that child-care teachers experience in the education field not only lowers morale as a teacher, but also causes symptoms such as turnover intention [1]. However, a child-care teacher with high grit accepts this as a challenging situation even if the emotional commitment is lowered by job stress, does not have less enthusiasm for the teaching profession as the long-term goal to achieve as a teacher, and so has less turnover intention.

This study analyzed the moderated mediating effect of grit in the effects of child-care teacher's job stress, emotional commitment, and job satisfaction on turnover intention. This study is significant in that it is an empirical study incorporating previous studies that only partially investigated these variables.

In addition, the logical mechanism by which job stress lowers emotional commitment, which lowers job satisfaction, eventually leads to turnover intention. This study is more meaningful in that it has verified the effect of grit as an alternative to mediate the negative flow of job stress on turnover intention.

Nevertheless, suggestions for further research are as follows.

First, we found that job stress leads to turnover intention. Therefore, it is urgent to develop and apply effective programs that can reduce job stress, aside from research to find causal variables for turnover intention.

Second, we found that grit moderates the path of job stress to turnover intention through emotional commitment and job satisfaction. In-depth research on child-care teacher's grit should follow, and active research to explore other variables that can play an intervening role besides grit is also necessary.

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