*Research paper*

# The Mediating Role of Resilience in the Relationship between Self-Efficacy and Post-Traumatic Growth among Nurses during the COVID-19 Pandemic

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## Abstract

The present study aimed to determine the mediating role of resilience in the relationship between self-efficacy and post-traumatic growth among nurses during the COVID-19 pandemic. The research was conducted using a descriptive-correlational design. The statistical population consisted of nurses from Varamin and Qarchak in Iran, with 350 individuals selected using a convenience sampling method. The data were collected through the Post-Traumatic Growth Inventory (PTGI), General Self-Efficacy Scale (GSE), and Conner-Davidson Resilience Scale (CD-RISC). Structural Equation Modeling was employed for data analysis. The results demonstrated a significant and positive direct effect of self-efficacy and resilience on post-traumatic growth. Additionally, the findings indicated an essential mediating role of resilience in the relationship between self-efficacy and post-traumatic growth. Based on the results, it is recommended that professionals assist nurses in managing the psychological impacts of the COVID-19 pandemic through training and counseling interventions.

*Keywords*: Covid-19, nurses, post-traumatic growth, resilience, self-efficacy

## Introduction

Experiencing an epidemic disease is accompanied by adverse consequences; however, some stressful and distressing situations can provide a suitable context for individuals' progress (Henson, et al., 2021). According to Tedeschi, et al. (1996), achieving a higher level of psychological functioning after a distressing event is called post-traumatic growth. Self-efficacy can be considered a significant factor in post-traumatic growth (Zeng, et al., 2021). Zeng, et al. (2021) conducted a study reporting that individuals with higher levels of self-efficacy have the ability to control their thoughts .This ability has been shown to predict an increase in post-traumatic growth. Additionally, resilience, which influences post-traumatic growth, is also influenced by an individual's self-efficacy (Wang, et al., 2018). Supporting this, research evidence by Michalczyk, et al. (2022) concluded that resilience can be enhanced or influenced by the likelihood of post-traumatic growth.  This is while studies have indicated a positive relationship between resilience and self-efficacy (Wang, et al., 2018). Studies have demonstrated the relationships between resilience, self-efficacy, and post-traumatic growth. However, most of these studies have been conducted exclusively on Western samples. Therefore, considering the mentioned contents, the current research aims to test the role of

resilience as a mediating model in the relationship between self-efficacy and post-traumatic growth using a model.

## Method

The present study utilized a descriptive-correlational research design. The statistical population of this study consisted of all nurses in the cities of Varamin and Qarchak in Iran; among them, a sample of 350 nurses was selected using the convenience sampling method. Inclusion criteria were willingness to participate in the study, age between 20 and 55 years, and involvement in frontline healthcare services during the COVID-19 pandemic. Exclusion criteria included unwillingness to participate in the study and incomplete questionnaire responses. The research data were analyzed using descriptive and inferential statistical methods, including Structural Equation Modeling (SEM).

### Tools

**Post-Traumatic Growth Inventory (PTGI)**: The PTGI, a 21-item questionnaire, was developed by Tedeschi and Calhoun in 1996. The PTGI comprises five subscales. Tedeschi and Calhoun (1996) reported a Cronbach's alpha coefficient of 0.90 for the total score PTGI. They also found a positive correlation between optimism, religiosity, the Big Five personality traits (NEO), and post-traumatic growth, indicating the validity of the PTGI. In the current study, the Cronbach's alpha coefficient for the total PTGI was 0.89.

**General Self-Efficacy Scale (GSE)**: This 23-item scale was developed by Sherer, et al. (1982). The scale measures three subscales (Sherer, et al., 1982). The overall Cronbach's alpha coefficient for the General Self -Efficacy Scale was reported as 0.86 by Sherer, et al. (1982). Additionally, they found a moderately negative correlation between self-efficacy scores and the Internal-External Locus of Control scale, indicating its validity. In the present study, the Cronbach's alpha coefficient for the total GSE was 0.81.

**Conner-Davidson Resilience Scale (CD-RISC)**: This scale comprises 25 questions and was developed by Conner and Davidson (2003). Factor analysis results indicate that this scale consists of five subscales. Conner and Davidson (2003) reported a Cronbach's alpha coefficient of 0.89 for the total CD-RISC. In the current study, the Cronbach's alpha coefficient for the total CD-RISC was 0.86.

## Results

According to the research findings, the nurses had a mean age of 31.61 with a standard deviation of 7.51. 56.9% were female, and 43.1% were male. Furthermore, the research results indicated that the proposed model fits relatively well. In the next step, to improve the fit of the initial model, modifications were made using the proposed Modification Indices (MI). In the modified model, the square root of the chi-square to degrees of freedom ratio ($\chi 2/df$) was 3.60. The values of GFI, AGFI, NFI, CFI, IFI, and TLI in the modified model were 0.88, 0.84, 0.90, 0.93, 0.93, and 0.91, respectively, indicating a good fit of the model in this study. The obtained RMSEA value (0.087) also suggests an acceptable model fit. Overall, the predicted variables in the model explain 37% of the variance in nurses' post-traumatic growth.

Based on the research results, the direct path coefficients of self-efficacy and resilience to post-traumatic growth are significant ($p < 0.01$). Moreover, the direct path coefficient from self-efficacy to resilience is also significant ($p < 0.01$).

**Table 1. Measurement Parameters of Direct Relationships Between Variables in the Tested Final Model**

| Path | Non-standardized Coefficient (B) | Standard Error | Standardized Coefficient (ß) | Critical Ratio | p-Value |
|---|---|---|---|---|---|
| **Self-efficacy to post traumatic growth** | 0.60 | 0.23 | 0.32 | 3.84 | 0.007 |
| **Resilience to post-traumatic growth** | 0.29 | 0.05 | 0.32 | 5.62 | 0.001 |
| **Self-efficacy to resilience** | 0.65 | 0.13 | 0.31 | 4.83 | 0.001 |

The bootstrap macro method was used to estimate and determine the significance of the indirect path in the final model (figure1). The results showed that resilience mediates the relationship between self-efficacy and post-traumatic growth ($p < 0.05$).
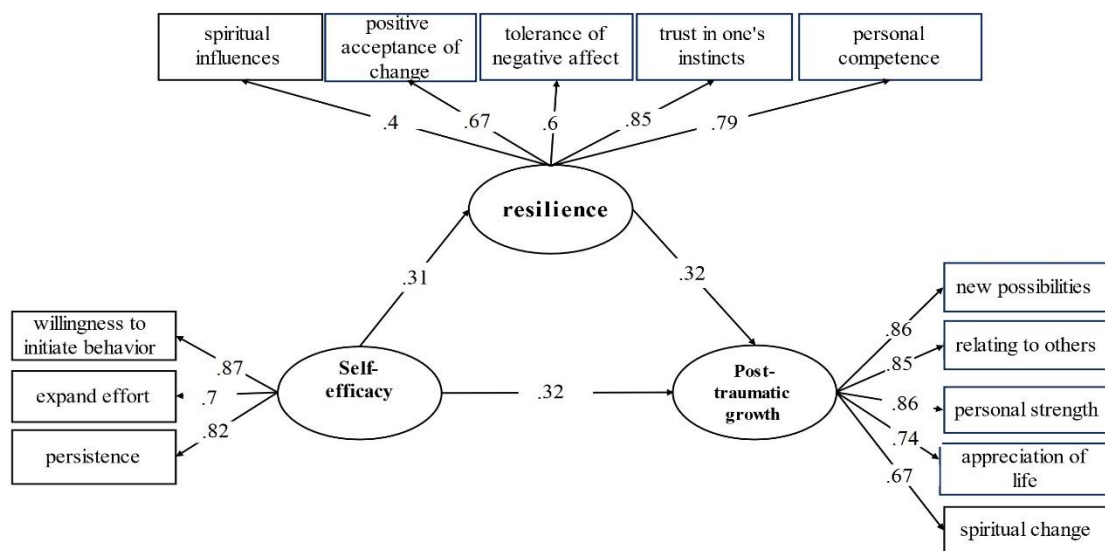


**Figure 1. Final mediation model with standardized path coefficients**

## Discussion and Conclusion

In explaining the findings of the research, it can be said that individuals with higher levels of self-efficacy have the ability to control their thoughts. This ability has been shown to predict an increase in post-traumatic growth. Additionally, resilience, which influences post-traumatic growth, is also influenced by an individual's self-efficacy. Based on organismic valuing theory, resilience causes successful coping and provides the process of achieving post-traumatic growth. Generally, considering the roles of self-efficacy and resilience in the post-traumatic

growth of nurses, it is recommended by mental health professionals to conduct both in-person and online workshops focusing on enhancing self-efficacy and resilience through training emotion management and adaptive coping mechanisms for dealing with stressful conditions among nurses. One of the limitations of the present study was its sampling population, which included only nurses from the cities of Varamin and Qarchak. Additionally, the use of convenience sampling was a limitation in this research. To enhance the generalizability of the results, it is suggested that similar studies be conducted with different samples and various demographic characteristics, in addition to utilizing random sampling methods.

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