OPEN ACCESS

Volume: 12

Special Issue: 1

Month: June

Year: 2024

E-ISSN: 2582-1334

Received: 12.12.2023

Accepted: 25.02.2024

Published: 29.06.2024

Citation:
Özdemir, A., Mutlu, A. K., & Tönbül, Ö. (2024). The Mediating Role of Resilience between Emotion Regulation and Subjective Well-Being in Pre-service Teachers. *Shanlax International Journal of Education, 12*(S1), 126–36.

DOI:
https://doi.org/10.34293/education.v12iS1-June.7393

The Mediating Role of Resilience between Emotion Regulation and Subjective Well-Being in Pre-service Teachers[1]

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Abstract
This study ought to explore the association between emotion regulation and subjective well-being as well as the mediating role of resilience. More specifically, the study aimed to establish to what extent emotion regulation predicted well-being and determine the role of resilience as a mediator between emotion regulation and subjective well-being. The participants consisted of 325 university students (248 female and 77 male) enrolled in various departments at a private university in Turkey. Data were collected through the Resilience Scale, Emotion Regulation Scale, and Subjective Well-Being Scale. Findings revealed that emotion regulation and resilience statistically predict subjective well-being. They were found to explain 43% of the variance in subjective well-being. Furthermore, resilience served as a mediator in the relationship between emotion regulation and psychological well-being. Implications for researchers, counselors, and experts in the field were discussed in the light of the literature.

Keywords: Resilience, Emotion Regulation, Subjective Well-Being, Pre-Service Teachers

Introduction

The teaching profession is one of the professions that play an important role in raising children to become adults and assume various social duties and responsibilities (Richardson & Watt, 2005). It is stated that the variables that make the teaching profession so important are teachers' personality traits (Grieve, 2010), emotional intelligence, well-being (Puertas Molero et al., 2019), teacher competencies and attitudes towards the profession (Pantić & Wubbels, 2010), and teachers' professional knowledge (Liakopoulou, 2011). In addition, one of the important personality traits for teachers is emotion regulation skills (Sutton & Harper, 2009). Because teaching is an emotional endeavor, teachers may feel happiness when they achieve an instructional goal, pride when their students accomplish an important task, disappointment when their students do not learn a concept or do not work hard enough, and anger when their students misbehave. Teachers often try to regulate these emotions because they believe that these emotions help them achieve their instructional goals (Sutton, 2004).

1 *This article was presented as an oral presentation at the 2nd International Conference on Language Education and Culture-ICLEC on June 27-29, 2019.*

In addition, a teacher with a high level of subjective well-being, whose basic needs are met, who experiences positive emotions frequently and negative emotions rarely, is happier, more competent, and has qualities that can be a model for his/her students (Baard et al., 2004). For pre-service teachers, well-being and resilience are important concepts in terms of both their current functioning as university students and their education in the teaching profession. Teaching is one of the most stressful professions due to high levels of daily stress and higher burnout experience compared to many other professions (Gu & Day, 2007). There are several main sources of stress and distress in educational settings, including heavy workload, working with limited resources and supports, challenging needs of students, performance pressure on teachers and students challenging school environments, and pressure from school administration (Fernet et al., 2012). The daily challenges in schools require teachers to respond with resilience; therefore, resilience is a phenomenon that should be considered in the university education of pre-service teachers.

Resilience in Pre-service Teachers

The concept of resilience is derived from the Latin root 'resiliens'. Based on mathematics and physical sciences, this term is defined as the ability of a substance to return to its former equilibrium after being exposed to change (Greene, 2012). Combined with various concepts such as environment, society, and personality, resilience is defined as 'the process by which people recover from adversity' (Clough & Strycharczyk, 2012, p. 37). From another perspective, resilience refers to the capacity for successful adaptation, positive functioning, or competence following a high-risk situation, chronic stress, or prolonged or severe trauma (Garmezy, 1993; Masten, 1994). Considering biological, psychological, and sociological factors, resilience can also be defined as a set of flexible, cognitive, behavioral, and emotional responses to acute or chronic adversity that may be unusual or ordinary (Neenan, 2009). In addition, resilience is 'the capacity of a system to survive, adapt and grow in the face of change and uncertainty' (Fiksel, 2006). When faced with unusual stressors, resilient individuals see these challenges as an opportunity to grow. Moreover, resilient people can recover from experiences that are painful or traumatic (Gull, 2018).

More commonly associated with the field of psychology, resilience has also become a focus of researchers in the field of education due to findings implying that the more resilient individuals are, the better they are at regulating their emotions, coping with stressful situations, and adopting a positive attitude. Teacher resilience has been examined in numerous studies, as evidence suggests that 'good teaching is charged with positive emotions' and that 'positive emotions foster resilience' (Gu & Day, 2007). Studies on teacher resilience have examined (1) factors characterizing teacher resilience (Day & Hong, 2016), (2) how beginning teachers can increase their resilience strategies (Castro et al., 2010), (3) resilience and effectiveness (Gu & Day, 2007), (4) strategies adopted to make teachers resilient (Robertson et al., 2015). With the increasing recognition of teacher emotions, pre-service teacher education has changed in recent years, and developing resilient teachers has become a focus of scholars' attention. Numerous studies have explored pre-service teachers' resilience and its implications for teachers' effectiveness and professional development (Le Cornu, 2009; Farnsworth, 2021; Sari et al., 2019).

Subjective Well-Being in Pre-service Teachers

Like resilience, subjective well-being is an important concept of positive psychology. Considered to be based on various factors, subjective well-being is described as 'optimal psychological experience and functioning' (Deci & Ryan, 2008). From a broader perspective, subjective well-being refers to 'the point of view of the subject regarding his/her life experience in general, as far as action, and links to property, social environments, and other people. In other words, it evaluates the balance between cognition and affection' (Fitch et al., 2017). Subjective well-being 'comprises a cognitive evaluation component, namely, life satisfaction, and the ratio of positive and negative emotions' (Diener & Suh, 1997). When people's positive feelings, enjoyable activities, and experiences outweigh their

negative and gloomy experiences, they acquire a degree of subjective well-being (Diener, 2000). Influenced by personality, social, and psychological factors, subjective well-being has been explored in numerous studies in educational contexts and pre-service teacher research is no exception to this since teachers with high levels of well-being contribute to the quality of education which in turn affects the relationship between the teacher and the learners positively (Barker & Martin, 2010).

The subjective well-being levels of university students, especially teacher candidates, are important in society. According to Moller (1996), the future welfare level of a country depends on the subjective well-being of teachers in that country. Identifying the factors that affect subjective well-being and taking precautions to reduce the variables that negatively affect subjective well-being will enable them to be happier individuals in the future. Every nation in the world needs young population whose subjective well-being levels are high, whose basic needs are met, and who are happy in their lives (Gündoğdu & Yavuzer, 2012). The happiness of university youths, especially teacher candidates, who are at an educational stage that will largely determine their professional lives and are advancing toward adulthood, forms the basis of the happiness of the children who form the future of the country. Therefore, it is important to determine the subjective well-being of teacher candidates. In addition, in the first years of primary education, the teacher has significant power to influence, guide, and set an example for students.

Emotion Regulation in Pre-service Teachers

Emotions form the coordination of behavioral sequences, experiences, and psychological response tendencies, and they strongly influence how we respond to events, including how we respond to challenges and opportunities (Gross, 2002; Smith & Lazarus, 1990). How individuals are affected by their emotions, which emotions they have and when they have them, and the processes of experiencing and expressing emotions are related to our emotion regulation skills (Gross, 1998). These skills also include the internal and external processes of observing, evaluating, and changing intense and transient emotional reactions to achieve one's goals (Thompson, 1991). It is known that expressing emotions in verbal or non-verbal forms has positive effects on the subjective and psychological well-being of the individual and is important in protecting one's mental health and maintaining interpersonal relationships. Emotion regulation skills also affect people's emotions and can be seen in all components of emotional reactions such as behavior, physical manifestations, thought, and emotional elements (Koole, 2009). By affecting all components, it also serves as an important pioneer in solving the problems experienced by the person and controlling anxiety and difficulties (Thompson, 1991).

Emotion regulation skills are a variable that is likely to affect an individual's level of well-being. When the literature is examined, it is seen that there are significant relationships between emotion regulation skills and individuals' well-being (Berking & Whitley, 2014). According to Kuzucu et al. (2020), emotion regulation skills are an important part of an individual's well-being and include being aware of one's own and other people's emotions. Greenberg (2004) emphasized that emotions have a regulatory role both in the relationship with oneself and in interpersonal relationships. Duy and Yıldız (2014) defined emotion regulation as trying to reduce the damaging aspects of negative emotions on the individual. Gross (1998) stated that emotion regulation affects all emotions regardless of whether the emotion felt is positive or negative. Accordingly, not only negative emotions but also positive emotions should be regulated and evaluated (Tugade & Fredericson, 2007).

A better understanding of pre-service teachers' perceptions of their subjective well-being, emotion regulation, and resilience is important for university education and teacher preparation in terms of support that meets the needs of pre-service teachers. By promoting preservice teachers' subjective well-being and helping students explore ways to support their subjective well-being and mental health as they transition into the professional world, high rates of teacher attrition can be positively addressed and at the same time teachers can be led to understand how to promote well-being in classrooms.

Purpose of the Study

The purpose of this study is to explore the relationships among emotion regulation, resilience, and subjective well-being and to test whether resilience plays a role as a mediator. Within this context, answers to the following questions were examined:

- Is there a significant relationship between emotion regulation, resilience, and subjective well-being?
- Do emotion regulation and resilience predict subjective well-being?
- Is there an indirect effect of emotion regulation on subjective well-being through resilience?
- Does resilience have a mediating role in the relationship between emotion regulation and subjective well-being?

Method

Research Design

This study is descriptive research using a relational survey model to examine the relationship between childhood traumas, attachment injuries, and relationship satisfaction of married individuals and whether attachment injuries play a mediating role in the relationship between childhood traumas and relationship satisfaction of married individuals. In the relational survey model, the relationships between two or more variables are determined and clues about cause and effect are obtained (Büyüköztürk et al., 2018). The relational survey method aims to determine the presence of co-change between these variables and the direction and degree of change (Karasar, 2003).

Participants

The sample of the study consisted of 325 students (248 women, 77 men) aged between 18-44 (M=21.39, SD=3.45). Participants were receiving education in the English Language Teaching Department, Guidance and Psychological Counseling Department, Special Education Department, Preschool Education Department, and Mathematics Department of a private university in Turkey.

Measures

Emotion Regulation Scale: The Emotion Regulation Scale, developed by Gross and John (2003) to measure differences between individuals in emotion regulation and translated into Turkish by Yurtsever (2008), consists of two factors and a total of 10 items. The factors that make up the measurement tool are named Cognitive Reappraisal (six items) and Suppression of Emotional Expression (four items), respectively. As in the original measurement tool, students expressed their opinions using response options with scores ranging from 1 (completely disagree) to 7 (completely agree). The researcher determined the Cronbach Alpha coefficient for the total scale as .78; .85 for cognitive reappraisal, and for suppression, it was found to be .78. The researcher determined the test-retest coefficients as .88 for cognitive reappraisal and .82 for suppression (Yurtsever, 2008). In this study, Cronbach's Alpha value was determined as .84.

Resilience Scale: The Resilience Scale (RS), developed by Wagnild and Young (1993) and adapted into Turkish by Terzi (2006), is a 7-point Likert-type scale consisting of 24 items. The lowest score that can be obtained from the scale is 24 and the highest score is 168. A high score indicates a high level of recovery power. For the Recovery Power Scale to be applied, at least one of the Risk Factors Identification List must be marked. The analysis results yielded seven factors with acceptable factor loadings (over .30) for RS, and the reliability coefficient in this study was calculated as .82. Additionally, the scale was found to be significantly related to self-efficacy measurement (Terzi, 2006). In this study, the Cronbach's Alpha value was determined as .82.

Subjective Well-Being Scale: The scale developed by Tuzgöl-Dost (2004) to determine the frequency and intensity of positive and negative emotions experienced by individuals with their mental evaluations about their own lives and their subjective well-being levels, consists of a total of 46 items, 26 of which are positive and 20 of which are negative, and a single dimension. The Subjective Well-Being Scale is rated between 1 and 5 points. Each item in this scale was analyzed by rating it between (1) Not at all appropriate and (5) Completely appropriate. The lowest score that can be obtained from the scale is 46 and the highest score is 230. A high score indicates that their subjective well-being is high. The Cronbach Alpha reliability coefficient

of the Subjective Well-Being Scale was found by the researcher to be .93. In this study, the Cronbach's Alpha value was determined as .91.

Data (Statistical) Analysis

To analyze the findings of this investigation, a two-step procedure was used. To begin, a unidimensional model with items loading directly into the a priori factor was examined using confirmatory factor analysis (CFA) for each of the three variables. To acquire relevant goodness-of-fit statistics, Mplus 8.1 was used. The suggested values for appropriate fit are as follows: root mean square error of approximation (RMSEA) ≤ 0.06; standardized root mean squared residual (SRMR) ≤ 0.08; comparative fit index (CFI) ≥ 0.95; Tucker-Lewis index (TLI) ≥ 0.95 (Hu & Bentler, 1999). To get robust estimates (e.g., factor loadings) for the parameters, the Robust Maximum-Likelihood estimation approach was applied. To describe the essential aspects of the data and establish the reliability of the scales utilized, descriptive statistics, McDonald's omega coefficient of composite reliability, and Cronbach's Alpha were computed in addition to CFA.

After determining the measurement quality (including factor loadings and descriptive statistics) of the instruments, the researchers analyzed the mediation hypothesis (H4). The studies were carried out using the bias-corrected bootstrapping (BCB) approach (Preacher et al., 2010). At the 95% confidence interval limit, a 10000 BCB was used to impute acceptable confidence intervals and standard errors for the indirect impact assessment.

Results

Factor Loadings and Goodness of Fit

Although the main objective of this paper was to test a mediation model, a quick discussion of the measurement features connected with the three factors is necessary. On their respective a priori unidimensional factor, all the items demonstrated significant factor loadings. Factor loadings for emotion regulation varied between 0.328 and 0.741, resilience between 0.311 and 0.802, and subjective well-being between 0.344 and 0.792. The goodness of fit statistics for the three constructs are reported in the section that follows. Depending on the fit index and its related criteria, the goodness of fit associated with the three constructs might be viewed as excellent, good, or bad. Table 1 shows that all three instruments have good to excellent degrees of fit.

Table 1 Goodness-of-Fit Statistics

	Emotion regulation	Resilience	Subjective well-being
X^2	224.768	349.418	188.416
p	.000	.000	.000
df	18	18	18
RMSEA	.031	.033	.029
SRMR	.039	.041	.032
CFI	.93	.94	.96
TLI	.92	.93	.95

Note: RMSEA - root mean square error of approximation; SRMR - standardized root mean squared residual; CFI - comparative fit index; TLI -Tucker-Lewis index.

Common Method Bias

A range of statistical methodologies were employed to assess for common method bias (CMB). First, Harman's single-factor test was used, which involves entering all the observable indicators into an unrotated exploratory factor analysis. There was no single component that could be extracted, and the common shared variation was less than the recommended 35%. Second, to further investigate CMB, a confirmatory factor analytical technique was applied with a single factor indicator (with all the observable variables loading directly onto such) (Tehseen et al., 2017). This test similarly failed to yield a single component, implying that CMB is not present. Lastly, Podsakoff et al. (2003) proposed that CMB be detected using a shared latent factor technique. In this case, a single unmeasured common latent component is built into a measurement model, with regression lines going to each observed variable. These pathways must be equal, and the variance of the common component must be less than one. The findings revealed that the variation explained by the common latent factor is small, and the correlational paths between factors are comparable to the model without the common factor. As a result, common method bias is not an issue in our study.

Descriptive Statistics and Reliability Co-Coefficients and Correlations

The descriptive statistics, Cronbach's Alpha, McDonald's Omega, and correlation coefficients for the variables under consideration are shown in Table 2. The results show that individuals in the present study reported fairly high levels of emotion regulation, subjective well-being, and resilience, as indicated by the mean score. Cronbach's Alpha and McDonald's Omega were used to get the reliability coefficient for each scale. All scales had Cronbach's Alpha and McDonald's Omega values of more than 0.80, indicating adequate levels of internal consistency and composite reliability. Two independent factors (emotion regulation and resilience) had a positive connection with subjective well-being, as predicted. Furthermore, all independent variables had favorable associations with one another. At the 0.01 level, all relationships were significant.

Table 2 Descriptive Statistics and Reliabilities and Correlations (n = 255)

Variables	Min	Max	M	SD	α	ω	1	2	3
1. Emotion regulation	19.00	64.00	44.17	8.172	.84	.83	-		
2. Resilience	54.00	144.00	106.45	16.71	.82	.80	.39***	-	
3. Subjective well-being	106.00	223.00	170.00	24.19	.91	.89	.28**	.68***	-

Note: Min - minimum; Max - maximum; M - mean; SD - standard deviation; α - Cronbach's alpha; ω - McDonald's omega, ** - p < 0.01; *** - p < 0.001

Assessing Direct Relationships Between Variables

As shown in Table 3, there was a significant positive correlation between emotion regulation and subjective well-being (ω=0.28, p 0.01; 95%, CI [0.19-0.46], modest effect size), supporting Hypothesis 1. Furthermore, there was a significant positive correlation between emotion regulation and resilience (ω=0.39, p 0.001; 95% confidence interval [0.24-0.57], medium effect size), supporting Hypothesis 2. The correlation between subjective well-being and resilience was similarly positive and significant (ω=0.68, p 0.001; 95% confidence interval [0.41-0.79], big effect size), supporting Hypothesis 3.

Table 3 Estimates for the Mediation Effects

Path	β	p	95%, CI	f^2
Emotion regulation → Resilience	.366	.000	[0.29–0.57]	.177
Resilience → Well-being	.634	.000	[0.37–0.81]	.391
Emotion regulation → Well-being	.051	.031	[0.01–0.08]	.011
Emotion regulation → Resilience → Well-being	.497	.000	[0.39–0.78]	.217

β - standardized beta; CI - Confidence interval; f^2 =.02 small effect size; f^2= .15 medium effect size; and f^2 = .35 large effect size (Cohen, 1992).

Assessing Indirect Relationships between Variables

The approach described by Preacher et al. (2010) was used to investigate whether resilience mediates the association between emotion regulation and subjective well-being based on the structural model. The independent variable in this study was emotion regulation (X), the dependent variable was subjective well-being (Y), and the mediator was resilience (M). Bootstrapping with bias-corrected confidence estimates was applied to evaluate the mediation model. Using 10000 bootstrap samples, a 95% confidence interval (CI) of the indirect effects was calculated. The 95% confidence level suggested that the indirect impact was substantial (at alpha = 0.05) and meaningful because zero did not fall within its 95% confidence interval. Furthermore, all the model fit indices were satisfactory.

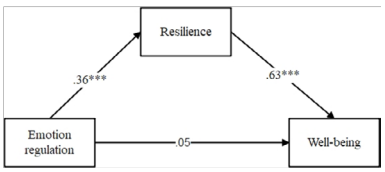

Figure 1 Mediation Model for Emotion Regulation, Subjective Well-being, and Resilience as Mediator

When examining the specific suggested indirect effects, findings showed that the indirect effect of

emotion regulation on subjective well-being through resilience was positive and significant (β_{Total} = 0.49, p<0.001; 95%, CI [0.39–0.78], medium effect size, see Table 3). This means that individuals who reported higher levels of emotion regulation also reported higher levels of resilience. This rise in resilience is linked to an improvement in subjective well-being. As a result, Hypothesis 4 was validated (subjective well-being mediates the link between emotion regulation and subjective well-being).

Discussion and Conclusion

In this study, the mediating role of resilience in the relationship between pre-service teachers' emotion regulation and subjective well-being was investigated. The findings of the study show that the individuals in this study reported fairly high levels of emotion regulation, subjective well-being, and resilience. Emotion regulation and resilience, which are the independent variables of the study, have a positive relationship with subjective well-being as predicted. In addition, all independent variables have significant relationships with each other.

When the literature was examined, it was found that the resilience scores of pre-service teachers and teachers were high and there was no significant difference in resilience scores according to gender, specialism, age, and professional seniority (Sezgin, 2012). Similarly, in the study conducted by Karataş (2016), it was concluded that the psychological resilience levels of teachers working in special education schools were high and did not differ in terms of gender. It is seen that the finding of high scores among pre-service teachers obtained in this study is compatible with the literature.

According to the study results, there is a significant positive correlation between emotion regulation and subjective well-being. According to this finding, the level of subjective well-being increases as emotion regulation skills increase. In addition, a significant positive correlation was found between emotion regulation and resilience. In other words, as emotion regulation skills increase, the level of resilience also increases. The model's correlation between resilience and subjective well-being was similarly positive and significant. It can be stated that as the resilience level of pre-service teachers increases, their subjective well-being level also increases.

When the indirect effects are analyzed based on the research findings, the results show that the indirect effect of emotion regulation on subjective well-being through resilience is positive and significant. This means that individuals who report higher levels of emotion regulation also report higher levels of resilience. This increase in resilience is linked to an improvement in subjective well-being. In conclusion, resilience mediates the link between emotion regulation and subjective well-being. Literature findings show that as the well-being of pre-service teachers increases, the level of psychological resilience will increase. When the research is examined, it is seen that the findings are similar to the results of Kamya's (2000) study to determine the relationship between psychological resilience, well-being, and self-esteem. The findings revealed that well-being is a strong predictor of psychological resilience. Similarly, other studies supporting the results of the study were conducted by Akdoğan and Yalçın (2018) and determined that there was a correlation between subjective well-being sub-dimensions and psychological resilience sub-dimensions. In addition, it was determined that psychological resilience levels predicted subjective well-being and the degree of psychological resilience increased with the subjective well-being of the individual. In another study, resilience was significantly and positively related to subjective well-being in regression analysis and had a predictive effect (Villora et al., 2020). When both domestic and international literature are examined (Altıntaş, 2019; Chow et al., 2018), it is seen that resilience has a positive correlation with well-being and that resilience is a significant predictor of well-being.

When the studies examining the relationship between emotion regulation and psychological resilience were examined, findings similar to the results of this study were found. It is seen that the findings of the study are compatible with the literature. For example, Collins (2007) stated that psychological resilience has a positive effect on the development of positive and optimistic emotions, control, and regulation of emotions. In addition, Altan-Atalay and Saritas-Atalar (2022) stated that

emotion regulation difficulties bring psychological fragility because of their research. Tugade and Fredrickson (2007) determined that emotion regulation skills have a significant relationship with well-being. Additionally, they stated that the control of emotions that have an impact on well-being is a situation that increases psychological resilience.

The findings obtained at the end of the research are important for the education of pre-service teachers. The concept of resilience, which was found to be an important predictor of subjective well-being in this study, can be used in teacher training curricula. Interventions aimed at increasing the resilience of pre-service teachers will have a longer-lasting effect on subjective well-being. Therefore, it is thought that the results of the research are important for the interventions of both education faculty instructors and psychological counseling units of universities.

This study is expected to have a remarkable significance by providing a new perspective for faculty members teaching at the faculty of education and the Ministry of National Education in Turkey. In particular, it will help researchers who focus on reducing teachers' burnout levels to gain new perspectives in areas such as understanding the emotion regulation process, identifying factors affecting resilience, and identifying sub-dimensions of well-being. It is hoped that the findings of this study will provide a basis for interventional procedures for the training of pre-service teachers. In sum, this study is expected to make significant contributions to the related literature.

Limitations and Future Research

Since these findings were conducted with pre-service teachers at universities in Turkey, the results are only applicable to this population. In addition, the results provide a cultural perspective on pre-service teachers' subjective well-being and resilience. This study shows that emotion regulation and resilience predict subjective well-being in pre-service teachers. In future studies, how pre-service teachers' education is related to different variables- for example, demographic variables, personality structure, and professional decision-making- should be included in the research.

When interpreting these findings, it should be kept in mind that the mediation tests were conducted cross-sectionally. Longitudinal studies are needed to reach more causal conclusions. Finally, factors determining subjective well-being can be added to the research variables to increase generalizability.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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