

Research Article

# Predicting Children's Mental Well-Being During COVID-19 Pandemic Based on Maternal Cognitive Emotion Regulation

Delaram Dehnashi\* 

Department of Industrial and Organizational Psychology, Arsenjan Branch, Islamic Azad University, Shiraz, Iran

## Abstract

**Background:** During the COVID-19 pandemic, the lack of warm, supportive, and positive relationships caused behavioral and psychological problems in children. This study aimed to predict the psychological well-being of primary school students during the COVID-19 pandemic based on parental self-efficacy and cognitive emotion regulation in mothers based on the mediating role of the parent-child relationship. **Methods:** The present applied research used a descriptive correlation in terms of data collection and analysis. This research was conducted on 385 cases, including students and their parents, who were selected using a random sampling method. The research instruments included the Reef's psychological well-being questionnaire (18 questions), Johnston and Mash parenting sense of competence scale, Garnefski's cognitive emotion regulation questionnaire, and Fine's parent-child relationship scale. Two psychology experts assessed the face validity of the questionnaires. Reliability of the questionnaires was measured using Cronbach's alpha coefficients. SPSS software was used to analyze the data. **Results:** The average total scores of psychological well-being, parenting sense of competence, parent-child relationship, and cognitive emotion regulation were 68, 58.3, 72.1, and 61.4, respectively. Maternal cognitive emotion regulation was a significant predictor of the parent-child relationship ( $p < 0.01$ ). We found that parenting sense of competence and maternal cognitive emotion regulation were able to predict students' psychological well-being through parent-child relationship during the COVID-19 pandemic. **Conclusion:** Increasing the level of parenting sense of competence and regulating parental emotions can improve the relationship between parents and their children.

## Keywords

Psychological Well-Being, Parenting Sense of Competence, Cognitive Regulation, Students

## 1. Introduction

The COVID-19 outbreak affected different aspects of human life worldwide, and the education sector has not been immune to the impact of the deadly virus [1]. Humans and different types of animals and birds act as vectors and reservoirs of the virus. Therefore, governments enacted strict laws to prevent the spread of the virus [2].

The World Health Organization (WHO) proposed standards

including physical distancing and reduction or cancellation of mass gatherings. Such restrictive measures, although essential, led to challenges [2] in all fields including education. It has been reported that approximately 67.7% of schools in the world were closed due to COVID-19, and governments were left with no choice but to adapt their education systems to the situation [3]. COVID-19 countermeasures reduced social

\*Corresponding author: dehnashidelaram14@gmail.com (Delaram Dehnashi)

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interactions and negatively affected the psychological well-being of individuals, especially children [4]. Psychological well-being reflects a person's mental health, based on positive psychological functions. It is the primary goal of human beings, characterized by positive relationships with others, happiness, and satisfaction [5]. Research has shown that school closure, disease control measures, and economic shutdowns during the COVID-19 pandemic had serious effects on different aspects of children's development, including physical and psychological health, cognitive functioning, and family relationships [6]. More than 183000 cases of COVID-19 and 8600 deaths were reported in Iran as of June, 2020 and less than two percent of them were children [1].

An updated study conducted in 46 countries with the participation of 31,683 parents and childcare professionals and 13,477 children aged 11 to 17 years showed that school closure during this period led to mental disorders, reduced psychological well-being, and negative emotions among children as well as parents [7]. Overall, COVID-19 has brought new challenges to different aspects of the lives of parents and their children. Different issues such as poor economic conditions, concerns about physical and mental well-being, and the challenges of homeschooling have increased parental stress, parental aggression, and violence toward children [6, 7].

COVID-19 quarantine may increase tensions between parents and children because they spend more time together at home. As children do not have the opportunity to play with their peers, their social needs are not fully met, which further intensifies stress in the parent-child relationship [8].

Studies on the effect of quarantine measures on mental health have shown that anxiety caused by COVID-19 and fear of death, along with daily functional disturbances, cause psychological complications in mothers [9]. Mothers play an important role in children's physical and cognitive development. In most families, mothers have greater interaction with children than fathers, and therefore, arguably, have more of an impact on children's psychological development and their future success.

Therefore, mothers' mental health problems in the short- and long-term affect the physical, cognitive, and mental development of their children. Repeated and overt expressions of depression and anxiety can reduce children's psychological well-being [10].

Studies have shown that emotional regulation reduces symptoms of stress, anxiety, and depression by altering emotional and cognitive processes [11]. COVID-19 has affected the psyche of people of all ages including parents of school-aged children. The stress and anxiety felt by parents is visible to their children as stress causes behavioral, emotional, and cognitive symptoms, such as frequent walking, confusion, impatience, and lethargy [12].

Even low levels of stress can affect the parent-child relationship. By encouraging healthy expression of emotions such as sadness and worry, parents can protect their children's mental well-being, take better care of them, and reduce stress

in the family during the COVID-19 quarantine period [13]. Such parental competence is a dynamic, positive, interactive, and social process that develops in relation to others and improves the quality of life of the individual and his/her family members [14].

Emotional disorders in parents are associated with inappropriate expression of emotions, which in turn leads to harsh strategies when children are angry [11]. People who use positive components of emotion regulation in negative events, such as positive evaluation, experience less depression and anxiety. Frequent and overt expressions of hostility, depression, and anxiety by parents in different situations will reduce the psychological well-being of children [10, 13]. The parent-child relationship is an important and vital relationship in creating security and love, which is a combination of behaviors, emotions, and expectations that are specific to each parent and their child [14].

According to a new report in Singapore, the COVID-19 pandemic had a great impact on parents' emotional health and subsequently children's wellbeing. The quality of the parent-child relationship plays a crucial role in the effect of parenting sense of competence on the psychological well-being of students [4]. In previous studies, focusing on the relationship between subscales of parental self-efficacy, parent-child relationship, and child psychological well-being has received less attention.

Therefore, during the COVID-19 pandemic, the lack of warm, supportive, and positive relationships caused behavioral and psychological problems in children. In view of these points, this study investigates the following hypotheses:

H1: Parent-child relationships have a mediating role in the relationship between parenting sense of competence and students' psychological well-being during the COVID-19 pandemic.

H2: The parent-child relationship has a mediating role in the relationship between cognitive emotion regulation in mothers and students' psychological well-being during the COVID-19 pandemic.

H3: Parental sense of competence and cognitive emotion regulation in mothers are not directly significant predictors of students' psychological well-being.

## 2. Methodology

The statistical population of the study included all primary school students and their parents in Fars province in 2020. The statistical sample size, according to the Morgan table, was 385 participants. Four girls' schools and four boys' schools in each district of the city were randomly selected. Three classes from each school and 19 students from each class were randomly selected. In the first stage, 385 students completed Ryff's Psychological Well-being Questionnaire; students whose psychological well-being scores were below the fit line were excluded from the study, and 320 students were included in the study. In this study, the numbers of female and male

students were 172 and 148, respectively, and the mean ages of male and female students were 10.2, and 10.6, respectively. For accurate study implementation, due to the COVID-19 epidemic conditions and student virtual education, after necessary coordination with the school management, contact numbers of students' parents were obtained, and questionnaires were sent electronically via social media to them. After communicating with the students' parents, the Cognitive Emotion Regulation Questionnaire (CERQ) and Parenting Sense of Competence (PSOC) Questionnaire (mother-child relationship) were provided to the mothers ( $n = 320$ ). Another version of the PSOC (focusing on the father-child relationship) was provided to fathers (304 n). Parents completed the questionnaires on a voluntary basis. The questionnaires took approximately 20 min to complete. All the completed questionnaires were returned to the researcher via social media. Most parents (95%) were married or in a domestic partnership and 5% were divorced/separated. Approximately 75 % of the parents had completed secondary school, 10% had completed post-secondary education, and 15 % had a university education.

For data collection, the questionnaires were translated into Persian by a panel of three individuals fluent in both English and Persian. The translated items were then translated back into English by another translator who was not involved in the previous process. These versions were compared with the original items to check their original meaning and intent. The questionnaires are described below.

Ryff's Psychological Well-being Questionnaire [15]

Ryff (1995) designed this scale. The main form had 120 questions, but in subsequent revisions, shorter forms of 84, 54, and 18 questions were also designed. An 18-item questionnaire was used to measure six aspects of well-being and happiness: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance [15]. In the present study, students (320n) answered this questionnaire.

Questions were answered on a Likert scale where:

1 = strongly agree, 2 = somewhat agree, 3 = somewhat agree, 4 = disagree, 5 = somewhat disagree, 6 = somewhat disagree, 7 = strongly disagree

The internal consistency coefficient of the scales was reported from 0.86 to 0.93 and the retest reliability coefficient was reported between 0.81 and 0.86 [15].

In this study, the validity of the questionnaire was confirmed by two professors. The reliability of the questionnaire using Cronbach's alpha coefficient was 0.708. This value for the questionnaire items ranged from 0.61 to 0.73.

Parenting Sense of Competence (PSOC) Questionnaire [16]

The PSOC is a 17-item questionnaire that measures the overall sense of competence felt by parents regarding their parenting quality and includes two subscales that measure parental satisfaction and self-efficacy. The efficacy factor examines parenting sense of competence, capability levels,

and problem-solving abilities in their parental role, while the satisfaction factor examines parents' anxiety, motivation, and frustration [16]. The PSOC is scored on a 6-point scale from 1 (strongly agree) to 6 (strongly disagree). According to a previous study, the reliability of the questionnaire is good (Cronbach's alpha - 0.71) [17]. In the present study, the questionnaire was answered by both fathers and mothers.

In this study, the validity of the questionnaire was confirmed by two professors. The reliability using Cronbach's alpha test was found to be 0.645. The values for the questionnaire items ranged from 0.641 to 0.75.

Cognitive Emotion Regulation Questionnaire (CERQ) [18]

The Cognitive Emotion Regulation Questionnaire (CERQ) is a multidimensional questionnaire that measures cognitive emotion regulation strategies (or cognitive coping strategies) used after experiencing negative events or situations [18]. Different versions of CERQ have been designed for adults, adolescents, and children. In the present study, mothers answered this questionnaire.

The questionnaire assessed nine items: self-blame, blaming others, acceptance, refocusing on planning, positive refocusing, rumination, positive reappraisal, putting into perspective, and catastrophe. Responses are given on a five-point Likert scale ranging from 1 "(almost) never" to "(almost) always. According to a previous study, the reliability of the questionnaire, using Cronbach's alpha coefficient, was 0.85. [19].

The reliability of the questionnaire using Cronbach's alpha coefficient was 0.85. The values for the questionnaire items ranged from 0.78 to 0.82.

Parent-Child Relationship Survey (PCRS) Questionnaire [20]

The PCRS is an instrument designed in 1983 to measure adults' perceptions of their parent-child relationship. The PCRS has two forms: one for assessing the mother-child relationship (24-item), and one for assessing the father-child relationship (24-item); both forms are identical. The PCRS is scored on a 7-point scale from 1 (not at all) to 7 (so much) by reverse-scoring negatively worded items (9, 13, 14), and then summing individual item scores and dividing by the number of items. PCRS has shown excellent validity and internal consistency, with good  $\alpha$  values for the father (89% to 94%, with overall  $\alpha$  of 96%) and mother (61% to 94%, with an overall  $\alpha$  of 94%) subscales [20]. According to two different studies conducted in Iran, internal consistency was 92% and 93% for both mother and father forms [21, 22]. This scale showed excellent internal consistency in this study (81%). In the present study, the questionnaire was answered by both fathers and mothers.

Statistical Analysis

SPSS software was used for data analysis. The mean values and standard deviations for each subscale of variables were calculated, followed by the calculation of the correlations, which were then evaluated by a type of regression analysis. In conducting our mediation analysis, we produced a regression model, and the mediation effect was estimated through direct

effect, in which the predictor (independent) variables were parental adequacy and cognitive emotion regulation in mothers, and the predicted (dependent) variable was students' psychological well-being. The mediating variable was the parent-child relationship and served as a dependent variable for the independent variables. The relationship between the aforementioned independent and dependent variables is assumed to be indirect.

The significance of the mediating effect was evaluated using the Sobel test, and the Z value for the Sobel test was statistically significant if it fell outside  $\pm 1.96$ , given a two-tailed alpha of .05. This study was reviewed and approved by the institutional review board of Fars Metropolitan Children's Hospital.

### 3. Results

The research findings are presented in two parts: descriptive and path analysis results. The average total scores of psychological well-being, parenting sense of competence, parent-child relationship, and cognitive emotion regulation were 68, 58.3, 72.1, and 61.4, respectively. The correlation coefficient values of the Pearson analysis and the descriptive statistics of the variables were calculated (Table 1). To provide a clearer picture of the relationships between the variables, their correlations were calculated (Table 2).

**Table 1.** Correlation among the examined variables and descriptive statistics (M, SD, Range).

variables	parent-child relationship	Cognitive Emotion Regulation	Parenting Sense of Competence	psychological well-being
Parent-child relationship	1			
Cognitive Emotion Regulation	*0.129	1		
Parenting Sense of Competence	**0.177	**0.253	1	
Psychological well-being	**0.187	**0.185	**0.688	1
M	58.5	33.2	42.3	45.5
SD	8.2	6.1	7.2	6.9
Range	28-73	24-54	28-51	30-59

\* (0.05>p) ;\*\* (0.01>p)

**Table 2.** Regression analysis on the mediating role of parent-child relationship in the association between cognitive emotion regulation, parenting sense of competence and psychological well-being.

Test Steps					t	P	result
Models							
Parenting Sense of Competence		→	Parent-child relationship	2.466	0.02	approve	
		R <sup>2</sup> =0.21					
Cognitive Emotion Regulation		→ R <sup>2</sup> =0.68	Parent-child relationship	1.859	0.001	approve	
Parent-child relationship		→	Psychological well-being	2.259	0.02	approve	
		R <sup>2</sup> =0.20					
Parenting Sense of Competence		→	Psychological well-being	0.026	0.18	reject	
		R <sup>2</sup> =0.06					
Cognitive Emotion Regulation		→	Psychological well-being	0.084	0.2	reject	
		R <sup>2</sup> =0.06					
Parent-child	→	Parenting Sense	→	Psychological	2.13	0.02	approve

Test Steps				t	P	result
Models						
relationship	of Competence	$R^2=0.26$	well-being			
Parent-child relationship	→ Cognitive Emotion Regulation	→ $R^2=0.27$	Psychological well-being	2.076	0.02	approve

### 3.1. Effect of Parenting Sense of Competence on Students' Psychological Well-being

Regarding the direct effects of parenting sense of competence on students' psychological well-being, it was found that parental satisfaction had no effect on any of the subscales of psychological well-being (autonomy, environmental mastery, personal growth, purpose in life, positive relations with others, and self-acceptance). Parental self-efficacy had a significant impact on the self-acceptance ( $P = 0.004$ ) and purpose in life ( $P = 0.001$ ) subscales.

Effect of maternal cognitive emotion regulation on students' psychological well-being

Positive emotions were significant only for the environmental mastery subscale ( $p=0.001$ ,  $t=1/110$ ). Negative emotions had a significant effect only on positive relations with others ( $p=0.03$ ,  $t=2/166$ ) and the purpose in life subscale ( $p=0.02$ ,  $t=2/245$ ). Maternal cognitive emotion regulation was not a directly significant predictor of psychological well-being ( $p=0.35$ ) (H3 hypothesis accepted).

### 3.2. Effect of Parenting Sense of Competence on Parent-Child Relationship

In the present study, parental self-efficacy had a significant effect on positive emotions, identity determination, and communication, while the parental satisfaction variable had a significant effect on annoyance and communication ( $p < 0.05$ ,  $t < 1.96$ ). Parenting sense of competence has a significant and direct impact on the parent-child relationship. Parenting sense of competence through the parent-child relationship was able to predict students' psychological well-being ( $p = 0.02$ ).

### 3.3. Effect of Maternal Cognitive Emotion Regulation on Parent-child Relationship

In the present study, the direct effects of positive and negative emotions on all subscales of the parent-child relationship were significant. Except for the effect of negative emotions on annoyance, this effect was insignificant. Maternal cognitive emotion regulation was a significant predictor of the parent-child relationship ( $p < 0.01$ ).

### 3.4. Effect of Parent-child Relationship on Students' Psychological Well-being

There is a significant relationship between the positive emotion subscale of the parent-child relationship scale and some subscales of psychological well-being, such as autonomy, environmental mastery, and personal growth. According to the results of the t-statistics and the significance of the path coefficients shown in Table 2, parental adequacy and maternal cognitive emotion regulation through the parent-child relationship were able to predict the psychological well-being of students in the conditions of the COVID-19 pandemic (H1 and H2 hypothesis accepted). Parenting sense of competence and cognitive regulation of emotions do not directly have a significant effect on students' well-being. The relationship between parent-child relationship, parental adequacy, and cognitive regulation of emotion was positive.

To determine the significance of the mediation role of the parent-child relationship in the study, the Sobel test was applied and the z value was calculated as 2.48 as a result of the test. The test results showed the significance of the mediating role of the parent-child relationship in the relationship between parenting sense of competence, maternal cognitive emotion regulation, and psychological well-being of students ( $p < 0.05$ ).

## 4. Discussion

The aim of this study was to predict the psychological well-being of primary school students during the COVID-19 pandemic based on parenting sense of competence and cognitive emotion regulation in mothers through the mediating role of the parent-child relationship.

The results showed that parental self-efficacy and cognitive emotion regulation in mothers were indirectly able to predict students' psychological well-being. Among the study variables, the parent-child relationship had the greatest ability to predict students' psychological well-being.

In addition, the parent-child relationship could indirectly address the relationship between parental adequacy and psychological well-being, and also mediate maternal cognitive emotion regulation and students' psychological well-being. In



other words, parental self-efficacy and cognitive emotion regulation in mothers through the parent-child relationship were able to predict students' psychological well-being. The results of this study are consistent with those of other studies [23, 24].

In the study of the effect of parenting sense of competence subscales on students' psychological well-being, it was observed that parental satisfaction had no effect on any of the subscales of psychological well-being, but parental self-efficacy had a positive and significant effect on purpose in life and acceptance subscales. Regarding the effect of parental satisfaction on students' psychological well-being, we hypothesize that this effect is due to home quarantine that affected both the above-mentioned variables.

It has been reported that parental self-efficacy, especially in stressful situations, is one of the variables that regulates performance through cognitive, emotional, and motivational processes [25].

Parents' self-efficacy beliefs affect their ability to cope with the problems and stresses of COVID-19, and when parents believe they can withstand threats and pressures, they do not experience anxiety and stress under these conditions. As a result, by supporting their children, these parents convey a sense of purpose and worth to their children, which ultimately increases their mental well-being. According to a new study in Germany, parents' self-efficacy was reported as a protective factor that plays an important role in disrupting the negative effects of stress during the COVID-19 lockdown [26].

Regarding the effect of maternal cognitive emotion regulation on students' psychological well-being, it was observed that positive emotions had an effect on mastering the environment and negative emotions had a positive effect on communication with others and purpose in life.

To explain this hypothesis, we can refer to the research of Xue et al., who revealed that the quarantine period provides completely new conditions for parents with new uncertainties that make their personal interaction and social support more difficult [27].

Disruption of students' daily schedules, lack of physical energy due to quarantine conditions, and temporary severance of peer relationships have led to disorder and hyperactivity in students, accompanied by mood swings, aggression, emotional turmoil, and fatigue. Increasing level of disorder and hyperactivity in children during the pandemic caused an increase in negative emotional symptoms, such as anxiety, sadness, and hopelessness in mothers. Therefore, regulating negative emotions, as one way to facilitate parental caring behaviors, can be helpful [22].

Regarding the effect of parental sense of adequacy on the parent-child relationship, it was observed that both parental self-efficacy and parental satisfaction had effects on the subscales of the parent-child relationship. Parental self-efficacy affects positive emotion and communication and improves the parent-child relationship by decreasing annoyance and increasing communication. The results of this part of the study

are consistent with Di Giorgio study [28]. Anxiety caused by stressful events in parents can affect the quality of parent-child interactions by affecting their negative emotions and causing behavioral problems in children. Parenting self-efficacy is inversely correlated with maternal depression, maternal anxiety, and attachment insecurity [29].

Regarding the effect of maternal cognitive emotion regulation on the parent-child relationship, it was observed that both positive and negative emotions had an effect on the parent-child relationship. During COVID-19 situations, parents can influence positive emotions and reduce annoyance by regulating their positive emotions, and ultimately improve the parent-child relationship. Our study showed the same results as those of Matin et al. [30]. As mentioned in that study, mothers who have a great ability to regulate emotions understand their child's moods well and are successful in performing their motherly duties. Cognitive emotion regulation involves positive (adaptive) and negative (maladaptive) mechanisms, which causes people to criticize themselves or others when faced with adverse conditions, such as the COVID-19 pandemic, and constantly think about this condition (mental rumination) and consider it as a catastrophic event [19].

Regarding the effect of the parent-child relationship on students' psychological well-being, it was observed that among the subscales of the parent-child relationship, positive emotion and communication had an effect on students' psychological well-being. Similar results were reported by Kim [31]. COVID-19 has strongly influenced the physical and mental health of parents as well as collective behavior [4].

Parent-child relationships in the pandemic can be affected by unconscious psychological aspects and the psychodynamic approach of individuals [31].

Research has revealed that psychodynamic approach assessment may be helpful in stress management and adaptation, helping individuals cope with discharged feelings and thoughts related to the pandemic [32, 33].

## 5. Conclusion

Finally, in confirming the mediating role of the parent-child relationship in the association between parental adequacy, cognitive emotion regulation in mothers, and students' psychological well-being, it can be concluded that anxiety caused by COVID-19 in mothers can affect the quality of parent-child interaction by affecting negative emotions of parents and then causing behavioral problems in children. Mothers who do not feel safe due to the COVID-19 virus are constantly exposed to anxiety and stress and have a constant expectation of contracting COVID-19. This makes them somewhat oblivious to their children and their needs. Mothers can help improve the parent-child relationship and students' psychological well-being by cultivating positive emotions (positive evaluation, self-acceptance, and focus on planning). Therefore, increasing the level of parenting competence and regulating parental emotions can improve the relationship between

parents and their children.

The main limitations of the study included the following: drugs use by parents and the anxiety of students could have an impact on answering the questions, and it was not possible to control those factors. It is possible that students may have under-reported or exaggerated some information while answering the questions. It was a self-report questionnaire. The students were not interviewed or observed, and teachers' inputs were not asked. Therefore, it is suggested that this issue should be further explored in future research given that the socio-economic status and attitudes of parents play an important role in the development of individuals' psychological characteristics.

## Abbreviations

WHO	World Health Organization
CERQ	Cognitive Emotion Regulation Questionnaire
PSOC	Parenting Sense of Competence
PCRS	Parent-Child Relationship Survey

## Availability of Data and Material

The datasets generated or analyzed during the study are not publicly available because of copyright but are available from the corresponding author upon reasonable request.

## Author Contributions

Delaram Dehnashi is the sole author. The author read and approved the final manuscript.

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The authors report no involvement in the research by the sponsor that could have influenced the outcome of this work.

## Conflicts of Interest

The author declares no conflicts of interest.

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