



Developing a model on the factors affecting family resilience in the COVID-19 pandemic: Risk and protective factors

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Abstract

During the COVID-19, the relationships among family members and the stress that accompanied have increasingly affected families. The first aim of this study is to test the effects of marital adjustment, perceived stress and parental self-efficacy of married couples on family resilience during the COVID-19 pandemic. The second aim of this study is to investigate whether or not family resilience, perceived stress, parental self-efficacy and marital adjustment differentiate depending on demographic and other variables in the COVID-19 pandemic. Participants consisted of 241 married individuals with at least one child between 4 and 18 years old, and data were collected online. It was found that when perceived stress increased, parental self-efficacy and marital adjustment decreased; besides, this perceived stress indirectly influenced family resilience through parental self-efficacy and marital adjustment. Similarly, it was found that pregnant participants experienced higher level of perception of stress during the COVID-19 period. It was found that the family resilience of participants who got support within the family was higher than participants who got support from outside the family. However, no differences were found between males and females. In stressful processes like the COVID-19 pandemic, each sub-system of the family (individual, couple and parent) has a significant role in the resilience level of the family as a whole. Future studies focus on experimental and can focus on programs prepared for family resilience. Intervention programs can be prepared related to stress perception, parental skills and marital adjustment of married couples and their influence on family resilience can be searched.

Keywords Family resilience · Perceived stress · Marital adjustment · Parental self-efficacy · COVID-19 pandemic

The World Health Organization (WHO) announced COVID-19 as a pandemic, arising from China and rapidly spreading worldwide at the end of 2019. It became apparent in Turkey in March 2020. It affected physical health and posed a challenge to community mental health. Precautions taken against this public health problem, which directly or indirectly affected the lives of millions, have extended each day. To combat the COVID-19 pandemic, some precautions such as temporarily closing schools and workplaces, increasing social measures, imposing a curfew for people under 20 and over 65 led to an increase in social, economic, psychological, and health problems (Turkish Academy of Sciences, 2020). When evaluating precautions in terms of

their psychological influences, the process has increased individuals' anxiety against being infected, affected their daily routine, and caused people to distance themselves even from their closest friends, relatives, and family members due to restriction. Infected people who received treatment under quarantine witnessed the process, and those who lost their loved ones experienced even greater stress (Ogutlu, 2020).

The COVID-19 has increased stress at both individual and societal levels. While stress in small doses and for short periods can be beneficial in allowing one to cope with the stressor, prolonged stress has adverse effects on both physical and mental health. Stressful events may cause harmful behaviors such as smoking, increased alcohol consumption, sleep problems, and eating disorders. Loss of income, perceived threat to life and personal injury is all associated with mental illness (Minihan et al., 2020). In addition, quarantine often has adverse psychological effects, including anxiety, depressed mood, irritability, insomnia, symptoms of post-traumatic stress, and emotional exhaustion (Brooks et al., 2020).

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The COVID-19 pandemic has increased the perceived stress experienced by individuals. Stress, which can influence all aspects of human life, can also negatively influence individuals and families' functions, and prolonged exposure to stress affects life quality negatively (Eskin et al., 2013). During the COVID-19 pandemic, it was reported that mental health problems like depression, anxiety and post-traumatic stress disorders have increased in China (Qiu et al., 2020). A longitudinal study was conducted to assess the progression of psychological wellbeing throughout the pandemic in Spain. Significantly the increase in the symptoms related to anxiety and depression between one and eight weeks was reported. It was especially reported that women over the age of 45, those without a job, and working from home had faced more symptoms of anxiety (Ripoll et al., 2021). Another study indicated a temporal increase in anxiety, depression, and stress during the COVID-19 lockdown in a longitudinal study (Planchuelo-Gómez et al., 2020). It was investigated the role of online social comparison on individuals' psychological distress and life satisfaction during the COVID-19-related quarantine by a three-wave panel study in Italian adults. The results showed an increase in the levels of loneliness, depression, stress, anxiety and a decrease in the level of life satisfaction in the pre/post quarantine comparison (Ruggeri et al., 2021). It was found that during the COVID-19 pandemic stressors including lifestyle and economic disruption and feeling hopeless were most strongly associated with emotional distress in a prospective longitudinal cohort study. Female young adults had a higher risk than males of pre- and also during-pandemic distress. Young adults with a migration background were also at increased risk of during-pandemic perceived stress. It was found that keeping a daily routine, engaging in physical exercise, positive reappraisal, and additional coping strategies were associated with lower distress (Shanahan et al., 2020). In this study, Chinese participants assessed three time points (before the outbreak, at the peak and decline stages of the COVID-19). The results showed that people perceived social support increased from the pre-pandemic to the peak of the COVID-19 stage and remained stable during the decline of the COVID-19 stage. On the contrary, the COVID-19 anxiety decreased from peak to decline. Further, it was found that perceived social support was consistently moderated the relationship between loneliness with both chronic anxiety and COVID-19 anxiety (Xu et al., 2020).

Some longitudinal studies found different results related to the COVID-19 pandemic. For example, Breslau et al. (2021) compared psychological distress experienced during the COVID-19 pandemic with the highest level of distress respondents experienced 12 months prior to the COVID-19 pandemic by a longitudinal study in the U.S. adult population. It was found that the 30-day prevalence of psychological distress in May 2020 did not differ from the past-year

prevalence of psychological distress assessed with the same instrument in February 2019. It was given the scales to the Argentinian general population twice (two days after quarantine started and two weeks later) to assess the emotional impact of the lockdown. Findings show that depression tends to increase slightly, while levels of anxiety and affect (positive and negative) tend to decrease (Canet-Juric et al., 2020). In another study, the Dutch population was applied to assessments on loneliness, anxiety, and depression symptoms in this longitudinal study. It was found that the lower prevalence of anxiety and depression symptoms after the outbreak than before and during the COVID-19 outbreak. The prevalence of emotional loneliness increased significantly after the outbreak, among individuals who were not lonely before and after the outbreak decreased the prevalence of symptoms significantly. However, it was found that the prevalence of symptoms increased significantly among those who became lonely during the pandemic (van der Velden et al., 2021). The aim of the study was to examine change in loneliness in the social restriction measures taken to control the coronavirus spread. The American adults were assessed on three occasions, in late January/early February 2020 (before the outbreak), in late March, and in late April. It was found that contrary to expectations, there were no significant changes in loneliness across the three assessments (Luchetti et al., 2020). This longitudinal study was evaluated the protective effects of psychological resources on adults' well-being in lockdown during the COVID-19 in France. It was found that emotional well-being was positively predicted by hope, the gratitude of being, and by acceptance; psychological well-being by self-efficacy, personal wisdom, and the gratitude of being; social well-being only by the gratitude toward the world; and inner well-being by optimism, the gratitude of being, and acceptance (Pellerin & Raufaste 2020). This longitudinal study was conducted to identify levels of distress, resilience, and the subjective well-being of the Israeli population. It was found that the sense of danger, distress symptoms, and perceived threats were significantly increased, and there was a significant decrease in resilience and subjective well-being indicators (Kimhi et al., 2020). During the initial phase and four weeks later during the COVID-19 epidemic in China, it was found that there were no significant temporal changes in the levels of stress, anxiety, and depression between the first and second applications in this longitudinal study (Wang et al., 2020). It was found that there was an increase in physical isolation and social isolation among participants during the COVID-19 in U.S. adults older than 50 before and during the lockdown. However, it was found that participants did not experience any change in digital isolation or loneliness. At the same time, it was emphasized that the increase in physical isolation was only present for people with COVID-19 severe concerns. In contrast, people with low concern did not experience physical isolation changes

(Peng & Roth, 2021). Longitudinal analyses showed that all demographic groups (age, sex, race/ethnicity, income) in U.K. adults experienced increases in distress after the onset of the pandemic. Then it declined significantly to pre-pandemic levels by September. (Daly & Robinson, 2021).

Special conditions like having a chronic disorder, being pregnant, being unemployed, having no social insurance, caring for a child or a relative with disabilities, substance abuse could also cause experiencing more stress in crisis conditions (Ben-Ari et al., 2020; Butrica & Smith, 2012; Prime et al., 2020; Van der Meer, 2014). Psychological fear, anxiety and stress can be caused due to uncertainty which is the subjective negative emotions experienced in response to the as yet unknown aspects of a given situation, affecting people not only on an individual but also on a familial basis (Freeston et al., 2020). For example, It was reported that stay-at-home status and personal distancing in the USA were associated with higher depression and general anxiety disorder between February and March, beyond protective effects of available social resources (Marroquín et al., 2020). Another study reported respectively moderate to severe depressive, anxiety, and stress symptoms in a study assessing the degree of psychological impact during the pandemic in Saudi Arabia (Alkhamees et al., 2020).

The COVID-19 pandemic is a stress condition involving acute crisis and loss events, disruptions in many aspects of life, and ongoing multi stress challenges with evolving conditions. These conditions can persist over months and even years, with ongoing deaths and a cascade of disruptions felt worldwide. This situation shows that many families are experiencing an ongoing, pervasive sense of loss: the tragic deaths and the fear of the loss of loved ones; the loss of physical contact with family members and social networks; the loss of jobs, financial security, and livelihoods; the loss of pre-crisis ways of life and threatened loss of hopes and dreams for the future; and the loss of a sense of normalcy in shattered assumptions about our lives and connections with the world around us (Walsh, 2020). Furthermore, within the context of family systems theory, relationships among family members can change after the COVID-19; stress factors preventing the functioning of one family member can cause changes in functions of all family members. For this reason, it is essential to understand how the function of one family member (or two) affects the functioning of another family member (or couple) in order to understand the influence of the COVID-19 on the well-being of the whole family (Carr, 2015; Fiese et al., 2019).

This new condition full of unfamiliarity and ambiguities increases anxiety and stress. However, it is an opportunity for families to adapt and survive using existing resources and/or developing new skills; some risks related to the process can cause serious problems for some families and strengthen other families. Factors helping families gain

strength in this process have great importance, and this is approached within the scope of family resilience in the study. As a result of this threat, the world confronts a life-threatening pandemic, resilience investigators are asked to contribute their knowledge and perspectives to help communities and societies prepare and respond more effectively (Masten & Motti-Stefanidi, 2020).

Family Resilience

According to Walsh (1998), family resilience is expressed as the coping and adaptation process of the family as a functional unit. Masten (2001), resilience is “the ability to return to previous normal condition and successful recovery despite exposure to difficult risk conditions”. Rutter (1999) described resilience as a dynamic concept emerging due to the interaction between risks and protective factors and stated that this dynamic structure changed the effect of adverse life events. In general, practitioners and researchers tried to explain the concept of resilience in different ways. Recently, resilience has been approached within family systems, and researchers focused on “family resilience” studies (McCubbin & McCubbin, 1993; Walsh, 1998). Walsh (1998) emphasizes three areas: family belief systems, organizational patterns, and communication processes in family resilience. Family belief systems include making sense of negativity, positive perspective and faith. Organizational patterns are based on three factors which are flexibility, commitment and financial security. Finally, family communication styles include explaining uncertain situations, expressing family emotion, and collaborative problem-solving.

In literature, responses given by families against crises were explained with different approaches. One of them is “Double ABCX Model” (McCubbin & Patterson, 1983) which is used in describing both pre-crisis and post-crisis factors. Another model which focuses on the struggle to make a balance between different demands and resources of family is “Family Adjustment and Adaptation Response Model” (Lavee et al., 1985). Following studies focusing on responses which families gave in to crises, The Resiliency Model was developed in order to explain why some families are more resilient to crisis and stress and more adaptive to changes. Resilience is described as “under stressful or negative conditions, familial and individual ability of recovery by protecting the family integrity and regaining well-being when necessary” (McCubbin & McCubbin, 1996). In Resiliency Model, there are two phases as adjustment and adaptation. The adjustment phase is the first response given by the family against stressful conditions; these responses provide family to manage the effect of stress by making short-span, minor changes. However, if the stressful condition requires a significant change in functionality of the family and if a

disharmony emerges, the family experiences a crisis and the adaptation phase of the model is accessed (McCubbin & McCubbin, 1993).

The adaptation phase of The Resiliency Model includes families having difficulty in adapting to changes. In this phase, families try to achieve a new balance, adaptation and functionality level to cope with stressful conditions. By expanding the family resources and developing new coping strategies, ordinary virtues and competencies of the family, like respect, support, strength, wholeness and trust are supported and a healthy adaptation process is achieved. When there is no healthy adaptation, families return to crisis conditions where there is disharmony (McCubbin et al., 1996). Researchers studying family resilience explain family resilience in three dimensions. The first dimension is the time duration of the adverse conditions that the family faced. If the effects are short-span, and can be solved without damaging family functionality with less effort, it is called difficulty/distress. If these effects are prolonged, they affect family functionality and require drastic changes, it is called a crisis. The second dimension of family resilience is about the period of the family life cycle in which the family faced difficulty/distress or crisis and how this period shaped their coping with crisis. Families can use the same strength and coping skills to cope with problems they face during life. However, these coping skills and strengths might be insufficient when encountering situations, they have to challenge in other periods of family life. Each period requires some specific skills. The third dimension of family resilience is outer and inner support resources that the family uses in periods of problem or crisis. Resilient families use the strength and resources of the individual, the family, and society in adapting to stressful events and transitions. Support obtained from social resources contributes to strengthening family resilience (Simon et al., 2005). The other study investigated the relationship between family resilience and family crises in Chinese families. According to the study results, it was found that the economic power of the family's problem-solving skills and family integrity increase resilience and is effective in managing crises taking place within the family. It was found that particularly family integrity is effective in coping with developmental problems of children and coping with problems within the family (Lin et al., 2016).

Parental Self-efficacy, Perceived Stress and Family Resilience

The family has a crucial role in the developmental stages of a child. Parental behaviours positively reinforcing the development of the child is influenced by many variables like the temperament of the child, developmental stage of the child and the parents are in, the temperament of parents,

socioeconomic status, educational processes, cultural behaviours, war, disasters, outbreaks, etc. and could take very dynamic progress in the context. Despite these influences and changes, positive parental skills like guiding the child appropriately to the developmental process, making appropriate decisions, effective communication, being flexible, adaptation and supporting are the most important protective factors for children who are exposed to stress and trauma (Conger & Conger, 2002; Hassall et al., 2005; Howell et al., 2010; Wahler, 2002). Parental competence, which is seen as one of the most important variables influencing family resilience, is described as parents' feeling of competency about parenting roles (Ardelt & Eccles, 2001; Hassall et al., 2005). While high parental competency provides skills like positive communication, acceptance and being able to make contact with the child, lower parental competency leads parents to perceive their children negatively and emergence of behavioural problems in the child (de Montigny & Lacharité, 2005). Dumka et al. (2010) found that parental competency and positive parental implementations decrease adolescent behavioural problems in the long term. Stress and ambiguity experienced during the COVID-19 pandemic could urge families in parental skills like giving care to children, guiding and establishing positive communication with them. Results show that the stressful period caused a decrease in maternal warmth and increased harsh parenting styles including physical punishments (Prime et al., 2020). Moreover, children's distress levels are also likely to increase given rising stress among adults on whom they depend for care. Adolescents' feelings of stress around their parents are generally linked with both depression and anxiety, however; if parents support them with adequate parental self-efficacy, they can successfully manage their feelings of stress (Luthar et al., 2020).

Marital Adjustment, Perceived Stress and Family Resilience

Marital adjustment of couples in the family system is another essential variable affecting family resilience. During periods of social disaster, outer social support is usually interrupted, and couples need the support of each other even more. On the other hand, distress and stressful life events could negatively affect both demanding partner support and supporting to the partner (Cohan, 2010). Daily stress factors can weaken the feeling of togetherness, decrease sharing emotions and dyadic coping, diminish the quality of communication, and increase withdrawal. In addition, a crisis can influence the marital satisfaction of couples, who were at more risk (because of health, economy, etc.) before the pandemic, to a greater extent (Karney et al., 2005).

Perceived stress can influence couple adjustment negatively. It was found that couples who perceive and experience the effect of stressful life events negatively in a relationship have a lower marital adjustment (Li & Wickrama, 2014; Neff & Karney, 2009). In another study, marital adjustment of couples with a high level of positive affect and a low level of negative affect was higher. It was also found that women and men who are affected by adverse life events and experience negative affect have a lower marital adjustment (Sakmar-Balkan & Fışıloğlu, 2017).

Stressful life events, which affect marital adjustment negatively, could be a risk factor for divorce. Particularly economic problems before the crisis increased to a greater extent in the pandemic period. In this way, it may lead to the collapse of marriage threatening the well-being of parents and children. The continuing crisis that influences the family can cause a high level of psychological distress, particularly parents who take care of children and therefore can lead them to present problematic parental behaviours. Unmet economic, psychological and child-care demands can cause increased negativity within the family, weakening relationships between parent–child and between spouses (Prime et al., 2020).

When studies in the literature are reviewed, it was found that concepts like perceived stress, parental competence, marital adjustment have influences on family resilience. In a study focusing on indirect relationship of marital adjustment, perceived stress and family resilience, 107 Japanese immigrant mothers who have children aged 4–8 were interviewed. It was found that perceived stress, marital satisfaction and family were influential on the adaptation of children to their new location (Izumi & Gullón Rivera, 2018). In another study investigating marital satisfaction, familial stress and sharing child-care responsibilities, parents stated that coping with the emotions and behaviours of children is the most stressful experience (Ki & Joanne, 2014).

Many concepts related to family are affected by the family socioeconomic level indicators. One of the most important of these concepts is the education level. It was found that parents with high educational levels are more competent in behaving warmly, being sensitive, encouraging cognitively and caregiving (Azad et al., 2014; Zhai, 2017). In addition, parents with high educational levels are more knowledgeable in accessing information and supplementary sources when needed and about their children's developmental needs (McConnell et al., 2011). In the light of findings, this study is an original one in terms of focusing on the family system as a whole during the COVID-19 pandemic and focusing on the effect of each sub-system (individual, couple and parent) on family resilience together with marital adjustment, perceived stress of the individual and parental self-efficacy.

The purpose of the Present Study

The purpose of this study is to test the direct and indirect effects of marital adjustment, perceived stress and parental self-efficacy of married individuals with children aged between 4–18 on the family resilience during the COVID-19 pandemic. In addition, the mediator role of marital adjustment and parental self-efficacy in the model will be investigated. Another purpose of the study is to investigate the differentiation of family resilience, perceived stress, parental self-efficacy and marital adjustment depending on demographic variables. Hypotheses of the study are given below and the conceptual model is given in Fig. 1.

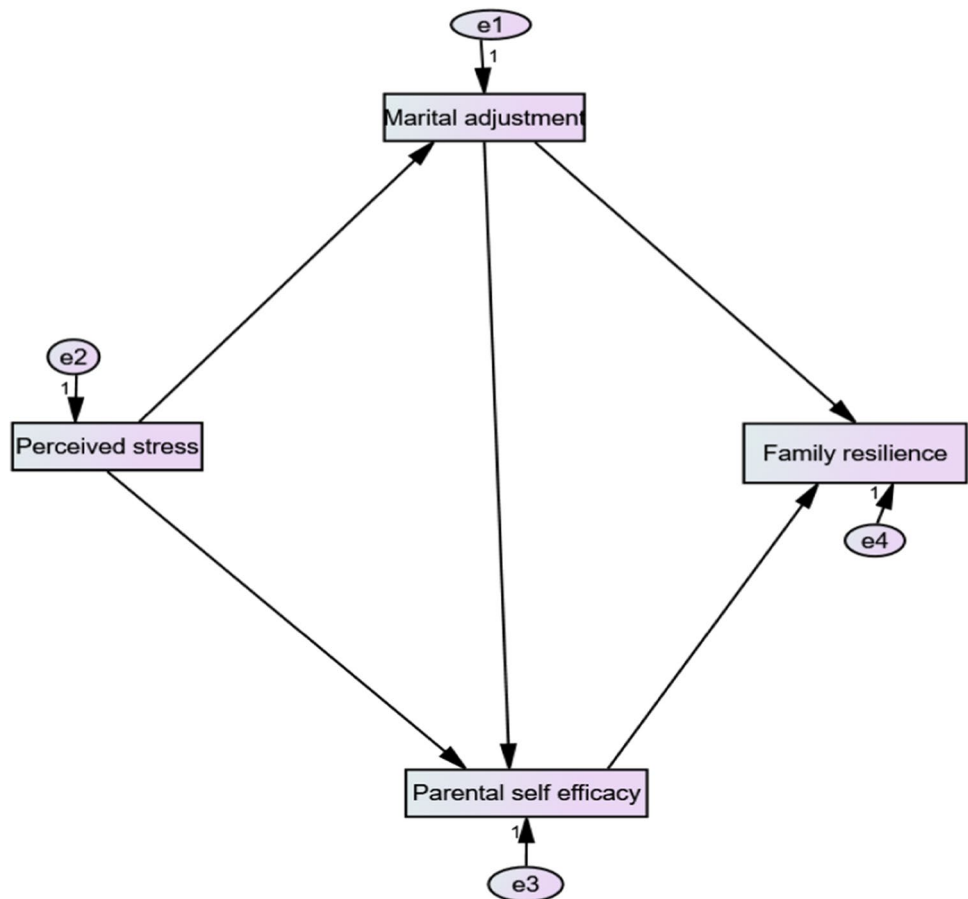
1. Family resilience, perceived stress, parental self-efficacy and marital adjustment differentiate depending on demographic variables (gender, education level, social insurance, condition during the pandemic, effect of pandemic, social support).
2. There is an interaction between gender (mother and father) and the effect of the pandemic on family resilience, perceived stress, parental self-efficacy, and marital adjustment.
3. There is an interaction between gender and the condition during pandemic on family resilience, perceived stress, parental self-efficacy, and marital adjustment.
4. Marital adjustment and parental self-efficacy directly influence family resilience.
5. Perceived stress directly influences marital adjustment and parental self-efficacy.
6. Perceived stress indirectly affects family resilience through marital adjustment.
7. Perceived stress indirectly affects family resilience through parental self-efficacy.
8. The marital adjustment has a mediator role between perceived stress and parental self-efficacy.
9. Parental self-efficacy has a mediator role between marital adjustment and family resilience.

Method

Research Model

Out of quantitative research models, the relational screening model was used in this research. In addition, one way MANOVA was performed to help protect against inflating the Type 1 error rate in the follow-up ANOVAs and post-hoc comparisons to test the difference between groups. Also, two way MANOVA was used to understand the interaction between variables. To test the study's primary aim,

Fig. 1 Conceptual Model



structural equation model, which gives the relationship of different research variables with a single analysis that gives an extensive point of view to the researcher and is one of the multivariate statistical analyses, was used. SEM is a comprehensive statistical method used to test models containing hypotheses directed to causal and correlational relationships among observable and non-observable variables (Büyüköztürk et al., 2018). SEM surpasses traditional regression models by including multiple independent and dependent variables to test associated hypotheses about relationships among variables (De Carvalho & Chima, 2014). This study provides basic knowledge of relationships between variables with a structural equation model. In order to examine relationships between variables, a structural equation model has been used in this study.

Participants

Participants of the research consisted of 246 married individuals, over the age of 18 who had at least one child between the ages of 4–18 during strict isolation precautions between May and June in Turkey. The necessary permissions were taken from the Ethical Committee of Ankara Yıldırım Beyazıt University in the research process. The form was

prepared online and distributed to participants via Facebook and other social media platforms. Before beginning the online survey, each participant reviewed the information about the research's purpose and procedures, including assurance of confidentiality, and provided their informed consent. As items of parental self-efficacy scale used in the study target parents with children who can express themselves, age category was limited to 4–18. Participants were expected to reply to the questions throughout the survey by thinking of strict isolation precautions in the COVID-19 pandemic. A convenience sample method from non-random sampling was used. Before analysis, five outliers were excluded from the study by evaluating single and multiple normalities from multivariate analysis. Analysis of data was conducted on 241 participants. Socio-demographic features of participants and other variables were given in Table 1.

Measures

Demographic information form

In the study, a 12-item form developed by the researchers included information about parents themselves, children, marriage, and socioeconomic status was used.

Table 1 Demographic Data of Participants

Variable	Level	Level	%
Gender	Female	198	68.8
	Male	43	31.2
Marriage Status	Married	233	96.7
	Single	8	3.3
Education level	Primary school	9	3.7
	Secondary school	3	1.2
	High school	35	14.5
	Two-year degree	26	10.8
	Graduate	102	42.3
	Post-graduate	66	27.5
Gender of children	Female	167	69.2
	Male	74	30.8
Number of children	1 child	71	29.5
	2 children	118	49
	3 children	42	17.4
	4 children	10	4
Employment status	Working	173	71.7
	Not working	53	21.1
	Working part-time	8	3.3
	Working when find a job	3	1.2
	Retired	4	1.6
Having a child who continues online education during pandemic period	Yes	228	94
	No	13	6
Changing economic condition during pandemic	Not change	143	59.3
	Income decreased	57	23.7
	Gave a break to work	26	10.8
	Lost job	4	1.6
	No answer	11	4.6
Which changes did you experience during pandemic?	Mentally depressed	44	18.6
	Experienced violence	3	1.3
	Have relatives with Covid 19	36	15
	Have family members with Covid19	5	2.1
	Have losses because of Covid 19	9	3.8
	No answer	141	58.6

Mean age of participants is 40.4 (min=24, max=59), mean duration of marriage is 14.9 (min=0, max=59)

Family resilience assessment scale

Family Resilience Assessment Scale was developed by Sixbey (2005) following the family resilience model of Walsh (1998) in order to measure the resilience of families and its adaptation to Turkish was conducted by Cihan (2014). An adaptation study of the scale was conducted with 655 individuals over 18 who experienced an adverse event that profoundly affected the family. The scale in total 0.95 and 0.48-0.96 for the subscales (Internal consistency coefficient is 0.95 for the whole scale and 0.48 -0.96 for the subscales). The scale consists of 54 items and six sub-dimensions which correspond to the original one; Family

Communication and Problem Solving (e.g., “We consult with each other about decisions. We discuss things until we reach a resolution”), Utilizing Social and Economic Resources (e.g., “Our friends are a part of everyday activities. We are careful how much we do for friends”), Maintaining a positive outlook (e.g., “We define problems positively to solve them. We feel we are strong in facing big problems”), Family Connectedness (e.g., “We are understood by other family members. The things we do for each other make us feel a part of the family”), Family Spirituality (e.g., “We attend church/synagogue/mosque services. We have faith in a supreme being”), ability to make meaning of adversity (e.g., “We accept stressful

events as a part of life. We accept that problems occur unexpectedly"). For discriminant validity, the correlation of the scale with the Beck Depression Inventory was -0.45. The internal consistency coefficient of the scale was 0.94 for this study.

Perceived stress scale

Perceived Stress Scale was developed by Cohen et al. (1983) and its adaptation to Turkish was conducted by Eskin et al. (2013). The scale consists of 14 items, and there are short forms of it consisting of 4 or 10 items. The scale is designed to measure how stressful the individual perceives some conditions in life. Two hundred thirty-four university students conducted adaptation studies. 10-item short-form (e.g., "In the last month, how often have you been upset because of something that happened unexpectedly? In the last month, how often have you felt that you were on top of things?") is used in this study consists of sub-forms of stress and perception of low self-efficacy. The internal consistency coefficient of the scale is 0.82. For this research, the internal consistency coefficient was found to be 0.85.

Parental self-efficacy scale

The original form of the scale was developed by Caprara et al. (2004) including 12 items (e.g., "Help your son/daughter manage problems that he/she has with others"), its adaptation to Turkish language was conducted by Demir and Gündüz (2014) with 747 fathers and mothers. As a result of validity analysis, an 11-items and unidimensional structure were obtained. The internal consistency coefficient, which is calculated to determine the scale's reliability, was 0.92. Therefore, the internal consistency coefficient for this research was 0.87.

Revised dyadic adjustment scale

Revised Dyadic Adjustment Scale, initially developed by Spanier (1976) as Dyadic Adjustment Scale and revised by Busby et al. (1995), was adapted into Turkish by Gundogdu (2007) and its validity and reliability study was conducted by Bayraktaroglu and Çakıcı (2017) in its finalized form consisting of 14-items (e.g., "Do you and your mate engage in outside interests together?"). As a result of validity study of the scale, it was found that there are three sub-dimensions named satisfaction, negotiation and conflict consisting of 14-items, and internal consistency coefficients of the total scale and sub-dimensions range between 0.74–0.87. In this research, the internal consistency coefficient is 0.89.

Result

First of all, to conduct one and two way MANOVA, the homogeneity of variance assumption was tested and satisfied, Levene's *F* tests were statistically significant ($p > 0.05$). Also Box's *M* test was tested and it is understood that covariance matrices of the dependent variables are equal across groups. The other assumptions were tested in part of structural equation model.

Differentiation of family resilience, marital adjustment, perceived stress, and parental self-efficacy depending on some variables was analyzed by One Way MANOVA. Differences among groups were decided with Tukey test. When the MANOVA results were examined in Table 2, it was seen that there was no significant difference between family resilience, marital adjustment, perceived stress, and parental self-efficacy concerning to gender ($F(4,236) = 2.07$, $p = 0.08$; Wilks' Lambda = 0.96; partial eta square = 0.01). There were one or more mean differences between education levels (primary, secondary, high school, two-year degree, graduate, post-graduate) and dependent variables ($F(20,770) = 1.15$, $p = 0.02$; Wilks' Lambda = 0.90; partial eta square = 0.02). Furthermore parental self-efficacy was different according to the educational status of participants' ($F(5,161) = 2.2$, $p = 0.05$, partial eta square = 0.04). According to the Post Hoc test results, it was found that parents with a high school degree ($X = 67.94 \pm 9.33$) perceive their parental self-efficacy higher than parents with primary school degree ($X = 61.4 \pm 12.38$), university degree ($X = 63.4 \pm 8.06$), and post-graduate degree ($X = 62.9 \pm 8.02$).

A statistically significant one way MANOVA effect was obtained for social insurance ($F(4,236) = 4.05$, $p = 0.00$; Wilks' Lambda = 0.93; partial eta square = 0.06). Significant differences in marital adjustment were found between participants with social insurance and without social insurance ($F(4,525) = 6.85$, $p = 0.00$, partial eta square = 0.02). The marital adjustment of participants without social insurance is lower ($X = 46 \pm 7.5$) than participants with social insurance ($X = 53.3 \pm 8.6$). A statistically significant one way MANOVA effect was obtained for the condition during COVID-19 pandemic ($F(7,856) = 1.11$, $p = 0.04$; Wilks' Lambda = 0.84; partial eta square = 0.04). Perceived stress was different according to the condition of participants in the COVID-19 pandemic, (being pregnant, having a chronic illness, being a healthcare professional, experiencing a life-threatening health problem in the past, being a healthcare professional of first degree relative and substance abuse) ($F(7,747) = 2.73$, $p = 0.00$, partial eta square = 0.09). Accordingly, perceived stress scores of pregnant participants ($X = 30 \pm 2.16$) are higher than participants stating; "I have a chronic

Table 2 One Way and Two Way MANOVA Test Results

Independent Variable	Dependent Variable	Sum of squares	Sd	F	p	η^2
Gender	Family resilience	550.57	1	1.75	.18	.00
	Perceived stress	98.11	1	3.06	.08	.01
	Parental self-efficacy	70.54	1	.96	.32	.00
	Marital adjustment	49.41	1	.62	.42	.00
Education level	Family resilience	1906.99	5	1.21	.30	.02
	Perceived stress	160.91	5	.99	.42	.02
	Parental self-efficacy	805.80	5	2.25	.05	.04
	Marital adjustment	171.79	5	.43	.82	.00
Social insurance	Family resilience	438.69	1	1.39	.23	.00
	Perceived stress	8.88	1	.27	.60	.00
	Parental self-efficacy	306.43	1	4.22	.06	.01
	Marital adjustment	525.37	1	6.85	.00	.02
Condition during the pandemic	Family resilience	438.69	7	.98	.45	.03
	Perceived stress	8.88	7	2.73	.00	.09
	Parental self-efficacy	306.43	7	.28	.97	.01
	Marital adjustment	525.37	7	.52	.85	.02
Effect of pandemic	Family resilience	5444.44	6	3.02	.00	.07
	Perceived stress	1130.09	6	6.65	.00	.14
	Parental self-efficacy	149.18	6	.33	.91	.00
	Marital adjustment	2578.48	6	.17	.00	.13
Social support	Family resilience	3563.25	4	3.45	.01	.09
	Perceived stress	142.94	4	1.00	.40	.02
	Parental self-efficacy	478.28	4	1.58	.18	.04
	Marital adjustment	758.54	4	2.47	.04	.06
Gender * Condition during the pandemic	Family resilience	3082.56	6	1.67	.12	.04
	Perceived stress	248.77	6	1.39	.21	.03
	Parental self-efficacy	558.25	6	1.24	.28	.03
	Marital adjustment	762.62	6	1.61	.14	.04
Gender * Effect of pandemic	Family resilience	1753.12	4	1.49	.20	.02
	Perceived stress	123.37	4	1.09	.36	.01
	Parental self-efficacy	112.838	4	.37	.82	.00
	Marital adjustment	366.015	4	1.32	.26	.02

illness" ($X = 22.4 \pm 5.51$), "I am healthcare professional" ($X = 23.4 \pm 5.29$), "I experienced a life-threatening health problem in the past" ($X = 21.3 \pm 5.93$), "I abuse substances (cigarette, alcohol, hashish, and similar.)" ($X = 23.2 \pm 5.5$), "My first degree relative is healthcare professional" ($X = 20 \pm 5.1$).

A statistically significant one way MANOVA effect was obtained for participants expressing the effect of a pandemic on their lives ($F(6,807) = 3.38$, $p = 0.00$; Wilks' Lambda = 0.71; partial eta square = 0.08). Perceived stress ($F(6,1130) = 6.65$, $p = 0.00$; partial eta square = 0.14) marital adjustment ($F(6,2578) = 0.17$, $p = 0.00$; partial eta square = 0.13) and family resilience scores ($F(6,544) = 3.2$, $p = 0.00$; partial eta square = 0.07) of participants expressing the effect of pandemic on their lives show differences. Accordingly, stress perception of participants stating that their psychological health gets worse ($X = 27.4 \pm 4.6$) and

participants who are exposed to domestic violence during pandemic ($X = 28.3 \pm 1.1$) are higher than the stress perception of the participants who have someone with the COVID-19 diagnosis in the family ($X = 19.2 \pm 8.2$), have acquaintances with the COVID-19 ($X = 21.6 \pm 4.5$), have acquaintances died because of the COVID-19 ($X = 23.4 \pm 4.2$), have relatives that they have lost as a result of not the COVID-19 but another reason ($X = 20.9 \pm 5.6$). When variables are evaluated in terms of marital adjustment, it was found that marital adjustment of participants who stated they were exposed to the domestic violence during pandemic period is lower ($X = 31.6 \pm 7.5$) compared to marital adjustment of participants who stated that their psychological health is deteriorated ($X = 48.6 \pm 9.4$), they had family members with the COVID-19 diagnosis ($X = 53 \pm 1.4$), they have acquaintances with the COVID-19 diagnosis ($X = 53 \pm 9.9$), they have relatives died because of

the COVID-19 ($X = 56.7 \pm 5.7$), they have lost relatives for reasons other than the COVID-19 ($X = 53.6 \pm 9.5$). Groups with the lowest family resilience include people who stated they were exposed to domestic violence during the pandemic ($X = 153 \pm 16.7$) and they had family members with the COVID-19 diagnosis ($X = 158 \pm 16.6$).

There were one or more mean differences between social support and dependent variables ($F(4,400) = 1.91, p = 0.01$; Wilks' Lambda = 0.80; partial eta square = 0.05). The social support of participants obtained differentiated family resilience ($F(4,400) = 3.45, p = 0.01$; partial eta square = 0.09) and marital adjustment ($F(4,400) = 2.47, p = 0.04$; partial eta square = 0.06). The family resilience of participants who get support within family is higher ($X = 173.1 \pm 14.5$) than participants who get support from out of family ($X = 162 \pm 19.9$). Family resilience of participants who get support from all resources ($X = 178 \pm 5$) is higher than that participants who get psychological support ($X = 159.4 \pm 28$). The marital adjustment of participants who get psychological support is lower ($X = 45 \pm 17$) than all other participants.

To analyze whether there was an interaction between gender and the effect of the pandemic, gender and the condition during pandemic on family resilience, perceived stress, parental self-efficacy, and marital adjustment, the Two Way Monova test was conducted. There was not a statistically significant interaction effect between gender and the effect of the pandemic on family resilience, perceived stress, parental self-efficacy, and marital adjustment ($F(6, 772) = 1.20, p = 0.22$; Wilks' Lambda = 0.87; partial eta square = 0.03). Also, there was not a statistically significant interaction between gender and condition during pandemic on family resilience, perceived stress, parental self-efficacy, and marital adjustment ($F(6, 691) = 1.08, p = 0.36$; Wilks' Lambda = 0.92; partial eta square = 0.01).

Testing the Models

The model obtained from opinions of families on resilience, perceived stress, parental self-efficacy, and marital adjustment during the pandemic is given in Fig. 2.

Good fit indices ($\chi^2/df = 0.2$, RMSEA = 0.00, TLI = 0.99, CFI = 1.00, GFI = 1.00) sign that the data present perfect fit. All relationships in the model were found significant ($p < 0.05$). In this way, all hypotheses about direct and indirect relationships are accepted. When relationships among observable variables are examined, it was found that marital adjustment ($\beta = 0.36, p < 0.05$) and parental self-efficacy ($\beta = 0.26, p < 0.05$) predict family resilience together. As marital adjustment and parental self-efficacy increase, family resilience also increases. Perceived stress has a negative influence both on marital adjustment ($\beta = -0.24, p < 0.01$) and parental self-efficacy ($\beta = -0.25, p < 0.01$). In other

words, as perceived stress increases, marital adjustment and parental self-efficacy decrease. When the model is examined, it is seen that perceived stress indirectly affects family resilience through marital adjustment and parental self-efficacy.

Mediator variables of the model were investigated and it was revealed that marital adjustment is a partial mediator variable between perceived stress and parental self-efficacy. When marital adjustment variable is excluded from the model, an effect of $\beta = -0.25, p < 0.05$ is found between perceived stress and parental self-efficacy, however, when marital adjustment is put into the model, this effect is still significant, but parental self-efficacy is influenced less ($\beta = -0.19, p < 0.05$). In other words, perceived stress negatively influences parental self-efficacy and when marital adjustment, which is a mediator, is added into the model, the effect of perceived stress on parental self-efficacy decreases. This situation reveals that marital adjustment has a partial mediator role between perceived stress and parental self-efficacy. The bootstrapping method was used to test the mediator variable and the confidence interval was significant (lower–upper bounds = -0.1, -0.02).

Another mediator variable relationship in the model is that marital adjustment affected family resilience through parental self-efficacy as a partial mediator variable. When the parental self-efficacy variable was excluded from the model and the relationship between marital adjustment and family resilience was examined, an effect of ($\beta = 0.43, p < 0.05$) was found between the two variables. When parental self-efficacy was included in the model, this effect was still significant however, the influence decreased ($\beta = 0.36, p < 0.05$). In other words, the effect of the marital adjustment on family resilience was partly direct and partly indirect through parental self-efficacy. In order to test mediator variable, the Bootstrapping method was used and the confidence interval was significant (lower–upper bounds = 0.073, 0.217).

Discussion

The first purpose of this study was to test the direct and indirect impact of marital adjustment, perceived stress and parental self-efficacy on family resilience of married individuals with children between the ages of 4–18 in the COVID-19 pandemic period. This study found, that when perceived stress increases, parental self-efficacy and marital adjustment decrease, and perceived stress indirectly influence family resilience through parental self-efficacy and marital adjustment. When mediator variable roles of the model were examined, it was found that parental self-efficacy was partial mediator variable between marital adjustment and family resilience, and marital adjustment was

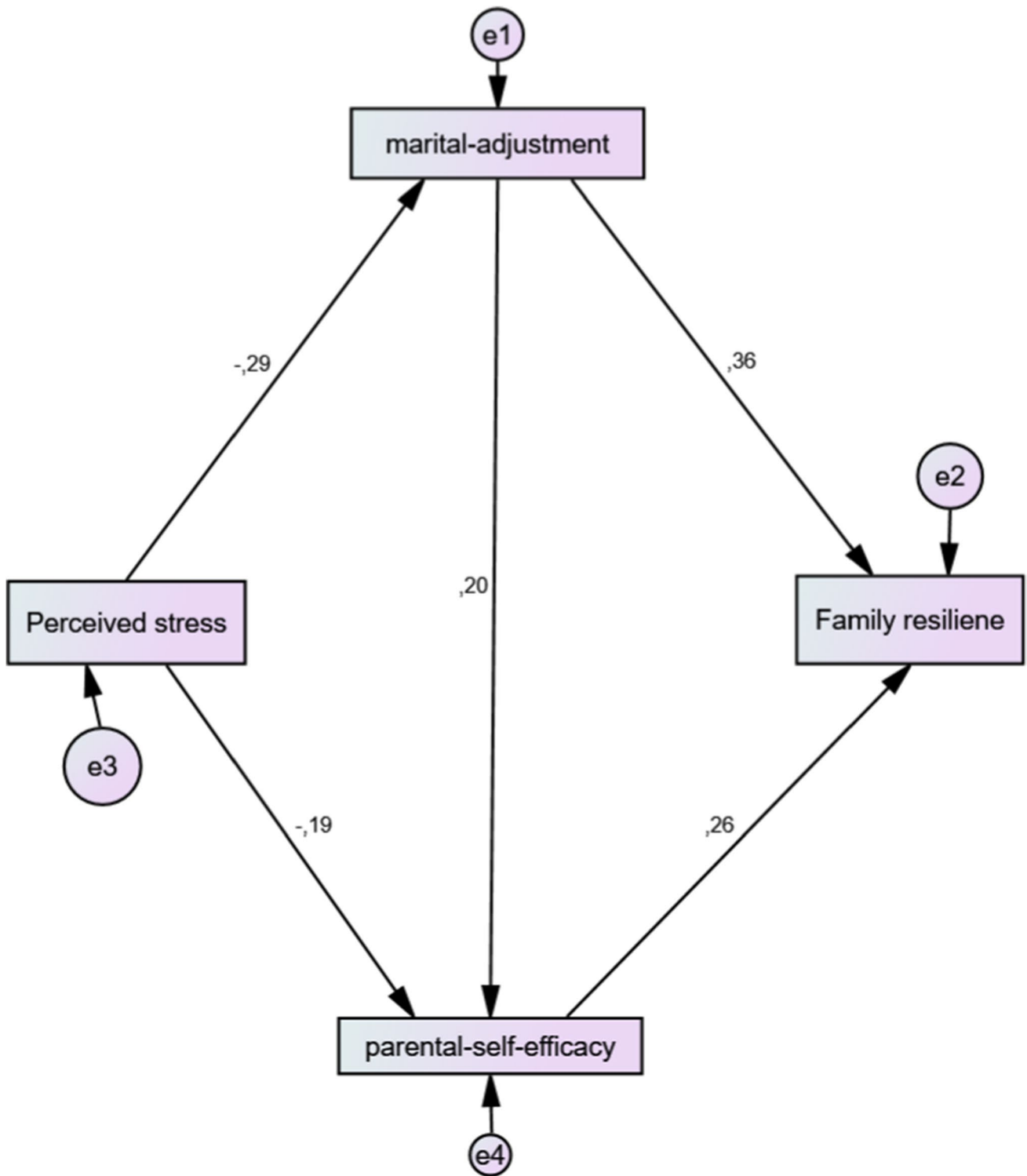


Fig. 2 Structural Equation Model

partial mediator variable between parental self-efficacy and perceived stress. Particularly in the COVID-19 pandemic period, it can be asserted that stress experienced by the families decreases their parental self-efficacy. In a similar study,

it was stated that during the pandemic process, especially families who have children with special needs or behavioural problems experienced more incredible greater difficulty and parental stress of these families, increase together with the

diminishing support because of pandemic and this, in turn, affect their parenting negatively (Raphael et al., 2010). Consistently with the results of the study, it was found that parental skills protected against risk factors, and increased the resilience of families (Conger & Conger, 2002; Prevatt, 2003; Wahler, 2002).

According to research results, it was revealed that there is a positive relationship between marital adjustment and family resilience. A similar result was obtained in a study conducted with Japanese mothers; marital adjustment increases family resilience (Izumi & Gullón Rivera, 2018). Along the same line, research results show that as marital adjustment increases, parental self-efficacy also increases. Similar research studies support the findings of this study. The family is a system; it consists of parent and spouse subsystems and mutually affects each other (Nichols, 2010). When parents experience stress related to child care, parental self-efficacy perceptions and their cooperation about child rearing influence parent–child relationship and marital relationship (Margolin et al., 2001). In similar studies, it was found that marital adjustment of couples who experience the effect of adverse life events as stressful is low (Sakmar-Balkan & Fıfılođlu, 2017; Kaleta, 2014; Li & Wickrama, 2014; Neff & Karney, 2009). Additionally, conflicts related to sharing of child care responsibilities and stress emerging out of not having time for oneself and each other influence marital adjustment negatively (Ki & Joanne, 2014).

This research, found that marital adjustment was a partial mediator variable between perceived stress and parental self-efficacy. Marital adjustment decreased perceived stress and in this way, decreased its negative effect on parental self-efficacy. In other words, a well-adjusted marriage decreased the perceived stress and led to an increase in parental self-efficacy. It can be seen that to increase parental self-efficacy, it is also essential to raise the marital adjustment level of couples. Another mediator variable is the influencing of marital adjustment to family resilience through parental self-efficacy as a partial mediator variable. In other words, as parental self-efficacy increase, by enhancing marital adjustment, family resilience also increases. If couples both have a well-adjusted marriage and perceive themselves as competent as parents, their resilience in the family is positively affected by these factors. In light of this data, if we want to enhance family resilience, it is crucial to conduct studies focusing on increasing their marital adjustment and parental self-efficacy.

The second aim of this research was to investigate whether or not family resilience, perceived stress, parental self-efficacy and marital adjustment differentiate depending on demographic variables and the level of being affected by the COVID-19 pandemic. The family resilience of participants who get support from all resources was found higher than the family resilience of participants who get

psychological support. The marital adjustment of participants who get psychological support was lower than all other participants. Research results revealed that different types of social support affected family resilience significantly. Similarly, Simon et al. (2005) found that the resilience level of families who are in contact with a social environment, including relatives and friends, is high and support obtained from social resources like school, neighbor, health care services make a contribution to the strengthening of family resilience. Having social insurance affects the marital adjustment of individuals. Similar to this study, Butrica and Smith (2012) reveal the importance of social insurance in marital.

In this study, we found that pregnant participants experienced a higher level of perception of stress during the COVID-19 period health care professionals, substance abusers and participants with a chronic disorder. Another study evaluating anxiety and distress in the COVID-19 pandemic period was conducted with Arabic and Israeli pregnant women. It was found that pregnant women experience stress concerning public places and transportation, the possibility of infection of family members, health of the fetus, maintaining normal healthy controls, being infected, etc. (Ben-Ari et al., 2020). Moreover, findings support this research. Another finding of the research is that the perception of stress is high in participants who stated that their psychological health is affected negatively during the pandemic and exposed to domestic violence. Studies supporting this finding show that domestic violence causes psychological and physical health problems and individuals are influenced negatively (Brewer et al., 2010; Jansen et al., 2008; Rober-tiello, 2006).

Being exposed to domestic violence affected marital adjustment negatively as well. Similar research results show that domestic violence influences marital adjustment negatively (Stith et al., 2008; Ulloa & Hammett, 2015). In addition, domestic violence also affects family resilience negatively and research results of Tsirigotis and Łuczak (2018) support this finding. Meanwhile, it was found that the family resilience of people with the COVID-19 diagnosis is also affected negatively and research findings are supported by the study of Prime et al. (2020).

According to research findings, parents with a high school degree had a higher level of perception regarding their parental self-efficacy than parents with primary school, graduate and post-graduate degrees. In other studies, it was found that parents with a high level of education are warmer, more sensitive, encouraging, caring and more competent in meeting the developmental needs of their children (Azad et al., 2014; McConnell et al., 2011; Zhai, 2017). In this study, the reason why parents with high school degrees perceive their parental self-efficacy higher than parents with graduate and post-graduate degrees is that as educational levels increase, parents spend more

time in work life and have a busier work schedule and therefore child care and responsibilities are left to baby sitters and institutions. As a result, it may be difficult for them to allocate and spend time with their children. We found no significant differences between gender and family resilience, perceived stress, parental self-efficacy, and marital adjustment. Unlike this study, some studies found differences between females and males (Abdel Jalil et al., 2020; Marroquín et al., 2020; Ripoll et al., 2021).

Within the context of the study, it can be seen that especially in stressful processes like the COVID-19 pandemic, each sub-system of the family (individual, couple and parent) has a significant role on the resilience level of the family as a whole. Future studies can be experimental and focus on programs prepared for family resilience. Intervention programs can be prepared about stress perception, parental skills, and marital adjustment of married couples, and their influence on family resilience can be searched. Professionals working with families can utilize the study results in raising family resilience and organize psycho-education studies.

A limitation of this study is that it focuses on married parents with children between ages 4–18 and excludes parents with younger children. Another limitation is that it includes only married individuals and also couples. Future studies can focus on their level of influence from the process and the resilience of single-parent families. Another limitation is that cross-sectional survey data shed little light on the enduring effects of quarantine, on how adaptations to the COVID-19 pandemic period changed over time, or on what happened when restrictions began to ease. In the future, longitudinal studies can be done to understand the effects of the COVID-19 on families and parents. At the same time, it can be thought of as a limitation in the sampling method.

Data Availability The data sets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Code Availability Not applicable.

Declarations

Ethics Approval All procedures performed in studies involving human participants follow the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration. Ankara Yildirim Beyazit University Ethics Committee approved this study.

Consent to Participate Written informed consent of the participants has been obtained.

Conflict of Interest The authors have no relevant financial or non-financial interests to disclose.

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