

**Factors related to positive experiences in parent-child relationship during  
the COVID-19 lockdown. The role of empathy, emotion regulation,  
parenting self-efficacy and social support**

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### Abstract

**Objective:** Several researchers and clinicians have focused on the negative consequences of the COVID-19 pandemic for children and parents. However, we may suppose that some families may also experience positive aspects of the COVID-19 lockdown such as increased emotional closeness and more time for free play and creativity in parent-child relationships. The aim of the current study was to investigate predictors of the positive experiences in parent-child relationship in Polish mothers and fathers during the COVID-19 outbreak. **Methods:** 228 mothers and 231 fathers completed the Brief version of the Empathic Sensitivity Questionnaire, The Difficulties in Emotion Regulation Scale Short Form, Social Support Scale, Parenting Self-Agency Measure, as well as The Scale of Positive Experiences in Parent-Child Relationship during the COVID-19 lockdown.

**Results:** Our results show that parenting self-efficacy and social support are the best predictors of the positive experiences in parent-child relationships in both mothers and fathers during the lockdown. Additionally, perspective taking is a positive predictor of the positive experiences in mothers, whereas increased affective components of empathy (empathic concern and personal distress) are predictors of the positive experiences in the parent-child relationship in fathers. **Conclusions:** Our study emphasizes a need to focus not only on negative, but also on positive consequences of COVID-19 lockdown for children and parents, and shows which factors could be important targets for preventive and therapeutic interventions for mothers and fathers during the epidemic.

**Key words:** positive experiences in parent-child relationship, empathy, emotion regulation, parenting self-efficacy, social support, COVID-19 lockdown.

## **Introduction**

The outbreak of COVID-19 pandemic brought about abrupt changes to everyday lives of families with children around the world. From mid-March until the beginning of May, a strict national lockdown had been introduced in Poland, similarly as in most EU countries, with closure of universities, schools, kindergartens and playgrounds, remote work arrangements and furloughs, movement restrictions, quarantines and imposed self-isolation. As a result, many families had to simultaneously navigate financial, professional, and parenting challenges and uncertainties (Dvorsky et al., 2020).

Mothers and fathers were confronted with multiple parenting tasks, such as providing all-day care to their children while managing their job duties, dealing with online education demands, and balancing the needs of different family members who started to spend all their time together at home (Prime et al., 2020). Additionally, children were reported to experience higher levels of emotional, self-regulatory, and behavioral problems as compared to the times before the COVID-19 outbreak (e.g. Di Giorgio, et al., 2020; Jiao, et al., 2020; Orgilés, et al., 2020; Xie, et al., 2020), which could have been an important source of parenting strain. Altogether, pandemic created a specific realm for the parent-child relationship.

Previous studies and commentaries focused solely on the negative consequences of the COVID-19 pandemic for children and parents (Chung et al., 2020; Cluver, et al., 2020; Coyne, et al., 2020; Di Giorgio et al., 2020; Orgilés et al., 2020; Wang et al., 2020; Weaver & Wiener, 2020; Xie, et al., 2020). However, in line with systemic, ecological developmental models (Bronfenbrenner & Morris, 2006) and resilience conceptual framework (Masten & Cichetti, 2016), a new focus has been recently suggested on factors which might potentially build family resources and strengths in the context of COVID-19 pandemic (Dvorsky et al., 2020; Prime et al., 2020). It can be assumed, that despite the challenges related to the lockdown, at least a part of mothers and fathers could perceive “the ordinary

magic”, to use Ann Masten’s term (2015; after Dvorsky et al., 2020), i.e. positive experiences in parent-child relationship understood as any events that are co-constructed in the interpersonal space by both parent and child, and potentially contribute to their psychosocial development and well-being.

For many families lockdown had created a unique opportunity to spend more time together: playing, cooking, eating meals, tinkering, comforting, cuddling, making jokes, talking about emotions, which in turn might have enhanced emotional closeness and warmth (Slade, 2005). Since extracurricular, sporting and social activities were cancelled during the pandemic, a time for free play increased with potentially positive impact on child’s cognitive, physical, social, and emotional development, and attachment but also on parent’s well-being and generativity (Ginsburg, 2007; Tamis-LeMonda et al., 2004).

A question arises as to possible predictors of these positive experiences in the parent-child relationship during the COVID-19 outbreak. In light of contextual, ecological and resilience-based developmental models (Masten & Cicchetti, 2016), the inclusion of the system’s multiple layers, from macro- to microsystem, inter- and intrapersonal, more trait-like as well as highly contextual and dynamic variables would be required. Specifically, the following factors should be considered: parental socio-emotional competencies (empathy and emotion regulation), social support, and parenting self-efficacy.

Empathy and emotion regulation abilities could play a particularly important role for positive parent-child interactions in the times of the COVID-19 outbreak (Coyne, et al., 2020). A crucial role of parental empathy - especially the ability to take perspective, and compassion and sympathy for another person - for the development of positive parent-child relationship and child’s emotional and social development has been documented in numerous studies (see Stern et al., 2015, for review). In contrast, personal distress – a self-oriented, aversive emotional response and apprehension of another’s emotional state or condition

(Davis, 1980) has been shown to be associated with negative parent-child relations (Perez-Albeniz & de Paul, 2004). As during the pandemic many parents were directly or indirectly confronted with increased emotional displays of other people (especially children and other family members), perspective taking abilities and empathic concern could help to recognize, understand, and interpret these intense emotions, as well as build warm, affectionate relations with loved ones during the lockdown. In addition, the ability to regulate emotions, associated positively with empathy, could be of particular importance during the lockdown. Emotion regulation comprises modulating affective states but also the control of behavior, the use of adaptive and appropriate emotion regulation strategies, and engaging in goal-directed activities while experiencing negative emotions (Gratz & Roemer, 2004). Parents who were able to regulate their own emotions effectively could be better able to provide support when their children became sad or upset (Fabes et al., 2001), and engage in a variety of activities that were not aimed at reducing distress, but were important for family life and for meeting children's need for play and fun.

Moreover, supportive relations with other people with whom parents could share their own worries and concerns, and get information and sometimes financial help seemed to be crucial in the times of the COVID-19 outbreak when mothers and fathers were overloaded with many duties and responsibilities. Considering a crucial role of extended family relations and a significant involvement of grandparents in childcare in Poland, due to specific interplay of interdependent and independent cultural values (see Kmita, 2016 for review), the lockdown could potentially endanger the social support system from before the pandemic. In such instances parental capacities to reorganize and efficiently use the available resources could be especially beneficial.

Another important factor that could contribute to positive experiences during the lockdown is parenting self-efficacy, which refers to parental beliefs in their ability to perform

the parenting roles successfully. Self-efficacy beliefs play an important role in parental adaptation to changes, motivation to invest effort and energy in various parenting activities, caring for and building positive interactions with children, persevering in the face of difficulties, decision-making and emotional well-being (Bandura, 2001). Parenting self-efficacy contributes to the psychological adjustment of parents, reducing parenting stress, enhancing positive coping, and positive and supportive parenting practices (Jones & Prinz, 2005; Wittkowski et al., 2017), as well as predicts better socio-emotional functioning of children, among others, higher enthusiasm and affection (Jones & Prinz, 2005; Page et al., 2010).

### **The current study**

Following these lines of argument, the aim of the present study was to investigate factors contributing to the positive experiences in the parent-child relationship during the COVID-19 outbreak. We focused on the role of intrapersonal abilities and traits such as the dimensions of parental empathy and emotion regulation, external factors (e.g. social support), as well as more dynamic, context-specific variables as parenting self-efficacy assessed specifically during the COVID-19 lockdown. We also controlled for parental depressive and anxiety symptoms, changes in financial situation during the epidemic, and some sociodemographic variables (parental age, single parenting, number of children, the age of the youngest child).

We decided to conduct our analyses separately for mothers and fathers. Distinct features and predictors of the quality of mother-child and father-child relationship have been documented in numerous studies (Tamis-LeMonda et al., 2004). Furthermore, although mothers in many countries and societies are more active in child rearing than fathers (Blasko et al., 2020), considerable increase in fathers' involvement in family life has been observed within the last few decades (Pleck, 2010), and particularly during the COVID-19 pandemic

(Alon et al., 2020). Therefore, it seems reasonable to closely assess self-reported positive experiences both in mother-child and father-child relationship during the pandemic, together with their respective correlates and predictors. To our knowledge no such analysis has been conducted so far.

We put forward the following hypotheses: H1. Perspective taking and empathic concern would be positively related to positive experiences in parent-child relationship during the COVID-19 lockdown, whereas inverse pattern of relationships would be observed in the case of empathic distress and emotion regulation difficulties in both mothers and fathers. H2. Social support would be associated with higher levels of positive experiences in parent-child relationships during the COVID-19 pandemic in mothers and fathers. H3. Parenting self-efficacy would be positively related to positive experiences in the parent-child relationship during the COVID-19 lockdown in mothers and fathers.

## Method

### Participants

The study comprised 514 parents (259 mothers) aged from 18 to 73 years ( $M = 37.81$ ,  $SD = 9.32$ ). In order to ensure the quality of the data, 54 outliers were removed: 21 participants with missing data, 13 with psychological scales' scores below or above 3 SD, 24 parents of children with serious neurological or mental disorders, and 1 participant who, despite an initial declaration, did not have a child. Consequently, the final sample comprised 459 parents (228 mothers) aged from 18 to 73 years ( $M = 38.01$ ,  $SD = 9.46$ ). The sociodemographic variables that describe the sample are presented in Table 1.

Table 1

### Measures

*Positive experiences in parent-child relationship during COVID-19 lockdown*

Participants completed the Scale of Positive Experiences in Parent-Child Relationship, developed for purposes of this study and comprising six questions about the positive experiences in parent-child relationship during the COVID-19 lockdown: (i) My child (children) is/are happy to spend more time with me; (ii) I appreciate that I can spend more time with my child (children); (iii) There is more closeness and affection in relationship with my child /children; (iv) We discover together with my child/children new joint activities and play activities/games; (v) My child/children learns/learn new skills and is/are more creative; (vi) My child and I try to make this situation more enjoyable. Participants were asked to rate each of the questions on the 5-point Likert-type scale. Cronbach's alpha was  $\alpha = 0.908$ .

#### *Parental socio-emotional competencies*

Cognitive and emotional dimensions of empathy were measured with a brief version of the Empathic Sensitivity Questionnaire (Brief-ESQ), a 12-item short version of the multidimensional tool the Empathic Sensitivity Questionnaire (Każmierczak et al., 2007) inspired by the Index of Interpersonal Reactivity (Davis, 1980). It uses a 5-point Likert response format. The cognitive aspect of empathy is represented by Perspective Taking subscale ( $\alpha = .767$ ), while its emotional aspects are represented by the two subscales: Personal Distress ( $\alpha = .777$ ) and Empathic Concern ( $\alpha = .799$ ). Information on the development of the short version of the scale and confirmatory factor analysis are presented in the Supplementary Material S1.

Emotion regulation abilities were assessed with The Difficulties in Emotion Regulation Scale Short Form (DERS-SF; Kaufmann et al., 2016), a short version of a self-report questionnaire measuring various domains of emotional dysregulation (Gratz & Roemer, 2004). The DERS-SF comprises 18 items rated on a 5-point scale. The overall score indicates a general level of difficulties in emotion regulation. Questionnaire is characterized by good psychometric properties (Kaufmann et al., 2016). In the current study Cronbach's alpha was  $\alpha = .918$ .



### *Parental social support during the pandemic*

Social Support Scale consisted of five questions that were based on the brief version of the Medical Outcomes Study Social Support Survey (Holden et al., 2014) and concerned three kinds of social support during the COVID-19 epidemic: emotional-informational support, tangible support, and positive social interaction and affectionate support. Participants rated to what extent they obtain a particular form of support on a 5-point scale. Cronbach's alpha was  $\alpha = .760$

### *Parenting self-efficacy during the pandemic*

Parenting self-efficacy was assessed with a domain-general tool, i.e. Parenting Self-Agency Measure elaborated by Dumka et al. (1996) to examine self confidence in parenthood, helplessness in response to child's oppositional behavior, the ability to resolve parent-child conflicts, and parental effort and perseverance. A 5-item version was used. Items were rated on a 5-point scale, with higher scores indicating greater parenting self-efficacy. The scale has shown good reliability and construct validity (Coleman & Karraker, 2000). To assess parental self-efficacy during the pandemic, subjects were asked to rate their own behavior over the past week. The Cronbach's alpha was  $\alpha = .894$  in our study.

### *Other controlled variables*

Depressive and anxiety symptoms during COVID-19 pandemic were measured by The Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) and The Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006) screening tools for assessing the frequency of depressive and generalized anxiety symptoms in the last 2 weeks. We used the Polish translations of these measures developed by the MAPI Research Institute ([www.phqscreeners.com](http://www.phqscreeners.com)). The Cronbach's alpha were  $\alpha = .906$  and  $\alpha = .938$  in our study, respectively.

Participants were also asked whether their financial situation had changed due to the COVID-19 pandemic and answered on a scale from -3 = Has definitively worsened to 3 = Has definitively improved. The variable was recoded for the regression analysis to a scale from 1 to 7.

## **Procedure**

The study was conducted between 4th and 8th of May, 2020. At that time, two months had passed since the detection of the first case of coronavirus infection in Poland and six weeks since the beginning of the lockdown confining people to their homes, except for essential activities. This study was approved by the institutional review board of XXX (masked for review). Participants were recruited online from the Polish research panel ARIADNA. Participation was anonymous, and participants were rewarded with points which they could exchange for small gifts. Electronic informed consent was obtained from each participant prior to starting the investigation. The presented findings are part of a larger research project on psychological aspects of the COVID-19 pandemic in the Polish population.

## **Data analytic strategy**

The descriptive statistics such as means and standard deviations for all the variables as well as Spearman correlation coefficients between the variables were calculated for women and men. Taking into account non normal distribution of some variables, the Mann-Whitney two-sample tests (Mann & Whitney, 1947) were used to verify whether there were differences between mothers and fathers in the analyzed variables. Additionally, descriptive statistics were presented in the form of means, standard deviations, median and quartile deviation. The magnitude of differences was assessed by  $\eta^2$  effect size (Fritz et al., 2012). However, to verify whether there were differences between mothers and fathers in single parenting, the  $\chi^2$  test was used. Effect size for  $\chi^2$  test was calculated using  $\phi$  coefficient (Fritz et al., 2012).

In order to verify the relationship between parental age, youngest child age, number of children, single parenting, parent's depressive and anxiety symptoms, empathy dimensions, emotion regulation difficulties, social support, financial situation, parenting self-efficacy and positive experiences in parent-child relationship, hierarchical regression was used separately for female and male group. In fathers, there was an assumption of homoscedasticity (Breusch-Pagan/Cook-Weisberg test for heteroscedasticity;  $\chi^2_{(df=1)} = 0.79, p = 0.373$ ; Breusch & Pagan, 1979; Cook & Weisberg, 1983). However, taking into account violation of the assumption of homoscedasticity (Breusch-Pagan/Cook-Weisberg test for heteroscedasticity;  $\chi^2_{(df=1)} = 7.75, p < 0.001$ ) in mothers, the regression equation with robust standard errors was used. Based on Ramsey's (1969) regression specification-error test (RESET; female:  $F_{(3, 211)} = 1.93, p = 0.126$ ; male:  $F_{(3, 214)} = 1.33, p = 0.265$ ), analysis showed that there were no omitted variables between the two groups. The variable inflation factor (VIF) was used to assess multicollinearity. Results indicated that all values for the independent variables were below the multicollinearity threshold of 10 in both groups. Consequently, there was no violation in the assumption of multicollinearity (Darlington & Hayes, 2016). Additionally, in order to compare beta coefficients among regression models for mothers and fathers, the z test described by Clogg et al. (1995) and Paternoster et al. (1998) was used. The descriptive statistics and regression analysis were conducted using SPSS 24, and regression analyses were conducted using Stata 14.

## Results

The descriptive statistics such as means and standard deviations, and correlation coefficients are presented in Table 2. The results showed that positive experiences in parent-child relationships were positively associated with empathic concern and perspective taking in both mothers and fathers. However, no significant relationships were found between those positive experiences in parent-child relationship and personal distress, and emotion regulation

difficulties neither in mothers, nor fathers. Additionally, there was a positive relationship between social support, parenting self-efficacy and positive experiences in parent-child relationship in both female and male groups. Mother's depressive symptoms were negatively associated with positive experiences in the parent-child relationship, whereas single parenting was positively associated with these experiences. Detailed findings are presented in Table 2.

Table 2.

Significant differences in positive experiences in various key study variables were found between mothers and fathers. More specifically, positive experiences in parent-child relationship, levels of empathy in all three dimensions, perceived social support, parenting self-efficacy and levels of depressive and anxiety symptoms were higher in women as compared to men. In contrast, the perceived personal financial situation was reported as worse by mothers in comparison to fathers. Additionally, the youngest child's age was lower in the case of mothers as compared to fathers. The effect sizes of these differences were from small to medium. In addition, more mothers than fathers were raising children as single parents. The effect size of this difference was small. Detailed findings are presented in Table 3.

Table 3.

According to a hierarchical regression analysis among mothers, parental age was positively associated with positive experiences in the parent-child relationship in the first step. Entering mothers' depressive and anxiety symptoms in the second step resulted in no statistically significant increase in the explained variance. However, the youngest child's age was negatively associated with positive experiences in the parent-child relationship whereas parental age became non-significant in this step. In the third step, including empathy dimensions and emotion regulation difficulties led to increase in the explained variance. In this step, youngest child age was still negatively associated, whereas perspective taking was

positively associated with positive experiences in parent-child relationship. Entering the social support and financial situation in the fourth step resulted in a statistically significant increase in the explained variance. In this step, there was a positive relationship between perspective taking, social support and positive experiences in the parent-child relationship. Additionally, the youngest child's age became non-significant. In the final step, including parenting self-efficacy led to increase in the explained variance. The perspective taking, social support and parenting self-efficacy were positively associated with positive experiences in the parent-child relationship in this step. Detailed findings are presented in Table 4.

Among fathers, the first and second steps in hierarchical regression analysis were non-significant. The regression model was statistically significant in the third step. There was a positive relationship between empathic concern and positive experiences in the parent-child relationship. Entering the social support and financial situation in the fourth step resulted in a statistically significant increase in the explained variance. The social support was positively associated with positive experiences in the parent-child relationship, whereas empathic concern became non-significant in this step. In the fifth step, including parenting self-efficacy led to increase in the explained variance. The parenting self-efficacy, social support, and personal distress were positively associated with positive experiences in the parent-child relationship in this step. Detailed findings are presented in Table 4.

Table 4

Based on the z test described by Clogg et al. (1995) and Paternoster et al. (1998), there were no statistically significant differences in beta coefficients between mothers and fathers. Detailed findings are presented in the supplementary material S2.

## Discussion

To our knowledge, this study is the first one to investigate correlates and predictors of positive-experiences in parent-child relationships separately in mothers and fathers during the COVID-19 lockdown. In accordance with our hypothesis (H1) perspective taking was positively related to positive experiences in child-parent relationships during the COVID-19 outbreak in both mothers and fathers at the level of bivariate correlations. Thus, it seems that both parental capacity to attune to child's emotions, be sensitive to his/her affective states and to feel concern toward a child, as well as parental ability to recognize, understand, and reflect on mental states of a child and other family members are associated with positive experiences and interactions with a child during the COVID-19 lockdown. However, our results show that different components of empathy are significant predictors of positive experiences in the parent-child relationship in the case of mothers and fathers.

Affective components of empathy (empathic concern in the third step of regression and personal distress in the last final step of regression) were significant and positive predictors of positive experiences in parent-child relationship in fathers, whereas perspective taking was a positive predictor of this variable in mothers. Previous studies show that females outperform the males in empathic abilities, especially in sharing emotions of others (affective empathy) across a broad range of measures, not only in humans, but also in nonhuman animals (see Christov-Moore, et al., 2014, for review). It seems that these sex differences in foundational aspects of empathic behavior may derive from an evolutionary history of maternal care (Christov-Moore, et al., 2014) and dynamics of early mother-child relationship (Sharp et al., 2006). Thus, it could be that most of the mothers have good enough abilities to attune to child's affective states. In effect, differences in more complex, cognitive aspects of empathy (perspective taking) play a more important role in a positive mother-child relationship during the COVID-19 lockdown. In contrast, in males who may exhibit greater difficulties to share other's emotions, affective empathy skills may be important for building

emotional closeness and positive interactions with children during the pandemic. It was surprising (and contrary to the hypothesis H1) that only empathic distress was the significant predictor of positive experiences in the final step of regression in fathers. It could be that true sharing of emotions of other people during the COVID-19 lockdown (including negative emotions of family members related to pandemic stress) by fathers may contribute to a positive relationship with children via increased emotional sensitivity to child's emotional states, but at the same time entails experiencing at least some extent of emotional distress. Moreover, inconsistently with the hypothesis H1 emotion regulation difficulties, as well as anxiety and depressive symptoms during COVID-19 outbreak were not significant predictors of positive experiences in parent-child relationship in mothers and fathers. During the pandemic, most of the parents may naturally experience higher levels of anxiety, worries and sadness due to many challenges, changes and threats (Chung et al., 2020; Cluver et al., 2020; Coyne et al., 2020). However, it seems that regardless of whether they experience these negative emotions, as well as difficulties to regulate these affective states, parents and children may have some positive experiences in their relationship during the lockdown. Maybe in some families experiencing distress or emotional arousal caused parents to be more sensitive and focused on children and relations with them to provide protection or help, so despite struggling with a higher level of negative emotions they noticed new achievements of children, shared joy of playing with them or felt satisfaction of creating new activities. As a result, they could experience the interplay of positive and negative aspects of the pandemic.

In accordance with our expectations (H2) social support was a significant predictor of positive experiences in parent-child relationships in both mothers and fathers. As COVID-19 outbreak is associated with many changes, challenges, duties and worries it seems very important for parents to have a sense of affectionate, emotional, informational, tangible and financial support from others. Furthermore, in line with our predictions (H3), parenting self-

efficacy was positively associated with positive experiences in parent-child relationship and, moreover, it was the most important predictor in our models for both mothers and fathers. Self-efficacy beliefs play a crucial role in human's self-development and adaptation to change by affecting how well they motivate themselves, persevere when facing difficulties and the quality of their emotional well-being, the amount of effort they invest in various activities, and the choices they make at various crucial points in their life. Following Bandurian conceptualization of cognitions of personal efficacy as the core of human agency (Bandura, 2001), we may presume that parents characterized by high levels of parenting self-efficacy may be more motivated, persistent and invest more energy in caring for and building positive interactions with children in the face of various challenges and changes related to the epidemic.

Finally, mothers reported higher levels of positive experiences in the parent-child relationship than fathers. It could be that the majority of mothers played the role of a primary caregiver for their children and thus had more occasions to spend time with children and, as a consequence, experienced positive aspects of the lockdown for parent-child relationship. Fathers are usually facilitators of children's exploration, challenging activities or even risk taking (Pleck, 2010) that due to COVID-19 could be very limited. Moreover, mothers, as compared to fathers, were also characterized by higher levels of empathy, parenting self-efficacy, and self-reported social support, that all seem to contribute to positive experiences in parent-child relationships.

### **Limitations**

There are several limitations of the current study. The study included only parents who were users of the internet and were members of the online panel. Additionally, we may suspect that parents who were very overwhelmed with lots of problems and duties did not have time to complete the survey. Thus, it limits generalization of our findings. Moreover, it



should be noted that groups of mothers and fathers differed in various demographic and key study variables. Consequently, it is important to be careful in comparing the patterns of findings in mothers and fathers. In addition, due to the cross-sectional study design, we can only conclude about the strength and direction of relationships between measured constructs, and no causal or temporal relations can be inferred on the basis of our data. Finally, all the constructs were measured only with self-report scales that are subjective and vulnerable to biases such as social desirability, the participant's mood or the need for self-enhancement (Podsakoff et al., 2003).

### **Conclusions and future directions**

Future studies should investigate if positive experiences in parent-child relationships during the lockdown are associated with further positive changes and outcomes for child development, parental well-being and parent-child relationship in the long run. Also, it should be explored if positive experiences in parent-child relationships were observed also in families from other countries. In particular, we may predict that lower levels of such positive perceptions were observed in countries that were more strongly affected by the epidemic than Poland, and where the lockdown was much more restrictive. Furthermore, preventive and therapeutic interventions for parents that focus on strengthening the parenting sense of mastery and agency seem to be particularly important during the COVID-19 epidemic. Additionally, interventions for parents that develop various empathy-related abilities (enhancing affective sharing and compassion, building understanding of emotions and mental states of other people) should be tested in further studies. Finally, a question arises whether some of these positive aspects of the lockdown could be potentially sustained and translated into families' everyday life, with more time together on joint activities and various caregiver-child interactions, free play, slower lifestyles, and larger involvement of fathers in childcare.

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Table 1. Sociodemographic variables.

Variable	Category	Whole sample (N = 459)		Mothers (N = 228)		Fathers (N = 231)	
		N	%	N	%	N	%
Gender	Female	228	49.7				
	Male	231	50.3				
Residence	Village	160	34.9	77	33.8	83	35.9
	Small town (up to 20 000 residents)	70	15.3	43	18.8	27	11.7
	Medium town (from 20 000 to 99 000 residents)	97	21.1	41	18.0	56	24.2
	Big town (from 100 000 to 500 000 residents)	82	17.9	44	19.3	38	16.5
	Big city (over 500 000 residents)	50	10.8	23	10.1	27	11.7
Education	Primary education	8	1.7	4	1.8	4	1.7
	Vocational training	44	9.6	23	10.1	21	9.1
	Secondary education	121	26.4	58	25.4	63	27.3
	Post-secondary education	43	9.4	28	12.3	15	6.5
	University degree	243	53.9	115	50.4	108	55.4
Marital status	Single	15	3.3	11	4.8	4	1.7
	Non-marriage relationship	91	19.8	53	23.2	38	16.5
	Married	333	72.5	149	65.4	184	79.6
	Widowed	0	0.0	0	0.0	0	0.0
	Divorced	20	4.4	15	6.6	5	2.2



Table 2. Descriptive statistics and correlation coefficients between variables (n = 459)

Mothers (N = 228)																
Variables		<i>M</i>	<i>SD</i>	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
[1] Parental age		35.62	8.73													
[2] Youngest child age		69.47	58.85	0.56***												
[3] Number of children		1.68	0.77	0.09	-0.23***											
[4] Single parenting (0 – no; 1 – yes)		0.89	0.32	-0.08	-0.23***	0.16*										
[5] Parent’s depression		8.82	5.68	-0.19**	-0.15*	-0.02	0.00									
[6] Parent’s anxiety symptom		7.16	4.92	-0.09	-0.11	-0.05	0.03	0.77***								
E m p a t h y	[7] Personal Distress	3.24	0.68	-0.02	-0.04	-0.01	0.07	0.34***	0.32***							
	[8] Empathic Concern	3.59	0.70	0.11	0.01	-0.02	0.01	-0.10	-0.04	0.37***						
	[9] Perspective Taking	3.59	0.65	0.08	0.02	-0.07	0.05	-0.02	-0.05	0.32***	0.63***					
[10] Emotion regulation difficulties		2.75	0.69	-0.16*	-0.12	0.04	0.09	0.59***	0.53***	0.42***	-0.08	-0.02				
[11] Social support		3.68	0.77	-0.03	-0.09	0.01	0.20**	-0.12	-0.07	0.08	0.32***	0.39***	-0.04			
[12] Financial situation		3.26	1.26	-0.01	-0.04	0.04	-0.03	-0.04	-0.06	0.01	-0.06	-0.07	0.05	0.12		
[13] Parenting self-efficacy		19.55	3.73	0.08	-0.02	0.01	0.02	-0.16*	-0.12	0.06	0.28***	0.31***	-0.09	0.41***	0.06	
[14] Positive experiences in child-parent relationships		4.18	0.73	0.03	-0.05	-0.02	0.14*	-0.14*	-0.11	0.10	0.31***	0.38***	-0.12	0.49***	-0.02	0.67***
Fathers (N = 231)																
Variables		<i>M</i>	<i>SD</i>	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
[1] Parental age		40.36	9.58													
[2] Youngest child age		100.85	59.61	0.67***												
[3] Number of children		1.52	0.62	-0.03	-0.29***											
[4] Single parenting (0 – no; 1 – yes)		0.96	0.19	0.11	0.02	0.06										
[5] Parent’s depressive symptoms		7.60	5.95	-0.21**	-0.13	-0.07	0.02									
[6] Parent’s anxiety symptoms		5.94	4.92	-0.18**	-0.12	-0.04	0.03	0.84***								
E m p a t	[7] Personal Distress	2.87	0.70	-0.10	-0.08	-0.02	0.07	0.50***	0.55***							
	[8] Empathic Concern	3.35	0.58	0.16*	0.08	0.01	0.03	-0.07	-0.05	0.21**						
	[9] Perspective Taking	3.39	0.58	0.06	0.04	-0.03	0.00	-0.09	-0.06	0.06	0.63***					

h y																
[10]	Emotion regulation difficulties	2.64	0.67	-0.16*	-0.13*	0.00	0.05	0.59***	0.57***	0.57***	-0.08	-0.15*				
[11]	Social support	3.47	0.63	0.21**	0.13	-0.09	0.09	-0.08	-0.04	-0.05	0.27***	0.31***	-0.10			
[12]	Financial situation	3.56	1.12	0.01	-0.01	-0.03	-0.02	0.09	0.05	0.06	-0.16*	-0.14*	0.18**	-0.10		
[13]	Parenting self-efficacy	18.73	3.13	-0.01	-0.01	0.04	-0.03	-0.19**	-0.27***	-0.20**	0.25***	0.23***	-0.26***	0.36***	-0.25***	
[14]	Positive experiences in child-parent relationships	3.87	0.67	-0.05	-0.08	0.01	0.02	-0.08	-0.06	0.09	0.34***	0.31***	-0.05	0.43***	-0.13	0.57***

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$



Table 4. Results of hierarchical regression among mothers (n = 228) and fathers (n = 231).

Mothers															
Variables	Step 1			Step 2			Step 3			Step 4			Step 5		
	B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β
Parental age	0.013	0.007	0.160*	0.012	0.007	0.145	0.007	0.006	0.090	0.007	0.006	0.090	0.004	0.005	0.052
Youngest child age	-0.002	0.001	-0.157	-0.002	0.001	-0.169*	-0.002	0.001	-0.164*	-0.001	0.001	-0.118	-0.001	0.001	-0.105
Number of children	-0.091	0.068	-0.097	-0.097	0.069	-0.104	-0.077	0.061	-0.082	-0.068	0.054	-0.073	-0.063	0.045	-0.067
Single parenting	0.294	0.156	0.129	0.292	0.155	0.128	0.232	0.158	0.102	0.098	0.160	0.043	0.160	0.146	0.070
Parent’s depressive symptoms				-0.012	0.014	-0.093	-0.014	0.013	-0.108	-0.004	0.013	-0.030	0.004	0.011	0.035
Parent’s anxiety symptoms				-0.008	0.016	-0.052	-0.008	0.015	-0.053	-0.012	0.015	-0.079	-0.011	0.013	-0.075
Empathic concern							0.058	0.078	0.055	0.024	0.075	0.023	-0.029	0.059	-0.028
Perspective taking							0.365	0.080	0.328** *	0.213	0.079	0.192**	0.137	0.062	0.123*
Personal distress							-0.003	0.079	-0.003	0.029	0.078	0.027	0.050	0.067	0.047
Emotion regulation difficulties							0.020	0.085	0.019	-0.005	0.081	-0.005	-0.033	0.057	-0.031
Social support										0.355	0.066	0.377***	0.184	0.062	0.196**
Financial situation										-0.016	0.034	-0.027	-0.030	0.025	-0.052
Parenting self-efficacy													0.107	0.012	0.549** *
Constant	3.732	0.264		3.960	0.290		2.591	0.375		1.912	0.344		0.872	0.302	
R²	0.04			0.06			0.19			0.29			0.53		
F-statistic	2.68*			2.45*			5.93***			9.73***			23.18** *		
ΔR²				0.02			0.13***			0.10***			0.24***		
Fathers															
Variables	Step 1			Step 2			Step 3			Step 4			Step 5		
	B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β
Parental age	0.001	0.006	0.015	0.000	0.006	0.002	-0.002	0.006	-0.024	-0.005	0.006	-0.074	-0.001	0.005	-0.014
Youngest child age	-	0.001	-0.114	-0.001	0.001	-0.120	-0.001	0.001	-0.118	-0.001	0.001	-0.126	-0.001	0.001	-0.126

	0.001														
Number of children	-0.052	0.077	-0.048	-0.062	0.077	-0.058	-0.067	0.074	-0.062	-0.040	0.069	-0.037	-0.052	0.060	-0.048
Single parenting	0.146	0.232	0.042	0.158	0.232	0.046	0.133	0.224	0.038	-0.007	0.209	-0.002	0.077	0.183	0.022
Parent’s depressive symptoms				-0.013	0.014	-0.112	-0.011	0.014	-0.095	-0.006	0.013	-0.051	-0.018	0.011	-0.157
Parent’s anxiety symptoms				0.005	0.016	0.036	-0.003	0.017	-0.024	-0.010	0.015	-0.076	0.012	0.014	0.091
Empathic concern							0.204	0.103	0.177*	0.176	0.096	0.153	0.081	0.085	0.070
Perspective taking							0.162	0.097	0.140	0.032	0.093	0.028	0.056	0.081	0.049
Personal distress							0.069	0.087	0.072	0.087	0.080	0.091	0.149	0.071	0.155*
Emotion regulation difficulties							0.013	0.090	0.013	0.041	0.085	0.041	0.060	0.074	0.060
Social support										0.414	0.068	0.389***	0.230	0.064	0.216** *
Financial situation										-0.049	0.036	-0.082	0.015	0.033	0.026
Parenting self-efficacy													0.106	0.013	0.497** *
Constant	3.897	0.290		4.011	0.306		2.682	0.430		1.879	0.419		0.288	0.416	
R²	0.01			0.02			0.11			0.25			0.42		
F-statistic	0.68			0.71			2.80**			5.94***			12.25** *		
ΔR²				0.01			0.09***			0.14***			0.17***		

\*\*\* p < 0.001. \*\* p < 0.01. \* p < 0.05

## **Development and Confirmatory Factor Analysis of the Brief version of the Empathic Sensitivity Questionnaire**

Brief version of the Empathic Sensitivity Questionnaire (Brief-ESQ). Brief-ESQ is a 12-item short version of the multidimensional tool the Empathic Sensitivity Questionnaire (Każmierczak, Plopa & Retowski, 2007) based on Davies' theory and modeled on his Index of Interpersonal Reactivity. It uses a 5-point Likert response format. In order to prepare a short version of the questionnaire 5 items from each of the subscale characterized by the highest discriminatory power were chosen.

In order to verify the factor structure of the Brief-ESQ in the sample of parents, the confirmatory factor analysis (CFA) was performed. The CFA based on the maximum likelihood method with Sattora-Bentler adjustment (Sattorra & Bentler, 1994) was applied to confirm the possible three factor solution of the IRI (Davis, 1983). This adjustment was used because there was a violation of multivariate normal distribution (Doornik–Hansen omnibus test:  $\chi^2_{(df=30)} = 184.99$ ,  $p < 0.001$ ; Henze–Zirkler's consistent test:  $\chi^2_{(df=1)} = 968000$ ;  $p < 0.001$ ; Mardia's multivariate kurtosis test:  $\chi^2_{(df=1)} = 2438.53$ ,  $p < 0.001$  and Mardia's multivariate skewness test:  $\chi^2_{(df=680)} = 2298.44$ ,  $p < 0.001$ ). Each factor contained five items and was correlated with other factors. The following statistics were used to determine model fit:  $\chi^2$ , Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), comparative fit index (CFI), Tucker-Lewis index (TLI) (Hu & Bentler, 1999; Kline, 2011). RMSEA lower than 0.08 and SRMR lower than 0.08 indicates a good fit of the model. Also, values of CFI and TLI higher than 0.90 allow a conclusion that a model fits well to a data (Kline, 2011; Hu & Bentler, 1999).

The results of CFA analysis showed that the three-factor structure of IRI had no acceptable model fit:  $\chi^2_{(df=87)} = 278.26$ ,  $p < 0.001$ , RMSEA = 0.069, SRMR = 0.082, CFI = 0.872, and TLI = 0.846. However, there were three items with factor loadings below 0.4 threshold (Hair et al., 2006; see Table 1). Consequently, these items were removed and CFA analysis was repeated without these items. Model without removing items had good model fit:  $\chi^2_{(df=51)} = 130.82$ ,  $p < 0.001$ , RMSEA = 0.058, SRMR = 0.060, CFI = 0.939, and TLI = 0.920. The items had factor loadings from 0.550 to 0.755 (see Table 1). Consequently, the results of CFA analysis probably confirm the possible three factor solution (Davis, 1983). However, it should be noted that the individual items had a lower value of factor loadings than in the polish version of IRI (Każmierczak, Plopa, & Retowski, 2007). Taking into account results of CFA analysis, three component with four items each were indicated.

Additionally, in order to verify whether the items have a one-dimensional structure, the explained common variance (ECV), mean of item residual absolute loadings (MIREAL) and unidimensional congruence (Ferrando & Lorenzo-Seva, 2018) were used. The ECV was 0.68 which was below the desired threshold of 0.85. The MIREAL value was above the recommended threshold of 0.30 and equal 0.32, indicating that the unidimensional solution had substantial bias. The unidimensional congruence was 0.75 which was below the recommended threshold of 0.95. Taken together, these results indicated that data cannot be treated as essentially unidimensional.

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Table 1. The confirmatory factor analysis results obtained from the Brief-ESQ (n = 460).

Items	Model before removing items		Model after removing items	
	Factor loadings	p	Factor loadings	p
Empathic Concern				
I often have tender, concerned feelings for people less fortunate than me.	0.632	0.001	0.630	0.001
When I see someone being taken advantage of, I feel kind of protective towards them.	0.715	0.001	0.716	0.001
I am willing to get involved emotionally in other people's problems.	0.757	0.001	0.755	0.001
The suffering of others requires compassion and concern from me	0.735	0.001	0.735	0.001
Other people's misfortunes do not usually disturb me a great deal. <sup>#</sup>	0.146	0.011	-	-
Perspective Taking				
Before I evaluate someone's behavior, I try to understand its causes.	0.735	0.001	0.729	0.001
I sometimes try to understand my friends better by imagining how things look from their perspective.	0.735	0.001	0.732	0.001
I am only interested in the effects of behaviours of people around me, not their causes. <sup>#</sup>	0.153	0.006	-	-
Before criticizing somebody, I try to imagine how I would feel if I were in their place.	0.664	0.001	0.667	0.001
When I'm upset at someone, I usually try to "put myself in his shoes" for a while.	0.542	0.001	0.550	0.001



Personal Distress				
In difficult situations I feel anxious and confused.	0.719	0.001	0.743	0.001
I sometimes feel helpless when I am in the middle of a very emotional situation.	0.687	0.001	0.695	0.001
Looking at people, who are sick or hurt by fate, is a torment for me.	0.399	0.001	-	-
Being in a tense emotional situation scares me.	0.661	0.001	0.644	0.001
When I see someone who really needs help in a difficult situation, I fall apart/break up with sadness	0.664	0.001	0.651	0.001

# these were recoded

Supplementary Material S2. Differences between mothers and fathers in beta coefficients.

Variables	Mothers (n = 228)			Fathers (n = 231)			z	p
	B	SE	$\beta$	B	SE	$\beta$		
Parental age	0.004	0.005	0.052	-0.001	0.005	-0.014	0.71	0.478
Youngest child age	-0.001	0.001	-0.105	-0.001	0.001	-0.126	0.01	0.992
Number of children	-0.063	0.045	-0.067	-0.052	0.060	-0.048	-0.15	0.881
Single parenting	0.160	0.146	0.070	0.077	0.183	0.022	0.35	0.726
Parent's depressive symptoms	0.004	0.011	0.035	-0.018	0.011	-0.157	1.41	0.159
Parent's anxiety symptoms	-0.011	0.013	-0.075	0.012	0.014	0.091	-1.20	0.230
Empathic concern	-0.029	0.059	-0.028	0.081	0.085	0.070	-1.06	0.289
Perspective taking	0.137	0.062	0.123*	0.056	0.081	0.049	0.79	0.430
Personal distress	0.050	0.067	0.047	0.149	0.071	0.155*	-1.01	0.312
Emotion regulation difficulties	-0.033	0.057	-0.031	0.060	0.074	0.060	-1.00	0.317
Social support	0.184	0.062	0.196**	0.230	0.064	0.216***	-0.52	0.603

Financial situation	-0.030	0.025	-0.052	0.015	0.033	0.026	-1.09	0.276
Parenting self-efficacy	0.107	0.012	0.549***	0.106	0.013	0.497***	0.06	0.952

\*\*\*  $p < 0.001$ . \*\*  $p < 0.01$ . \*  $p < 0.05$