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Associations between Parenting Stress and Children's Academic Engagement when Schools were closed during the COVID-19 Pandemic: Risk and Protective Factors

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Introduction

When many governments announced nationwide school closures in March 2020 to contain the spread of the COVID-19 pandemic, the context for and nature of educational interactions changed radically (Parczewska, 2020). Simultaneously, millions of parents were turned into "accidental homeschoolers" (Burke, 2020). Informed by the Family Stress Model (Masarik & Conger, 2017), the present study investigated associations in homeschooling during the COVID-19 pandemic between parenting stress and children's engagement, i.e., children's active involvement in a learning activity. The Family Stress Model argues that economic hardship and pressures increase the risk of parental distress, which in turn increases the probability of interparental relationship problems and disrupted parenting. When parenting is affected by these dynamics, child adjustment problems tend to emerge and influence children's development. Various factors may exacerbate (risk factors) or mitigate (protective factors) the family stress process (for a review see Masarik & Conger, 2017).

The present study investigated associations between parenting stress and children's academic engagement when school were closed during the first spike of COVID-19 infections in spring/early summer 2020. More specifically, main and interactive effects of various risk and protective factors of parenting stress in relation to children's engagement in at-home education were examined, where children's engagement was viewed in four dimensions: behavioral, agentic, cognitive, and emotional. We hypothesized that parenting stress is negatively associated with children's engagement. We also expected risk factors to be related with higher levels of self-reported parenting stress and lower levels of children's engagement, and supportive factors with lower levels of self-reported parenting stress and higher levels of children's engagement.

Methods

Participants were recruited in the United States from advertisements on Facebook and by word of mouth. The total sample included 78 US-American families. For these families, data was available from 75 mothers and 54 fathers who completed the survey. Parents were asked to refer to their firstborn child who was homeschooled at the time of data collection as the subject of this study. Complete information from mother-father-child triads was available for 40 families. Partially complete information was available for mother and child in 46 families, and for father and child in 40 families.

Parents were asked to report their perceived parenting stress. Assessed risk factors included spousal relationship quality, health problems, number of children homeschooled and time in week in emergency homeschooling. Protective factors included perceived support from school and satisfaction with school support, and parents' online social network. The child was asked about his/her liking of homeschooling and engagement with homeschooling. The same questions about the child's engagement with homeschooling were also included in the parent survey.

All engagement variables, as well as, parenting stress, interparental relationship problems, and parent health problems were modeled as latent variables. Engagement variables were assessed using a modified scale from Reeves (2013). To measure parenting stress, we used the parenting stress items from the Fragile Families and Child Wellbeing Study (Cooper, McLanahan, Meadows, & Brookes-Gunn, 2009). Both interparental relationship problems and parent health used subscales from the Parenting Stress Index (PSI; Abidin,1995). All other variables included in the study were measured as manifest variables.

To account for the different respondents, the models were run with various combinations of respondent-reported variables. Models varied by which respondent reported parenting stress, risk/protective factors, and child's engagement. The combinations included mother-reported parenting stress and risk/protective factors on mother-reported child engagement (model M-M), mother-reported parenting stress and risk/protective factors on child-reported child engagement (model M-C), father-reported parenting stress and risk/protective factors on father-reported child engagement (model F-F), and father-reported parenting stress and risk/protective factors on child-reported child engagement (F-C). Due to the number of models run, a Bonferroni alpha correction was applied (yielding a minimum significance level of $p<0.0125$).

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Additionally, we created interactions between parenting stress and the protective and risk factors, as well as an interaction between parenting stress and child liking of homeschool. Models were run first with only main effects, then again with the interactions. Models were trimmed using the Bonferroni alpha correction to only include significant interactions.

Results and discussion

Contrary to our hypothesis, no significant direct associations between parenting stress and children's engagement were found. This is true apart from model F-F, in which case parenting stress had a negative relationship with behavioral and emotional engagement.

However, when including interactive effects with parenting stress, the interactions were found to have significant associations with children's engagement. This indicates that parenting stress does have a significant association with children's engagement when considered in combination with other factors. For model M-M and model F-C, the interaction between parenting stress and children's liking of school was found to be significantly associated with children's engagement. More specifically, in model M-M, the interaction was significantly associated with all four types of children's engagement, and, in model F-C, the interaction was significantly associated with behavioral and agentic engagement. Plots of the interactions confirmed the same conclusion that the optimal combination for a high engagement score resulted from high child-liking of homeschooling with low parenting stress. For model M-C, the interaction term significantly associated with children's engagement, namely behavioral, cognitive, and emotional engagement, was parenting stress combined with length of homeschooling. In the context of high levels of parenting stress, possible negative effects on children's engagement were buffered when the homeschooling lasted for fewer weeks. Model F-F had no significant associations between any interaction terms and children's engagement.

For models M-M and M-C, our hypothesis of risk factors relating to higher parenting stress and lower children's engagement was not evident in terms of the main effects. However, the interaction of the risk factor length of homeschooling with parenting stress did have a significant association with children's engagement in model M-C as mentioned above. For models F-F and F-C, a relationship between risk factors and parenting stress emerged, while no relationship between risk factors and children's engagement was evident. In model F-C, parent's health had a negative relationship with parenting stress and in model F-F, parent's health as well as number of children homeschooled had a negative relationship with parenting stress.

For supportive factors, models M-M and M-C indicated relationships between supportive factors and parenting stress but not children's engagement while models F-F and F-C indicated relationships between supportive factors and children's engagement but not parenting stress. In models M-M and M-C, school support for at-home education had a positive relationship with parenting stress and the size of the mom's online social network had a negative relationship with parenting stress. In model F-F, both the father's satisfaction with school support and intensity of content management on social media related to at-home education had a positive relationship with emotional engagement. In model F-C, the size of the father's online social network had a positive relationship with agentic engagement.

In summary, our study identified potential risk and protective factors of children's engagement that could inform prevention and intervention at multiple levels to promote academic functioning, in particular among children at risk of falling behind.

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