
A PRELIMINARY ANALYSIS OF PARENTAL STRESS AND PARENTING STYLES DURING THE INITIAL PHASES OF THE COVID-19 PANDEMIC

Chavez Phelps *

Georgia State University, USA

Zakiya Austin

Georgia State University, USA

Annie Liner

Indiana State University, USA

Richmond Amakye

Indiana State University, USA

Abstract

The present study sought to explore factors that impacted parental stress levels during the initial phase of the COVID-19 Pandemic. The initial phase of the COVID-19 pandemic was a significant challenge for both parents and their children. Many parents had to balance their work schedules and supporting their children's distance learning during the pandemic. Very little is known about parents' stress levels while they navigating their work responsibilities and their children's education. Also, a change in parenting style and children's emotional states during the pandemic could have affected parental stress levels. Four hundred and 22 parents with 95% of them being from Indiana were surveyed. Parents completed a survey to rate their parenting style, parental stress, and their children's overall well-being. Findings suggested that there were no significant interactions between parental stress and work schedule, grade of child, or child's qualification for free or reduced lunch. Participants' responses were examined with a dependent t-test and Factorial ANOVA with a post hoc analysis. Findings did suggest that parents who did not change their parenting style compared to parents who did or had child exhibiting lower levels of positive emotions were less stressed.

Keywords: COVID-19 pandemic; parental stress; parenting style; children's well-being

Introduction

With the abrupt onset of the COVID-19 pandemic, parents were quarantined to work from home alongside their school-aged children. As such, parents had to take on many responsibilities while working from home including the upkeep of their home, entertaining their children outside of school and being a second or replacement teacher to their children (Solekhah, 2020; Yildirim,

Correspondence concerning this paper should be addressed to:

* Ph.D., Georgia State University, College of Education and Human Development, Department of Counseling and Psychological Services, USA. Address: 30 Pryor St. SW, Suite 300, Atlanta, GA., USA. E-mail: cphelps@gsu.edu

2021; Scarpellini, 2021). Parents were expected to perform roles critical to their children's learning experience and academic achievement. They were also expected to provide more emotional support and encouragement to foster motivation in their school aged children (Munastiwi, 2020). Emotional closeness with a student is a significant predictor of academic achievement and overall welfare of the child (Munastiwi, 2020). Labor increase was an outcome of the pandemic, meaning some parents had increased hours at work and increased demands from schools regarding required educational support (Magomedov, 2021). While most were working full time jobs, they were also tasked by schools to participate in class with their students, monitor their students, attend meetings with teachers, and provide academic support that they may or may not have been able to provide (Yildirim, 2021; Zhao, 2020). Parents reported difficulty balancing the new roles assigned to them by schools, their jobs, their social groups and other associative bodies due to the pandemic which was related to higher levels of stress (Garbe et al., 2020; Malhi, 2021; Scarpellini, 2021).

The roles of the pandemic parent are met with barriers to effective educational support. Among those barriers, parents cited inadequate or nonexistent resources and low self-confidence (Yildirim, 2021). Parents may not have been equipped to support the academic achievement of their children due to diminished proficiency of academic skills or lack of expertise with technological devices necessary for completing and submitting school work (Garbe et al., 2020; Munastiwi, 2020). Parents' differing educational backgrounds mean not all students were receiving optimal parental support. Some parents reported a lack of time for supporting their child's school work due to other obligations (Munastiwi, 2020; Yildirim, 2021). Further, constraints on access to resources such as multiple computers mean some parents and children were sharing devices for both homeschool and remote work functions (Scarpellini, 2021). Though parental involvement reportedly increased during pandemic distance learning, parents and teachers cited communication as an area of concern (Garbe et al., 2020; Munastiwi, 2020; Solekhah, 2020; Yildirim, 2021). Also, some parents had to learn to support students that did not want to cooperate with distance learning (Goldberg et al., 2021).

Parental stress

A survey conducted on American parents cited the management of distance learning for their children to be a significant source of psychological distress (Scarpellini, 2021). Parents also reported experiencing pandemic specific stress negatively impacted their ability to provide nurturing care to their school aged children (Yoshikawa, 2020). Researchers have demonstrated that parental stress can have adverse effects on children, triggering both physiological and behavioral responses by activating their fight or flight response (Jones et al., 2021). In some cases, higher levels of parental stress during the pandemic were associated with physical violence against children (Geprägs et al., 2023). This is alarming because high levels of parental stress during the initial phase of the pandemic were predicted to increase adverse childhood experiences (ACEs)

among youth (Calvano et al., 2022). Also, parental stress experienced in early childhood can predict behavior problems during later adolescence (de Maat et al., 2021). The stress to perform all of the roles required due to the pandemic was intensified by having multiple children to support or caring for a child with a disability (Yoshikawa, 2020).

Parental stress has been correlated with symptoms of depression among parents and reported internalizing and externalizing problems among children (Babore et al., 2023; Lim & Shim, 2021), and this was also the case for parents with preschool children (Jarvers et al., 2023). Researchers have suggested that parents of school aged children during the COVID-19 pandemic experienced anxiety related to lack of social support systems, caregiving strain, financial stress, job loss and health concerns. Elevated levels of concern were reported in parents with children with preexisting health conditions (Goldberg et al., 2021). Also, having little time to engage in self-care led to higher instances of depression, anxiety, and stress symptoms for parents (Feinberg et al., 2021; Goldberg et al., 2021). With is even more alarming is that parents still reported high levels of stress after the COVID-19 pandemic, which has made it difficult to focus on parenting and disciplining their children (BR et al., 2020). Interestingly, Trumello et al. (2021) reported that paternal stress served as a moderating factor between maternal stress and children's problematic behaviors.

Parental stress can lead to hostile parenting practices such as yelling, punishing and low support as an expression of poor internal coping mechanisms (Ferreira et al., 2021). This may give insight into how higher levels of parental stress due to the pandemic is correlated with increased presence of psychological symptoms in students (Conti et al., 2020; Scarpellini, 2021). Given that parent-child relationships are bidirectional, these parents were stressed themselves while also navigating parenting children experiencing higher levels of stress. Authoritarian parenting has been linked to higher instances of mental disorders and higher stress levels (Oliveira et al., 2021). Authoritative parents reported lower instances of internalizing behavior problems in their children who previously exhibited a history of behavioral issues. (Oliveira et al., 2021). Parents who participated in more emotion coaching for their children and could maintain stable home routines provided a buffer for their children experiencing pandemic related psychosocial symptomatology (Cohodes et al., 2021). Interestingly, a study found that both parents and children experienced their relationship as less warm and supportive in spite of all of the time they were spending together during pandemic lockdown (Donker et al., 2021).

Objective

The purpose of the present study is to offer a picture of multiple constructs that play a role in understanding parental stress during the onset of the COVID-19 Pandemic. While researchers have indicated that parental support of their children's education during the pandemic was stressful, one research question was to determine is parental work, educational status of the child, grade

level of the child, and whether the child qualified for free/reduced lunch impacted parental stress levels. Another goal of this study is to determine if children's positive behaviors and emotions influenced parents' stress levels. Lastly, the study examines if change in parenting style as a response to support their children's education affected parental stress levels.

Methods

Participants

The number of participants who responded to the online survey were 471. Thirty-four of those responses were from duplicate IP addresses and therefore were removed from the study. Incomplete surveys were also removed. This included three participants who were missing responses for various survey questions and 12 participants who were missing their ages or student/work status. The final sample consisted of 422 parents with 95% of the participants from the state of the Indiana. Participants ranged in ages from 21 to 73 years old. About 72% of the participants were non-students and 85% were employed at least part-time. About 35% of the participants reported receiving free lunch, a proxy for income. About 60% of participants completed the survey using their high school aged child, 27% middle school age child, and 13% used their elementary age child. COVID and the racial reckoning appeared to be an international and national phenomenon respectively and therefore the survey was open to any adult 18 years and older who had at least one child in the US Kindergarten through 12th grade program.

Measures

At the time of data collection, there were no known surveys available that collected data about children's well-being during a global pandemic. Therefore, the researchers developed a 26-question parent survey that consisted of various question types on the following topics: parental stress, child stress, child stress related to COVID, child stress related to education, and child stress related to societal racial tensions. Questions 1-5 asked parents to rate their personal stress and stress levels with assisting their children with education related activities. Questions 6-13 asked parents if their children were experiencing barriers or challenges to their children's education. Questions 14-15 asked parents to rate their children's feelings about school and educational experiences. Questions 16-19 asked parents about their parenting style and children's behavioral changes. Questions 20-22 asked parents about changes in their children's positive emotions. Questions 23-24 asked parents if they have discussed COVID or the racial tension with their children. Question 25 asked parents about their children's interaction with others outside the home. Finally, question 26 asked parents to rate their concerns with their children's adaption to the COVID pandemic and racial tension. Parents completed the survey through Qualtrics.

Research variables. The parental stress variable was calculated adding question 1, parent's rating of their current stress level, question 4, parent's stress

level helping their child with class work, and question 5 reverse coded, parent's comfort in helping their child with class work. Scores for the parental stress variable can range from 0 to 30 with high scores indicating high stress levels. Parental baseline stress, stress levels prior to COVID, was calculated by subtracting question 2. Question 2 asked parents to assess how much their stress had increased in the past 8 months. Scores for parental baseline stress variable included six negative scores with the lowest a -5. Negative scores indicate little to no stress prior to the pandemic or racial uprising.

During the examination of the descriptive statistics of for the variables change in child's positive behaviors, change in parenting style, and change in child's positive emotions, it become apparent that such variables would work best to be treated as dichotomous variables due to means and sample sizes. For the variable change in child's positive behaviors, scores for those who reported positive change (N=23, M=13.70) were not significantly different from those who reported no change (N=167, M=13.53) as opposed to those who reported a decrease in positive behaviors (N=232, M=18.75; *see* Table 1). Thusly, creating the dichotomous category of no or positive change in behaviors versus decrease in positive behaviors. The variable change in child's positive emotions mean scores on parental stress reflected the following: for those who reported positive change (N=23, M=12.26) were not significantly different from those who reported no change (N=125, M=13.23) as opposed to those who reported a decrease in positive emotions (N=274, M=18.21). Thusly, creating the dichotomous category of no or positive change in emotions versus decrease in positive emotions. Participants were asked to identify their parenting style: permissive, democratic, and strict. A second question on parenting styles asked parents if their parenting style increased in flexibility, decreased in flexibility, or remained the same. The variable change in parenting style presented the following: those who reported increasing in flexibility (N=161, M=18.83) were not significantly different from those who reported a decrease in flexibility (N=51, M=18.53) as opposed to those who reported no change in parenting style (N=209, M=14.01). This created two categories, change in parenting style and no change in parenting style.

Table 1. Variables

Variable	N	M
+ or no change in positive behaviors	190	13.62
Decrease in positive behaviors	232	18.75
+ or no change in positive emotions	148	12.75
Decrease in positive emotions	274	18.21
+ or – in flexibility in parenting	212	18.68
No change in flexibility	209	14.01

Note: A + denotes increase and a – denotes decrease.

Procedure

The Qualtrics survey was launched on-line early March and closed at the end of May 2021. The survey link was accessible through Facebook, Linked-In,

and the University’s weekly newsletter. Additionally, the link was shared through other snow-balling techniques such as forwarded emails and text messaging. Participants who entered the survey link first completed the informed consent indicating eligibility and consent to participate. Participants were then instructed on how to complete the survey.

Data analysis

To examine the question of whether parents had increased stress levels due to COVID, a dependent *t*-test was used to test for differences between baseline and total parental stress levels. We also wanted to know if parents who were working, attending school, the grade level of parents’ selected child, and receiving free/reduced lunch experienced differing levels of stress. This objective was examined using a Factorial ANOVA with a post hoc analysis. Finally, to address the question of parenting style impacting parental stress levels, we performed a Factorial ANOVA.

Results

The parental total stress and baseline stress variables used in the analyses were examined for assumption violations. All assumptions were met for both the dependent *t*-test and ANOVA. We wanted to know if parental stress increased due to COVID. The results from the baseline stress levels (M=9.51, SD=5.14) and parental total stress levels (M=16.41, SD=6.47) indicate parental stress levels significantly increased during the pandemic, $t(421)=-52.39$, $p<.001$ (see Table 2). For the second objective of the study, a three-way ANOVA was run to examine the effects of parental work/student status, grade level of child, and receiving government aid on parental stress levels. Results of the analysis indicate that there were no significant main or interaction effects, all $F(4, 401)=1.426$, $p=.221$, $\eta^2=.014$.

Table 2. Paired sample *t*- test of parents reported stress levels

N	Baseline stress M	SD	Total stress M	SD	t	p Value
422	9.51	5.14	16.41	6.47	-52.39	<.001*

Note: An * denotes significant results.

Finally, we examined the effects of change in parenting style, change in child’s positive behaviors, and change in child’s positive emotions on parental stress levels using a 3-Way Factorial ANOVA (see Table 3). The results yield a statistically significant interaction between the variables change in child’s positive emotions and change in parenting style, $F(1, 413)=5.56$, $p=.019$, $\eta^2=.013$, indicating a combined effect on parental stress levels. There was a significant main effect of changes in parenting style on parental stress levels, $F(1, 413)=29.92$, $p<.001$, $\eta^2=.068$. The results indicate that 6.8% of the variance in parental stress can be explained by a change in parenting style. There was a significant main effect of change in child’s positive emotions, $F(1, 413)=5.54$, $p=.019$, $\eta^2=.013$, indicating that 1.3% of the variance in parental stress can be

explained by parents report of change in child’s positive emotions. The results also yield a second statistically significant interaction between the variables change in child’s positive emotions and change in child’s positive behaviors, $F(1, 413)=6.26, p=.013, \eta^2=.015$, indicating a combined effect on parental stress levels. The main effect of the variable changes in child’s positive behaviors was significant, $F(1, 413)=26.51, p<.001, \eta^2=.060$. The results indicate that 6% of the variance in parental stress can be explained by a change in the child’s positive behaviors. No additional main effects or interactions were significant, all $F(1, 413)=7.60, p=.384, \eta^2=.002$.

Table 3. Three-way Factorial ANOVA: parental stress is the dependent variable

	F	pValue	η^2
<i>Interaction</i>			
Change in positive emotions x Change in parenting style	5.56	.19*	.013
<i>Main Effects</i>			
Change in parenting style	29.92	.001*	.068
Change in positive emotions	5.54	.19*	.013
<i>Interaction</i>			
Change in positive emotions x Change in positive behaviors	6.26	.13*	.015
<i>Main Effect</i>			
Change in positive behaviors	26.51	.001*	.060

Note: An * denotes significant results.

Discussion

First, we wanted to know if parents were experiencing increased stress levels due to the COVID-19 lockdown. Significant events in our lives can cause great stress with our family systems (Peterson & Hennon, 2005). Additionally, the research supports that parental stress negatively influences childrearing practices, more specifically responsiveness to the child’s physical, emotional and psychological needs (Peterson & Hennon, 2005). According to the results of the dependent *t*-test, parents reported stress levels were significantly higher during the COVID-19 lockdown. This finding supports the research that COVID-19 increased our stress levels, severely impacted our mental health, and overall resilience to stressful events (Manchia et al., 2022). For the second research question, we wanted to determine if stress levels differed amongst the various factors such as parents working fulltime, attending school, the grade of the child of concern, and those who were of lower income levels. According to the results of the three-way ANOVA, the effects of parental work or student status, child’s grade level, and eligibility for free/reduced lunch were not significant. Unlike other studies, our findings were unable to support results suggesting balancing parents’ work schedules with the duties of supporting their children during COVID-19 worsened stress levels (Garbe et al., 2020; Malhi, 2021; Scarpellini, 2021). A majority our parents were supporting students who were older, and the typically expectation is that older students are to be more independent and less reliant on adults.

We conducted a 3-way ANOVA to determine if parental stress levels were influenced by reported changes in the following variables: parenting style and the selected child's behaviors and emotions. The ANOVA yielded significant results indicating parents who changed their parenting style and reported negative changes in emotions of their children, experienced significantly higher stress levels than parents who maintained their parenting style and reported no change or positive change in their child's emotions. This finding aligns with previous research that reports a relationship of parenting styles, parental stress, and children's emotional distress (Conti et al., 2020 & Scarpellini, 2021). In this study, it is possible that parents changed their parenting style to address the decrease in displayed positive emotions among their children in an attempt to create an emotional buffer for their children, which researchers have indicated could prevent or lessen pandemic-related psychological problems (Cohodes et al., 2021). For those parents who reported no change in their parenting style, it is possible that given the many educational changes the pandemic presented to children maintaining their parenting style provided a sense of consistency and familiarity needed for children (Lippold et al., 2016). Also, given that these parents could have been overwhelmed with additional responsibilities presented to them, one way they could have coped was not to overcompensate in their parenting style, which could have been stressful for them and their children. Moreover, researchers indicated that parents who engaged in more harsh parenting styles during the pandemic increased emotional problems for their children (Chung et al., 2022). Other studies have suggested parents who engage in authoritative parenting strategies are more likely to have children with fewer negative emotions and psychological problems during the pandemic (Orgilés et al., 2023).

Further, parents who reported that their children had no change or a positive change in emotional disposition and no change or positive change in behaviors had significantly lower stress levels than parents who reported that their children had a decrease in positive emotions and behaviors. Thus, those students who possibly adapted to the pandemic-related educational changes, tended to cause less parental stress for their children. Researchers have indicated that many children during the pandemic struggled academically, socio-emotionally, and with the lack of peer contact (Zhao, 2020) due to distant learning, which could have led to higher stress levels for parents. Some parents could have dealt with children who were resistant to distance learning (Goldbreg et al., 2021). This could have been compounded by the fact that many of the parents did not have the skills to support their children academically or technologically during the pandemic (Garbe et al., 2020). Lastly, parents who had children who were not responding positively to their new educational environment, were also stressed with their own work obligations (Yildirim, 2021).

Conclusions

Parents who were consistent in their parenting strategies report more positive emotions among their children. This increase in positive emotions was associated with a decrease in parental stress. On the contrary, parents who reported changing their parenting strategies experienced increased parental stress levels and problem behaviors in their children. Based on the results, the amount of tasks that parents had to balance did not impact their stress levels as much as changing their parenting styles or strategies.

Practical implications

Children look to their parents to determine how they should respond during difficult times. One implication from this study is during difficult transitions and crisis events, parents should remain consistent in their parenting practices to reduce parental stress and negative emotions and problem behaviors in their children. Also, parents should teach and model for their children how to be adaptable to difficult times and transitions as a way to prevent or reduce negative emotions and stress.

Limitations and future research directions

This study used convenience sampling resulting in majority White, Indiana residents with access to the Internet and social media accounts. Thus, this limits the generalizability of the study results to Indiana residents as opposed to the larger US population. Additionally, gender was not asked for the parents or their children, and therefore limited the results of the study in understanding the impact of COVID-19 on gender. According to the US Global Leadership Coalition (2020), women and girls were disproportionately impacted by COVID-19 compared to men and boys, suffering higher levels of job loss, school dropout rates, domestic violence, and disruption in critical health care services. Further, this study relied on parent self-report of their stress, parenting style, and their children's emotional disposition. No standardized measures were used to triangulate the results of this study.

Ethics statement

This study was carried out in accordance with the recommendations of Code of Ethics of American Psychological Association (APA). The protocol was approved by the Institutional Review Board (IRB) at Indiana State University in Terre Haute, IN, USA. All participants consented to be a part of this study.

Conflicts of interest

The authors declare no conflict of interest.

Author contributions

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

Funding

This research received no external funding.

References

- Chung, G., Lanier, P., & Wong, P. Y. J. (2022). Mediating effects of parental stress on harsh parenting and parent-child relationship during Coronavirus (COVID-19) pandemic in Singapore. *Journal of Family Violence, 37*(5), 801-812.
- Cohodes, E. M., McCauley, S., & Gee, D. G. (2021). Parental buffering of stress in the time of COVID-19: Family-level factors may moderate the association between pandemic-related stress and youth symptomatology. *Research on Child and Adolescent Psychopathology, 49*(7), 935-948.
- Conti, E., Sgandurra, G., De Nicola, G., Biagioni, T., Boldrini, S., Bonaventura, E., Buchignani, B., Della Vecchia, S., Falcone, F., Fedi, C., Gazzillo, M., Marinella, G., Mazzullo, C., Micomonaco, J., Pantalone, G., Salvati, A., Sesso, G., Simonelli, V., Tolomei, G., & Troiano, I. (2020). Behavioural and emotional changes during COVID-19 lockdown in an Italian paediatric population with neurologic and psychiatric disorders. *Brain Sciences (2076-3425), 10*(12), 918.
- Donker, M. H., Mastrotheodoros, S., & Branje, S. (2021). Development of parent-adolescent relationships during the COVID-19 pandemic: The role of stress and coping. *Developmental Psychology, 57*(10), 1611-1622.
- Feinberg, M. E., Mogle, J., Lee, J., Tornello, S. L., Hostetler, M. L., Cifelli, J. A., Bai, S., & Hotez, E. (2021). Impact of the COVID-19 pandemic on parent, child, and family functioning. *Family Process 61*(1), 362-375.
- Ferreira, F. O., Lopes-Silva, J. B., Siquara, G. M., Manfroi, E. C., & de Freitas, P. M. (2021). Coping in the COVID-19 pandemia: How different resources and strategies can be risk or protective factors to mental health in the Brazilian population. *Health Psychology and Behavioral Medicine, 9*(1), 182-205.
- Garbe, A., Ogurlu, U., Logan, N., & Cook, P. (2020). COVID-19 and remote learning: Experiences of parents with children during the pandemic. *American Journal of Qualitative Research, 4*(3), 45-65.
- Goldberg, A. E., McCormick, N., & Virginia, H. (2021). Parenting in a pandemic: Work-family arrangements, well-being, and intimate relationships among adoptive parents. *Family Relations, 70*(1), 7-25.
- Magomedov, I. A., Khaliev, M. S., & Khubolov, S. M. (2020). The negative and positive impact of the pandemic on education. *Journal of Physics: Conference Series, 1691*(1).
- Malhi, P., Bharti, B., & Sidhu, M. (2021). Stress and parenting during the COVID-19 pandemic: psychosocial impact on children. *Indian Journal of Pediatrics, 88*(5), 481.
- Manchia, M., Gathier A.W., Yapici-Eser, H., Schmidt, M.V., de Quervain, D., van Amelsvoort, T., Bisson, J. I., Cryan, J. F., Howes, O. D., Pinto, L., van der Wee, N. J., Domschke, K., Branchi, I., & Vinkers, C. H. (2022). The impact

- of the prolonged COVID-19 pandemic on stress resilience and mental health: A critical review across waves. *European Neuropsychopharmacology* 55.
- Munastiwi, E. (2020). Colorful online learning problem of early childhood education during the COVID-19 pandemic. *Al-Ta'Lim Journal*, 27(3), 227-235.
- Orgilés, M., Belzunegui-Pastor, À., Morales, A., & Espada, J. P. (2023). Parental stress as a mediator between parents' emotion regulation and youth's psychological symptoms during the COVID-19 lockdown: A cross-sectional study. *Psychology, Society & Education*, 15(1), 40-47.
- Peterson, G. W., & Hennon, C. B. (2005). Conceptualizing parental stress with family stress theory. In P. C. McKenry & S. J. Price (Eds.), *Families and change: Coping with stressful events and transitions* (3rd ed., pp. 25-48). SAGE.
- Scarpellini, F., Segre, G., Cartabia, M., Zanetti, M., Campi, R., Clavenna, A., & Bonati, M. (2021). Distance learning in Italian primary and middle school children during the COVID-19 pandemic: A national survey. *BMC Public Health*, 21(1), 1-13.
- Solekhah, H. (2020). Distance learning of Indonesian early childhood education (PAUD) during the COVID-19 pandemic. *International Journal of Emerging Issues in Early Childhood Education*, 2(2), 105-115.
- Yıldırım, B. (2021). Preschool education in Turkey during the COVID-19 pandemic: A phenomenological study. *Early Childhood Education Journal*, 49(5), 947-963.
- Yoshikawa, H., Wuermli, A. J., Britto, P. R., Dreyer, B., Leckman, J. F., Lye, S. J., Ponguta, L. A., Richter, L. M., & Stein, A. (2020). Effects of the global Coronavirus Disease-2019 pandemic on early childhood development: Short- and long-term risks and mitigating program and policy actions. *The Journal of Pediatrics*, 223, 188-193.
- Zhao, Y., Guo, Y., Xiao, Y., Zhu, R., Sun, W., Huang, W., Liang, D., Tang, L., Zhang, F., Zhu, D., & Wu, J. L. (2020). The effects of online homeschooling on children, parents, and teachers of grades 1-9 during the COVID-19 pandemic. *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, 26, e925591.

Received June 29, 2023

Revision August 2, 2023

Accepted October 6, 2023