

Internalized and externalized problems in preschoolers and emotional state of caregivers during the COVID-19 pandemic: A longitudinal study

Problemas internalizados y externalizados en preescolares y estado emocional de cuidadores durante la pandemia del COVID-19: un estudio longitudinal

Mónica Isabel Herazo Chamorro¹, Diego Armando Pérez Vásquez², Bertha Isabel Bolaños-Torres³, Leodanis Danith Fonseca Beltrán⁴, Kelly Carolina Romero-Acosta⁵

SUMMARY

Introduction: *The COVID-19 pandemic forced to take measures to protect public health such as mandatory social isolation and the closure of universities and schools, unprecedented measures such as the case of Colombia that affected the emotional state of the population and their mental health.*

Objective: *To compare internalized and externalized problems in preschoolers and the emotional state of caregivers during the COVID-19 pandemic, at three different times, before isolation (2019), during isolation (2020) and after it (2021).*

Method: *The study was quantitative, of correlational scope and longitudinal cut, the sample was comprised of 42 preschoolers and their caregivers, the applied*

instruments were the child behavior checklist (CBCL), the Beck Depression Inventory-II, the Costello and Comrey Depression and Anxiety scale.

Results: *It was observed that the anxiety symptoms in the caregivers increased after the quarantine, while the depressive symptoms were more before and during it, in the children the anxiety problems increased in the quarantine and decreased after it, on the other hand, the aggressive behavior had significant differences in the three moments.*

Conclusions: *The presence of internalized and externalized problems in early childhood has a direct influence on their development, as well as on the relationship they establish with their parents and peers, so the data reported here are useful to formulate strategies that allow reducing the development of these problems.*

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ORCID: 0000-0003-4193-8321¹

ORCID: 0000-0002-6089-0127²

ORCID: 0000-0001-8621-8489³

ORCID: 0000-0002-0733-5255⁴

ORCID: 0000-0002-6568-1316⁵

¹Corporación Universitaria del Caribe, Programa de Licenciatura en pedagogía Infantil, Sincelejo-Sucre – E-mail: monica.herazo@cecar.edu.co

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²Corporación Universitaria del Caribe, Programa de Psicología, Sincelejo-Sucre – E-mail: diego.perez@cecar.edu.co

³Universidad de San Buenaventura, Maestría en Ciencias de la Educación, Cartagena de Indias D.C y D. T. Bolívar, E-mail: bbolanos@usbctg.edu.co

⁴Corporación Universitaria del Caribe, Programa de Psicología, Sincelejo-Sucre – E-mail: leodanis.fonseca@cecar.edu.co

⁵Corporación Universitaria del Caribe, Programa de Psicología, Sincelejo-Sucre – E-mail: kelly.romero@cecar.edu.co

*Correspondence author: Mónica Isabel Herazo Chamorro, Bachelor Program in Early Childhood Pedagogy - University Corporation of the Caribbean CECAR, Carretera Troncal de Occidente Km. 1 - Vía Corozal – Sincelejo – Sucre - Colombia, E-mail: monica.herazo@cecar.edu.co

Keywords: *Externalization problems, Internalization problems, preschool, emotion, caregivers, pandemic, COVID-19.*

RESUMEN

Introducción: *La pandemia por COVID-19 obligó a tomar medidas para proteger la salud pública como el aislamiento social obligatorio y el cierre de universidades y escuelas, medidas sin precedentes como es el caso de Colombia que provocó afectaciones en el estado emocional de la población y su salud mental.*

Objetivo: *Comparar los problemas internalizados y externalizados en preescolares y el estado emocional de cuidadores durante la pandemia por COVID-19, en tres momentos distintos, antes del aislamiento (2019), durante el aislamiento (2020) y después de este (2021).*

Método: *El estudio fue cuantitativo, de alcance correlacional y corte longitudinal, la muestra estuvo comprendida por 42 preescolares y sus cuidadoras, los instrumentos aplicados fueron la lista de verificación de comportamiento infantil (CBCL), el Inventario de Depresión de Beck-II, la escala de depresión y ansiedad de Costello y Comrey.*

Resultados: *Se observó que los síntomas ansiosos en las cuidadoras aumentaron después de la cuarentena, mientras que los síntomas depresivos fueron mayores antes y durante esta, en los niños los problemas de ansiedad aumentaron en cuarentena y disminuyeron después de esta; por su parte, el comportamiento agresivo tuvo diferencias significativas en los tres momentos.*

Conclusiones: *La presencia de problemas internalizados y externalizados en la primera infancia tiene influencia directa en su desarrollo, así como en la relación que establecen con sus padres e iguales, por lo que los datos aquí reportados son de utilidad para formular estrategias que permitan disminuir el desarrollo de dichos problemas.*

Palabras clave: *Problemas internalizados, problemas externalizados, preescolares, estado emocional, cuidadoras, pandemia, COVID-19.*

INTRODUCTION

In March 2020, the World Health Organization (WHO) declared the coronavirus COVID-19 pandemic, forcing governments around the world to take measures to protect citizens, declaring a quarantine and the closure of universities, schools, among other establishments. COVID-19 triggered a

series of alterations in the daily routine due to social isolation and mobility limitations, due to this situation it is expected that there will be a negative impact on childhood development, on the emotional state of children and parents, on their physical and mental health and learning (1-4).

The closure of schools for a long period of time has caused an increase in parental stress, added to the loss of employment, economic difficulties, work at home, the multiple tasks that require parental attention such as upbringing, housework, health anxiety, loss of relatives or people who support the upbringing, all this together causes greater discomfort in parents and therefore more emotional and behavioral problems in children, as well as difficulties in the interaction of parents and children (5-7). Researchers consider that the emotional state of children, as well as the symptoms of anxiety and stress, are altered because interactions with parents or caregivers are dysfunctional, are not of quality, and contact is less. The affectations in the emotional state can also be due to the lack of socialization or approach with their schoolmates, teachers, and neighbors (4). Melero et al. (8) found that parents who used expression suppression as a strategy to regulate emotions had children with greater childhood symptomatology, that is, more anxiety, sleep problems, cognitive and behavioral alterations, and eating problems.

According to the family observatory (9) in Colombia, the COVID-19 emergency showed an unequal impact according to gender, since at the economic level the cost for women was higher because the unemployment rate is higher, they had to exhaust the permits, vacations, reduce their working hours, income and quality of life and even leave work because they do not have someone to help care for their children. All these events affect the health of women due to psychological stress, lack of motivation and apathy, especially in single-parent homes where the head of the household is a woman. The family observatory (9) indicates that the distancing of children and adolescents from school, as well as the stress that parents are going through (4), generates other problems such as intra-family abuse, pregnancy at an early age, sexual exploitation, child labor, forced recruitment of groups outside the law as occurs in Colombia, overcrowding and abuse of new technologies (3). Due to the above, Quero et al. (1) affirms that firm and calm parents or caregivers make it easier for children to better resist preventive isolation and their response to the threat of risk,

likewise, they better cope with adversity and there are fewer psychological repercussions when children are not separated from the main caregiver by contagion or death, but their characteristics influence their coping response.

Researchers such as Erades and Morales (10), point out that children who experience quarantine as a traumatic event are more likely to present stress and related pathologies such as post-traumatic stress disorder, likewise, they exposed that those parents who made use of biosecurity measures appropriate during isolation, favored the manifestation of less negative reactions in children. However, there are various authors such as Sánchez (11) who argues that there are few studies on the impact of COVID-19 on the general population, and there are even fewer studies that find out how the emotional management of families and the satisfaction that parents have with parenting during quarantine has influenced the mental health of children (8).

Boys and girls are vulnerable in this pandemic situation since protective measures do not make visible the impact of the consequences on the population (12), which is why during this period studies show the loss of healthy habits, problems in eating, fear anxiety, depression, sleeping problems, hyperactivity, irritability, the combination of depression and anxiety, post-traumatic symptoms (3,11,13,14). In preschool children, the reality is similar, since symptoms of anxiety related to somatic processes are expected to appear, such as diarrhea, hyperventilation, palpitation, feelings of sadness and abandonment, regressive behaviors, and more serious responses to this event are obsessions and compulsions, alterations in food, sleep, communication problems, demand more affection, difficulty taking care of themselves (11,14-15). The population of children living in unfavorable conditions cannot be forgotten, since the impact on them is more negative on a physical and mental level, due to an increase in inequity conditions. For example, the closure of educational centers increases unhealthy menus at home, inequality in learning results, where the virtual educational environment requires resources that low-income families find difficult to achieve (16).

The virtual modality in early childhood children also had negative effects on the development of their emotions, since according to Gómez and Castrillón (17), during the virtual pedagogical processes, preschoolers presented emotions such as anger (14 %), sadness (18 %), frustration (33 %),

likewise, their study showed that only 43 % of the early childhood children with whom they worked had regular progress, in addition, that 10 % of the parents had the resources and the environment of learning and adequate time to accompany the minor during the pedagogical orientation (9).

Technological tools have been very helpful during the pandemic, but it has had negative effects on boys and girls due to the time they spend in front of screens, where their health is affected by increased sedentary lifestyles (3-4), however, not having easy access to this type of device increases the social gap and violates the child, since the educational gap increases and the rates of learning are not maintained mainly in poor countries or fragile economies such as Colombia (18).

The effects of COVID-19 are unknown in the long term because it is not known how quarantine can affect boys and girls, the researchers suggest that it is necessary to identify the variables that affect the well-being of preschoolers since there will continue to be new strains of COVID-19 or other viruses that will be unknown (13). Likewise, it is necessary to carry out long-term studies with larger sample sizes to assess the real effects that quarantine caused on the emotional stability of childhood (1). It is recognized that the pediatric population is vulnerable, but it is characterized by having a great capacity for adaptation, adjustment, assimilation, and creativity, among others, which helps them to adjust to adverse situations more quickly. For this reason, it is imperative to assess the state of the population in the face of the COVID-19 pandemic, which turned out to be a sudden and complex event (11).

This research aims to compare the internalized and externalized problems of preschoolers and the emotional state of their caregivers during the COVID-19 pandemic, at three different moments, before isolation (2019), and during isolation (2020) and after it (2021).

METHOD

This research is of a quantitative design, a correlational type, and of a positivist paradigm. The scope of this type of study allows establishing associations between two concepts or variables, although it is customary to make associations between more variables, therefore each of the variables that the researcher supposes are related is measured, to

later quantify and analyze the existence of association. Given this particularity, it will be possible to compare the existence of variability in the internalized and externalized problems of preschoolers and the emotional state of caregivers during the COVID-19 pandemic, at three different moments before (2019), during (2020) and after (2021) preventive isolation, hence the research cut is longitudinal.

42 caregivers of preschool or early childhood boys and girls participated, from several CDC (Child Development Centers), in the city of Sincelejo. Three instruments were applied to these caregivers: 1. Child Behavior Checklist (CBCL) for children between one year and medium to five from Achenbach & Rescorla (19), which measures emotional reactivity, anxiety/depression, somatic symptoms, withdrawal, and sleep problems, is made up of 100 items and has a response scale with three possible choices that are 0=Not true, 1=somewhat sometimes, 2=very true or often true. 2. Beck Depression Inventory-II (BDI-II) (20), which is a self-administration questionnaire made up of twenty-one items, which reports the presence of depression in the subject and its degree of severity, which it is done by indicating symptoms such as sadness, crying, loss of pleasure, feelings of failure and guilt, suicidal thoughts or desires,

and pessimism, among others. 3. Costello Comrey Depression and Anxiety Scales (21), which measures two factors, anxiety, and depression, reporting their severity at high and low levels. This inventory is self-administered and is made up of 10 items.

The data analysis was done with the statistical software Statistical Package for Social Science (SPSS) V. 20 to calculate the means of the total scores obtained three times before (2019), during (2020) and after (2020) the quarantine COVID-19, the Student T-test was calculated for the comparison of the scores obtained in the three moments, the means were compared between Time 1 (T1) and Time (2), between T2 and Time 3 (T3), between T1 and T3.

RESULTS

Presence of Anxiety and Depression Symptoms in Caregivers

In quarantine, caregivers' anxiety symptoms at T3 increased significantly compared to T1 ($p = 0.005$). Regarding depressive symptoms, these increased significantly from T1 to T2 ($p=0.004$), from T2 to T3 ($P=0.0001$), and from T1 to T3 ($p=0.0001$) (Table 1).

Table 1. Symptoms of anxiety and depression in caregivers before, during, and after quarantine

Symptoms	T1	T2	T3
	Mean (standard deviation) N=42	Mean (standard deviation) N=42	Mean(standarddeviation) N=42
Anxiety symptoms in caregivers	2.76 (1.97)	3.61 (1.87)	3.16 (2.24)
Depression symptoms in caregivers	4.38 (3.94)	7.11 (5.50)	14.97 (2.19)

Presence of Internalized Problems in Children

Anxiety problems increased during the quarantine and decreased significantly after it ($p=0.0001$). In contrast, depressive symptoms increased from T1 to T2 ($p=0.001$), from T2 to T3 ($p=0.0001$), and from T1 to T3 ($p=0.0001$). Sleeping problems decreased significantly from T2 to T3 ($p=0.001$) and from T1

to T3 ($p=0.0001$), while somatic symptoms did not present significant mean differences in any of the comparisons between times. On the other hand, the symptoms related to being emotionally reactive increased from T1 to T2 ($p=0.024$) and decreased from T2 to T3 ($p=.000$), there was also a significant difference between T1 and T3 ($p=0.0001$) (Table 2).

Table 2. Internalized symptoms before, during and after quarantine

Internalized symptoms	T1	T2	T3
	Mean (standard deviation)	Mean (standard deviation)	Mean (standard deviation)
Anxiety problems	3.21 (2.50)	5.28 (3.21)	1.16 (1.42)
Depression problems	1.26 (1.49)	2.02 (1.53)	5.54 (3.90)
Sleeping problems	2.26 (2.29)	2.47 (2.24)	0.78 (1.81)
Withdrawal	0.73 (1.44)	1.66 (1.73)	1.38 (2.15)
Somatic symptoms	1.50 (1.90)	1.61 (1.66)	2.26 (1.84)
Anxiety/depression symptoms	2.14 (1.84)	3.47 (2.68)	1.47 (1.64)
Emotionally reactive	1.33 (1.54)	2.19 (2.16)	0.09 (0.37)

Presence of Externalized Symptoms in Children

Regarding aggressive behavior, significant differences were found in the three moments ($p=0.0001$). An increase in attention problems was

also found from T1 to T2 ($p=0.001$) and a decrease from T2 to T3 ($p=0.0001$). Regarding autism symptoms, they increased significantly from T1 to T2 ($p=0.001$) and from T1 to T3 ($p=0.002$) (Table 3).

Table 3. Externalized symptoms before, during and after quarantine

Externalized symptoms	T1	T2	T3
	Mean (standard deviation)	Mean (standard deviation)	Mean (standard deviation)
Oppositional and defiant behavior	3.12 (2.05)	4.19 (3.21)	2.95 (1.93)
Aggressive behavior	5.75 (3.85)	9.61 (6.36)	2.52 (1.53)
Autism symptoms	1.51 (2.14)	2.88 (2.17)	3.38 (2.76)
Neglect problems	2.40 (1.38)	3.61 (1.88)	2.00 (2.26)

DISCUSSION

Symptoms of Anxiety and Depression in Adults, One Year After Quarantine

The mental health of preschool-age children and caregivers has been significantly affected by the COVID-19 pandemic (22,23). International and national findings report that preschool caregivers in the quarantines imposed by COVID-19 experienced depressive symptoms (22,24,25), anxious symptoms (24,26), somatic symptoms (22), and stress (25,27,28). In accordance with

the background, the results of this investigation indicate that the caregivers presented an increase in depressive and anxious symptoms in relation to the period before the pandemic, also, it was found that depressive symptoms increased after the quarantine period. An expected result, considering that a negative psychological impact was already expected during and immediately after the quarantine periods in the general population (13). The fact that symptoms have risen after the quarantine period has important repercussions not only on the mental health of caregivers but also impacts the mental health of preschoolers, as previous research has shown that mental health problems of caregivers make a significant contribution to the

transmission of psychopathological difficulties to their children (29-31).

Internalized Problems in Early Childhood Children in the COVID-19 Pandemic

Larraguibel et al. (32) when analyzing the internalized problems in preschool and school children before and during the pandemic, found an increase in depressive symptoms during the pandemic period compared to the symptoms before it, likewise, sleep problems increased. For their part, Viola and Nunes (33) agree that there is an increase in internalized symptoms during the pandemic, especially depressive symptoms, although a greater presence of anxiety symptoms has also been identified. Loades et al. (34) point out that social isolation measures led to an increase in anxiety symptoms and depressive symptoms in children and adolescents, in addition, they state that these symptoms could be maintained between 0.25 and 9 years later. In this study, depressive symptoms increased during the quarantine and were maintained after it, in contrast, anxiety symptoms also increased during the quarantine but decreased after it. These findings partially differ from the findings of Rakickienè et al. (35), who found no increase in emotional problems in a group of preschoolers. Despite these differences, the results presented here have important implications for the development of mental health care measures immediately and in the years following the pandemic.

Regarding somatic symptoms, previous research highlights the increase in these symptoms in preschoolers during the confinement period (36-38), in agreement, in the present investigation, somatic complaints increased during the quarantine period and continued to increase after it. A data of notable interest considering that somatic symptoms could be maintained in school age and adolescence, in addition, they have been associated with maladaptation characterized by difficult temperaments, and emotional and behavioral problems (39).

Externalized Problems in Early Childhood Children by the Pandemic

The international literature has reported the appearance or increase of externalized symptoms as a direct consequence of the COVID-19

pandemic. Kılıçaslan et al. (40), studied the clinical manifestations of autism in a sample of preschoolers and highlighted the increase in autism symptoms during the pandemic period. A similar result was found in this study, there was an increase in autism symptoms in the quarantine, but in addition, these continued to rise after the quarantine. Although there are few longitudinal investigations dedicated to studying this variable, regarding these manifestations, Charney et al. (41) explain that distancing measures imply low possibilities for meaningful interactions with peers, the use of masks can obscure the social cues provided through facial expressions, and ultimately, as a result, opportunities to develop social skills in children are diminished compared to pre-pandemic living conditions. In addition, as some researchers point out, skills and behavior problems during early childhood are associated with later educational achievements (42), for this reason, it would be worth carrying out intervention processes that manage to reduce the effects that education could have the presence of these symptoms in this period of life.

It also stands out from these findings that oppositional behavior, aggressive behavior, and attention problems increased in quarantine and decreased after it. A similar result was found by Ciantiani et al. (43) when studying internalizing and externalizing symptoms in children, preschoolers had an increase in aggressive behavior and oppositional behaviors during the period of confinement. In contrast, Wenter et al. (44), reported that the number of preschoolers with clinical manifestations of aggressive behavior was significantly low during the pandemic period.

Clinical Implications of the Present Work

The presence of internalized and externalized problems in early childhood has a direct influence on the development of boys and girls, as well as on the relationship they establish with their parents and peers, so the data reported here are useful to formulate strategies that help reduce the development of these problems. Regarding the mental health of caregivers, the psychopathological symptoms of parents may interfere with their perceptions of their children's behavior and adaptation, and in some cases lead to the underestimation of the children's symptoms and/or an inadequate parent-child interaction pattern (45).

Limitations

The reporting of externalizing and internalizing symptoms in children was based solely on parental reporting, so the data could be biased by their emotional state. In addition, the symptomatic evolution in the three periods in which the measurements were made could be part of the development of the child. Despite its limitations, this study provides valuable information on the psychological response of preschool children and their caregivers in Colombia during the COVID-19 pandemic.

CONCLUSIONS

The objective of this research was to compare the internalized and externalized problems in preschoolers, and the emotional state of caregivers, at three different moments, before the quarantine due to COVID-19 (2019), during the quarantine (2020), and after it (2021). A decrease in symptoms was found in most externalized and internalized problems. However, in the case of depression (both in adults and children), the symptoms increased after the quarantine. In addition, somatic symptoms and autism symptoms increased.

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Conflict of interest

The authors declare that there is no conflict of interest.

Authors' contributions

The first author: Conceived the research, helped in the writing of the article, and applied instruments.

The second author: Conceived the research, searched for bibliographic information, and applied instruments.

Third author: Assisted in writing the article.

The fourth author: Conceived the research and helped in writing the paper.

Fifth author: Conceived the research, analyzed the data, and helped in writing the article.

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