#### ORIGINAL ARTICLE

# THE IMPACT OF THE COVID-19 PANDEMIC ON PARENTAL PERMISSIVITY: A CROSS-SECTIONAL STUDY

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**Highlights:** 1. Parents allowed their children to play/practice physical activities less. 2. Parents have allowed more use of electronic devices for entertainment; 3. Parents allowed fewer visits to friends/family homes, stores, markets, shopping malls

#### PRE-PROOF

(as accepted)

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### **ABSTRACT**

This cross-sectional study sought to uncover how the pandemic impacted parental permissiveness in the routine activities of Brazilian children. The 466 parents of children aged between 3 and 10 years answered a questionnaire about the frequency with which they allowed their children to use electronic devices and engage in social activities after the onset of the COVID-19 pandemic. The independent variables were the child's age and gender, family income, the number of people contributing to income, the form of employment during the pandemic, whether the respondent was responsible for household tasks and if these affected their routine, and who looked after the child when they needed to leave home. The distribution assessment of independent variables (categorical) according to the 3 degrees of the dependent variable (more, less, the same), and parental permission (ordinal categorical), was performed by the Chi-square test. After the onset of the pandemic, parents allowed fewer outdoor play/physical activities in public places (409 - 87.76%) and visits to friends' and relatives' houses (421 - 90.34%); and increased the frequency of permitting the use of electronic devices for entertainment (358 -76.8%). The frequency of taking children to markets, shops, malls, and similar did not have a significant change (p=0.1494). The current study pointed out significant changes in parental permissiveness due to the isolation required by the COVID-19 pandemic.

Keywords: children, COVID-19, screen time, physical activity, child development.

### Introduction

COVID-19 was considered in March 2020 as the second pandemic of the 21st century by the World Health Organization)<sup>1</sup> With the lack of information related to prevention, treatment, transmissibility rate, and infection of the disease, non-pharmacological interventions (NPIs) such as individual protection measures (hand washing, respiratory etiquette, and social distancing), environmental (routine cleaning of environments and surfaces), and community (restriction or prohibition of spaces where there may be gatherings of people)<sup>2</sup>, were the recommended measures at the time<sup>3</sup>.

The use of these measures significantly impacted daily activities, people's lives, and society. Among the measures implemented, the restriction of social contact can have consequences for people's mental<sup>4</sup> and physical health<sup>5</sup>.

As social isolation is considered the most effective measure in reducing the transmissibility of the disease, it generated sudden changes in the daily lives of families and proved to be a challenging experience for many. The distance imposed on us in relation to the people we love, the restriction of our daily freedoms, the uncertainty resulting from the lack of knowledge about the state of the disease and the monotony can, at certain times, cause significant and emotionally intense effects<sup>6</sup>.

Thus, to comply with isolation recommendations, many parents changed the frequency with which they allowed their children to carry out activities in the presence of other people, and studies<sup>7</sup> highlight that the lack of regular interaction with peers of the same age can delay the development of crucial social skills and affect self-esteem and self-confidence.

Although there are previous studies regarding the increase in the use of electronic devices in both children and adults after the onset of the COVID-19 pandemic, there is no research that explicitly addressed the influence of the pandemic on parental decisions about participation in in-person physical and social activities, and the use of these devices by Brazilian children. Given this, the present study set out to understand the impact of COVID 19 on the permissiveness of parents of Brazilian children aged 3 to 10, about the use of electronic devices, physical activities, and social interactions.

### **METHODOLOGY**

This is an observational cross-sectional study, approved by the Research Ethics Committee of the Faculty of Health Sciences (CEP/FS) of University of Brasilia and approved under number 4,535,075. It is reported in accordance with the "Checklist for Reporting Results of Internet E-Surveys (CHERRIES)" reporting guide. All participants signed the Free and Informed Consent (IC).

As the objective was to reach groups of parents of children aged 3 to 10 from all over Brazil, the sample was carried out by convenience, through social media. To do this, we use various social media, including parent groups on Whats App, Instagram, and Facebook. Furthermore, in our invitation, we asked that parents, if possible, forward it to a friend who has a child of the same age. A questionnaire was sent electronically to people responsible for the children, inviting them to answer questions about the children's social habits before and after the start of the COVID-19 pandemic. Guardians under the age of 18 were excluded from the sample.

The data was obtained from 03/04/2021 to 04/07/2021, through an online form, created and managed using the Google Forms tool, from Google Drive®, and tabulated in Microsoft Excel, from Microsoft Office®.

The questionnaire was based on the study developed<sup>8</sup>, adapted, and translated into Portuguese (Brazilian) to facilitate understanding by participants. To better relate to the research object, some items were excluded, and others were developed and added, considering the Brazilian reality.

The outcome variable was the change in parental permissiveness, caused by the COVID-19 pandemic. It is important to mention that this study did not seek to identify parental styles, such as authoritarian, authoritative, or indulgent (permissive)<sup>9</sup> in the interviewed parents. In this research, the change in permissiveness refers only to the change in the tolerance of the interviewed parents, in the face of situations that, if they occurred outside the pandemic moment, would not be allowed.

This change in permissiveness was investigated through the following questions, organized into blocks: Block 1: "I allowed my child to play/practice physical activities with other children in public environments (squares, courts, playgrounds...)"; Block 2: "I allowed my child to go to friends/family's houses"; Block 3: "I took my child to stores, markets, shopping malls and similar things"; Block 4: "I allowed my child to use electronic devices for entertainment. The answer options being:much less, less, equal, more and much more than before the pandemic.

The independent variables were the child's age and sex, family income and the number of people contributing to the income, form of work during the pandemic, whether the respondent was

responsible for domestic activities and whether these affected their routine, as well as information about who took care of the child when he needed to leave the house.

The age group was grouped according to Piaget's Development Theory, which characterizes child development into four phases: sensorimotor (0 to 2 years), pre-operational (2 to 6 years), concrete operational (7 to 12 years), formal operational (from 12 years old)<sup>10</sup>. In this study, only two phases were used: the pre-operational phase, Group A (GA) children aged 3 to 6 years; and the concrete operational phase, Group B (GB) children aged 7 to 10 years.

To calculate the sample size, a study carried out in 2020<sup>11</sup> was used, which concluded that 85.8% of parents showed changes in mood and stress due to the pandemic. This data brought understanding to the magnitude of the psychological impact of the pandemic on parents, providing a solid basis for investigating how these emotional changes can influence parents' permissiveness in relation to their children's behavior. The high prevalence of emotional changes found in this study suggests that the pandemic has placed significant pressure on the psychological state of parents, which in turn may have influenced their decisions and attitudes towards the education and care of their children. The results of this research indicate a correlation between high levels of parental anxiety and depression and a greater potential for child abuse. Furthermore, they showed that greater parental support and greater perceived self-control during the pandemic are associated with lower perceived stress and a lower potential for child abuse.

The confidence level was 95% and error was 5%, and the sample was adjusted by 20% to compensate for the loss of or non-adherence to the questionnaire, totaling a minimum sample of 235 participants.

In this study, data analysis was carried out using descriptive and inferential statistical techniques. For qualitative variables, the distribution of absolute and relative frequencies was shown. For quantitative variables, measures of central tendency were used, and normality was verified with the D'Agostino-Pearson test.

The research also analyzed how the independent variables (categorical) were distributed in relation to the three degrees of the dependent variable, which is parental permission (ordinal categorical). For this, the Chi-square test was used.

An alpha error of 5% was established to reject the null hypothesis, and statistical calculations were performed using the BioEstat 5.3 and SPSS 27 programs.

### **RESULTS**

Data were obtained from 541 guardians and their children. However, there were repeated responses identified by: e-mail (5); date of birth (5); and out-of-age child (65). Thus, the present study analyzed data from n=466 children and their caregivers. Of these, 88% were female (n=410) and 12% were male (n=12%) and aged between 19 and 62 years (mean 39.2±5.1 years). The children were between 3 and 10 years old (mean 5.4±2.1 years) and 50.2% (n=234) were male.

### Block 1: Physical activity and playing with other children

When asked about allowing their child to play/practice physical activities with other children in public environments (squares, sports courts, playgrounds...), most parents (409 – 87.76%) reported having decreased the frequency of permissibility. However, there was a significant difference (p=0.0406\*) for parents whose child was in the age range 3 to 6 years (GA) (85.3%), who reported no change in how often they allowed this type of activity during the pandemic.

Parents who looked for an extra income (p=0.0007\*), allowed their child to practice this type of activity even more than before the pandemic. Those parents whose child went out with their guardians when they were away from home (p=0.0453\*) reported that their child played less often in public environments than before the pandemic, and families that had family income (p=0.0458\*) of up to R\$11,300.00 maintained the frequency that their child played with other children (Table 1).

Table 1: I allowed my child to play/practice physical activities with other children.

|                                | Less        | _         | Equal |      | More |      | p-value   |
|--------------------------------|-------------|-----------|-------|------|------|------|-----------|
|                                | n           | %         | n     | %    | n    | %    | n         |
| Group according to age         | 409         | -         | 46    | -    | 11   | _    | p=0.0406* |
| GA                             | 279         | 85.3      | 38    | 11.6 | 10   | 3.1  | 327       |
| GB                             | 130         | 93.5      | 8     | 5.8  | 1    | 0.7  | 139       |
| Child's Gender                 |             |           |       |      |      |      | p=0.7977  |
| Male                           | 203         | 86.8      | 25    | 10.7 | 6    | 2.6  | 234       |
| Female                         | 206         | 88.8      | 21    | 9.1  | 5    | 2.2  | 232       |
| How many people contribute     | to the fam  | ily incon | ne?   |      |      |      | p=0.8320  |
| 1                              | 71          | 86.6      | 9     | 11.0 | 2    | 2.4  | 82        |
| 2                              | 319         | 87.4      | 37    | 10.1 | 9    | 2.5  | 365       |
| 3                              | 14          | 100.0     | 0     | 0.0  | 0    | 0.0  | 14        |
| 4                              | 5           | 100.0     | 0     | 0.0  | 0    | 0.0  | 5         |
| What is your household incom   |             | 100.0     |       | 0.0  |      | 0.0  | p=0.0458* |
| 800                            | 3           | 100.0     | 0     | 0.0  | 0    | 0.0  | 3         |
| Up to 1800                     | 5           | 100.0     | 0     | 0.0  | 0    | 0.0  | 5         |
| Up to 3100                     | 18          | 81.8      | 2     | 9.1  | 2    | 9.1  | 22        |
| Up to 5700                     | 52          | 98.1      | 1     | 1.9  | 0    | 0.0  | 53        |
| Up to 11300                    | 122         | 84.1      | 22    | 15.2 | 1    | 0.7  | 145       |
| Up to 25500                    | 124         | 89.2      | 9     | 6.5  | 6    | 4.3  | 139       |
| More than 25000                | 85          | 85.9      | 12    | 12.1 | 2    | 2.0  | 99        |
| How did you work during the    | e Pandemio  | period?   |       |      |      |      | p=0.0007* |
| Home office                    | 196         | 92.5      | 13    | 6.1  | 3    | 1.4  | 212       |
| I was already unemployed       | 25          | 86.2      | 3     | 10.3 | 1    | 3.4  | 29        |
| Maintained work routine        | 88          | 81.5      | 19    | 17.6 | 1    | 0.9  | 108       |
| Lost the job                   | 9           | 81.8      | 2     | 18.2 | 0    | 0.0  | 11        |
| Looked for extra income        | 5           | 62.5      | 1     | 12.5 | 2    | 25.0 | 8         |
| Reduced Hours                  | 80          | 87.0      | 8     | 8.7  | 4    | 4.3  | 92        |
| Did not answer                 | 6           | 100.0     | 0     | 0.0  | 0    | 0.0  | 6         |
| Are you responsible for house  | ehold activ | ities?    |       |      |      |      | p=0.5427  |
| No                             | 50          | 84.7      | 7     | 11.9 | 2    | 3.4  | 59        |
| Partially                      | 248         | 86.7      | 30    | 10.5 | 8    | 2.8  | 286       |
| Totally                        | 111         | 91.7      | 9     | 7.4  | 1    | 0.8  | 121       |
| Do household activities influe | ence your r | outine?   |       |      |      |      | p=0.4177  |
| No                             | 23          | 76.7      | 6     | 20.0 | 1    | 3.3  | 30        |
| Partially                      | 156         | 88.6      | 16    | 9.1  | 4    | 2.3  | 176       |

| Totally   | 230 | 88.5 | 24 | 9.2  | 6 | 2.3 | 260 |  |  |  |
|---|-----|------|----|------|---|-----|-----|--|--|--|
| When you are away from home, who takes care of your child(ren)? |     |      |    |      |   |     |     |  |  |  |
| Stay alone  | 11  | 91.7 | 0  | 0.0  | 1 | 8.3 | 12  |  |  |  |
| Employee  | 135 | 86.0 | 18 | 11.5 | 4 | 2.5 | 157 |  |  |  |
| Relatives   | 172 | 92.0 | 13 | 7.0  | 2 | 1.1 | 187 |  |  |  |
| Go out with the guardian  | 65  | 78.3 | 14 | 16.9 | 4 | 4.8 | 83  |  |  |  |
| Others  | 26  | 96.3 | 1  | 3.7  | 0 | 0.0 | 27  |  |  |  |

### **Block 2: Going to friends'/relatives' houses**

Concerning allowing their child to go to friends' houses and relatives' houses, most participants said they had allowed this type of activity less often (421 - 90.34%). There was a significant difference in four variables: the way of working during the pandemic, whether the person responsible for household activities, whether the household activities affected the guardian's routine, and who the child stayed with when the guardian needed to be away from home.

Parents who looked for an extra income (p=0.0051\*), those who were not responsible for household activities (p=0.0077\*), and those whose household activities did not affect their routine (p=0.0079\*) did not change the frequency they allowed their child to go to friends' houses and relatives' houses. Those who answered that when they were away from home the child went out with the guardian (p=0.0136\*) began to allow the child to go to friends' houses and relatives' houses less often than before the pandemic (Table 2).

Table 2: I allowed my child to go to friends'/relatives' houses

|                              | Less     |      | Equal |     | More |     | p-value  |
|------------------------------|----------|------|-------|-----|------|-----|----------|
|                              | n=421    | %    | n=34  | %   | n=11 | %   | n        |
| Group according to age       |          |      |       |     |      |     | p=0.2095 |
| GA                           | 291      | 89.0 | 26    | 8.0 | 10   | 3.1 | 327      |
| GB                           | 130      | 93.5 | 8     | 5.8 | 1    | 0.7 | 139      |
| Child's Gender               |          |      |       |     |      |     | p=0.2575 |
| Male                         | 209      | 89.3 | 21    | 9.0 | 4    | 1.7 | 234      |
| Female                       | 212      | 91.4 | 13    | 5.6 | 7    | 3.0 | 232      |
| How many people contribute t | p=0.8854 |      |       |     |      |     |          |
| 1                            | 73       | 89.0 | 8     | 9.8 | 1    | 1.2 | 82       |

| 2   | 330       | 90.4    | 25 | 6.8  | 10 | 2.7  | 365       |  |  |
|---|-----------|---------|----|------|----|------|-----------|--|--|
| 3   | 13        | 92.9    | 1  | 7.1  | 0  | 0.0  | 14        |  |  |
| 4   | 5         | 100.0   | 0  | 0.0  | 0  | 0.0  | 5         |  |  |
| What is your household income   | p=0.8946  |         |    |      |    |      |           |  |  |
| 800   | 3         | 100.0   | 0  | 0.0  | 0  | 0.0  | 3         |  |  |
| Up to 1800  | 5         | 100.0   | 0  | 0.0  | 0  | 0.0  | 5         |  |  |
| Up to 3100  | 19        | 86.4    | 2  | 9.1  | 1  | 4.5  | 22        |  |  |
| Up to 5700  | 51        | 96.2    | 2  | 3.8  | 0  | 0.0  | 53        |  |  |
| Up to 11300   | 128       | 88.3    | 14 | 9.7  | 3  | 2.1  | 145       |  |  |
| Up to 25500   | 127       | 91.4    | 9  | 6.5  | 3  | 2.2  | 139       |  |  |
| More than 25000   | 88        | 88.9    | 7  | 7.1  | 4  | 4.0  | 99        |  |  |
| How did you work during the Pandemic period?                              |           |         |    |      |    |      |           |  |  |
| Home office   | 196       | 92.5    | 11 | 5.2  | 5  | 2.4  | 212       |  |  |
| I was already unemployed  | 27        | 93.1    | 0  | 0.0  | 2  | 6.9  | 29        |  |  |
| Maintained work routine   | 94        | 87.0    | 13 | 12.0 | 1  | 0.9  | 108       |  |  |
| Lost the job  | 11        | 100.0   | 0  | 0.0  | 0  | 0.0  | 11        |  |  |
| Looked for extra income   | 5         | 62.5    | 3  | 37.5 | 0  | 0.0  | 8         |  |  |
| Reduced Hours   | 83        | 90.2    | 7  | 7.6  | 2  | 2.2  | 92        |  |  |
| Did not answer  | 5         | 83.3    | 0  | 0.0  | 1  | 16.7 | 6         |  |  |
| Are you responsible for househo   | old activ | vities? |    |      |    |      | p=0.0077* |  |  |
| No  | 48        | 81.4    | 10 | 16.9 | 1  | 1.7  | 59        |  |  |
| Partially   | 259       | 90.6    | 17 | 5.9  | 10 | 3.5  | 286       |  |  |
| Totally   | 114       | 94.2    | 7  | 5.8  | 0  | 0.0  | 121       |  |  |
| Do household activities influence   | e your 1  | outine? |    |      |    |      | p=0.0079* |  |  |
| No  | 23        | 76.7    | 7  | 23.3 | 0  | 0.0  | 30        |  |  |
| Partially   | 160       | 90.9    | 10 | 5.7  | 6  | 3.4  | 176       |  |  |
| Totally   | 238       | 91.5    | 17 | 6.5  | 5  | 1.9  | 260       |  |  |
| When you are away from home, who takes care of your child(ren)? p=0.0136* |           |         |    |      |    |      |           |  |  |
| Stay alone  | 11        | 91.7    | 1  | 8.3  | 0  | 0.0  | 12        |  |  |
| Employee  | 140       | 89.2    | 13 | 8.3  | 4  | 2.5  | 157       |  |  |
| Relatives   | 179       | 95.7    | 7  | 3.7  | 1  | 0.5  | 187       |  |  |
| Go out with the guardian  | 67        | 80.7    | 12 | 14.5 | 4  | 4.8  | 83        |  |  |
| Others  | 24        | 88.9    | 1  | 3.7  | 2  | 7.4  | 27        |  |  |

Block 3: Take to stores, markets, malls, and other similar places

Regarding taking the child to stores, markets, malls, and other similar places, there was no significant difference in any of the variables surveyed, and almost all the participants took their child to these environments less often (Table 3).

Table 3: I took my child to stores, markets, malls, and the like.

|                                | Less         |          | Equal |      | More |     | p-value  |
|--------------------------------|--------------|----------|-------|------|------|-----|----------|
|                                | n=447        | %        | n=13  | %    | n=6  | %   | n        |
| Group according to age         |              |          |       |      |      |     | p=0.3929 |
| GA                             | 311          | 95.1     | 11    | 3.4  | 5    | 1.5 | 327      |
| GB                             | 136          | 97.8     | 2     | 1.4  | 1    | 0.7 | 139      |
| Child's Gender                 |              |          |       |      |      |     | p=0.2748 |
| Male                           | 223          | 95.3     | 9     | 3.8  | 2    | 0.9 | 234      |
| Female                         | 224          | 96.6     | 4     | 1.7  | 4    | 1.7 | 232      |
| How many people contribute     | to the fami  | ly incon | ne?   |      |      |     | p=0.9833 |
| 1                              | 78           | 95.1     | 3     | 3.7  | 1    | 1.2 | 82       |
| 2                              | 350          | 95.9     | 10    | 2.7  | 5    | 1.4 | 365      |
| 3                              | 14           | 100.0    | 0     | 0.0  | 0    | 0.0 | 14       |
| 4                              | 5            | 100.0    | 0     | 0.0  | 0    | 0.0 | 5        |
| What is your household incom   |              |          |       |      |      |     | p=0.8738 |
| 800                            | 3            | 100.0    | 0     | 0.0  | 0    | 0.0 | 3        |
| Up to 1800                     | 5            | 100.0    | 0     | 0.0  | 0    | 0.0 | 5        |
| Up to 3100                     | 20           | 90.9     | 1     | 4.5  | 1    | 4.5 | 22       |
| Up to 5700                     | 52           | 98.1     | 0     | 0.0  | 1    | 1.9 | 53       |
| Up to 11300                    | 141          | 97.2     | 3     | 2.1  | 1    | 0.7 | 145      |
| Up to 25500                    | 133          | 95.7     | 4     | 2.9  | 2    | 1.4 | 139      |
| More than 25000                | 93           | 93.9     | 5     | 5.1  | 1    | 1.0 | 99       |
| How did you work during the    | e Pandemic   | period?  |       |      |      |     | p=0.2237 |
| Home office                    | 208          | 98.1     | 2     | 0.9  | 2    | 0.9 | 212      |
| I was already unemployed       | 28           | 96.6     | 1     | 3.4  | 0    | 0.0 | 29       |
| Maintained work routine        | 100          | 92.6     | 7     | 6.5  | 1    | 0.9 | 108      |
| Lost the job                   | 11           | 100.0    | 0     | 0.0  | 0    | 0.0 | 11       |
| Looked for extra income        | 7            | 87.5     | 1     | 12.5 | 0    | 0.0 | 8        |
| Reduced Hours                  | 87           | 94.6     | 2     | 2.2  | 3    | 3.3 | 92       |
| Did not answer                 | 6            | 100.0    | 0     | 0.0  | 0    | 0.0 | 6        |
| Are you responsible for house  | ehold activi | ties?    |       |      |      |     | p=0.6165 |
| No                             | 56           | 94.9     | 3     | 5.1  | 0    | 0.0 | 59       |
| Partially                      | 276          | 96.5     | 6     | 2.1  | 4    | 1.4 | 286      |
| Totally                        | 115          | 95.0     | 4     | 3.3  | 2    | 1.7 | 121      |
| Do household activities influe | •            |          |       |      |      |     | p=0.1494 |
| No                             | 27           | 90.0     | 3     | 10.0 | 0    | 0.0 | 30       |
| Partially                      | 169          | 96.0     | 4     | 2.3  | 3    | 1.7 | 176      |
| Totally                        | 251          | 96.5     | 6     | 2.3  | 3    | 1.2 | 260      |
| When you are away from hor     | p=0.1585     |          |       |      |      |     |          |

| Stay alone               | 12  | 100.0 | 0 | 0.0 | 0 | 0.0 | 12  |  |
|--------------------------|-----|-------|---|-----|---|-----|-----|--|
| Employee                 | 148 | 94.3  | 7 | 4.5 | 2 | 1.3 | 157 |  |
| Relatives                | 185 | 98.9  | 1 | 0.5 | 1 | 0.5 | 187 |  |
| Go out with the guardian | 76  | 91.6  | 4 | 4.8 | 3 | 3.6 | 83  |  |
| Others                   | 26  | 96.3  | 1 | 3.7 | 0 | 0.0 | 27  |  |

### **Block 4: Use of electronic devices**

Considering the use of electronic devices for entertainment, most parents (358 – 76.82%) started to allow their child to make more use of this type of technology. Only the variables family income (p<0.0001\*) and how they worked during the pandemic (p=0.0148\*) showed statistical significance. Parents who had a family income of up to R\$ 800.00 and those who looked for an extra income caused the use of electronic devices to decrease (Table 4).

Table 4: Use of electronic devices for entertainment.

|                               | _          |          |       |      |       | -    | _         |
|-------------------------------|------------|----------|-------|------|-------|------|-----------|
|                               | Less       |          | Equal |      | More  |      | p-value   |
|                               | n=13       | %        | n=95  | %    | n=358 | %    | n         |
| Group according to age        |            |          |       |      |       |      | p=0.0961  |
| GA                            | 12         | 3.7      | 71    | 21.7 | 244   | 74.6 | 327       |
| GB                            | 1          | 0.7      | 24    | 17.3 | 114   | 82.0 | 139       |
| Child's Gender                |            |          |       |      |       |      | p=0.9013  |
| Male                          | 7          | 3.0      | 46    | 19.7 | 181   | 77.4 | 234       |
| Female                        | 6          | 2.6      | 49    | 21.1 | 177   | 76.3 | 232       |
| How many people contribute to | o the fami | ly incon | ne?   |      |       |      | p=0.2215  |
| 1                             | 5          | 6.1      | 22    | 26.8 | 55    | 67.1 | 82        |
| 2                             | 8          | 2.2      | 68    | 18.6 | 289   | 79.2 | 365       |
| 3                             | 0          | 0.0      | 4     | 28.6 | 10    | 71.4 | 14        |
| 4                             | 0          | 0.0      | 1     | 20.0 | 4     | 80.0 | 5         |
| What is your household income | e?         |          |       |      |       |      | p<0.0001* |
| 800                           | 1          | 33.3     | 1     | 33.3 | 1     | 33.3 | 3         |
| Up to 1800                    | 1          | 20.0     | 3     | 60.0 | 1     | 20.0 | 5         |
| Up to 3100                    | 3          | 13.6     | 7     | 31.8 | 12    | 54.5 | 22        |
| Up to 5700                    | 2          | 3.8      | 14    | 26.4 | 37    | 69.8 | 53        |
| Up to 11300                   | 1          | 0.7      | 26    | 17.9 | 118   | 81.4 | 145       |
| Up to 25500                   | 3          | 2.2      | 28    | 20.1 | 108   | 77.7 | 139       |
| More than 25000               | 2          | 2.0      | 16    | 16.2 | 81    | 81.8 | 99        |
| How did you work during the l | p=0.0148*  |          |       |      |       |      |           |

THE IMPACT OF THE COVID-19 PANDEMIC ON PARENTAL PERMISSIVITY:  $A \ CROSS\text{-}SECTIONAL \ STUDY$ 

| Home office                       | 4         | 1.9          | 40     | 18.9       | 168 | 79.2 | 212      |
|-----------------------------------|-----------|--------------|--------|------------|-----|------|----------|
| I was already unemployed          | 1         | 3.4          | 4      | 13.8       | 24  | 82.8 | 29       |
| Maintained work routine           | 1         | 0.9          | 27     | 25.0       | 80  | 74.1 | 108      |
| Lost the job                      | 1         | 9.1          | 0      | 0.0        | 10  | 90.9 | 11       |
| Looked for extra income           | 2         | 25.0         | 1      | 12.5       | 5   | 62.5 | 8        |
| Reduced Hours                     | 4         | 4.3          | 22     | 23.9       | 66  | 71.7 | 92       |
| Did not answer                    | 0         | 0.0          | 1      | 16.7       | 5   | 83.3 | 6        |
| Are you responsible for household | _p=0.4953 |              |        |            |     |      |          |
| No                                | 1         | 1.7          | 12     | 20.3       | 46  | 78.0 | 59       |
| Partially                         | 8         | 2.8          | 52     | 18.2       | 226 | 79.0 | 286      |
| Totally                           | 4         | 3.3          | 31     | 25.6       | 86  | 71.1 | 121      |
| Do household activities influence | your      | routine?     |        |            |     |      | p=0.7035 |
| No                                | 1         | 3.3          | 8      | 26.7       | 21  | 70.0 | 30       |
| Partially                         | 3         | 1.7          | 37     | 21.0       | 136 | 77.3 | 176      |
| Totally                           | 9         | 3.5          | 50     | 19.2       | 201 | 77.3 | 260      |
| When you are away from home, w    | vho t     | akes care of | f your | child(ren) | ?   |      | p=0.8877 |
| Stay alone                        | 0         | 0.0          | 3      | 25.0       | 9   | 75.0 | 12       |
| Employee                          | 3         | 1.9          | 28     | 17.8       | 126 | 80.3 | 157      |
| Relatives                         | 7         | 3.7          | 37     | 19.8       | 143 | 76.5 | 187      |
| Go out with the guardian          | 2         | 2.4          | 20     | 24.1       | 61  | 73.5 | 83       |
| Others                            | 1         | 3.7          | 7      | 25.9       | 19  | 70.4 | 27       |

### **DISCUSSION**

The findings of the present study point to changes in the children's routine in all evaluated outcomes. After the beginning of the COVID-19 pandemic, parents started to allow their child to play/practice physical activities with other children in public environments (squares, sports courts, playgrounds...) at a lower frequency than when there was no pandemic, decreasing the frequency that they allowed their child to go to friends'/relatives' houses, started taking less often their child to stores, markets, malls and other similar places, and allowed their child to make use of electronic devices for entertainment more often than before the beginning of the COVID - 19 pandemic.

The data found corroborate with the study<sup>12</sup> who observed a 61% reduction in children's physical activities during the pandemic. Researchers warn that physical activities are essential,

especially in this age group, for cognitive development, obesity prevention, and control of cardiometabolic risk factors<sup>11</sup>.

Child development (motor, affective and cognitive) is generated by interaction with the environment, the body itself, and other children and adults<sup>10</sup>. And, the decrease in the practice of physical activity and playing measured in this study may have implications for learning, development, and socialization. Playing is one of the ways to acquire skills, express feelings and anxieties, and build emotions within oneself, and the lack of playful experiences can cause developmental delays<sup>13</sup>. For Piaget, cognitive and psychosocial growth occurs in 4 stages, and the children involved in this research are experiencing the preoperative stage (2 to 7 years) when imagination and memory develop, and the concrete operational (7 to 11 years) when they understand the existence of rules and different opinions on the same subject<sup>10</sup>.

As children interact they add new information and test their knowledge, and this interaction is extremely important for the sedimentation of previous learning and the development of new skills<sup>10</sup>. This brings an alert to the moment of the pandemic, and consequently of the isolation, experienced by children, as observed in this and other studies<sup>14,15</sup>.

In the Netherlands, there was a 3% decline in learning for approximately 350,000 children aged 8 to 11 years after the beginning of the pandemic, and in families where parents had low schooling, the reduction was 40% compared to an average student<sup>16</sup>. A study carried out in 2020, at the beginning of the pandemic, observed that the reading and math skills of 4.4 million students in grades 3 to 8 in the United States were 5 to 10% lower than in a normal school year<sup>17</sup>. And, in Belgium<sup>18</sup>, significant learning losses were identified and substantial increases in educational inequality.

The decrease in the frequency that parents let their children go to relatives' and friends' houses during the pandemic, and the resulting isolation and lack of interpersonal relationships found in this study, corroborate the findings in several recent studies that warn of the impact there may be on children's mental health and well-being. A systematic review study carried out in 2021 concluded that the mental health of children and adolescents has worsened in recent years, probably due to the pandemic<sup>19</sup>.

A systematic review carried out in 2021 identified several risk factors for healthy child development, including social isolation<sup>20</sup>. In Latin America, telephone surveys showed that children under 6 years old, in Chile, started to sleep worse (29%) and to eat worse (16%), and in Argentina, the percentages were 46% and 48%, respectively<sup>21</sup>.

Children naturally need recreational space to develop cognitively and socially, and leisure provides educational activities, socialization, and cognitive and psychosocial development<sup>22</sup>. Another systematic review concluded that children and adolescents are more likely to develop high rates of depression and anxiety during and after the end of forced isolation<sup>7</sup>.

It is through the process of interaction that children learn to carry out their activities under the guidance of others, and later independently. This learning requires observation and experience with others, whether of the same age or with more experience, being essential for cognitive, emotional, linguistic, and motor development<sup>22</sup>. The isolation verified in this study may have reduced the possibilities of learning different ways of "doing" and "being" since it allowed coexistence with a small number of people, along with the stimulation of creativity.

Another aspect observed in this study was the decrease in the frequency with which parents took their children to stores, markets, malls, and other similar places, probably seeking to reduce the chance of contagion to their children. Contact with new places can be established as stimuli for learning, creating new memories, and consequently the child's cognitive development. However, considering the pandemic scenario, this type of behavior change was expected, since the risks needed to be mitigated, even if, in return, there was a loss in this type of learning.

Child development only works if children can organize themselves freely throughout the territory, without barriers to developing their skills, and can build their physical and emotional bonds freely<sup>24</sup>. A survey carried out in Chile with 10,013 parents with children under the age of 6 showed that 55% of them stopped leaving home after the beginning of the pandemic<sup>21</sup>.

Another result of the present study was the increase in the use of electronic devices with the arrival of the pandemic, corroborating a study carried out in the United States that, when researching the use of screens with 129 parents of children aged 2 to 11, found an increase of 50 minutes per day after the pandemic began<sup>25</sup>.

Two other studies, carried out in India<sup>26</sup> and Portugal<sup>27</sup>, in addition to the increase in screen time, also observed an increase in sedentary lifestyle and sleep interruptions, and a decrease in the frequency of physical activity. In Brazil, a survey carried out with 100 children aged 2 to 12 years found no association between digital technologies and BMI, however it concluded that eutrophic children use screens less than those who are overweight, obese and underweight<sup>28</sup>.

Traditional games involving make-believe, imagination, and body movement have lost space in children's daily lives, and have been replaced by digital toys, smartphones, tablets, and computers<sup>29</sup>. The results of the present study corroborate this finding and, like the few other studies carried out after the onset of the pandemic, suggest that this event accelerated this process.

A study carried out in 2019 already showed an increase in the use of screens by children while their parents performed daily tasks (70%) or household chores (59.6%), to calm them down (65%) and to sleep (29%)<sup>30</sup>. With the pandemic a new task emerged, working and monitoring your children simultaneously, and at that moment electronic devices became great allies.

Although the use of devices can help to maintain socialization and learning in times of isolation, it is worth noting that interactivity with screens reduces physical contact with people, and, consequently, moments that involve the exchange of looks, touches, words and gestures, which may have psychological consequences in their development<sup>31</sup>. In addition, it causes a lack of a sense of autonomy in both children and parents that the child has learned to be alone<sup>32</sup>.

It is important to mention that data collection via the internet is one of the limitations of this study, as it may not reach all population strata (such as people with lower education/income). Furthermore, there was a concentration of responses received in the Central-West and South regions of the country, which made it impossible to represent the sample. Another point to be observed when interpreting the results is the possible social class affected by the research, evidenced by high family income, which can bias the results.

#### **CONCLUSION**

The present study showed significant changes in parental permissiveness regarding the use of electronic devices and social activities, due to the isolation required by the COVID-19 pandemic. Parents reported that after the start of the COVID-19 pandemic, they allowed their child to play or practice physical activities with other children in public environments less frequently, or to visit friends/family homes, stores, markets, shopping malls. However, they allowed their child to make greater use of electronic devices for entertainment.

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