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Analysis of the increase in technology addiction during the Covid-19 pandemic and its consequences in childhood

Análise do aumento do vício tecnológico durante a pandemia pela Covid-19 e suas consequências na infância

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ABSTRACT
Childhood is composed of biological and psychosocial transitions, which enable the acquisition of motor, cognitive, and affective-social domains of development. With the onset of the covid-19 pandemic in 2020 the WHO recommended that preventive measures be taken, such as closing schools as well as public places, a fact that culminated in distancing from friends and family. This has led to a greater proximity of children to technology, thus increasing their exposure to screens. According to the Brazilian Society of Pediatrics, the use of television, tablets, and computers should be equivalent to the child's age, monitored by those responsible in order to avoid excessive use. In this context, the objective of this project was to analyze the technological addictions of 4th and 5th grade students from Elementary School I in the city of Votuporanga-SP, developed before and during the Pandemic by Covid-19, and its impacts on the children's mental health. The data were collected through a semi-structured questionnaire designed to evaluate the behavior of the children regarding the use of technology and lifestyle habits, in a qualitative and quantitative way. Our results showed that the pandemic period favored a greater access to digital equipment by children, due to their use for school activities. The increased use of cell phones created the possibility of distraction with games, videos, and participation in social networks. However, they emphasized that they prefer games involving physical activity to simply using screens. We also observed that it is of fundamental importance that parents/guardians accompany the children in stimulating family interaction.

Keywords: Childhood, Covid-19, Pandemic, Addiction, Technology.

1 INTRODUCTION AND LITERATURE REVIEW

In the context of modernity, screens that used to be restricted now have free access, and have been incorporated into people's routines, from different age groups; even children are already involved in the overuse of technologies.

It is common for children to mirror their parents, thus, parents who remain long in front of the technologies, end up influencing, innocently, their children to have the same attitudes. A study conducted by AVG Digital Diaries, proposed that 97% of children are connected because their parents are too (BRAND; RENNER, 2011 apud MAZIEIRO, RIBEIRO, 2016).

Childhood is composed of biological and psychosocial transitions, which enable the acquisition of motor, cognitive, and affective-social domains of development. In this phase the Central Nervous System (CNS) is in transformation, myelination, and synapses, which favors learning. The everyday games with friends such as riding a bike, soccer, hopscotch cards, and hot potato chips, are being replaced by electronic devices, and the misuse of these devices causes great risks to the development of children, and can lead to consequences for adult life. The problems generated can be: obesity, sedentary lifestyle, attention deficit, social and family isolation, hyperactivity, promoting the development of addictions such as use of licit and illicit drugs (PAIVA; COSTA, 2015).

In December 2019, a new type of coronavirus, called SARS-CoV 2 (Severe Acute Respiratory Syndrome Coronavirus 2), was identified in Wuhan city, causing the disease COVID-19. Since then, it has attracted global attention for its rapid spread, leading to a pandemic in March 2020, according to the World Health Organization (WHO) (LU; STRATTON; TANG, 2020).

With the WHO declaration, the pandemic demanded that preventive measures be taken. For this reason, schools were closed, as were public places (malls, parks, and movie theaters), a fact that culminated in distancing friends and family members (YESAMIN *et al,* 2020).

To resume activities via screens was the urgency felt by many and by the schools that were able to offer this modality, all in an atmosphere full of anxieties, fears, panic - let's remember the runs for toilet paper and alcohol gel - and lack of knowledge of the tools available to try to "transpose" an entire school to the screens, because, essentially, the teaching of children is face-to-face, being foreseen by law the distance learning at this stage only as a complement to learning or in emergency situations (TONIN, J. *et al*, 2021).

The articulation between technology and society does not have a model to be followed because it depends on the possibilities of the sectors involved, as well as it is important to consider the environments of each one. It meant, then, a possible continuity, yes, but also transformed by and transforming the hitherto known scenario of the school-child-family relationship, without manuals, nor guarantees (TONIN, J. *et al,* 2021).

Evidence shows that quarantine has been changing children's routines. Their distance from school reduces their physical activity, increases their time in front of computer screens or cell

phones, they start to have irregular sleep schedules and adopt a less healthy diet that can affect their development (GIARETA *et al*, 2019).

Furthermore, isolation brings psychological and individual consequences, such as anxiety, stress, different disorders, sedentarism, poor diet, obesity, diabetes, and high blood pressure (JÚNIOR; PAIANO; COSTA, 2020; SANTOS *et al*, 2020).

According to the Brazilian Society of Pediatrics, the use of television, tablets and computers should be equivalent to the child's age, discouraging excessive use of them. Another important aspect that parents should pay attention to is that exposure in virtual environments can leave the child vulnerable to crimes (ALMEIDA *et al*, 2020).

According to Arumugam, C.T, 2021 "the environment in which a child grew up has been saturated by the advancement of technology. It is necessary to think about the opportunities offered that provide healthy affective bonds and adequate space for free play. Therefore, it is considered a theme of great relevance, since COVID-19 is a recently discovered disease and the impacts caused by it will reflect greatly on society both currently and in the future. In this context, the study's main objective is to analyze the impact of the pandemic of COVID-19 on child and adolescent health (ROCHA *et al*,2021).

2 OBJECTIVES

The objective of this work was to evaluate the existence of technological addictions of students in the 4th and 5th grades of elementary school I, CEM Professor "Clary Brandão Bertoncini" School in Votuporanga-SP, before and during the Pandemic by Covid-19, and its impacts on the mental health of these children. Furthermore, to identify whether there was an increase in the use of technology during the Covid-19 Pandemic, through an interview guided by a questionnaire prepared by the authors themselves, and to develop didactic activities with the students, in order to promote education about mental health, healthy eating habits, correct use of technology and greater interaction among them.

3 METHODS

The research has a qualitative and quantitative, exploratory and descriptive approach, and was carried out at the school CEM Professora "Clary Brandão Bertoncini" which is located in the neighborhood Chácara das Paineiras in the city of Votuporanga-SP.

In the first moment, a bibliographic review was carried out based on articles found in the Scielo databases, the BVS portal, the Brazilian Society of Pediatrics, and publications by the Ministry of Health.

The project was approved by the Research Ethics Committee (CEP-UNIFEV) through CAAE n°61345222.2.0000.0078 on 08/31/2022, thus following the ethical principles according to the regulations of the National Health Council Resolution n° 466 of December 12, 2012. This resolution incorporates the four basic principles of bioethics, autonomy, beneficence, non-maleficence and justice, and aims to ensure the rights and duties of the scientific community, research subjects and the State (BRASIL, 2012).

3.1 PARTICIPANTS

This project was executed with the participation of 10 students from the Professora "Clary Brandão Bertoncini" municipal school, enrolled in the 4th and 5th grades, aged 9 to 10.

3.2 MATERIALS AND INSTRUMENTS

In all meetings, didactic activities were applied, adapted and monitored by the students (APPENDIX A, B, C and D) and a semi-structured questionnaire (APPENDIX E).

The materials used were: sulfite paper, pen, scissors, string, TNT fabric, cardboard, cone, hula hoop, crepe tape, dice, ball, plastic bag, and prints (photocopy).

3.3 SITE

The project was developed in partnership with the Municipal Education Secretary and the Pedagogy undergraduate course at the Votuporanga University Center - UNIFEV. The activities were carried out in weekly meetings, on the premises of the school CEM Professora "Clary Brandão Bertoncini", which is located in the neighborhood Chácara das Paineiras, in the municipality of Votuporanga, in the interior of the state of São Paulo.

3.4 PROCEDURES

Initially, a visit was made to the school, to get to know the environment, and to the Basic Health Unit, in order to identify the needs of the students attached to the local territory.

The data were collected by means of a semi-structured questionnaire in which the identification data (gender and age) were explored and analyzed quantitatively, and behavioral

data, regarding the use of technology and lifestyle habits (physical and eating practices), analyzed qualitatively.

3.5 DATA ANALYSIS PROCEDURES

Regarding the bibliographic review, the content of the scientific articles that served as a theoretical reference was analyzed according to the theme in question. The results of the conversation circle were analyzed qualitatively. The content analysis was necessary to understand the meaning and pertinence of the collected data, allowing the comparison between the available data and the collected data.

The data obtained through the semi-structured questionnaire were organized and analyzed in the form of graphs computed by Microsoft Office Excel, being described as absolute values and percentages. The qualitative results obtained from the data collected in the observation were analyzed.

4 SCHEDULE

1st meeting: The badge dynamic (classroom activity) and the "Tic Tac Toe" game (human) took place.

2nd Meeting: The obstacle course dynamics took place.

3rd Meeting: The object was hunted and an interview was applied, guided by the questionnaire, in addition to an expository lecture, by means of videos, on the subject approached in the project.

5 RESULTS AND DISCUSSION

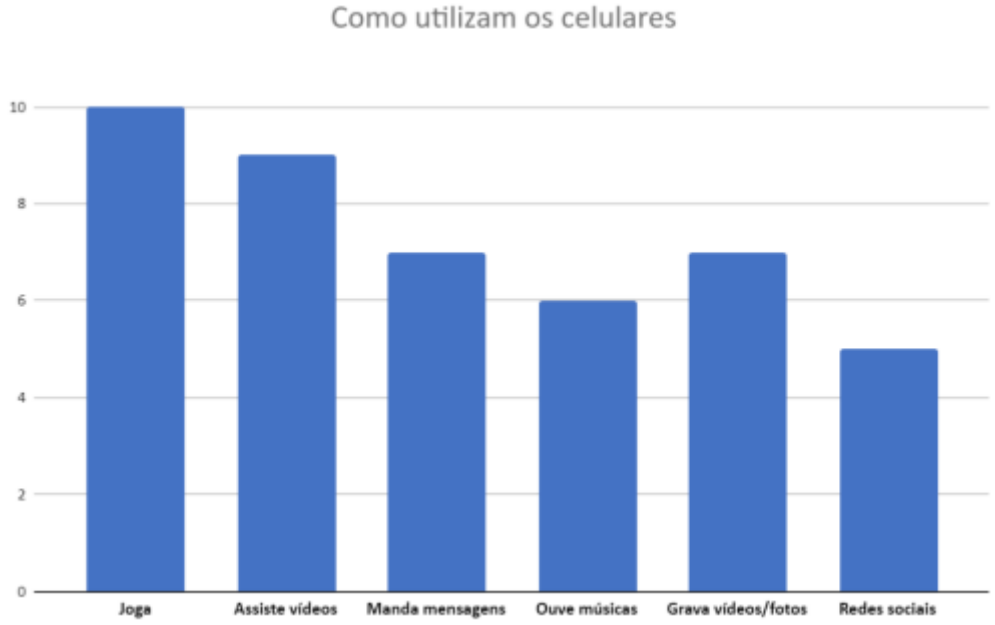
There were 3 visits to the school.

After the visits, we obtained qualitative data (through informal conversations) and quantitative data (which were counted and graphed);

Based on the number of 10 participants, the respective statistics were obtained for each objective and subjective question.

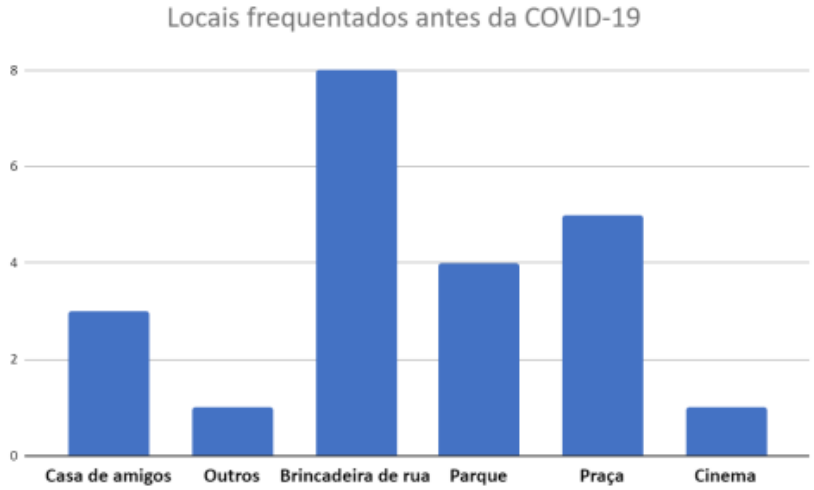
Firstly, they were asked about the purpose for which they use their cell phones, obtaining 10 answers for "Playing games"; 9 for "Watching videos"; 7 for "Sending messages" (most of them claimed that messages are only exchanged between parents and other close relatives); 6 answers for "Listening to music"; 7 for "Recording videos/taking pictures", and; 5 answers for "Social networks" (using, for this purpose, the parents' account or their own).

Chart 1- "How they use cell phones": The chart shows the purpose of cell phone use. Students could give more than one answer. The numbers shown vertically refer to the answers obtained from the structured questionnaire.



When asked about what places they go to play before the pandemic, 3 answered "Friend's house"; 8 answered "Street play"; 4 answered "Park"; 5 answered "Square"; 1 answer for "Cinema" and; 1 answer for "Other".

Graph 2- "Places frequented before Covid-19": The graph shows what places they frequented before the pandemic. Students could give more than one answer. The numbers shown vertically refer to the answers obtained from the structured questionnaire.



Regarding the practice of physical activity during isolation by the pandemic, 50% of the children answered that they practiced activities; 30% practiced sometimes, and 20% did not practice.

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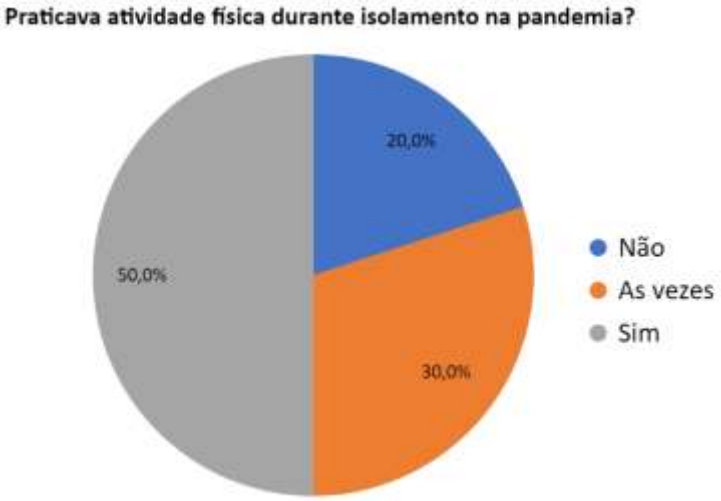
Graph 3- "Did you practice physical activity during isolation in the pandemic?" The graph shows the physical activity practice performed by the students during the pandemic. The data was obtained from the response to the structured questionnaire.



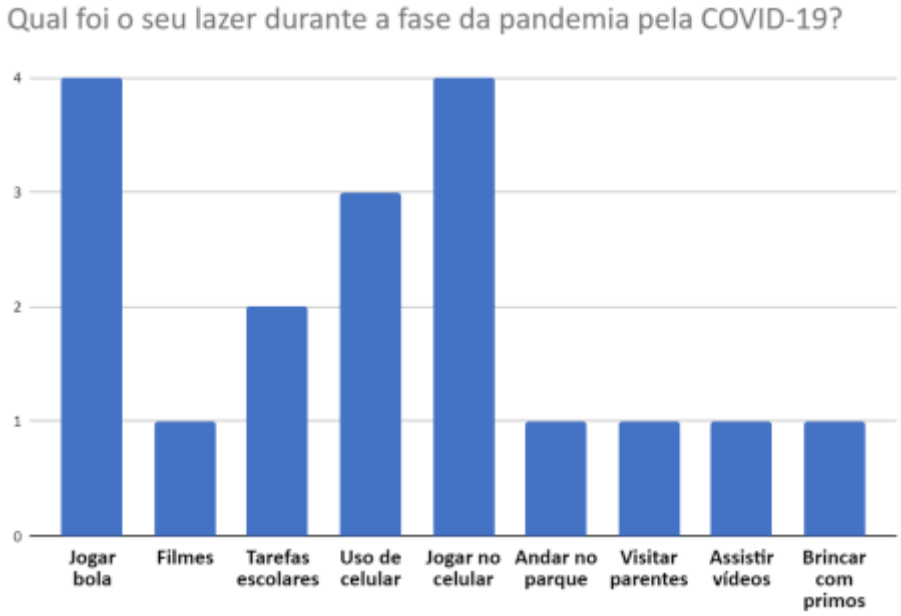
Regarding the current frequency of physical activity (sports/play) they practice, 70% of them practice every day; 20% practice more than 3 times a week, and 10% practice 1 or 2 times a week.

Graph 4- "Frequency of physical activities (sports/playing games)": The graph shows the periodicity of physical activity practice performed by the students during the pandemic. The data were obtained from the response to the structured questionnaire.

In the topic "Leisure", the question was about the child's leisure during isolation by the pandemic, and 4 answers were collected for "Playing ball" and "Playing on the cell phone"; 1

answer for "Watching Movies", "Walking in the Park", "Visiting Relatives", "Watching Videos", and "Playing with cousins"; 3 for "Cell phone use in general"; and 2 for "School chores".

Graph 5- "What was your leisure during the pandemic phase by Covid-19?": The graph shows what leisure activities were performed during the pandemic. Students could give more than one answer. The numbers shown vertically refer to the answers obtained from the structured questionnaire.



5.1 COMMENTS

First meeting:

In the initial meeting, we observed the curiosity, embarrassment, and euphoria of the children to know what activities would be performed. After the explanation of the dynamic of the name tag, each child started to make their own, presenting some difficulties in relation to the writing of some words.

Despite the doubts in writing, the children's reading was clear.

It was found that among their favorite foods were: pizza, noodles, sushi, eggs, bananas, and broccoli, but the preference for pizza was higher.

After the "Badge Dynamics", the "Human Old Lady Game Dynamics" was held in the playground. In it, it was observed the great concentration of the children during the games, some offensive curses such as "dumb, stupid, fat" were used by the children.

A high level of competitiveness and interaction among the students was noticeable.

At the end of the activity, they reported that they liked the dynamics and asked if they would have new opportunities to play with the participants.

Second meeting:

In dynamic number 3 (circuit), we noticed the animation and enthusiasm during the proposed activities.

The circuit was repeated several times, due to requests from the class and in order to use the tie-breaking criteria.

The dynamics presented a favorable characteristic in relation to cooperativity among the group participants, stimulating teamwork. However, it was noticed resistance on the part of one of the children to participate in the activities (specifically the passage through the "tunnel"), due to the perception she had about her physical appearance.

Besides having reported their own vision of themselves, it was observed that the classmates had prejudice in relation to their classmate's weight, diminishing their ability to perform the proposed activity, which characterized the existence of bullying among children.

Third meeting:

During the "Object Hunt Dynamics", it was noticed that the children had fun with the chosen drawing, despite presenting difficulties in finding the requested objects. On this day, there was more interaction with the authors of the study, since each one was responsible for one child.

After all the objects were found, the authors of the project began to apply the "Semi-structured Questionnaire". The questions applied were clear, and the participants had no difficulty in understanding and answering them.

Throughout the interview, some accounts were collected. In this case, we include M, who reported that before the pandemic he used to play catch and fly kites, with minimal use of the cell phone, since he was not interested in the device. In addition, he said that his mother played with him in her spare time, which did not occur frequently on the days of school visits.

Furthermore, he reported that during the pandemic, leaving the house was interrupted, the use of cell phones increased, and playing outside the house practically ceased. The use of the cell phone became more important, mainly to access games, watch videos and do schoolwork, as they did not yet have social networks. After the pandemic scenario and back to school, when asked about the practice of physical activities, the child reported that he only did it at school, during physical education and recess.

6 CONCLUSION

During the pandemic, with the decree of social isolation, people remained restricted in their homes, which favored the use of cell phones as the main means of distraction. Children had to use their cell phones to keep up with their classes and do their homework. However, it became difficult to control the use of the device for other purposes, such as digital games and watching videos. From the reports, it was observed that the majority reported that they did not use social networks yet.

The results showed that these children value the practice of physical activities, since, when asked about their preference between playing or using the cell phone, they always opted for playing.

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