Exploring psychological challenges among students: A mixed-methods approach to identifiying strenghts and difficulties in Brazilian schools during Covid-19 [1,2]

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ABSTRACT

The main goal of this study was to identify the primary behavioral characteristics present in a group of children and adolescents belonging to a municipal education system in a southern Brazilian city. This is a cross-sectional study with a mixed design. The sample consisted of 259 children and adolescents, 57.8 W and 38% M. In addition to 8 parents and teachers who responded to a semi-structured interview. A *sociodemographic* data scale, the *Strengths and Difficulties Questionnaire* (SDQ) test and a *semi-structured interview* were applied. Data were analyzed using SPSS for statistical analysis, in addition to Descending Hierarchical Classification (CHD) with the free software for R, *IRaMuTeQ*.The results show that the total of difficulties

presented a mean within the normal limits of 12.04 (SD = 5.71) however the subfactors peer problems and hyperactivity were placed at a borderline level. The qualitative analysis of the data indicates the presence of 6 categories in the teachers' view and 2 in the mothers' perspective.

KEYWORDS

Early Development; Children; Adolescent, Behavior; School

INTRODUCTION

Coronavirus disease (COVID-19) has caused more than four million deaths and nearly two hundred million cases worldwide. In addition, the pandemic has caused several adaptations in the school context, ranging from total confinement to various restrictions and rules unknown both to the authorities that apply them and to children and adolescents who must be subjected to such provisions. For that matter, some authors express concern about students' mental health (Fore, 2020; Jiao et al., 2020; Ravens-Sieberer, 2021).

In this regard, the period of childhood and adolescence implies several biopsychosocial changes and challenges, including the independence from parents, discovery of various aspects of "one's own identity" and coping with everyday difficulties, especially at school (Jiao et al., 2020; Putrick et al., 2023; Yang, 2024). However, these changes are often accompanied by challenges at home. For example, confinement indoors is known to have left children and youth exposed to abuse and therefore exposed to potential traumatic experiences. This assumption is generally more acute in contexts with low income, low parental education, and conditions of migration and marginalization (Ravens-Sieberer, 2021; Solberg, 2020).

In different contexts such as India, Brazil and China, studies are consistent in pointing out to an increase in cases of depression and anxiety in school-age children and adolescents. These conditions are manifested primarily through feelings of hopelessness, worry, sleeping difficulties and fear. In addition, literature tries to understand the reasons why there is a decline on the psychological health of children and adolescents when compared to the period before the Covid-19 pandemic (Duan et al., 2020; Fulfs et al., 2024; Garcia de Avila et al., 2020; Polanczyk et al., 2020; Polanczyk et al. al., 2015 Zhou et al., 2020).

Before the beginning of the pandemic, rates of diagnosis on mental problems in children and adolescents have increased meaningfully, in this way, several interventions have been implemented, including pharmacological treatments, psychotherapeutic interventions, as well as different services and special educational adaptations (Atladottir et al., 2015; Polanczyk et al., 2015). For this reason, the early identification of behavioral traits that can potentially be pointers of mental health problems in children and adolescents is necessary and, for this, several scales have been applied worldwide, including the SDQ (*Strengths and Difficulties Questionnaire Scale*). The SDQ is based on a dual-factor model, which suggests that children and adolescents have both strengths and difficulties that contribute to their overall mental health. The questionnaire assesses these strengths and difficulties across multiple domains, including emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behavior. Although there is abundant literature in this regard, evidence indicates that children and adolescents currently receiving treatment do not exceed the number of children and adolescents with mental disorders, therefore, underdiagnosis and insufficient actions are a serious public health problem in most of the countries around the world (Merikangas, 2013; Polanczyk et al., 2015).

Given the above, some authors point out the importance of early identification of various behaviors that in certain circumstances or contexts can pose a threat to the individual and collective health of school-age children and adolescents. At the present time, little is known about the long-term consequences of mental health difficulties during childhood and adolescence. On the other hand, it is important to note that although studies are limited, long-term outcomes are often associated with causes such as experiencing traumatic events, overly strict parental or caregivers discipline, extreme economic limitations, and experiences of abuse such as school violence (Bayer et al., 2011; Takizawa, 2014).This way, the school environment seems to offer an advantageous space to identify, evaluate and contextualize risk and protection factors on this population (Maia et al., 2018). Consequently, personal characteristics that are manifested at school, such as low performance, hyperactivity and lack of motivation or school's activities aversion, seems to advise early on the importance of exploring into the students' needs and demands (Zappe & Dell'Aglio, 2016).

With the advent of the COVID-19 pandemic, there were many interruptions and changes on people´s daily routine, and this includes children and adolescents. For students, the school's closure was implemented, affecting about half of the student population worldwide. Furthermore, with social distancing measures and movement restrictions came along some serious risks

related to social interaction that in certain circumstances results in isolation and loneliness (Matthews, 2016; Nearchou, 2020; Ravens-Sieberer et al., 2022; Viner 2020). Furthermore, loneliness has been associated, both in short and long term, with an increased risk of physical and emotional illnesses such as the presence of anxiety and depression in children and adolescents. Therefore, it is important that we have assessments that provide consistent data which make it possible to understand children´s mental health condition during the COVID-19 pandemic. Hence, The study sought to uncover the behavioral traits of children and adolescents enrolled in a municipal education system in southern Brazil.

METHODOLOGY

The study consists in a cross-sectional and descriptive mixed method design (qualitative-quantitative).

Participants

The sample was recruited in a non-probabilistic convenience way. Resulting in 259 students from 6 different schools of the municipal system of the total number of participants, 57.8% were women; 38% men and 4.20% preferred not to answer. Participants ranged in age from 11 to 18 years, with a mean age of 13.42 years. In accordance with the distancing measures due to the COVID-19 pandemic, data collection was carried out through an online scale provided to students by the local Board of Education.

Subsequently, to deepen the analysis and understanding of the results, a series of semi-structured interviews were conducted with eight participants (four mothers and four teachers). For the selection of research participants, a non-probabilistic convenience sampling was carried out in the first moment and after that a snowball method was used, considering that it was not possible to contact several participants (specifically parents) suggested by the Institution. The contact details of six of the eight participants were provided by the authorities based on their history of participation during the pandemic. The minimum sample size for this cross-sectional study was 262, calculated for an expected prevalence of 50%, a margin of error of 5, and a 95% confidence level.

Measures

Sociodemographic Data Questionnaire

It provides children and adolescents sociodemographic information as well as the school context (age, schooling and gender, academic status and information related to the pandemic).

Strengths and Difficulties Questionnaire (SDQ)

The Strengths and Difficulties Questionnaire (Goodman, 1997), adapted for the Brazilian population by Fleitlich, Cortázar, and Goodman (2000), is designed to assess potential clinical risks among children and adolescents aged 11 to 17. It comprises 25 questions grouped into five subfactors: conduct problems, emotional symptoms, peer relationship problems, hyperactivity problems, and prosocial behavior. Additionally, the scale offers insights into total difficulties and the impact of these difficulties.

The scale consists in 25 easy-to-understand items. Thus, the subfactors are evaluated using the likert-type system with three response options: false, somewhat true and true. The scale has been translated into more than 40 languages and has shown satisfactory psychometric qualities in each of the contexts where it has been applied. Thus, the Brazilian version showed an internal consistency index of a = 0.80. The scale originally presents three versions, for parents, teachers and children, but in this study only the version for children and adolescents was applied. In each of the subfactors, the score can vary from 0 to 10 points, with the total amount of difficulties determined by the sum of all scales.

Semi structured interview

A series of interviews with parents and teachers were carried out with the aim of digging into the behavioral dynamics observed in students, both during the pandemic and at the initial moment of returning to school. The interview consisted of 7 questions based on the thematic categories present in the *SDQ* scale: conduct problems, emotional symptoms, peer relationship problems, hyperactivity problems and prosocial behavior.

The questions were presented to the parents and teachers following the sequence of themes proposed by the SDQ scale, so the interview began with questions related to the parents or teachers' daily routine and later approached dynamics presented by the students. Therefore, interviews started with simple themes and only later dealt with more complex themes. Each topic consisted of open questions and, when necessary, the interviewer used sub-questions to obtain more information. The interviews took an average of 30 minutes, were recorded and later fully transcribed.

Data analysis

Data analyzes were performed using the Statistical Package for Social Sciences (SPSS) version 25 for Windows. The analyzes were divided into 4 stages. In the first stage, descriptive statistics of the sample were performed, verifying measures of central tendency, measures of dispersion and analysis of frequency on sociodemographic variables. Then, in the second stage, the SDQ assessments were performed, presenting descriptive statistics of its subscales.

Subsequently, in the third stage, comparisons of the of the subscales were carried out and then compared and correlated with sociodemographic variables (gender and history of repetition). Finally, in the fourth stage, the variables age, grade (school year) and academic performance were correlated with the *SDQ* subscales. For these correlations, the criteria proposed by Dancey and Reidy (2018) were considered, in which a correlation between 0.1 and 0.3 is considered weak; 0.4 to 0.6 is considered moderate; and a correlation of 0.7 to 1 is considered strong.

Qualitative analyzes of the interviews were carried out using the software Interface for *R pour les Analyses Multidimensionnelles de Textes et de Questionnaires* (IRaMuTeQ). The software's main objective is to analyze the structure and organization of discourse, making it possible to inform the relationships between the lexical worlds that are most frequently stated by participants. Descending Hierarchical Classification (DHC) was performed. This analysis allows mapping the themes found in the text, dividing it into content classes for the recognition and understanding of the dendrogram, where the higher the χ^2, the more associated is the word with the class, and disregarding the words with $\chi^2 < 3.80$ (*p < 0.05*) (Camargo & Justo, 2013).

Ethical considerations

This research was submitted and approved by the Ethical Committee of the Pontifical Catholic University of Rio Grande do Sul, Porto Alegre - RS, Brazil, through Plataforma Brasil (CAAE: 23962619.8.0000.5336).

All participants voluntarily answered the Scales anonymously and signed the Free and Informed Consent Term (ICF) agreeing to participate in the study. It should be noted that in the ICF, participants were assured the right to withdraw from the research at any time, without any harm. In addition to guaranteeing the confidentiality of their information and personal data. The collected data is properly stored in the databases of the Research lab AICV (Avaliação e

Intervenção no Ciclo Vital) at Pontifical Catholic University of Rio Grande do Sul and will be kept for a period of five years.

RESULTS

As for the children participating in the research, an average age of 13.42 years old (SD = 1.65) could be verified, with a minimum age of 11 years and a maximum of 18 years. Most participants were women (57.80%; f = 149), are in the seventh grade (24.70%; f = 64), have never failed a school year (83.80%; f = 217) and classify their academic performance as "average" (47.70%; f = 123) (see table 1).

Table 1. Sociodemographical data and specific characteristics

		f	%
Sex	Boys	98	38.00
	Girls	149	57.80
	Preferred not to answer	11	4.20
Grade	Fifth grade	46	17.80
	Sixth grade	50	19.30
	Seventh grade	64	24.70
	Eight grade	52	20.10
	Nineth grade	47	18.10
Repetitions	No	217	83.80
	Yes	42	16.20
Academic performance	far below average	6	2.30
	Below average	17	6.60
	Average	123	47.70
	Above average	95	36.80
	Far Above average	17	6.60

SDQ assessment

Regarding the SDQ assessment, a general descriptive statistical analysis of the subscales was performed. In addition to the 5 subscales, the scales that refer to problems (conduct problems, emotional symptoms, problem with peer relationships and hyperactivity problem) were added to generate an index of "total difficulties". Then, the participants' scores were evaluated based on the criteria created by Goodman (1999): "Normal" development, Borderline development, and Abnormal development.

In an evaluation of the "Total difficulties", an average of 12.04 points (SD = 5.71) was found, with a minimum score of 0 points, and a maximum of 30 points. For the "Conduct problem" factor, an average of 2.10 points (SD = 1.72) was found, with a minimum score of 0 points and a maximum of 9.00 points.

In the "Emotional symptoms" factor, an average of 3.78 points (SD = 2.05) was presented, with a minimum score of 0 points and a maximum of 10 points. Regarding the factor "Peer relationship problems" there was an average score of 2.34 points (SD = 1.77), with a minimum score of 0 points and a maximum of 9.00 points. For the "hyperactivity" factor, an average of 3.78 points (SD = 2.25) was found, with a minimum score of 0 points and a maximum of 9.00 points. For the "Prosocial behavior" factor, an average of 7.25 points (SD = 1.95) was found, with a minimum score of 0 points, and a maximum of 10 points (see table B).

Subsequently, checking the scores of each participant, the categories (cut points) listed by Goodman (1999) were analyzed. As a result, it was possible to verify that in all of the evaluated factors, there was a higher prevalence of the "Normal" categorization. However, there was a highlight in the "Peer relationship problem" factor, as it presented a higher increase than the other factors in the "Borderline" category and for the "hyperactivity" factor, which also stood out negatively in the "Abnormal" category, outperforming the other factors (see table 2).

Table 2. SDQ Total difficulties and component normal/borderline/abnormal groups

	M	SD	Mín-Max	Normal	Borderline	Abnormal
TD	12.04	5.71	0 – 30.00	77.60% f = 184	11.40% f = 27	11.00% f = 26
CP	2.10	1.72	0 – 9.00	81.90% f = 203	10.10% f = 25	8.10% f = 20
EPS	3.78	2.05	0 – 10.00	79.60% f = 199	10.40% f = 26	10.00% f = 25

PPS	2.34	1.77	0 – 9.00	75.70% f = 190	19.90% f = 50	4.40% f = 11
H	3.78	2.25	0 – 9.00	75.80% f = 194	12.10% f = 31	12.10% f = 31
PS	7.25	1.95	0 – 10.00	81.80% f = 207	8.30% f = 21	9.90% f = 25

Notes: TD = Total difficulties score; CP = Conduct problems Scale; EPS = Emotional problems scale; PPS = Peer problems scale; H = Hyperactivity scale; PS = Prosocial scale; M = Mean; SD = Standard deviation; Mín = Minumum; Max = Máximum.

Strengths and difficulties Scale (SDQ) and sociodemographic data

Furthermore, to better explore the data, the 6 factors were compared according to the collected sociodemographic variables. Therefore, first, the normality of the variables was verified for an assertive choice of the statistical test to be used. As a result, it was possible to verify that all factors had a non-normal distribution, suggesting non-parametric test as more suitable for comparisons, in this case, the Mann-Whitney *U* test.

A statistically significant difference was found in the "Emotional problems scale" between men and women (U = 5085.00; p < 0.01), where women had higher scores than men. When comparing the factors according to the history of school year repetition, a statistically significant difference was found in the factors "Peer problems scale" (*U* = 2823.00; p < 0.01), "Hyperactivity" (U = 2723.00; p < 0.01) and "Total difficulties" (U = 2225.00; p < 0.01). In all three comparisons, participants with a history of repetition had higher scores than those who had never failed a school year until the survey. It was not possible to find any other statistically significant difference in the other grouping variables (see table 3).

Table 3. Data from the variables that showed statistically significant differences in the SDQ factors.

		M	SD	MD	Rankings
Sex (SE)	Boys	3.19	1.78	3.00	101.69
(U = 5085,000; p < 0,001)	Girls	4.02	2.06	4.00	130.93
Repetition history (PPS)	Repeated	3.32	1.83	3.00	162.15
(U = 2823,000; p < 0,001)	Never repeated	2.17	1.70	2.00	118.94

Repetition history (H)	repeated	5.05	2.10	5.00	170.63
(U = 2723,000; p < 0,001)	Never repeated	3.49	2.19	3.00	120.23
Repetition history (TD)	repeated	15.75	6.01	16.00	161.88
(U = 2225,000; p < 0,001)	Never repeated	11.29	5.35	11.00	110.29

Notes: M = Mean; SD = Standard deviation; MD = Median.

Finally, the variables age, grade and estimation of academic performance were correlated with SDQ factors using Spearman's correlation coefficient. The age variable was positively, weakly and significantly correlated with "Conduct Problem scale" ($\rho = 0.22**$; $p < 0.01$), "Peer relationship Scale" ($\rho = 0.18**$; $p < 0.01$) and "Hyperactivity" ($\rho = 0.15**$; $p < 0.05$). It is known that the higher the age, the rates of the cited problems tend to be higher.

Moreover, it was found that the grade/year variable is correlated with "Conduct problem scale" ($\rho = 0.162*$; $p < 0.05$) and with "Peer relationship problem" ($\rho = 0.15*$; $p < 0.05$). These results suggest that the higher the grade, the indices of the cited problems tend to be higher. Finally, negative correlations were found between academic performance and "Conduct problem scale" ($\rho = -0.19**$; $p < 0.01$), "Peer relationship scale" ($\rho = -0.22**$; $p < 0.01$) and "Hyperactivity" ($\rho = -0.40**$; $p < 0.01$), and a positive but weak correlation with "Prosocial behavior" ($\rho = 0.20**$; $p < 0.01$). These results indicate that higher academic performance is associated with lower behavioral, peer relationship and hyperactivity problems and higher scores on prosocial behavior levels.

Qualitative analyzes

Textual statistics and descending hierarchical classification (DHC) – Interviews with teachers

The corpus (large and unstructured set of texts) consisted of 4 interview transcripts, divided into 203 text segments (TS), with the use of 146 TSs (71.92%). 7,545 occurrences (words, forms, or vocabulary) emerged, with 1,446 distinct words and 782 with a single occurrence. The analyzed content was categorized into six classes: Class 1 - *"Children's adaptation to social distancing measures during face-to-face classes"*, with 20 TSs (13.70%); Class 2 - *"Children's levels of attention,*

activity and school learning in the pandemic context", with 22 TSs (15.07%); Class 3 - "*Family influence on school performance and adaptation to children's social distancing measures*", with 20 TSs (13.70%); Class 4 - "*Cognitive and emotional effects of online learning or school closure on children*", with 23 TSs (15.75%); Class 5 - "*Children's social needs and the gregarious function of the classroom*", with 33 TSs (22.60%); and Class 6 - "*Feelings of loss associated with the pandemic and demonstration of empathy among children*", with 28 TSs (19.18%).

Class 1 – "*Adaptation of children to social distancing measures during face-to-face classes*"

It comprises 13.70% (f = 20 TSs) of the total analyzed corpus. Consisting of words and radicals in the interval between $\chi^2 = 39.42$ ("embracing") and $\chi^2 = 4.58$ ("side"). This class is composed of words such as "hug" ($\chi^2 = 39.42$), "ask" ($\chi^2 = 25.91$), "need" ($\chi^2 = 22.76$), "hand" ($\chi^2 = 19.30$), "catch" ($\chi^2 = 17.05$), "help" ($\chi^2 = 13.07$), "friend" ($\chi^2 = 7.27$), "mask" ($\chi^2 = 7.27$), "play" ($\chi^2 = 6.97$) and "near" ($\chi^2 = 6.97$).

This class represents the content regarding the teachers' perception of children's adaptation to the social distancing measures implemented in the classroom, after the end of mandatory isolation and the return to face-to-face teaching. It was reported that, overall, children seemed to be aware of the requirement for social distancing measures, although they still had different doubts about the things they could and the things they couldn't do in the classroom.

On the other hand, the interviewees perceived the children's difficulty in following some rules due to the children's desires to express affection (for example, via hugs and handshakes) and to play, through physical contact. – activities previously encouraged and reinforced in the classroom but discouraged with distancing measures. It was also mentioned that, despite that, children seemed relieved to see their peers and teachers daily.

"They asked if they could come near me. At first, they asked if they could go play with their colleagues in the same corner of the room. They asked if they could hold their hands, for example, if they could sit in the chair next to them" (Teacher 1).

"So, he picked me up like that, hugged me to my knees, and then after, I looked at him. He looked at me and was like, I am tall, can I keep hugging you?'.

You know that feeling like, 'Oh my God, I touched my teacher! And now? Will we get sick?'" (Teacher 1).

"They felt relieved. They looked like little pets that had been released from a cage today. But, because they found their colleagues and friends, they wanted to go to the classroom and hug, but they couldn't" (Teacher 2).

Class 2 – *"Children's levels of attention, activity and school learning in the pandemic context"*

It comprises 15.07% (f = 22 TSs) of the total analyzed corpus. Consisting of words and stems (root, the basic and main meaning of the word) in the interval between χ^2 = 29.18 ("history") and χ^2 = 3.92 ("begin"). This class is composed of words such as "activity" (χ^2 = 23.75), "pay" (χ^2 = 23.18), "attention" (χ^2 = 18.25), "before" (χ^2 = 13.02), "after" (χ^2 = 10.17) and "education" (χ^2 = 8.17).

Class 2 describes the content of the discourses associated with the interviewees' perception of the levels of attention, activity (in the sense of "movement") and children's school learning in the pandemic context, including comparing these levels in online and face-to-face teaching modalities. It was observed that most of the interviewees recognized that, during online teaching, students had a greater difficulty concentrating in classes and organizing tasks, especially those who had less family support in carrying out distance school activities.

In addition, on the return to face-to-face classes, it was observed that some students expressed a greater need, compared to the period before the pandemic, to move and "explode", physically and emotionally, before carrying out activities that demanded a higher level of energy and attention (such as reading stories or writing essays). In addition, it was also noticed by the interviewees that some children returned to face-to-face classes with greater difficulty in following rules and routines, which would have affected, consequently, their learning performance.

"Let's say, if before they got A+, they keep getting A+, because they pay attention, they haven't lost anything with the family where the parents are present. But the 70% of the school where I work, there, the family is not very present, you know? [...] And I realized that families that are not present affected them completely, because there was no one to supervise them" (Teacher 4).

"I realized that, with this history of online education, much of the routine was lost, of that routine organization that the school dynamic requires" (Teacher 3).

"It is necessary that they go to the courtyard, so they can run, they can move freely, ride a tricycle, so they can make better use of it and pay more attention to that activity that comes next" (Teacher 1).

Class 3 – *"Family influence on school performance and adaptation to children's social distancing measures"*

It comprises 13.70% (f = 20 TSs) of the total analyzed corpus. Consisting of words and radicals in the interval between $\chi^2 = 25.06$ ("father") and $\chi^2 = 4.26$ ("to achieve"). This class is composed of words such as "father" ($\chi^2 = 25.06$), "explain" ($\chi^2 = 14.85$), "dedicate" ($\chi^2 = 7.27$), "monitor" ($\chi^2 = 7.27$), "house" ($\chi^2 = 5.21$), "difficult" ($\chi^2 = 5.17$) and "charge" ($\chi^2 = 4.58$).

This class emerged from segments of discourse related to teachers' perception of the family influence, especially parents, on children's school performance during the pandemic, and their understanding and adherence to social distancing measures, including in the classroom. Corroborating the results mentioned in Class 2, the reports indicated that the interviewees recognized that family support was essential for students' learning during online teaching. Children who had less support from their parents to carry out school activities at home were perceived as the most dependent on distance or face-to-face support, provided by teachers and monitors, to continue their studies - which, in some cases, was insufficient to prevent a drop in school performance. On the other hand, most of the interviews argued that, despite the importance of family support in children's school learning, the role played by teachers in this context would be irreplaceable.

In addition, it was mentioned that understanding and adherence to social distancing measures were more difficult in the case of children who observed non-compliance with the measures by their own parents. It was also observed that some children, particularly the younger ones, had more difficulties in returning to face-to-face classes routine due to the greater attachment they developed to their parents during their time at home.

"I noticed that the parents who are more present in the students' lives, these children who have their families present, who are constantly demanding, they remained the same, didn't they?" (Teacher 4).

"And what we got is like this: I have a coordinator who is in another room, and the students who cannot do it at home, they must come to this coordinator to guide, and then I teach in two rooms at the same time. It's kind of messy" (Teacher 4).

Being at a distance, we know that no matter how hard parents try, they dedicate themselves [...] to the teacher, it happens at school, right?" (Teacher 3).

"Even I tell them all the time [...] 'the pandemic is not over yet'. And they have a hard time understanding, because their parents get together too, to barbecue, drink beer. And they don't understand why at school it's necessary wearing a mask and distancing, and at home, you can get together and do what you want…" (Teacher 4).

Class 4 – "Cognitive and emotional effects of online learning or school closure on children"

It comprises 15.75% (f = 23 TSs) of the total analyzed corpus. Consisting of words and stems in the interval between χ^2 = 42.35 ("now") and χ^2 = 4.76 ("mother"). This class is composed of words such as "major" (χ^2 = 27.69), "gap" (χ^2 = 16.38), "past" (χ^2 = 16.10), "learning" (χ^2 = 12.22) and "difficulty" (χ^2 = 5.54).

In this class, the content extracted from the speeches is about the possible cognitive and emotional effects of online learning or the suspension of studies on children in the pandemic context. The interviewed teachers pointed to the emergence or worsening of difficulties related, for example, to the learning process, self-organization of didactic material (such as school notebooks) and understanding of the content in general. Problems associated with higher levels of restlessness and students' insecurity in the classroom were also perceived, when compared to those pre-pandemics. According to the reports, such cognitive and emotional consequences also seem to be associated with the difficulties addressed in Class 2.

"It's very frustrating and there will be gaps for sure. I think that the older ones can even manage to research and study. [...] Now I think a lot about children in literacy, in the first, second, third year. [...] I think the situation of distance literacy is quite complicated and I think of those children who already have some kind of learning difficulty" (Teacher 3).

"It's a process three times bigger than being there, isn't it? [...] They have a lot of trouble; they don't have organization in their notebook. [...] When they write,

they don't know where to start. I started all over again, 'where the paragraph begins'. They lost the basic notion that they had been acquiring since the first year, you know? The responsibility for organizing materials, even their own backpack" (Teacher 4).

"What I notice is that, as we have already had face-to-face classes for three months, in a way, with all the safety protocols, [...] the learning difficulties are emerging, to a greater level now, those are the gaps that were left because of the pandemic, of online learning. Now, of course, yes, we notice the restlessness. We notice the anxiety, don't we?" (Teacher 3).

Class 5 – "*Children's social needs and the gregarious function of the classroom*"

It comprises 22.60% (f = 33 TSs) of the total analyzed corpus. Consisting of words and radicals in the interval between χ^2 = 20.32 ("together") and χ^2 = 4.14 ("world"). This class is composed of words such as "together" (χ^2 = 27.69), "anxiety" (χ^2 = 14.08), "people" (χ^2 = 12.37), "need" (χ^2 = 9.75), "speak" (χ^2 = 7.71) and "group" (χ^2 = 7.70).

Class 5 describes the content of the interviews associated with the teachers' perception of school-aged children social needs and the gregarious role that the classroom can play in this regard. It was observed that most of the interviewees recognized their students need for interaction, preferably in person and daily. This way, for the teachers, the classroom with face-to-face participation would be essential to satisfy this demand, something that, due to the isolation measures adopted at the beginning of the pandemic, was not possible. Subsequently, even with the return to face-to-face classes, personal and daily contact between children would have been mitigated due to social distancing measures. Thus, for the interviewees, although the return to face-to-face classes have been relevant to meet the social and gregarious student's needs, these were only partially satisfied, with the desire of having more contact, including physical contact, which eventually has repercussions at their disposal to follow or not the security protocols.

"They are very approachable (to each other). They are very affectionate with each other. They miss each other a lot. Missing 'crazy', you know? That kind of saying 'Oh! So-and-so didn't come!'" (Teacher 1).

"In a way, it generates a feeling of anxiety, a restlessness, when at school, because then the focus for them was not learning. Being together or meeting up with colleagues or talking is a reality, which, in a pandemic, those who lived in

isolation, could not have. So, we still have that need. I still notice, in my class, this need to be together, to be close, to stay together" (Teacher 3).

"And we would have to follow the protocols and not let them get close. It's quite difficult because they want to be together. In fact, children already have, by nature, the need to be close to the classmate, to talk, to share and exchange, don't you? [...] So, in the first few days, we went back to face-to-face, this was much more latent, much more apparent, because it was a long time away from colleagues, you know?" (Teacher 3).

Class 6 – *"Feelings of loss associated with the pandemic and demonstration of empathy among children"*

It comprises 19.18% (f = 28 TSs) of the total analyzed corpus. Consisting of words and radicals in the interval between χ^2 = 23.07 ("lose") and χ^2 = 3.95 ("at last"). This class is composed of words such as "lose" (χ^2 = 23.07), "long" (χ^2 = 17.33), "period" (χ^2 = 16.62), "empathy" (χ^2 = 9.10) , "back" (χ^2 = 8.27), "relationship" (χ^2 = 5.19), "in person" (χ^2 = 4.46), "distance" (χ^2 = 4.46) and "sensitive" (χ^2 = 4.46).

This class emerged from the discourse segments related to the teachers' perception of the different feelings of loss experienced by children during the pandemic and, in parallel, the ability to express empathy for their peers. The interviewees pointed out, for example, that several students faced family losses because of Covid-19. The loss of the freedom feeling, from the adoption of isolation and social distancing measures, was also highlighted by the teachers.

Reiterating the results of Classes 2 and 4, mention was also made of the setback relating the children's capacity to follow rules, that is, the partially loss of the self-control that had been developed in the school environment after the long period at home. On the other hand, the content of the interviews indicated that the children were perceived by the teachers as quite empathetic to the suffering of their peers, especially in the case of family losses. This feeling of empathy demonstrated would even collaborate with the adherence to social distancing measures in the classroom, due to the perception of the dangers related to the pandemic by the children themselves.

"There in the room, there was a girl who lost her mother and father. Even they always respect that. They had a shock, the whole class when they found out about it" (Teacher 4).

"I think one of the issues that I see very latent is the feeling of loss. This feeling of loss not only of losing a family member, but of losing the freedom that we had [...] in relation to living together" (Teacher 3).

"The period they were at home, they went back to the classroom, and they need to be worked on. It is being worked on in relation to this because they lost control of the rules and self-control at home, they did everything they wanted. Now, in the classroom, it must be applied again" (Teacher 2).

"It is a very sensitive group [...]. They have a lot of empathy for each other. And they automatically make them respect the rules of Covid [sic], of distancing, because they know it's worrying, right? That, finally, the loss of a colleague was really sad" (Teacher 4).

Textual statistics and descending hierarchical classification – Interviews with mothers

The corpus consisted of 4 texts from the interviews, divided into 137 text segments (ST), with use of 83 TSs (60.58%). A total of 5215 occurrences (words, forms, or vocabulary) emerged, with 1078 distinct words and 605 with a single occurrence. The analyzed content was categorized into two classes: Class 1 – "Children's emotional and behavioral changes during the pandemic", with 44 ST (53.01%); Class 2 – "Social contact and its related feelings experienced by daughters during the pandemic", with 39 ST (46.99%).

Class 1 – *"Children's emotional and behavioral changes during the pandemic"*

It comprises 53.01% (f = 44 TS) of the total analyzed corpus. Consisting of words and radicals in the interval between $\chi^2 = 3.86$ (Scenario) and $\chi^2 = 27.30$. This class is composed of words such as "Anxiety" ($\chi^2 = 15.55$); "Sense" ($\chi^2 = 15.78$); "Occupational" ($\chi^2 = 14.78$); "Note" ($\chi^2 = 11.55$); "Change" ($\chi^2 = 11.55$); "Frustration" ($\chi^2 = 7.26$); and "Worry" ($\chi^2 = 3.86$).

This class presents emotional and behavioral changes experienced by children from their mothers' perspective. It was emphasized by the interviewed mothers that the children presented several symptoms of anxiety during the pandemic. Feelings of anguish and crying were also cited as frequent. Mothers also remark that they noticed differences in the way the children handled school materials, doing it in a disorganized way. In addition, agitation was another characteristic cited by the mothers. Mothers justify agitation by the energy excess

accumulated due to the time away from school. Sleep quality was also something experienced, specifically by the daughters of the interviewees.

"She was very agitated. She showed disorganization with the materials" (Participant 1).

"What I notice [about change] is that there is an anxiety, perhaps greater because she stayed at home a lot... and the energy... she would climb everything, on the couch, on things" (Participant 2).

"She found herself very frustrated and distressed, in that sense. Another thing is that she cried a lot" (Participant 2).

"We slept with her for about 4 months, she always slept with someone because she couldn't sleep alone as she used to do" (Participant 4).

Class 2 – "Social contact and its related feelings experienced by children during the pandemic"

It comprises 49.99% (f = 39 TSs) of the total analyzed corpus. Consisting of words and radicals in the interval between χ^2 = 4.17 (Mother) and χ^2 = 15.71 (Here). This class is composed of words such as "Group" (χ^2 = 11.55); "Colleague" (χ^2 = 10.21), "Life" (χ^2 = 9.54); "On-site" (χ^2 = 9.54); "Help" (χ^2 = 8.25); "Friend" (χ^2 = 5.61); and "Conviviality" (χ^2 = 4.23).

This class deals with the mothers' perception of social contact experienced by their children during the pandemic and the feelings related to this experience. During the pandemic, feelings such as sadness and anxiety were experienced, but most of the mothers commented that, as face-to-face classes and social contact returned, positive feelings emerged, a feeling of belonging to the group. It is mentioned that time spent away from friends (the way it was) in the life of a teenager, negatively and significantly touches this stage of development. There is a feeling, somewhat downcast that stories, practices, diverse experiences that would occur in high school, close to colleagues and friends, were canceled due to the pandemic. So, from this perspective, it appears that social isolation also sounded like a type of sadness for what was not experienced by these young people.

"Some attempts at face-to-face classes started [...] This also helped a lot because it returns with that feeling of life, of belonging to the group, of an active position" (Participant 2).

"So, we really didn't go to the playground, maybe sometimes at grandma's house. So, it made her sad, because on Saturdays and Sundays I was always out with them" (Participant 4).

"-It's three years of adolescence with my colleagues, with my friends, and now we never meet. No social life, nothing. Everyone says high school is where everything happens, there are a lot of stories to tell. What will I say? I sat at the computer all the time-. So, she also had this frustration and desire for what she had not experienced" (Participant 2).

Another theme emerged in this class, referring to the behavior of the daughters of interviewees regarding the sufferings experienced by others during the pandemic. It was noticed that children showed empathic behavior, even if they did not experience close losses caused by covid-19.

"We saw no difference on the way she is. She continues like this, with a kind heart, trying to help others. It´s been a motto since daycare school with her to help her colleagues. So, she remains calm" (Participant 1).

DISCUSSION Y CONCLUSIONS

Regarding the mixed analysis process (qualitative and quantitative) it was possible to identify that the peer relationship problems dimension had a remarkable presence in the borderline and abnormal levels (M = 19.90% f = 50; M = 4.40% f = 11). This seems to be a natural manifestation of social isolation that children and adolescents were exposed to during the pandemic. It is noteworthy that this condition was observed in the data qualitative analysis, both from the voice of family members and teachers. For example, in the teachers' narrative, there was a concern with the limitation of resources and social skills observed in students when returning to face-to-face activities. On the other hand, from the family´s perspective this feeling of social isolation was perceived as a sense of loss or symbolic mourning for the "unlived" experiences. The above can be understood because of the social isolation necessary to contain the pandemic.

Likewise, from a quantitative point of view, the hyperactivity factor also presented relatively high performance in the borderline and abnormal categories (M = 12.10% f = 31; M = 12.10% f = 31). These results are in line with the reasoning mentioned by mothers and teachers, in fact, by the mothers, this interpretation is very clear when observing several pieces of the interviews where they remark the presence of disorganized behavior on children. Such behaviors appear more

clearly in defined activities, when they refer to the amount of energy accumulated during the confinement period. The referred hyperactivity from the teachers and mothers' point of view, is shown by the difficulties in organizing activities and by the deterioration in the ability to plan the required actions to respond to school demands. Another relevant element, due to the potential impacts on the students' quality of life, is the deterioration in the quality of sleep reported by some mothers.

The overall objective of this study was to identify and understand the main behavioral characteristics observed in young people and adolescents from a municipal school system in southern Brazilian city. When analyzing the characteristics reflected in the SDQ, it was shown that 10% of children and adolescents had some type of emotional difficulty. At first glance, this data is encouraging, considering the implications of the pandemic. However, when analyzing the results in-depth, it is observed that 10.4% of the participants are at an intermediate or borderline level of emotional problems, which shows that about a quarter of the participants manifest emotional problems or are at risk of emotional problems. Therefore, this research matches both with the results of other studies (in which about 25% of the participants have some type of emotional difficulty), and with the fact of highlighting the importance of identifying children and adolescents with emotional problems in the initial phase, to prevent the progression of these emotional problems to potential mental disorders. Thus, the importance of expanding psychological support services is highlighted, as well as seeking to destigmatize the use of mental health services (Fore 2020; Hyat et al., 2024; Ravens-Sieberer 2021; Saddik et al., 2021).

When comparing these results with the research carried out by Liu et al., (2021) in China, clear differences can be seen, these differences are more accentuated in the total difficulties. In this study it was observed an average of 12.04 while in the study by the above-mentioned authors, an average of 9.6 was obtained. These differences, although could be considered small, must be handled with caution and seriousness, considering the lack of access to mental health services in Brazil and in most developing countries.

Nevertheless, the results of this study are within normal limits and are also consistent with the literature (Bell et al., 2019; Liu et al., 2021; Madsen et al., 2020). However, it is necessary to highlight some particularities. For example, studies such as Vallejo et al., (2020) and Liu et al., (2021) did not show differences between any dimension of the SDQ scale when comparing the sex of the participants, while in the present study, statistically significant differences were identified. in the "emotional symptoms" dimension, especially in women. Thus, even considering the agreement and the favorable results, it is highly recommended to pay attention

to the cultural characteristics of each context, since there still seem to be differences, mainly in relation to the sex differences.

According to our findings, the current grade and age are associated with the dimensions: conduct problems, peer problems and hyperactivity in other words, as one advances in school years and age, behavioral and peer relationship difficulties seem to be more persistent. Although no statistically significant behaviors and symptoms were identified, the qualitative analysis of the data reflects a great concern with potential cognitive and emotional consequences. This view is present mainly in the teachers' view and a little less noticeable in the mothers' narratives, a fact that is corroborated in other studies (Liu et al., 2021; Madsen et al., 2020; Vallejo et al., 2020).

Regarding the above, the lack of "gold standard" scales to measure mental health and psychopathological traits in children makes it necessary to elect several informants, mainly parents or caregivers and teachers (in addition to the children or adolescents themselves). The above creates difficulties in identifying the true level of dysfunction of the target audience (De Los Reyes & Kazdin, 2005; Madsen et al., 2020). On account of this, it is important to achieve a greater understanding of the benefits of characterizing or mapping behavioral traits. Simultaneously, it´s imperative the construction, adaptation and validation of gold standard scales and the elaboration of more studies, mainly those with greater capacity to identify causality.

In conclusion, our findings emphazise the relevance of taking into account cultural characteristics when analyzing results across different populations. While our results align with previous literature regarding normal limits of behavioral difficulties, notable divergences emerged in the dimension of emotional symptoms, particularly among girls. This highlights the necessity for refined understanding that account for gender-specific differences. Moreover, our findings suggest that behavioral and peer relationship difficulties may become more pronounced with advancing school grade and age, emphasizing the importance of early interventions and support systems.

Finally, it is important to mention some limitations of the study. The first refers to the application of self-report scales, which could be poorly aligned with the assessments carried out by professionals in other contexts. On the other hand, the fact that it is a cross-sectional study does not allow accurate inferences to be made about the impact of the pandemic. At last, the non-probabilistic convenience sample avoids the generalization of the results. However, the online application of

a self-report scale accompanied by interviews was the best option, considering the need for a quick and mainly safe method for participants in a pandemic context.

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