






## REPERCUSSIONS OF THE COVID-19 PANDEMIC ON BRAZILIAN ADOLESCENTS' MENTAL HEALTH, MOOD AND SCHOOL ACTIVITIES

REPERCUSSÕES DA PANDEMIA DE COVID-19 NA SAÚDE MENTAL, NO ESTADO DE ÂNIMO E NAS ATIVIDADES ESCOLARES DE ADOLESCENTES BRASILEIROS

REPERCUSIONES DE LA PANDEMIA DE COVID-19 EN LA SALUD MENTAL, EL ESTADO DE ÁNIMO Y LAS ACTIVIDADES ESCOLARES DE LOS ADOLESCENTES BRASILEÑOS

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### ABSTRACT

**Objective:** to understand the repercussions of social distancing on Brazilian adolescents mood, mental health and school activities during the COVID-19 pandemic, comparing the results obtained by a national quantitative survey and by a qualitative research study. **Methods:** a mixed-methods study. Data triangulation was used to compare the results obtained in both surveys: the quantitative axis was developed with nationwide application of a virtual questionnaire in which 9,740 adolescents participated; in the qualitative axis, conducted by researchers from the Federal University of Minas Gerais, focus groups were carried out with 27 adolescents. Questions related to sleep quality were evaluated, as well as to school activities, feelings and emotions experienced during this period. **Results:** between 25% and 50% of the adolescents mentioned symptoms such as loneliness, nervousness, bad mood, irritability and sadness during the social distancing period. 23.9% perceived changes in sleep quality, in addition to difficulties related to remote teaching. The qualitative component revealed, in more depth, the aspects related to the adolescents' mental health and mood. **Conclusion:** the results obtained in both research studies showed deterioration in the adolescents' mental health and mood during the social distancing period. Mental health was one of the most affected areas, with deterioration in school performance, emotional distress and sleep problems. Understanding these different aspects of the experience may help devise strategies that minimize its repercussions and ensure adolescents' comprehensive and healthy development.

**Keywords:** Adolescent; COVID-19; Mental Health; Social Isolation; Brazil.

### RESUMO

**Objetivo:** Compreender as repercussões do distanciamento social no estado de ânimo, na saúde mental e nas atividades escolares de adolescentes brasileiros durante a pandemia de COVID-19, comparando os resultados obtidos por uma pesquisa nacional quantitativa e por uma investigação qualitativa. **Métodos:** Estudo de métodos mistos. Utilizou-se a triangulação de dados para cotejar os resultados obtidos nas duas investigações: o eixo quantitativo foi desenvolvido com a aplicação de um questionário virtual em âmbito nacional, do qual participaram 9.740 adolescentes; no eixo qualitativo, conduzido por investigadores da Universidade Federal de Minas Gerais, foram realizados grupos focais com 27 adolescentes. Foram avaliadas questões relacionadas à qualidade do sono, a atividades escolares, sentimentos e emoções vivenciados nesse período. **Resultados:** Entre 25%-50% dos adolescentes referiram sintomas como solidão, nervosismo, mau humor, irritabilidade e tristeza durante o período de distanciamento social. Alterações na qualidade de sono foram percebidas por 23,9%, além de dificuldades relacionadas ao ensino a distância. O componente qualitativo desvelou, de forma mais aprofundada, os aspectos relacionados à saúde mental e ao estado de ânimo dos adolescentes. **Conclusão:** Os resultados obtidos em ambas investigações demonstraram piora na saúde mental e no estado de ânimo dos adolescentes durante o período de distanciamento social. A saúde mental foi uma das mais afetadas, com piora do desempenho escolar, sofrimento emocional e problemas de sono. Compreender esses diferentes aspectos da experiência pode ajudar a traçar estratégias que minimizem suas repercussões e garantam o desenvolvimento integral e saudável dos adolescentes.

**Palavras-chave:** Adolescente; COVID-19; Saúde Mental; Isolamento social; Brasil.

### RESUMEN

**Objetivo:** comprender las repercusiones del distanciamiento social en el estado de ánimo, la salud mental y las actividades escolares de los adolescentes brasileños durante la pandemia de COVID-19, comparando los resultados obtenidos por una encuesta cuantitativa nacional y una investigación cualitativa. **Métodos:** estudio de métodos mixtos, se utilizó la triangulación de datos para comparar los resultados obtenidos en ambas investigaciones: eje cuantitativo, desarrollado con la aplicación de un cuestionario virtual a nivel nacional, en el que participaron 9.740 adolescentes; en el eje cualitativo, realizado por investigadores de la Universidad Federal de Minas Gerais, se realizaron grupos focales con 27 adolescentes. Se evaluaron cuestiones relacionadas con la calidad del sueño, las actividades escolares, los sentimientos y las emociones experimentadas en este periodo. **Resultados:** entre el 25% y el 50% de los adolescentes manifestaron síntomas como soledad, nerviosismo, mal humor, irritabilidad y tristeza durante el periodo de distanciamiento social. El 23,9% percibió cambios en la calidad del sueño, además de dificultades relacionadas con el aprendizaje a distancia. El componente cualitativo reveló de forma más profunda los aspectos relacionados con la salud mental y el estado de ánimo de los

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adolescentes. **Conclusión:** los resultados obtenidos en ambas investigaciones demostraron que la salud mental y el estado de ánimo de los adolescentes empeoraron durante el periodo de distanciamiento social. La salud mental fue una de las más afectadas, con un peor rendimiento escolar, malestar emocional y problemas de sueño. Comprender estos diferentes aspectos de la experiencia puede ayudar a diseñar estrategias que minimicen dichas repercusiones y garanticen el desarrollo pleno y saludable de los adolescentes.

**Palabras clave:** Adolescente; COVID-19; Salud Mental; Aislamiento Social; Brasil.

## INTRODUCTION

The health emergency state resulting from spread of the new coronavirus (SARS-CoV-2) that was initiated in 2019 in China had its first notified case in Brazil on February 26<sup>th</sup>, 2020. With significant transmissibility, the virus spread quickly, becoming a target of concern for health authorities worldwide. Thus, governments, health authorities, and mainly health services, started issuing measures to contain spread of the virus.<sup>1</sup>

Most of the measures adopted affected the living and health conditions of the population, the main ones being related to social life and to changes in routine and work, as well as to adaptation and preparation of the health services to provide assistance to those affected.<sup>2</sup> Since the beginning of the pandemic, before the immunization of large populations, the most effective preventive measure has been the adoption of social distancing, with implementation of actions to reduce personal contact between people, such as use of masks, closing schools, restrictions on the functioning of commerce, prohibition of activities that generate agglomeration, and encouragement of social isolation.<sup>2</sup>

Among the repercussions resulting from these restrictions are those related to psychological well-being and mental health, with increased anxiety, worry, depressive symptoms and post-traumatic stress disorders.<sup>3-5</sup> For adolescents and young people, restrictive measures, social distancing and school closures were significant determinants of vulnerability during the pandemic.<sup>5</sup>

Children and adolescents are less able to develop adequate coping techniques, and changes during this period can be an important predictor of depressive symptoms, anxiety, post-traumatic disorders or deterioration of pre-existing problems, which require long-term monitoring.<sup>6,7</sup> The emergence of isolated symptoms such as worry, helplessness, fear, nervousness, anger, annoyance and loneliness also stands out.<sup>8</sup>

In this sense, considering the possible direct and indirect impacts caused by the COVID-19 pandemic on this population group, it becomes necessary to know how this period affected Brazilian adolescents. It is expected to contribute to action proposals targeted at minimizing the adverse effects caused during the pandemic. The analysis of the results obtained by different methods, in addition to providing greater reliability to the findings, allowed for a broader understanding of the scenario and the reflections of the participants of both research studies from the comparison between the statistical data obtained by the quantitative research and the data found in the focus groups of the qualitative axis. The first ones show the dimension of the problem, and the second axis complements them and deepens the analysis. For being a topic of global and emerging interest, most of the studies carried out focused on identifying the epidemiological situation of the population, most of which were studies with a quantitative approach. Advancement was sought in the current study, discussing relevant findings in two methodological axes of research on the same theme.

The objective of this study was to understand the repercussions of social distancing on Brazilian adolescents' mood, mental health and school activities during the COVID-19 pandemic, comparing the results obtained by a national quantitative survey and by a qualitative study.

## METHOD

This is a research study produced from data collected in the national survey called "ConVid Adolescents – Pesquisa de comportamentos" ("ConVid Adolescents – Research of behaviors"), developed by the Oswaldo Cruz Institute Foundation (Fiocruz), in partnership with the Federal University of Minas Gerais (Universidade Federal de Minas Gerais, UFMG) and the University of Campinas (Unicamp). The research consisted of two methodological axes: a quantitative one, developed by applying a virtual questionnaire at the national level, and a qualitative axis, conducted by UFMG researchers through focus groups.

Thus, triangulation was performed to contrast the data from both research studies, which, in addition to more rigor and reliability of the results obtained, ensures the comparison of the methodologies applied.

## Data triangulation

Using more than one method for data production and analysis in scientific research is recognized as a validation strategy, conferring more scientific rigor to research studies. In the field of quantitative research, such methodology is applied as a validation process, in which a given study is validated from its replication by another researcher, using the same methods and achieving similar results. In qualitative research, validation is presented as an indication that the research followed thoughtful stages from its planning and organization to its execution, ensuring more reliability of procedures and methodological stages.<sup>9</sup>

This is a mixed-methods study elaborated based on the combination of the results obtained in a quantitative study and in a qualitative one, both on the same theme. According to Denzin<sup>10</sup>, multiple data triangulation corresponds to the use of different data sources, which can be produced at different times, places or people.<sup>9,11</sup> In this case, triangulation was used to compare the results of both aforementioned axes.

When using different methods, techniques and strategies it is necessary to consider the specificities and suitability of each evaluation process, both distinctively and in a combined way. In triangulated research studies, the methods should be used with rigor, minimizing to the maximum extent possible any internal or external threats to the validity of each. Thus, the approximation between the quantitative and qualitative methods must be considered as a complementary language since, although arising from different natures, they must be articulated to the research purposes, depending on what is desired to be achieved with the evaluative research.<sup>12</sup>

## Quantitative axis

“*ConVid Adolescentes*” is a national research study of the cross-sectional type that assessed the adolescents’ behavior during the COVID-19 pandemic in Brazil. The research was conducted between June and September 2020 and included Brazilian adolescents aged from 12 to 17 years old and living in the country during the pandemic. Data collection took place by answering an online questionnaire produced in the *Research Electronic Data Capture* (RedCap) app.

The “virtual snowball” sampling technique was used to select the participants. Project members chose researchers with previous experience in studies with

adolescents from different Brazilian states to start the chain and forwarded the research link to the adolescents’ parents. In addition to that, public and private schools were invited to contribute to the research by sending them an institutional Fiocruz email message. The schools that accepted to participate in the research forwarded the electronic questionnaire to their students. Before answering the questionnaire, the parents or guardians, as well as the participating adolescent, expressed their consent by accepting the Free and Informed Consent Form (FICF) and the Free and Informed Assent Form (FI AF), respectively. After answering the questionnaire, the adolescents invited other peers to participate in the research. The study target population consisted in the adolescents aged from 12 to 17 years old living in Brazil during the COVID-19 pandemic, comprising a final sample of 9,470 participants.

More details about the research can be found in the official “*ConVid Adolescentes – Pesquisa de Comportamentos*” website (<https://convid.fiocruz.br>).

The questionnaire adopted in the *ConVid Adolescentes* survey (ICICT, Fiocruz. *ConVid Adolescentes – Pesquisa de Comportamentos*. May 2020) consisted of 54 multiple-choice items and addressed questions related to demographic characteristics, having a cell phone, computer or notebook and Internet access at home, indicators of family socioeconomic status, and the adolescents’ mental and emotional health and lifestyle (diet, physical activity, smoking and consumption of alcoholic beverages). There were also questions related to the specific pandemic period, such as difficulties monitoring non-face-to-face classes, infection by COVID-19, adherence to the social restriction measures, behaviors related to hygiene, and positive and negative experiences during the pandemic. In order to test validity and reliability of the questionnaire, a pre-test was performed with 20 adolescents living in different states and attending different types of schools (public and private). All the answers were anonymous and did not include any type of identification of the participants.

The following variables were used in the current study:

- **Change in sleep quality:** The change in sleep quality was assessed based on the following question: “Did the pandemic affect the quality of your sleep?”. The answer options were the following: a) “No effect at all, I continue sleeping well”; b) “I started having sleep

problems with the pandemic”; c) “I already had sleep problems and they remained unchanged”; d) “I already had sleep problems and they got worse”; and e) “I already had sleep problems, but they improved”.

- **Mood:** The change in mood was evaluated by the feeling of sadness, isolation/loneliness and irritability/nervousness/bad mood, based on the following questions: a) “During the pandemic period, how often did you feel isolated or alone?”; b) “During the pandemic period, how often did you feel sad?”; and c) “During the pandemic period, how often did you feel irritated, nervous or in a bad mood?”). The answers included the following alternatives: a) “Never”; b) “A few times”; c) “Many times”; and d) “Always”.
- **Difficulties in the school activities:** Two questions were used to assess the school activities: “To which extent do you understand or have understood the content of the remote teaching classes to do the extra-class exercises or tests?” Not at all; A little; Almost all; All. “Please indicate all the difficulties you had to follow the remote teaching classes: You can select more than one option”. The options were the following: a) Lack of concentration/Easy distraction; b) Lack of interaction with teachers; c) Lack of interaction with friends; d) I don’t have any quiet and suitable place to attend classes; e) I share the computer (or notebook) with another person in the house; f) Internet problems to follow the classes or do the exercises and tasks; g) Health problems that made it difficult for me to follow the classes or do the exercises and tasks; h) Another type of difficulty; and i) No difficulties.

The prevalence values and 95% confidence intervals of the variables under study were calculated. All the analyses were performed using the *Statistical Software for Data Science* (Stata) 14.0, using the survey module for complex sampling analysis and considering the post-stratification weights.

### Qualitative axis

The research quantitative axis was grounded on the theory of sexual scripts. According to John

Gagnon<sup>13</sup>, such scripts involve three dimensions: interpersonal, which represent social interaction patterns; intrapsychological, which represent the mental life content; and cultural settings, which provide general social role instructions and requirements.

Due to the sanitary restrictions to prevent COVID-19, the entire process to recruit the participants and collect the data was conducted online. The participants in the qualitative study were 27 adolescents aged from 12 to 17 years old, of both genders. The first participants were indicated by members of the research group. The others were pointed out by the adolescents themselves, configuring selection through the snowball method. None of them took part in the quantitative axis of the research. Data collection was conducted by holding focus groups. The adolescents were divided into groups by age group (12-14 years old and 15-17 years old) to provide better discussions in the groups and analysis of the scripts by the researchers, assuming differences in the participants’ focus of interest and reflections.

Data collection took place from September to October 2020, and the adolescents and their parents or guardians were previously invited to participate in the study, confirming their desire and authorization to participate by signing the Free and Informed Assent Form (FIAF) and the Free and Informed Consent Form (FICF), respectively. The documents were typed in forms via the *Google Forms* platform. The participants were also emailed a socioeconomic questionnaire for us to better understand their social context and personal life.

Four focus groups were held by the main researcher of the qualitative research and one focus group by the researchers of the “*ConVid Adolescentes – Pesquisa de Comportamentos*” national study, totaling five focus groups. The first focus group was carried out by the national study team with the purpose of collecting diverse information to support elaboration of the questionnaire adopted in the *ConVid Adolescentes* survey and to contribute to defining the final script adopted for the following four groups.

They lasted a mean of 60 minutes, with participation of five adolescents. They were conducted with guiding questions that allowed the adolescents to reflect on their experiences and narrate them; when necessary, at-a-glance questions were included for deepening on subject matters and questions.



The following guiding questions were asked to the adolescents: 1) Tell us about your experiences during the pandemic; what do you think about the situation; 2) Talk about how you are relating with friends, family and school and about the subject matters you talk about with the people who are part of your life; 3) Tell us about the ways and means to get information; 4) Talk about the concerns you had/have, the fears and strengths you feel and about what you learned about life (society, family life, friends, etc.) and the feelings you have in this pandemic phase.<sup>14</sup>

The narratives were audio-recorded and transcribed in full, concomitantly to data collection. To define the need to create new groups, the content from each group was read in full until saturation of the qualitative data was achieved, according to the topics covered. Data analysis was based on the Structural Analysis of Narration<sup>15</sup>, Barthes line,<sup>16</sup> presupposing that, in the narratives, everything makes sense to the participant and the whole must be interpreted in its agreements and dissonances in the group. Thus, the process took place based on the deconstruction and reconstruction of the sequences or codes to find the meaning of what the research participants expressed.

The analysis was developed following this process: 1) analysis of each focus group separately and vertically to identify the central topic; 2) horizontal reading, in which each focus group was sequenced and coded, enumerating the characters, facts and reasons; 3) transversal reading, identification of the conjunctions and disjunctions, comparing them in order to group and categorize the participants' ways of thinking; and 4) definition of possible theoretical categories and discussion with the pertinent literature.

*ConVid Adolescentes*, with its quantitative and qualitative axes, was approved by the UFMG Research Ethics Committee (Opinion No. 4,467,307). The subjects were not identified in any of the research axes.

## RESULTS

In the qualitative research study, the answers given by 9,740 Brazilian adolescents aged from 12 to 17 years old attending public and private schools were analyzed. 32.4% of the research respondents indicated a frequent feeling of sadness. Approximately 33% of the adolescents mentioned feelings of loneliness and almost 50% were always irritated and nervous or in a bad mood always/most of the times (Table 1)

Table 1 - Reports of sadness, loneliness, irritability, nervousness and bad mood, in addition to sleep problems, according to the participating adolescents. Brazil, *ConVid Adolescentes*, from June to September 2020

Problems		Prevalence (%)
Sadness	Never	15.0
	Rarely	18.4
	Sometimes	34.2
	Many times/Always	32.4
Loneliness	Never	21.2
	Rarely	18.0
	Sometimes	28.0
	Many times/Always	32.8
Irritability/ Nervousness/ Bad mood	Never	7.2
	Rarely	13.0
	Sometimes	31.1
	Many times/Always	48.7
Sleep problems	No effect at all/I continued sleeping well	53.2
	I started having sleep problems with the pandemic	23.9
	I already had sleep problems and they remained unchanged	8.5
	I already had sleep problems and they got worse	12.1
	I already had sleep problems, but they improved	2.3

The results of the quantitative axis were confirmed by the individual reports of the participants from the qualitative study since, for the adolescents interviewed in the focus groups, the first months of the pandemic represented a period of significant emotional insecurity.

*It was only at the beginning that I was very frustrated, nervous, sad, anxious, all at the same time, but now I've been rebuilding myself, I'm rebuilding myself more, I'm getting better mental and emotional health as well (Focus Group 3).*

*First of all, I was very afraid at the beginning but, even so, I wasn't going out of the house much, no. [...] I've always been an anxious person my whole life, but due to the pandemic, I was a whole lot more anxious, mainly to go out of the house and go back to the normal days. Now I also take a medication for anxiety (Focus Group 4).*

*I think that the negative point, I was talking to some of my peers and, well, I think there are negative points... one of my peers told me that she's feeling very anxious, she was having very strong anxiety attacks at night, before going to sleep, she was eating a lot... I think that, well, getting depressed kind of gradually gets into the person, because she's not going out, she's eating a lot and feeling anxious, right? (Focus Group 5).*

*Then, kind of, this is heavy and people are very anxious, at least me. I'm anxious, I'm tense about everything, I worry a lot about everything. And, then, I think that this ends up affecting your emotions, your health (Focus Group 5).*

Of all the adolescents that answered the research questionnaire, 23.9% reported the onset of sleep problems during the pandemic, and 12% noticed that their pre-existing sleep-related problems worsened.

*Since the beginning (of the pandemic), I've been having sleep problems and feeling anxious, thinking about the disease, the risks, feeling like a prisoner and with fear for my relatives (Focus Group 3).*

*Sometimes I have some difficulties sleeping well (Focus Group 2).*

*And then the night comes, I go to bed and I think about everything I have to do tomorrow about school. It's awful (Focus Group 5).*

When asked if they had understood the content of the remote learning classes, 15.8% of the adolescents stated that they had not understood anything, 47.8% a little, 27.5% almost all and only 8.5%, all (Figure 1). The main difficulty reported was lack of concentration (59%), followed by lack of interaction with teachers (38.3%) and with friends (31.3%) and Internet problems (26.3%) (Figure 2). The statements in the focus groups reinforced such findings:

*In terms of the classes, I believe it's like that for everyone, right?, because online classes are very difficult. For those who are already used to online, which is the college people, for them it's the same thing, but for those who are attending almost every day... very difficult, it was very difficult and it's still difficult to understand things, pay attention in class and really learn. It's being really difficult (Focus Group 2).*

*If I have any doubt, it's a whole lot more difficult for me to run after the teacher, you know? So I have to run after my friends, sometimes I send an email to the teachers, but many of them don't answer because they don't know how to deal with it properly (Focus Group 2).*

*I really prefer in-person, to be there with the teacher, to be able to clear doubts there directly with him, because it's something I've been used to my whole life and suddenly I had to completely change my way of studying (Focus group 4).*

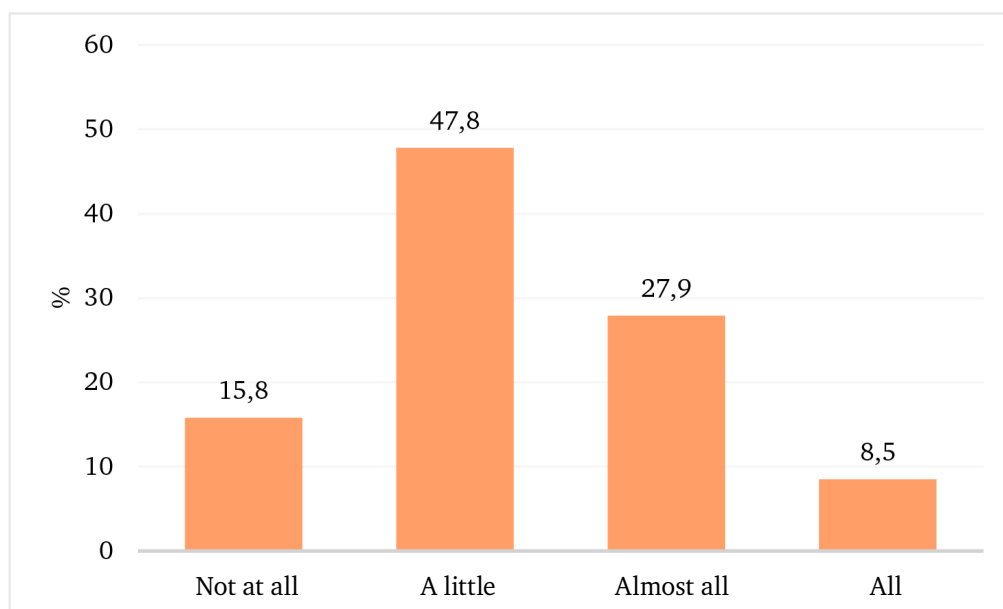


Figure 1 - Frequency of the adolescents' perception about understanding the content taught in the remote teaching classes. Brazil, ConVid Adolescentes, from June to September 2020

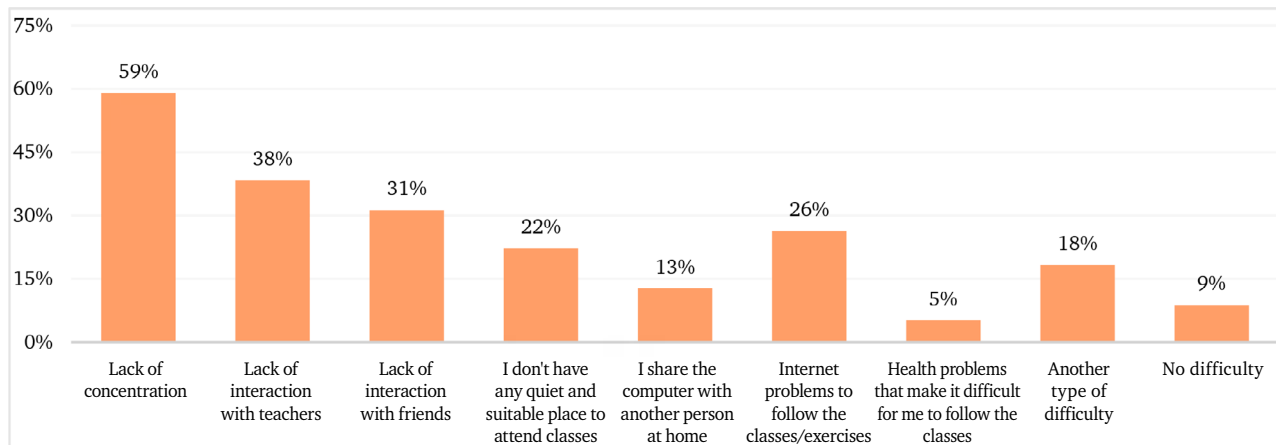


Figure 2 - Frequency of the main difficulties faced by the adolescents to follow the remote teaching classes. Brazil, ConVid Adolescents, from June to September 2020

*I was attending online classes because they were classes they were broadcasting on TV. The only thing is that I can't talk to the teacher and everything, then it was a whole lot more difficult (Focus Group 2, E1, male gender).*

*I think that everybody is really affected for different reasons. Some people find it difficult to study at their homes, others have problems at home or with Internet and can't lead their learning well. There's also the issue that public schools are teaching very differently than the private ones (Focus Group 2).*

## DISCUSSION

This study resorted to triangulation of data referring to the results of both research axes to understand the adolescents' health during the COVID-19 pandemic. Deterioration in the adolescents' mental health was identified during the social distancing period, with reports of feelings of loneliness, nervousness, bad mood, irritability and sadness, in addition to worse sleep quality and interpersonal relationships. In parallel, aspects that hindered following remote learning were observed, such as lack of concentration, lack of interaction with teachers and friends, health problems and difficulties accessing the classes, with moments of discouragement and a desire not to participate in school activities.

The quantitative study has some limitations that should be considered, such as resorting to only one question to assess the adolescents' self-perception about the feeling of sadness and another one to assess the state of nervousness; in addition to the fact that no question was submitted to a previous validation study.

Use of a virtual questionnaire can hinder participation of individuals without access to the Internet and to electronic devices, in addition to having been applied in the midst of the pandemic in 2020; in order to reduce this selection bias, post-stratification weights were used. The causal associations inherent to cross-sectional studies cannot be disregarded. The fact that the data portray a specific period experienced by the participants at the beginning of the pandemic is also added as a limitation, as well as the possibility of memory bias, as the questions were self-reported. Other research studies must be conducted to monitor elaboration of the representations about the diseases and the individual and collective coping strategies.

It is also observed that using the triangulation method between the different axes was not the initial research objective, being used only when analyzing and comparing the data for the current study. However, such decision proved to be wise, as it was possible to deepen on understanding of the events, in addition to showing the complementarity of both axes on the same topic.

The results found draw the attention to very specific particularities inherent to adolescents, as they provide robust data regarding their experience during the pandemic. Such results were reasserted and in greater depth in the qualitative research through the individual and collective reports that revealed clinical and psychosocial manifestations and intense behavioral changes.

The reports of increased feelings of sadness, irritability, nervousness and bad mood, represented with greater intensity for some, such as anxiety, worry and depression, corroborate other studies that also investigated adolescents' mental health during the COVID-19 pandemic, both in Brazil<sup>5,17</sup> and in the world.<sup>3,4</sup>

In general terms, the social distancing measures, the changes in the routine and the difficulties with teaching were the main causes of mental distress.<sup>3-5,17</sup>

In this study, the feeling of loneliness perceived by the adolescents is related to social distancing.<sup>2</sup> The parents' adoption of restrictive measures, in addition to those recommended by the authorities, such as total home confinement, represents a high risk for the development of severe anxiety levels in adolescents.<sup>3</sup> Socializing with friends is fundamental in the adolescents' relationships and often serves as emotional support among them. However, such relationships were strongly restricted by the distancing measures and by the interruption of the in-person school activities.<sup>18</sup>

Adaptations in the routine and behavioral changes forced by the need to adopt preventive health measures during the COVID-19 pandemic revealed important changes, such as problems or difficulties sleeping, which are related to emotional factors, changes in life and everyday activities, such as school, leisure and family life.<sup>19</sup> Other studies also found an association between shorter daily sleep time and increased risk of developing depressive symptoms.<sup>7,20</sup> The onset of sleep disorders in children and adolescents during the pandemic was also presented in a meta-analysis developed in 2020.<sup>21</sup> Sleep quality deterioration exerts a negative impact on adolescents' mental health, with an increase in feelings such as nervousness and sadness.<sup>2</sup> It should be noted that this result is also common to those found in the research study carried out with Brazilian adults.<sup>2</sup>

In the educational scope, students, teachers and institutions alike faced major challenges to adapt to the new teaching modality. For the schools, the major challenges were pedagogical curricular restructuring and adaptation of the activities to digital platforms, with training of the teachers to preserve the teaching quality. For the students, the greatest difficulties were lack of interaction with teachers and social inequalities, as many students had no access to the Internet and/or to any electronic device to attend the classes.<sup>2,22</sup>

Adaptation to online teaching required adolescents to adapt to a remote learning style, which interfered in their interpersonal relationships with friends and revealed difficulties accessing the digital platforms, reducing the socialization and psychosocial development possibilities.<sup>5</sup>

## CONCLUSION

The results found in the research studies reveal a worrying scenario for adolescents' mental health, with deterioration of the emotional state and even mental illness, which were mainly caused by social distancing and by the preventive measures imposed during the COVID-19 pandemic. In addition to the repercussions on the adolescents' health, changes in their mood are observed, as evidenced by the reports about self-perception of feelings such as nervousness, sadness, loneliness, irritability and mood swings. In the teaching and education context there were many difficulties in adapting to distance learning, the main ones being related to lack of concentration, little interaction with teachers and friends, and structural problems such as unavailability of a computer or Internet.

Thus, the importance of knowing and recognizing adolescents as an integral part of a social group that deserves greater attention and care stands out, considering the physical, social and emotional aspects of their experiences for care and in the social policies. In addition to that, it becomes necessary to understand the short-, medium- and long-term consequences arising from this pandemic period, so that they are treated as a priority and can be minimized in all social instances and institutions in which adolescents are present.

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