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Thematic Dossier

Teachers' Perception of Students' Social Skills and Behavioral Problems in Elementary School

Luciana Carla dos Santos Elias[1]
Alessandra Turini Bolsoni-Silva[2]
Sonia Regina Loureiro[1]
Marta Regina Gonçalves Correia Zanini[3]
Antonio Paulo Angélico[4]
Lucas Cordeiro Freitas[4]
Vanessa Barbosa Romera Leme[5]
Adriana Benevides Soares[6]
Patricia Lorena Quiterio[5]
Catarina Grande[7]

Abstract: Studies have shown impairment in student learning and behavior in the post-COVID-19 pandemic context. The objective was to compare groups of children differentiated by behavioral problems, as identified by teachers and confirmed by a validated instrument, in terms of social skills, age, and gender; and to analyze the predictive effects of specific social skills and the children's demographic variables on their behavioral problems. A total of 132 elementary school teachers from public schools in southeastern Brazil participated in the study. They completed a questionnaire comprising sociodemographic variables, the Socially Skillful Responses Questionnaire, and the Strengths and Difficulties Questionnaire regarding the behaviors of 197 students. Univariate and multivariate analyses were conducted. The results indicated that boys and children with behavioral problems exhibited difficulties with emotional regulation and social skills. There was a significant interaction between age and higher symptom levels, and the prediction of behavioral problems was explained by lower scores on specific social skills. It was concluded that characterizing behavioral variables in the post-pandemic period is important for guiding interventions with schoolchildren.

Keywords: problem behavior, social skills, teachers, students, covid-19

Percepção Docente sobre Habilidades Sociais e Problemas Comportamentais Discentes no Ensino Fundamental

Resumo: Estudos têm demonstrado prejuízos na aprendizagem e comportamentos dos estudantes no contexto pós-pandemia covid-19. Objetivou-se comparar grupos de crianças diferenciados por problemas comportamentais, identificados pelos professores e confirmados por instrumento aferido, quanto às habilidades sociais, idade e sexo; e analisar os efeitos preditivos de habilidades sociais específicas e das variáveis demográficas das crianças para os problemas comportamentais infantis. Participaram 132 professores do Ensino Fundamental de escolas públicas do sudeste brasileiro; responderam ao inventário composto por variáveis sociodemográficas, Questionário de Respostas Socialmente Habilidosas e Questionário de Capacidades e Dificuldades, sobre comportamentos de 197 alunos. Foram conduzidas análises uni e multivariadas. Resultados apontaram meninos e crianças com problemas comportamentais com dificuldades emocionais e em habilidades sociais; interação significativa da idade com maiores sintomas; e a predição dos problemas comportamentais foi explicada por menores escores em habilidades sociais específicas. Concluiu-se ser relevante caracterizar variáveis comportamentais no pós-pandemia, para nortear intervenções com escolares.

Palavras-chave: comportamento problema, habilidades sociais, professores, estudantes, covid-19

[1]*Universidade de São Paulo (USP), Ribeirão Preto-SP, Brazil.*
[2]*Universidade Estadual Paulista Júlio de Mesquita Filho (UNESP), São Paulo-SP, Brazil.*
[3]*Universidade Paulista (UNIP), Ribeirão Preto-SP, Brazil.*
[4]*Universidade Federal de São João del-Rei (UFSJ), São João del-Rei-MG, Brazil.*
[5]*Universidade do Estado do Rio de Janeiro (UERJ), Rio de Janeiro-RJ, Brazil.*
[6]*Universidade Salgado de Oliveira, Niterói-RJ, Brazil. Universidade do Estado do Rio de Janeiro (UERJ), Rio de Janeiro-RJ, Brazil.*
[7]*Universidade do Porto, Faculdade de Psicologia e de Ciências da Educação (CPUP), Porto, Portugal.*
Correspondence address: *Luciana Carla dos Santos Elias. Avenida Bandeirantes, 3900 - CEP: 14040901, Ribeirão Preto- SP, Brazil. email lucaelias@ffclrp.usp.br*

Percepción Docente sobre Habilidades Sociales y Problemas de Comportamiento de los Estudiantes en la Educación Primaria

Resumen: Los estudios han demostrado perjuicios en el aprendizaje y comportamiento de los estudiantes en el contexto posterior a la COVID-19. Este estudio comparó grupos de niños con problemas conductuales, identificados por docentes y confirmados mediante un instrumento validado, según habilidades sociales, edad y sexo, y analizó los efectos predictivos de habilidades sociales específicas y variables demográficas. Participaron 132 docentes de Educación Primaria de escuelas públicas del sureste de Brasil, quienes informaron sobre 197 estudiantes. Se utilizaron variables sociodemográficas, el Cuestionario de Respuestas Socialmente Habilidosas y el Cuestionario de Capacidades y Dificultades. Se realizaron análisis uni y multivariados. Los resultados mostraron que los niños y aquellos con problemas conductuales presentaron mayores dificultades emocionales y menores habilidades sociales. La edad se asoció con mayor sintomatología. Los problemas conductuales fueron predichos por bajas puntuaciones en habilidades sociales específicas. Se destaca la importancia de evaluar estas variables para orientar intervenciones en escolares.

Palabras clave: conducta problema, habilidades sociales, profesores, estudiantes, covid-19

School closures in various countries, including Brazil, were among the first measures taken in response to the COVID-19 pandemic, which disrupted daily routines and affected nearly three-quarters of students worldwide. From March 2020 to February 2021, approximately 44.3 million students worldwide remained out of the classroom for most of that time (United Nations International Children's Emergency Fund [UNICEF], 2021). For children and young people, the impact of the COVID-19 pandemic was not limited to the immediate circumstances of school closures and restrictions on social contact and activities, and more long-lasting consequences have been identified regarding mental health and behavioral issues. Studies (Almeida & Silva, 2021; Maldonado et al., 2023) have shown, in an editorial and a literature review, respectively, the negative short- and long-term effects of the pandemic, such as biopsychosocial harm and increased indicators of mental health disorders, including chronic and acute stress, internalizing problems (anxiety, depression), externalizing problems (aggression), and interpersonal difficulties. For example, empirical studies conducted in different countries (Izquierdo et al., 2023; Maselko et al., 2024; Zuccolo et al., 2023) addressed contextual variables that contributed to the pandemic's impact. In Brazil, mental health screening of children and adolescents revealed a large number of children affected by depressive and anxiety symptoms, especially among those living in situations of greater social vulnerability and during the periods of highest morbidity of the pandemic (Zuccolo et al., 2023). In India, Maselko et al. (2024) examined internalizing symptoms in a large sample of students aged 5 to 19 years at two specific points in time, during a phase of rising case numbers and a phase of decline in the pandemic, showing that pandemic-related stressors diminished over time, but contextual variables continued to influence young people's mental health, which remained compromised. In Chile, Izquierdo et al. (2023) analyzed the consequences of school closures during the pandemic for children and youths and highlighted that, in the post-pandemic period, the negative effects on mental health were accompanied by difficulties in social interactions and learning, which had a widespread impact on school communities. These studies highlighted the importance of monitoring behavioral indicators in children and youths, with special attention to conditions that can minimize the impact of stressors (Zuccolo et al., 2023), reducing problems (Maselko et al., 2024) and fostering the development of socio-emotional skills, with preventive measures aimed at strengthening resources and interventions targeted at students facing the greatest difficulties (Izquierdo et al., 2023). In this context, the social support network plays a crucial role in individuals' behavior, helping them to better cope with stress and emotional difficulties, thereby reducing behavioral problems (Faria et al., 2020).

School serves as an important support network for children's and youths' development and learning, fostering the acquisition of social and behavioral skills and competencies, such as the ability to engage in social interactions and regulate their behavior. Furthermore, teachers' contribution to the positive development of those skills is widely recognized. In the context of the post-pandemic return to school, where multiple stressors were present, identifying students' behavioral difficulties and social skills can facilitate preventive interventions. This study, grounded in the Bioecological Theory of Human Development and the Theoretical and Practical Framework of Social Skills (Leme et al., 2016), fits within this context, given that few studies have addressed both behavioral problems and children's social skills together. The impact of the COVID-19 pandemic on children's socio-emotional skills upon their return to in-person school activities was addressed in the review by Alves and Dipp (2023), which highlighted evident difficulties in social skills in interactions with peers and in recognizing expressed emotions. In the context of returning to in-person activities, from the teachers' perspective, Parlatan and Gürler (2022) found that, in addition to learning difficulties, children also experienced difficulties with social skills. According to Meléndez et al. (2023), from the teachers' perspective upon returning to in-person classes, the challenges faced were manifold: on the one hand, the need

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to make up for basic content not fully mastered during remote learning, and on the other, the need to foster a healthy social environment and the development of students' social skills, in order to support their academic development.

According to Alanko et al. (2024), it is also necessary to highlight other risk factors, which, in the school context, add to the negative consequences of the pandemic and may hinder school engagement (defined as a commitment to learning, encompassing behavioral, emotional, and cognitive dimensions) as students return to in-person activities. According to the authors, students with pre-existing risk factors, such as indicators of anxiety, depression, or externalizing behavior, exhibit lower levels of engagement as compared to students with few or none of these conditions.

Ishimoto et al. (2022) studied the influence of sociodemographic variables on school adjustment, social interactions, and emotional and behavioral functioning among children and adolescents (ages 8 - 12) in a study conducted in Japan. They performed assessments before and after the pandemic. Among the instruments used was the Strengths and Difficulties Questionnaire (SDQ) (Fleitlich-Bilyk & Goodman, 2004), which was also used in this study. They identified poorer emotional and behavioral functioning among younger boys during the pandemic compared to older girls, and children who had more indicators of adjustment problems before the pandemic exhibited more negative effects on their emotional functioning upon returning to school after the pandemic. On the other hand, Granger et al. (2024) point to multiple implications involving teachers' interactions with students, taking into account teachers' sociodemographic variables. The study indicates that teachers tend to have more difficulty interacting with children who exhibit more externalizing behaviors, which increased following the COVID-19 pandemic (Alves & Dipp, 2023), and that these interactions may exacerbate the child's academic and social difficulties. Teachers as evaluators were the focus of the experimental study by Wang et al. (2024), which assessed their beliefs and attributions in response to videos depicting disruptive behavior by students from elementary through high school, accompanied by explanatory justifications for such behaviors. The results suggested that teachers' attributions were independently predicted by their own beliefs about students' misbehavior and less by the justifications provided in the videos. These findings regarding teacher evaluations were previously addressed by von der Embse et al. (2022), who highlighted the need for teacher training to identify students' behavioral and social skills issues, in order to improve the accuracy of the data collected.

The influence of informants was addressed in the study by Guo et al. (2023), which drew on multiple informants (students, teachers, and parents) to examine a broad range of socio-emotional skills and academic outcomes, using a large sample of students aged 10 to 15 from Finland. Their objective was to examine the associations between socio-emotional skills and educational outcomes. They found that specific skills were predictors of specific outcomes and observed low inter-rater reliability. However, they highlighted the relevance of teachers' assessments, as these are guided by a broader frame of reference that compares students with their peers, better reflecting what is expected in a school setting. Furthermore, regarding assessment tools for children's behavior that use teachers as evaluators, it is considered that the good psychometric qualities of the instruments used can, in part, minimize assessment biases, a finding that is widely studied and recognized with regard to SDQ, as shown by the systematic review by Bergström and Baviskar (2021) when analyzing the psychometric indicators of the parent, teacher, and youth versions, in the assessment of clinical and community samples.

In the Brazilian context, considering the literature presented, it is evident that in the post-pandemic period, upon the return to in-person school activities, no empirical studies were identified that jointly addressed the components of social skills, behavioral problems, and demographic variables of schoolchildren, as assessed by teachers, which constitutes the research gap of interest in this study. Given the importance of the school context as a source of development and support, and the recognized impact of the pandemic, assessing children's behavioral problems and social skills may provide data to guide future public policies aimed at minimizing the pandemic's effects on students' socio-emotional development. In light of the above, this study aimed to compare groups of children differentiated by behavioral issues, identified by teachers and confirmed by a validated instrument, in terms of social skills, age, and gender; and to analyze the predictive effects of specific social skills and the children's demographic variables on children's behavioral issues.

Method

Methodological design

This study is part of a project conducted by researchers from the Interpersonal Relations and Social Competence Working Group, associated with the National Association for Research and Graduate Studies in Psychology (ANPEPP), both during and after the COVID-19 pandemic. It involved a convenience sample consisting of elementary school teachers and students from the public school system in medium- and large-sized municipalities in the southeastern region of the country. This was a quantitative, descriptive, inferential, comparative, and predictive study.

Participants

A total of 132 teachers participated as informants, ranging in age from 24 to 74 years (*mean* = 44.6 years and *SD* = 10.0); 88.6% (*n* = 117) were females, 10.6% (*n* = 14) were males, and 1 did not report their gender; 81.8% (*n* = 108) were married, and 65.2% identified as being white (*n* = 86). All of them taught in public elementary schools (five schools) located in municipalities in the Southeast. The sample, also

selected by convenience, consisted of 197 children, of whom 46.7% were females (n = 92) and 53.3% were males (n = 105), with ages ranging from 6 to 14 years (*mean* = 9.7 years; *SD* = 2.3), with 53.8% (n = 106) identifying as being white. To compose the sample of 197 children, 272 were initially considered. Half of these were identified by their teachers as students experiencing difficulties in the classroom, while the other half consisted of children assessed by their teachers as having no difficulties in the classroom. In addition to the teachers' recommendations, all children were assessed using a standardized screening instrument for behavioral and emotional difficulties (which was also completed by the teachers). Given the discrepancy between the teachers' nominations and the standardized instrument's classification for 75 children, we chose to identify the children for whom the teacher's assessment and the instrument's results were consistent. These participants were then selected to comprise the sample for the study. This approach aimed to examine the association between two risk factors for teacher-student interactions: the teacher's perception/belief (Wang et al., 2024) and the assessed instrument (Bergström & Baviskar, 2021).

Thus, one group was formed in which the children received consistent evaluations from their teachers and the assessment instrument indicating that they did not exhibit difficulties. This group was designated G0 (n = 125); and another group in which the teachers agreed with the assessment instrument's evaluation that the children exhibited emotional and/or behavioral difficulties, designated G1 (n = 72). It should be noted that the inclusion criteria for the study were: being a public-school teacher, having signed the Informed Consent Form (ICF), and having students whose parents or legal guardians had authorized the signing of ICF, so that the teachers could assess them.

Instruments

A survey comprising questions designed to characterize the teachers' and students' sociodemographic variables as well as the students' behavioral repertoire, in addition to instruments supported by the literature which assess the same variables: the Socially Skillful Responses Questionnaire - Teachers (SSRQ-Tr) (Bolsoni-Silva & Loureiro, 2020) and the Strengths and Difficulties Questionnaire (SDQ-Tr) (translated and adapted for the Brazilian context by Fleitlich-Bilyk and Goodman, 2004).

The Socially Skillful Responses Questionnaire for Teachers (SSRQ-Tr) assesses, on a Likert-type scale, the frequency of 23 socially skilled responses, as reported by teachers (Bolsoni-Silva & Loureiro, 2020). The instrument, with a total alpha of 0.944, distinguishes between children with and without behavioral problems. The instrument has three factors, explaining a total of 59.214% of the variance: (a) Factor 1 - Sociability and Emotional Expressiveness (14 items - 28.826%); (b) Factor 2 - Social Initiative (5 items - 15.607%); (c) Factor 3 - Support Seeking (4 items - 14.780%). SSRQ-Tr has a cutoff score of 31 or less, considering TRF as the gold standard in a ROC curve analysis. Thus, a score of 30 or less indicates a deficit in social skills. Internal consistency, considering the sample in the study, ranged from α = .746 for Factor 2 to α = .963 for the total instrument.

The teacher version of the Strengths and Difficulties Questionnaire (SDQ-Tr), by Fleitlich-Bilyk and Goodman (2004), consists of 25 items on a Likert-type scale, assessing emotional and behavioral aspects organized into five subscales. According to the psychometric study by Woerner et al. (2004), the instrument shows reliability in the Brazilian context, with Cronbach's alpha ranging from .60 to .88, and cutoff scores for behavioral problems and prosocial resources. In the version for teachers, the ROC curve showed cutoff values between .75 and .91. In this sample, the lowest internal consistency was observed on the Peer Relationship Problems subscale (α = .705; 5 items), and the highest was on the Total Difficulties subscale (α = .924; 20 items).

Procedures

Data collection. After the study was submitted to and approved by the FFCLRP-USP Human Research Ethics Committee (CAAE: 57257422.8.0000.5407; report number 5.414.483), invitations were extended to public school administrators. Once the administrators accepted the invitation, with approval from the municipal education departments, the study was presented in person to teachers during a previously scheduled collective professional development session. Teachers who agreed to participate identified children with and without learning difficulties. The children's parents or legal guardians were contacted via a note explaining the study and including two copies of ICF. Upon their authorization (return of one signed copy of ICF), the teachers then assessed the students and received a link to the Research Electronic Data Capture (REDCap) platform, thus enabling online data collection. Initially, the teachers read and signed ICF and subsequently answered the questions. The data collection process took an average of 30 minutes. After data collection and analysis were completed, presentations were held at the schools to share general findings from the study, offering referral options, general guidance, and support materials.

Data analysis. The data from the instruments were stored on the REDCap platform and statistically analyzed using the Statistical Package for Social Sciences for Windows (SPSS) software - version 29.2. For all inferential analyses, a value of .05 was considered statistically significant. Descriptive analyses were conducted to identify the distribution of the data and to group participants based on sociodemographic categories (sex and age). At the outset of the inferential analyses, univariate normality assumptions were tested, with absolute values of skewness remaining below 3.0 and kurtosis below 10.0 (Kline, 2023). The assumptions of homogeneity of variances and covariance matrices were tested using Levene's and M de Box's tests, respectively. Given the violation of homogeneity of variances in some dependent variables ($p < 0.05$), the Pillai trace was used in the MANOVA, as it is a more robust estimator for such violations (Hair et al., 2009). Additionally, in the t-tests for independent samples,

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results were reported assuming equal variances, which were not assumed. MANOVA was conducted to assess multivariate differences and interactions among the groups defined by sex (Male n = 105; Female n = 92), age (< 11 years n = 64), and groups of children differentiated by behavioral problems (G0 - no problems n = 125; G1 - with problems n = 72), across all dependent variables. Once a significant multivariate effect was identified, a univariate comparison between groups was performed using t-tests for independent samples. This approach was adopted because all independent variables were dichotomous, a situation in which the t-test is statistically equivalent to a one-way ANOVA with two levels, yielding the same significance values and interpretations. An effect size was considered small when d was between 0.50 and 1; very high when it was 1, as suggested by Marôco (2021). A predictive model with G1 as the outcome was tested using binary logistic regression analyses. The Enter method of variable selection was adopted to ensure the joint and simultaneous inclusion of the predictor variables in the model, which were gender (female as the reference category), age (students aged 11 or older as the reference category), Social Availability, Coping, and Expression of Feelings - the latter three measures obtained via SSRQ. Measures from SDQ were not considered, since the instrument was used to form the groups, which could introduce bias. Multicollinearity was assessed using auxiliary linear regression, examining the Tolerance and VIF values. All predictors had Tolerance > .10 and VIF < 5, indicating the absence of problematic multicollinearity for conducting the logistic regression.

Ethical considerations

The study was approved by the FFCLRP-USP Human Research Ethics Committee (CAAE: 57257422.8.0000.5407; report number 5.414.483), in accordance with Resolutions No. 466/2012 and 510/2016 by the National Health Council. All the teachers participating in the study read and signed ICF. One of the parents or legal guardians of the students, indicated by the teachers, whether the students had learning difficulties in the classroom or not, also read and signed ICF, expressing consent for the students' participation. It should be noted that the students did not participate directly but were informed about the study and were the ones who brought the ICF signed by their parents or legal guardians from and back to the school. Upon completion, the schools received guidance and support materials.

Results

Grouping effects on social skills, emotional and behavioral symptoms

Initially, it was found that the variable "groups of children differentiated by behavioral problems" (G0 and G1), according to MANOVA, had a significant effect on the set of variables tested [Pillai's criterion = .84, $F_{(8,182)}$ = 114.85, p < .001, η^2_p = .84, π = 1.00], as did the gender variable [Pillai's Criterion = .13, $F_{(8,182)}$ = 3.34, p = .001, η^2_p = .13, π = .97]. The age variable did not show a significant effect [Pillai's criterion = .07, $F_{(8,182)}$ = 1.73, p = .09, η^2_p = .07, π = .74]. The interaction between groups of children differentiated by behavioral problems (G0 and G1) and age was significant [Pillai's criterion = .11, $F_{(8,182)}$ = 2.94, p = .004, η^2_p = .11, π = .95]. On the other hand, the interaction between groups of children differentiated by behavioral problems (G0 and G1) and gender was not significant [Pillai's criterion = .06, $F_{(8,182)}$ = 1.39, p = .205, η^2_p = .06, π = .62], nor was the interaction between age and gender [Pillai's criterion = .04, $F_{(8,182)}$ = .95, p = .474, η^2_p = .04, π = .44].

Table 1 shows the means, standard deviations, and univariate comparisons for the groups formed based on the following variables: groups of children differentiated by behavioral problems, sex, and age.

Table 1 shows that the mean scores for social skills, as assessed by the SSRQ, were statistically different between the groups formed based on behavior and gender. The group consisting of girls and children assessed and identified as having no behavioral problems had higher mean scores in Social Skills, Social Availability, Coping, Expression of Feelings, and Pro-social Behavior - an SDQ factor, while the groups of boys and those with behavioral problems had higher mean scores in Hyperactivity, Emotional Symptoms, Conduct Problems, Relationship Problems, and Total Difficulties, as measured by SDQ. The effect size in comparisons between groups formed based on behavior ranged from -1.9 to -4.8 and was considered very high. For the gender variable, the effect size of the comparisons was moderate, ranging from -0.4 to 0.8. Comparisons of means obtained for groups formed based on age were not significant, and the effect size ranged from .1 to .3, being considered small or medium in the case of value .3.

The univariate analyses (t-test) conducted separately for G0 and G1 indicated similarities in most measures when considering the age group. The exception was for the emotional symptoms variable (t = 2.359; p = .02). Children in G1, belonging to the age group < 11 years, had a higher mean (mean = 5.76; SD = 2.3). The effect size was 0.56 for this analysis.

Grouping predictions based on behavioral difficulties and problems (G0 and G1).

Table 2 shows the estimates from a model fitted to predict (binary logistic regression) the inclusion in Group G1 (children with difficulties according to teacher evaluations and psychometric assessments using SDQ).

Table 2 shows that the model was significant and well-fitting (G_2 (5) = 174,541, $p \leq .001$; X^2 *Wald's* (6) = 13,623, p = .092, R^2cs = 0,804; R^2N = 0,588). The probability of being in Group 1 increases as the means for Social Availability and Coping scores decrease, and increases proportionally with the Feeling Expression score. The correct classification rate was 92.4%, with a specificity of 95.2% and a sensitivity of 87.5%.

Table 1

Comparison of means on SSRQ and SDQ by behavior classification, sex, and age (n = 197)

Variable (Instrument)	Measures	Behavior		Sex		Age	
		G0 *n* = 125	G1 *n* = 72	Fem. *n* = 92	Mal. *n* = 105	< 11 *n* = 133	≥ 11 *n* = 64
Social skills (SSRQ)	*Mean*	41.1	20.4	38.4	29.3	34.3	32.0
	SD	5.7	9.5	9.9	12.8	11.6	13.8
	t-test; d	19.1***;	2.8	5.6***;	0.8	1.2;	0.2
Social availability (SSRQ)	*Mean*	25.3	12.6	24.0	17.7	21.2	19.6
	SD	3.6	5.9	5.9	7.8	7.2	8.5
	t-test; d	18.7***;	2.8	6.3***;	0.9	1.4;	0.2
Coping (SSRQ)	*Mean*	9.2	3.6	8.2	6.2	7.3	6.8
	SD	1.6	2.5	2.7	3.5	3.3	3.4
	t-test; d	19.0***;	2.8	4.3***;	0.6	1.1;	0.2
Feeling expression (SSRQ)	*Mean*	6.7	4.2	6.3	5.3	5.8	5.7
	SD	1.5	2.2	2.0	2.2	1.9	2.6
	t-test; d	9.6***;	1.4	3.1**;	0.4	0.3;	0.2
Pro-social behavior (SDQ)	*Mean*	8.9	4.5	8.4	6.3	7.4	6.9
	SD	1.6	2.5	2.1	3.1	2.7	3.2
	t-test; d	15.1***;	2.2	5.7***;	0.8	1.2;	0.2
Hyperactivity (SDQ)	*Mean*	1.0	7.3	1.8	4.6	3.2	3.5
	SD	1.5	1.9	2.6	3.7	3.5	3.5
	t-test; d	-25.5***;	-3.5	-5.9***;	-0.8	-0.5;	- 0.2
Emotional symptoms (SDQ)	*Mean*	1.4	5.2	2.2	3.3	2.8	2.6
	SD	1.6	2.6	2.4	2.9	2.9	2.4
	t-test; d	-13.1***;	-1.9	-2.7**;	- 0.4	0.5;	0.2
Conduct problems (SDQ)	*Mean*	0.3	4.4	1.0	2.6	1.6	2.3
	SD	0.6	2.6	1.7	2.9	2.4	2.8
	t-test; d	-16.9***;	-2.5	-4.6***;	-0.7	-1.8;	-0.3
Peer-relationship problems (SDQ)	*Mean*	0.9	4.0	1.4	2.6	2.0	2.2
	SD	1.2	1.9	1.8	2.2	2.2	2.1
	t-test t; d	-14.1***;	-2.1	-3.9***;	-0.6	-0.7;	- 0.2
Total difficulties (SDQ)	*Mean*	3.6	21.0	6.5	13.0	9.6	10.6
	SD	3.1	4.4	7.3	9.6	9.2	9.1
	t-test; d	-32.6***;	-4.8	-5.3***;	-0.8	-0.7;	- 0.1

Note. Fem. = Female; Mal. = Male; G0 = group of students without behavioral problems; G1 = group of students with behavioral problems. ** = p-values < 0.01; *** = p-values < 0.001; *SD = Standard Deviation; d = "Cohen's d" effect size.*

Table 2

Logistic Regression for Predicting G1 (Behavioral Problems)

Predictive variables	B	S.E	Wald	df	p	Exp (B)	(CI 95%)	
							Inferior	Superior
Female gender	-0.50	0.65	0.58	1	.44	0.61	0.17	2.18
Age > 11 years	0.16	0.64	0.07	1	.79	1.18	0.34	4.10
Social availability (SSRQ)	-0.21	0.08	7.55	1	.01	0.81	0.69	0.94
Coping (SSRQ)	-0.83	0.22	14.53	1	< .01	0.43	0.28	0.67
Feeling experession (SSRQ)	0.64	0.25	6.37	1	.01	1.89	1.15	3.11
Constant	5.88	1.13	27.03	1	< .01	356.46		

Note. B = regression coefficient; *S.E.* = standardized error; *df* = degrees of freedom; *C.I.* = confidence interval.

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Discussion

This study sought to compare groups of children differentiated by behavioral problems, as identified by teachers and confirmed by a validated assessment tool, in terms of social skills, age and gender, as well as to analyze the predictive effects of specific social skills and the children's demographic variables on their behavioral problems.

Considering the assessed components of social skills (SSRQ) and pro-social behavior (SDQ), it was found that these were significantly higher in the group of children classified as having no behavioral problems (G0) and in the female group. These findings are consistent with the literature, which indicates that girls generally perform better in positive social interactions and pro-social behaviors, as well as exhibit lower rates of externalizing problems, such as hyperactivity and inappropriate conduct (Granger et al., 2024; Ishimoto et al., 2022). In addition, boys and children in the G1 group (with behavioral problems) had higher mean scores for hyperactivity, emotional symptoms, conduct problems, and relationship difficulties. These findings are consistent with other studies that have identified more externalizing problems in boys (Granger et al., 2024; Ishimoto et al., 2022; Wang et al., 2024). Since the effect size observed between the groups was significant, we conclude that SDQ is a feasible and reliable tool for identifying emotional and behavioral difficulties in the school setting, consistent with other studies in the field (Bergström & Baviskar, 2021). However, it is important to exercise caution when interpreting comparisons of the difficulties assessed by SDQ, specifically between the group with behavioral problems and the group without such problems, since the scores on this instrument were used to form the groups, which would explain the high effect sizes observed for these measures. The consistency of these results reflects both the accuracy of the teachers' assessments and the reliability of the instruments used, such as SDQ and SSRQ, which are widely recognized in the international and national literature (Bergström & Baviskar, 2021; Bolsoni-Silva & Loureiro, 2020). This identification can be used as a recommended preventive measure to provide children, teachers, and parents with the opportunity to engage in positive social interactions that promote development (social skills) and reduce vulnerabilities (behavioral problems), which are central variables in this study.

With regard to the gender variable, the effect size was moderate, highlighting that, although girls performed better on social skills, the differences are significant, but not as pronounced as those observed in the groups formed based on behavior. This is consistent with research showing the cultural and contextual influences on expectations and the management of social skills among boys and girls (Alves & Dipp, 2023; Parlatan & Gürler, 2022).

The univariate comparisons between the age-based groups were not significant, which partially differs from the findings of other studies (Alanko et al., 2024; Ishimoto et al., 2022). However, MANOVA revealed that the interaction between group and age was significant, with a moderate effect size, likely influenced by the fact that problems related to emotional symptoms are more pronounced in younger children and those with reported problems. This finding aligns with research suggesting that children with behavioral problems tend to face greater challenges during specific developmental stages (Alanko et al., 2024; Ishimoto et al., 2022). Age was not a determining factor for differences in social skills and behavioral problems, which can be explained by the fact that all children were enrolled in the same educational stage, in this case, elementary school. Further studies comparing preschool and high school may shed light on this issue, as well as the relevance of multivariate analyses in which age is examined alongside behavioral variables, thereby helping to improve our understanding of its impact on the assessed social skills behaviors.

With regard to the gender variable, a significant effect was observed, with a moderate effect size, suggesting that differences between boys and girls in social and behavioral skills are relevant. These findings are consistent with studies that have indicated better performance in social skills among girls, associated with lower levels of hyperactivity and conduct problems (Granger et al., 2024; Ishimoto et al., 2022). Cultural context and social expectations may influence these differences, as boys are often more closely associated with externalizing behaviors and are perceived differently by teachers (Wang et al., 2024). Furthermore, in our culture, there is sometimes greater tolerance for aggressive behaviors in boys than in girls, which may inadvertently reinforce such behaviors.

However, the interaction between group and sex was not significant, indicating that the differences observed between boys and girls do not change significantly depending on the presence or absence of behavioral problems. Finally, the interaction between age and sex was also not significant, suggesting that these variables, when combined, do not explain additional variations in the results. This finding is consistent with studies suggesting that, although sociodemographic variables such as gender and age may be relevant in isolation, their interactions do not always produce significant effects on behavioral and social indicators (Guo et al., 2023; Ishimoto et al., 2022). Therefore, broader variables that include teacher-student social interactions are needed in future studies to shed light on this issue.

Overall, the findings highlighted that the most significant differences occurred between groups with and without behavioral problems, with gender showing a moderate effect. These findings underscore the need for specific, evidence-based interventions targeted primarily at children with behavioral problems and at more vulnerable groups, such as boys, who tend to exhibit higher rates of hyperactivity and inappropriate behavior. The results also highlighted the importance of using validated instruments and teachers' perceptions in identifying behavioral and social difficulties in the school setting (von der Embse et al., 2022). In fact, the need for public policies aimed at strengthening social and emotional skills, promoting more inclusive and welcoming school environments in the post-pandemic era is emphasized (Izquierdo et al., 2023).

With regard to Social Availability, Coping, and Expression of Feelings (specific social skills), which were variables that emerged as significant predictors of behavioral problems, coping is recognized as an important strategy for managing stress and reducing problematic behaviors (Fava et al., 2023); and the expression of feelings (which appears in the model as a positive predictor) is related to an individual's ability to identify, process, and communicate their emotions in a healthy way. This seems to align with Parlatan and Gürler (2022), who highlighted the difficulties children faced in the post-pandemic period in regulating their emotions, understanding what was being taught, and following instructions. Thus, when poorly regulated, this expression may be associated with externalizing behaviors, such as aggression or socialization problems. Njardvik et al. (2022) argued that emotional regulation (which includes the ability to express and control emotions) is an important factor in emotional adaptation and social behavior. Similarly, Pennequin et al. (2020) argued that difficulty in expressing emotions constructively can lead to increased frustration and, consequently, to disruptive and dysfunctional behaviors. Finally, as regards social availability, referring to a child's openness to initiating and maintaining social interactions and indicating a lower tendency toward avoidance or isolation in interpersonal situations, which showed a negative effect in the model, suggests that, in certain contexts, misdirected or excessive social support may not be effective, or may even contribute to greater emotional dependence, leading to less adaptive behaviors (Faria et al.; 2020). Thus, the results indicated that children's emotional and behavioral difficulties were still present in the post-COVID-19 pandemic period and that difficulties with coping, being socially available, and expressing feelings may still stem from processes established during the period of pandemic-related social isolation. Furthermore, teachers' ability to identify these issues is an important competency for implementing interventions to mitigate these effects.

We concluded that the study met its objectives. Among the positive aspects, the following stand out: the use of validated instruments, which ensure greater precision and reliability of the measurements; the formation of groups based on agreement between the instruments and the teachers' perceptions, which certainly influences how they assess and interact with the children; and the data analysis, which utilized statistical comparisons and multivariate models, further strengthened the scientific contribution of the study. Despite the relevant results, some limitations should be considered, such as: a convenience sample composed of teachers and students from a single region in the country, which limits the generalizability of the findings to different cultural and regional contexts; the cross-sectional nature of the study, which precludes conclusions about causality between variables; and the exclusive reliance on teachers' perceptions as informants, which may involve evaluative bias. In summary, this study contributes to the understanding of differences in social skills and behavioral problems in the post-pandemic elementary school setting. By identifying more vulnerable groups, such as boys and children with behavioral problems, it reinforces the need for evidence-based interventions, specifically targeted prevention, that promote social skills and mental health in the school environment. The implications of these findings can guide public policies and pedagogical practices that strengthen children's development, minimizing the adverse effects of the pandemic on the Brazilian educational context.

Data Availability

The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Luciana Carla dos Santos Elias is a Professor at Faculdade de Filosofia, Ciências e Letras, Universidade de São Paulo (USP), Ribeirão Preto-SP, Brazil.

Alessandra Turini Bolsoni-Silva is a Professor at Universidade Estadual Paulista Júlio de Mesquita Filho (UNESP), São Paulo-SP, Brazil.

Sonia Regina Loureiro is a Professor at Universidade de São Paulo (USP), Ribeirão Preto-SP, Brazil.

Marta Regina Gonçalves Correia Zanini is a Professor at Universidade Paulista (UNIP), Ribeirão Preto-SP, Brazil.

Antonio Paulo Angélico is a Professor at Universidade Federal de São João del-Rei (UFSJ), São João del-Rei-MG, Brazil.

Lucas Cordeiro Freitas is a Professor at Universidade Federal de São João del-Rei (UFSJ), *São João del-Rei-MG, Brazil.*

Vanessa Barbosa Romera Leme is a Professor at Universidade do Estado do Rio de Janeiro (UERJ), Rio de Janeiro-RJ, Brazil.

Adriana Benevides Soares is a Professor at Universidade Salgado de Oliveira, Niterói-RJ, Brazil.

Patricia Lorena Quiterio is a Professor at Universidade do Estado do Rio de Janeiro (UERJ), Rio de Janeiro-RJ, Brazil.

Catarina Grande is a Professor at Faculdade de Psicologia e Ciências da Educação, Universidade do Porto, Portugal.

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