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► **To cite this version:**

Aurélie Simoës-Perlant, Marion Barreau, Caroline Vezilier. Stress, Anxiety, and School Burnout Post COVID -19: A Study of French Adolescents. *Mind, Brain, and Education*, 2023, 17 (2), pp.98-106. 10.1111/mbe.12346 . hal-04146677

**HAL Id: hal-04146677**

**<https://hal.science/hal-04146677>**

Submitted on 30 Jun 2023

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# Stress, Anxiety, and School Burnout Post COVID-19: A Study of French Adolescents

Aurélie Simoës-Perlant<sup>1</sup> , Marion Barreau<sup>2</sup>, and Caroline Vezilier<sup>1</sup>

**ABSTRACT**— This study examined the symptoms of exhaustion, school stress and anxious school refusal from a comparative developmental perspective in French adolescents enrolled in public and private general, technological and vocational schools. It is particularly important to consider academic stress levels, anxiety and school burnout in middle and high school students as they are linked to many mental health problems, such as depression or suicidal thoughts. In this study, four hundred and ninety-three adolescents completed an online questionnaire consisting of the School Burnout Inventory, the Echelle Toulousaine de Stress Scolaire perçu and the School refusal evaluation was developed. The results show a very high percentage of suffering among teenagers. The young people most affected are high school students and more particularly students in 10th and 12th grade, with nearly three-quarters of them suffering from school burnout and/or high school stress, without any distinction between the sexes or the type of schooling.

In 2020, the COVID-19 pandemic dramatically changed our lives, both personally, academically and professionally. Students, from elementary school to university, were particularly affected by the teaching methods implemented (UNESCO, 2020). Whether it was home schooling for elementary school students, or distance learning for middle schoolers, high schoolers and university students, lockdown led to a strong sense of isolation, loneliness, discomfort and stress (Husky, Kovess-Masfety, & Swendsen, 2020). These

negative feelings were not unilateral. Indeed, teachers were also strongly impacted by the lockdown because of technical problems related to teaching and the teacher-student relationship. These difficulties resulted in intense stress in terms of emotional exhaustion, depersonalization and low personal accomplishment. This relatively high level of unhappiness can be linked to the students' level of unhappiness in this very anxiety-provoking context (Chirico et al., 2022). Since then, clinicians have been encountering more and more adolescents who are suffering and need support. These adolescents seem to present symptoms of depression and anxiety, associated with symptoms of school burnout. These clinical findings corroborate the state of the art on this subject since several recent studies show that middle school and high school students presented (1) a very high level of anxiety during the COVID-19 pandemic (Hoyt, Cohen, Dull, Maker Castro, & Yazdani, 2021; Styck, Malecki, Ogg, & Demaray, 2021) and (2) a particularly high rate of burnout and academic stress (19% and 47% respectively) (Salmela-Aro & Upadyaya, 2020). Large-scale surveys confirm the magnitude of an already existing problem by showing that a considerable percentage of high school students present symptoms of school-related burnout (exhaustion, cynicism and inadequacy) (Ipsos, 2021). Moreover, preliminary work highlights gaps between girls and boys in school-related mental health problems. For example, studies conducted prior to the COVID-19 pandemic show that girls appear to be more affected by burnout and academic stress than boys (Esparbès-Pistre, Bergonnier-Dupuy, & Cazenave-Tapie, 2015; Giota & Gustafsson, 2021; Herrmann, Koeppen, & Kessels, 2019).

Adolescents spend an average of 26 h per week in school. This forum for academic and social learning can also be a place that generates a number of psychological difficulties (Golse, 2005). Among them, stress is considered to be an emotional, cognitive, behavioral and physiological process with a negative valence that occurs when a person tries to

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adapt to or cope with a difficult situation (Bernstein, Penner, Stewart, & Roy, 2008; King, Stanley, & Burrows, 1987). Although it is a normal reaction to a threat to the individual, stressors are circumstances that disrupt or are likely to disrupt the daily functioning of individuals and drive them to implement a number of more or less costly coping strategies. The factors of school stress most frequently reported in the literature are related to the organization of school time, class schedules, teacher-student relations, the climate of the institution (e.g., aggression, school harassment) (Ossa, Pietrowsky, Bering, & Kaess, 2019), parental expectations of performance and guidance (Moyné, Barthod-Malat, & Kubiszewski, 2018), unbalanced homework, and the teaching and learning methodology (Pourrajab, Rabbani, & Kasmaiezhadfar, 2014). It is possible that a developmental risk factor exists but, to our knowledge, no comparative middle school/high school study has been conducted on these topics. Indeed, some recent work in the field of emotions has clearly shown that emotional states are more variable and that negative affect is more important in adolescents than in children. These findings suggest that adolescence is a particularly high-risk period (Reitsema, Jeronimus, van Dijk, & de Jonge, 2022). Moreover, these factors may not impact all adolescents in the same way because of their different perceptions of stressful situations, but also because of the learning context (public and private institutions) (Khan & Alam, 2015; Subramani & Kadiravan, 2017). In France, private education under contract has served about one in five students for several decades. In the literature, the higher level of stress found among students in private schools can be explained by to feel overburdened by the workload at home, the high expectations of their parents and teachers, and the competitive nature of their schooling (Khan & Alam, 2015). Another risk factor would be teacher burnout syndrome due to its close relationship with the student (Chirico et al., 2019).

It is particularly important to consider academic stress levels in middle and high school students as they are linked to many mental health problems, such as anxiety (Nonterah et al., 2015), depression (Bergin & Pakenham, 2014; Esparbès-Pistre et al., 2015) or suicidal thoughts (Gallagher, Prinstein, Simon, & Spirito, 2014). Similarly, studies show that high school stress significantly alters the level of happiness and well-being (Gallagher et al., 2014; Wang et al., 2021) and is correlated with higher substance use (Leonard et al., 2015) and altered sleep patterns (Bernert, Merrill, Braithwaite, Van Orden, & Joiner, 2007; Curcio, Ferrara, & De Gennaro, 2006; Noland, Price, Dake, & Telljohann, 2009). Finally, stress has a negative effect on learning in general as it reduces academic performance and leads to a loss of confidence (Immordino-Yang & Damasio, 2007; Richlin-Klonsky & Hoe, 2003). This academic stress and the

constellation of mental health issues that surround it can lead to what researchers call “teenage burnout”.

To our knowledge, no study has evaluated the symptoms of exhaustion, school stress and anxious school refusal from a comparative developmental perspective. This research, therefore, proposes to apprehend these different psychological difficulties (exhaustion, academic stress and anxious school refusal) post-COVID 19 in French secondary school students enrolled in public and private general, technological and vocational schools. All school levels were scanned in order to accurately assess the age at which the difficulties appear to be significant. So, we assume that the symptoms of burnout, academic stress and anxious school refusal will be more important in high school students than in middle school students, and even more so if the latter is enrolled in a private school.

## MATERIALS AND METHODS

### Participants

Four hundred and ninety-three adolescents participated in the online study. The distribution was as follows:  $n = 82$  12th graders ( $m = 17$ ,  $f = 65$ ),  $n = 39$  11th graders ( $m = 13$ ,  $f = 26$ ),  $n = 38$  10th graders ( $m = 20$ ,  $f = 17$ ,  $ND = 1$ ),  $n = 107$  9th graders ( $m = 57$ ,  $f = 50$ ),  $n = 91$  8th graders ( $m = 36$ ,  $f = 55$ ),  $n = 49$  7th graders ( $m = 23$ ,  $f = 26$ ), and  $n = 87$  6th graders ( $m = 41$ ,  $f = 46$ ). The students who responded to the questionnaire were enrolled in 49 different French schools. Our sample of students enrolled in a general school program is 94.5%. The proportion of students enrolled in a technological school is 2.25% and that of students enrolled in a vocational school is 3.25%. This difference can be explained in part by the fact that the choice of stream is made after the 9th grade. In addition, 73.65% of the students in our sample are enrolled in a French public school and 26.35% of the students are enrolled in a French private school. This discrepancy is consistent with the proportion of students enrolled in these two types of schools at the French national level.

### Ethical Clearance

This study respects the ethical and deontological principles of research in psychology and behavioral sciences (Caverni, 1998; Société Française de Psychologie, SFP, 2020). Thus, this study does not impact the health or well-being of the volunteer participants. As this study was conducted online, free and informed consent was obtained and subjects were free to leave the scientific process at any time. No personal and identifying information was requested from the participants. The life, health, dignity, integrity, right to self-determination, privacy, and confidentiality of the research subjects were preserved. The researchers agreed to

provide the participants and their legal guardians with any additional information they would need to understand the study at the end of the study. The research ethics committee of the University of Toulouse has issued a favorable opinion on the conduct of this study (CER 2021\_450).

### Measure

An online questionnaire was developed and distributed to middle and high school students. This questionnaire, consisting of (1) the school burnout inventory of Meylan et al. (Meylan, Doudin, Antonietti, & Stephan, 2015) (French version of the School Burnout Inventory (Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009; Salmela-Aro, Savolainen, & Holopainen, 2009)), (2) l'Echelle Toulousaine de Stress Scolaire perçu (Toulouse scale of perceived school stress) (Esparbès-Pistre & Bergonnier-Dupuy, 2004), a short version developed from « L'échelle Toulousaine de Stress » (Toulouse Stress Scale) (Tap et al., 1999) and (3) the School refusal evaluation (Gallé-Tessonneau & Gana, 2019). Five questions of personal information introduced the test and concerned age, gender, grade, field of study and type of school attended.

The School Burnout Inventory. This French version of the SBI is composed of 9 self-reported items (e.g., Je me sens accablé(e) par mon travail scolaire [I feel overwhelmed by my school work]) on a 6-point Likert scale ranging from 1 = "completely false" to 6 = "completely true". The items cover the 3 theoretical dimensions of burnout. The first dimension refers to exhaustion in the face of the demands of the school. This dimension can be calculated on the basis of the total of the scores on items 1, 4, 7, and 9. The second dimension concerns cynicism about the meaning of school. It can be evaluated by the total of the scores on items 2, 5, and 6. Finally, the third dimension refers to the feeling of inadequacy as a student and concerns items 3 and 8. A total score higher than 29 is indicative of severe burnout. The internal consistency of the three school-burnout scales was examined by calculating Cronbach's  $\alpha$ s for direct sums of items. Thus, regarding exhaustion in the face of academic demands, internal consistency is high (Cronbach's  $\alpha = .80$ ), the same is true for the dimension of cynicism (Cronbach's  $\alpha = .80$ ) and the dimension of the feeling of inadequacy as a student (Cronbach's  $\alpha = .67$ ).

Echelle Toulousaine de Stress Scolaire perçu (short version). [Toulouse scale of perceived school stress] This short version is composed of 14 self-reported items (e.g., Je n'arrive pas à m'en sortir avec mes devoirs [I cannot get through my homework]) on a 5-point Likert scale ranging from 1 = "never" to 5 = "very often". The items refer to the 4 theoretical dimensions of stress. The first dimension concerns psychological manifestations and can be calculated on the basis of the total of the scores for items 1, 2, and 8. The

second dimension refers to physical manifestations and can be evaluated by the total of the scores for items 3, 5, and 9. The third dimension refers to psycho-physiological manifestations and can be assessed by the total of the scores for items 4, 6, and 12. Finally, the fourth dimension concerns temporal disturbances and can be measured by the total of the scores for items 10, 13, 7, and 14. Internal consistency for the 14-item scale was highly satisfactory ( $\alpha = 0.87$ ). For the subdimensions, internal consistency ranged from  $\alpha = 0.60$  to 0.70 and was satisfactory. The measurement of perceived school stress is expressed by a score between 14 and 70 and a division into three levels (low, medium and high) in reference to the work on the chronicity of stress during adolescence (Gallé-Tessonneau & Gana, 2019), which provides more precise information on the intensity of perceived school stress. The level of perceived school stress is estimated as low if the score is between 14 and 29, as medium if the score is between 30 and 39 and as high if the score is between 40 and 70 (Dumont, Leclerc, Pronovost, & McKinnon, 2006).

The School refusal evaluation is a scale for identifying and measuring anxious school refusal. It is composed of 18 items (e.g., En classe, j'ai peur de ce que les autres pensent de moi [In class, I am afraid of what others think of me]) that can be evaluated by the subject him/herself on a 5-point Likert scale ranging from 1 = "does not correspond to me at all" to 5 = "corresponds to me completely". It allows the evaluation of 4 theoretical dimensions of anxious school refusal. The first dimension concerns anxious anticipation and can be calculated on the basis of the total of scores on items 3, 4, 7, 11, and 18. The second dimension refers to difficulties in the transition from home to school and can be evaluated by the total of scores on items 2, 8, 12, and 16. The third dimension refers to interpersonal discomfort assessable by the total of scores on items 1, 5, 10, 14, and 15. The fourth dimension refers to school avoidance and is measured by the total of scores on items 6, 9, 13, and 17. A total score greater than 41 indicates anxious school refusal. Internal consistency was satisfactory for the scale as a whole (Cronbach's  $\alpha = .84$ ) as well as for the four factors (.85; .79; .69 and .62, respectively).

### Procedure

Potential participants and their legal guardians were recruited using a snowball method. The research team sent a newsletter by e-mail to a few personal contacts selected according to the study's inclusion criteria who had agreed to distribute this message to other people they knew who met the study criteria. In the body of this email, the researchers introduced the project and provided potential participants and their legal guardians with a link to access the online task on the "Google Form" platform. Thus, each willing participant was able to log in to the questionnaire from any Internet-connected device at any time they wished.



The anonymity of the data did not allow the participant to go back to their answers after completing the questionnaire.

### Statistical Analysis

Statistical analysis of data was carried out by SPSS26.0. First, all means and standard deviations were statistically analyzed using standardized statistical methods. The normal distribution of the data used the Shapiro–Wilk test, and the homomorphic distribution used the Levene test. A 2 (Gender: Male vs. Female)  $\times$  7 (Grade levels: 6th vs. 7th vs. 8th vs. 9th vs. 10th vs. 11th vs. 12th)  $\times$  2 (Types of school: Public vs. Private) MANOVA was performed on the scores on the three tests (1) school burnout, (2) perceived school stress, and (3) anxious school refusal. Mauchly's test of sphericity which evaluates if the variance of the differences between all combinations of the groups are equal was used, together with the non-conforming sphericity test, and then Greenhouse–Geisser correction which is a statistical method of adjusting for lack of sphericity in a repeated measures ANOVA was used for analysis. Fisher Least Significant Difference (LSD) post-hoc analysis was used, where significant differences occurred. Partial eta squared ( $\eta^2p$ ) calculated the effect size of significant main effects and interactions. The effect is small for  $.01 < \eta^2p < .06$ ; the effect is medium for  $.06 < \eta^2p < .14$ ; the effect is large for  $\eta^2p > .14$ . Finally, to assess the magnitude of the relationship between the scores on the different tests, we performed Pearson correlation analyses.

## RESULTS

We began by conducting an analysis of the overall effects. Thus, the MANOVA showed that the gender effect was significant for perceived school stress,  $F(2,413) = 8.727$ ,  $p < .001$ ,  $\eta^2p = .04$  (cf., Figure 1). Girls, across all grade levels, were significantly more academically stressed than boys (39.64 [1.36] vs. 37 [1.18]). Although this trend was found descriptively for school burnout ( $F(2,413) = 2.42$ ,  $p = .09$ ,  $\eta^2p = .01$ ), and anxious school refusal ( $F(2,413) = 2.72$ ,  $p = .07$ ,  $\eta^2p = .01$ ). The effect of school type was not significant on any test (perceived school stress,  $F(6,413) < 1$ ,  $\eta^2p = .01$ , ns., school burnout,  $F(6,413) < 1$ ,  $\eta^2p = .00$ , ns. and anxious school refusal,  $F(6,413) < 1$ ,  $\eta^2p = .01$ , ns). In other words, the scores on the various mental health questionnaires do not differ significantly whether students are enrolled in public or private schools. In contrast, the effect of school level was significant regardless of test: school burnout,  $F(7,413) = 13.854$ ,  $p < .001$ ,  $\eta^2p = .17$ ; perceived school stress,  $F(7,413) = 10.766$ ,  $p < .001$ ,  $\eta^2p = .14$  and anxious school refusal,  $F(7,413) = 4.09$ ,  $p < .01$ ,  $\eta^2p = .06$ . Fisher LSD post-hoc analysis to determine significant differences

between group means was conducted for each test and is expanded upon below.

### School Burnout

The analysis shows significant differences between the scores of students in 12th grade and the scores of students in 11th, 9th, 8th, 7th, and 6th grade ( $p < .01$ ). The scores of students in 11th grade differed significantly from the scores of students in the 12th, 10th, 8th, 7th and 6th grade ( $p < .01$ ). In addition, the scores of 10th graders differed significantly from the scores of students in the 11th, 9th, 8th, 7th and 6th grade ( $p < .01$ ). The scores of 9th graders differed significantly from the scores of students in 12th, 10th and 6th grade ( $p < .01$ ). The scores of 8th graders differed significantly from the scores of students in 12th, 11th, 10th and 6th grade ( $p < .01$ ). The scores of 7th graders differed significantly from the scores of students in 12th, 11th, 10th and 6th grade ( $p < .01$ ). Finally, the scores of 6th graders differed significantly from the scores of students at all other grade levels ( $p < .01$ ).

Thus, it is interesting to note that (1) 6th graders had a significantly lower school burnout score than more advanced students [ $m = 16.51$  ( $ds = 2.08$ )], (2) the scores of students in 7th, 8th and 9th grade were globally close [respectively:  $m = 28.29$  ( $ds = 2.39$ );  $m = 26.71$  ( $ds = 2.59$ ) and  $m = 28.43$  ( $ds = 1.34$ )], (3) the highest school burnout scores were found for 12th and 10th graders [respectively:  $m = 37.17$  ( $ds = 1.54$ ) and  $m = 39.39$  ( $ds = 2.56$ )]. 53.55% of the total sample did not show school burnout against 46.25% who reached the threshold of concern for school burnout. The descriptive analysis showed that 73.17% of 12th graders, 55.26% of 11th graders, 84.21% of 10th graders, 49.53% of 9th graders, 34.07% of 8th graders, 40.82% of 7th graders and 12.64% of 6th graders met or exceeded the threshold for school burnout.

### Stress Scolaire Perçu

The analysis showed significant differences between the scores of 12th graders and those of students in the 9th, 8th, 7th and 6th grade ( $p < .01$ ). The scores of 11th graders differed significantly from the scores of students in the 9th, 8th, 7th and 6th grade ( $p < .01$ ). The scores of 10th graders differed significantly from the scores of students in the 9th, 8th, 7th and 6th grade ( $p < .01$ ). The scores of 9th graders differed significantly from the scores of students in the 12th, 11th, 10th, 7th and 6th grade ( $p < .05$ ). The scores of 8th graders differed significantly from the scores of students in 12th, 11th, 10th, and 6th grade ( $p < .01$ ). The scores of 7th graders differed significantly from the scores of students in 12th, 11th, 10th, 9th and 6th grade ( $p < .05$ ). Finally, the scores of 6th graders differed significantly from the scores of students at all other grade levels ( $p < .01$ ).

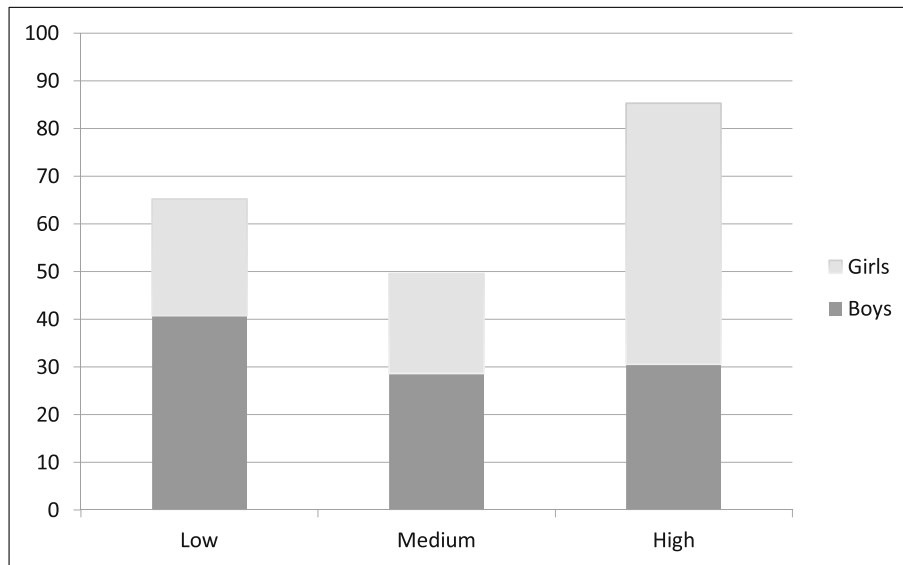


Fig. 1. Frequency table of perceived school stress by student gender.

Here, it is interesting to note that (1) students in 6th grade have a significantly lower perceived school stress score than more advanced students [ $m = 27.39$  ( $ds = 2.11$ )], (2) high school students have a significantly higher perceived school stress score than middle school students [12th grade:  $m = 45.38$  ( $ds = 1.57$ ), 11th grade:  $m = 42.69$  ( $ds = 1.91$ ), 10th grade:  $m = 50.69$  ( $ds = 2.6$ ), 9th grade:  $m = 39.17$  ( $ds = 1.36$ ), 8th grade:  $m = 37.08$  ( $ds = 2.63$ ), 7th grade:  $m = 37.41$  ( $ds = 2.43$ )]. 31.25% of the total sample had low academic stress, 23.95% had medium academic stress and 44.92% had high academic stress. The descriptive analysis showed that 78.05% of 12th graders, 64.10% of 11th graders, 76.32% of 10th graders, 42.06% of 9th graders, 38.46% of 8th graders, 24.49% of the 7th graders and 11.49% of 6th graders had high academic stress.

### Anxious School Refusal

The analysis showed significant differences between the scores of 12th graders and the scores of students in the 6th to 9th grades ( $p < .04$ ). The scores of 11th graders differed significantly from the scores of students in the 6th to 9th grades ( $p < .04$ ). The scores of 10th graders differed significantly from the scores of students in the 6th to 9th grades ( $p < .04$ ). The scores of 9th graders differed significantly from the scores of students in the 12th, 11th, 10th and 6th grade ( $p < .03$ ). The scores of 8th graders differed significantly from the scores of students in the 12th, 11th, 10th, 9th and 6th grade ( $p < .001$ ). The scores of 7th graders differed significantly from the scores of students in the 12th, 11th, 10th, 9th, 7th and 6th grade ( $p < .05$ ). Finally, the scores of 6th graders differed significantly from the scores of students at all other grade levels ( $p < .01$ ).

Here, it is interesting to note that (1) the students in 6th grade have a significantly lower academic anxiety refusal score than more advanced students [ $m = 27.37$  ( $ds = 2.68$ )], (2) high school students score significantly higher than college students [12th grade:  $m = 40.96$  ( $ds = 1.98$ ), 11th grade:  $m = 40.64$  ( $ds = 2.42$ ), 10th grade:  $m = 49.69$  ( $ds = 3.3$ ), 9th grade:  $m = 37.32$  ( $ds = 1.72$ ), 8th grade:  $m = 33.36$  ( $ds = 3.33$ ), 7th grade:  $m = 39.41$  ( $ds = 3.08$ )]. In terms of level of school refusal, 43.81% of the total sample presented no anxious school refusal, 23.53% had a moderate level, and 32.66% presented anxious school refusals. The descriptive analysis showed that 48.78% of 12th graders, 43.59% of 11th graders, 52.63% of 10th graders, 30.84% of 9th graders, 30.77% of 8th graders, 30.61% of 7th graders and 9.19% of 6th graders showed anxious school refusal.

### Relationship Between the Tests

To assess the magnitude of the relationship between the scores on the different tests, we performed Pearson correlation analyses. The correlation between perceived school stress and anxious school refusal scores was significant ( $r = .77$ ,  $p < .001$ ). Students with high school stress scores were also those with high anxious school refusal scores (cf., Figure 2). The correlation between perceived school stress and school burnout scores was significant ( $r = .79$ ,  $p < .001$ ). Students with high school stress scores were also those who scored high on school burnout (cf., Figure 3). Finally, the correlation between school refusal anxiety and school burnout scores was significant ( $r = .68$ ,  $p < .001$ ). Students with high anxious school refusal scores were also those with high school burnout scores (cf., Figure 4).

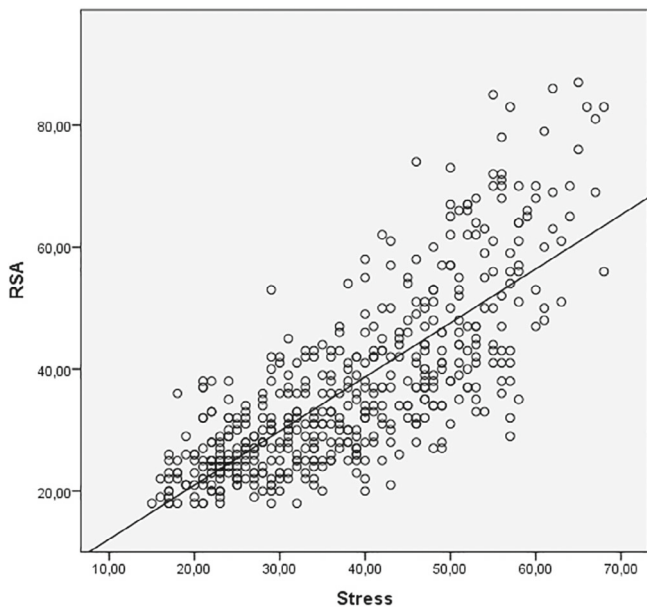


Fig. 2. Scatter plot for perceived school stress and anxious school refusal.

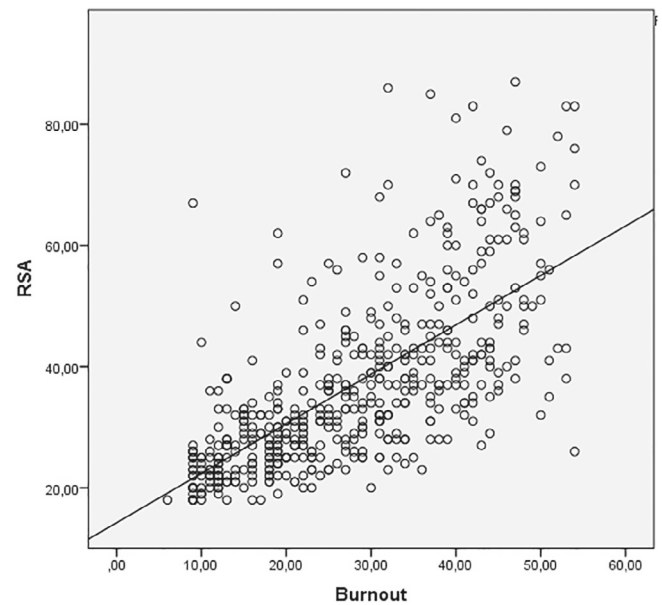


Fig. 4. Scatter plot for anxious school refusal and school burnout.

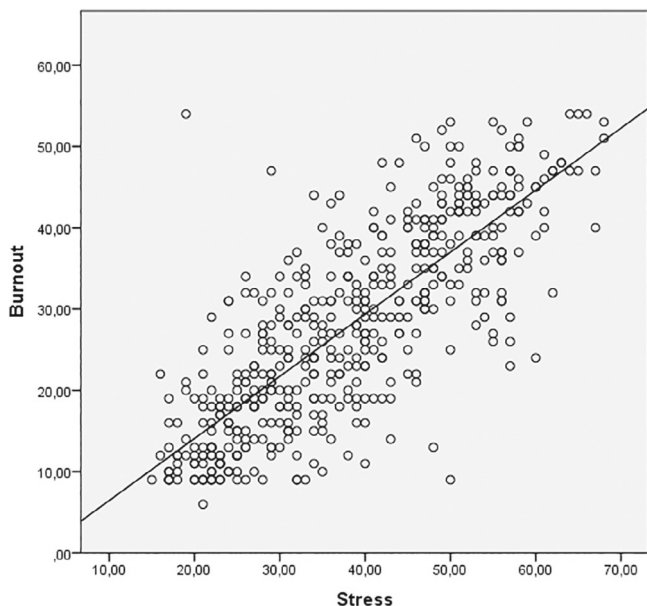


Fig. 3. Scatter plot for perceived school stress and school burnout.

## DISCUSSION

The aim of this study was to evaluate school stress, school burnout and anxious school refusal in French adolescents from the 6th to the 12th grade enrolled in public and private general, technological and professional schools in the post-COVID 19 period.

As far as developmental aspects are concerned, the most positive result concerns the French 6th graders interviewed

in this survey. Between 9% and 12% of the present school stress, anxious school refusal and/or school burnout. This proportion is much lower than that found in the literature on perceived school stress (Esparbès-Pistre et al., 2015). These encouraging results can be explained by the fact that the 6th grade is not a year of transition and orientation, nor is it an important evaluation or graduation year, unlike the 4th, 3rd, 1st and 12th grades. Moreover, the 6th grade is the adaptation cycle. In France, its objective is to consolidate the fundamental knowledge acquired in elementary school and to introduce students to the disciplines and methods of secondary education. Finally, special care is often taken to welcome and monitor students and to support their personal work. This grade level differs significantly from the others grades for which the scores on the various scales are all higher.

The second point to emphasize concerns the significant difference observed between the scores of high school students and those of middle school students on the different scales. Although some work has been conducted with middle school students internationally (Sun, Dunne, Hou, & Xu, 2013), to our knowledge, no comparative middle school/high school study has been conducted on these topics. Nevertheless, our results seem to be consistent with Jeong and Kim's findings that middle schoolers' academic stress appears to be rather average without distinguishing between the sexes (Jeong & Kim, 2008). These results may be explained by the fact that high school students are more emotionally apprehensive about their orientation than middle school students (Moyné et al., 2018). This apprehension coupled with the uncertainties about the future brought on

by the COVID-19 epidemic appears to predict high school students' academic stress.

The third important point arising from our results concerns high school students. These adolescents are globally the most prone to school stress, anxious school refusal and school burnout, with average scores close to the thresholds of maximum difficulties. The descriptive data are alarming, with nearly three-quarters of the students in the 12th and 10th grades of our sample experiencing school burnout and/or high school stress. The 11th graders are not spared despite slightly lower scores. These alarming results, unfortunately, corroborate the results of numerous international studies that have documented the difficulty of high school students in coping with academic pressure related to performance and success (Dupéré et al., 2015) or orientation (admission to chosen fields, competitive exams, etc.) (Yusoff, 2010). Coupled with these already present challenges, the COVID-19 pandemic has generated additional challenges, unfortunately leading to many mental health issues among adolescents. So, the health situation in recent years could explain these very high rates, as pointed out in recent studies on this subject (Hoyt et al., 2021; Husky et al., 2020; Smirni, Lavanco, & Smirni, 2020; Styck et al., 2021). Nevertheless, a very recent study highlights the favorable effects of resilience on psychological adjustment problems and life satisfaction of Turkish undergraduate students (Yildirim et al., 2022). This research provides very interesting avenues that can be followed in France to strengthen students' resilience and help them cope with psychoaffective difficulties. An alternative hypothesis that should not be overlooked is the link between teacher burnout and student burnout. Indeed, many risk factors for teacher burnout have also been identified in the literature (Chirico, Capitanelli, Bollo, Ferrari, & Acquadro, 2021) but to our knowledge, this correlation has not yet been studied.

Regarding gender differences, our results show a significant difference in perceived academic stress, with a higher stress score for girls (across grade levels) than for boys. These results corroborate those of preliminary studies on the topic of school stress (Esparbès-Pistre et al., 2015; Giota & Gustafsson, 2021; Herrmann et al., 2019; Walburg, 2014). In contrast, our results do not reveal gender differences in school burnout, contrary to the findings of Herrmann et al. (Herrmann et al., 2019). On this scale, scores differed significantly across grade levels, and the adolescents who were particularly affected were students in the 12th grade (mean: 36.77, a total score above 29 indicating severe burnout). Nevertheless, we did not observe a significant difference between girls and boys. Our hypothesis is that the psychological state of adolescents continues to deteriorate progressively, and that boys, who benefit from less personal and parental pressure than girls (Klinger et al., 2015), are catching up with the latter. Finally, regarding the type of school,

our results do not confirm those of Khan and Alam (Khan & Alam, 2015) and Subramani and Kadiravan (Subramani & Kadiravan, 2017) since we did not find any significant difference between public and private schools. We expected students in private schools to be under more pressure from parents, teachers, and peers (e.g., meritocracy, orientation, national statistics on school success rates ...) (Zakari, Walburg, & Chabrol, 2008). However, it must be noted that in France, contrary to the international results discussed above, the type of school does not seem to have an impact on the mental health of young people.

Although our study provides a developmental perspective of perception of school stress, school burnout and anxious school refusal in adolescents, the first limitation concerns the specific context of post-pandemic COVID-19 may have played a significant role in the results obtained. Indeed, our study remains state-of-the-art on the mental health of adolescents in 2021/2022 without us being able to compare these results to their "pre-pandemic" state in a methodologically correct manner (with a strictly identical protocol). Future work should examine the extent to which these high levels of bad feeling change in the coming months. An additional limitation is that we were unable to statistically compare the levels of perceived academic stress, burnout, and anxious school refusal of high school students according to their major (general, technological, or vocational) because the number of high school students in the technological and vocational streams was not sufficient. To our knowledge, no study to date has compared the psychological profile of adolescents involved in these different school programs. It would be a matter of raising the differences related to the academic programs, the pressure exerted on the students or the security of finding a job quickly. Unfortunately, this original and unprecedented comparison could not be made in this study.

This study will lead to an important reflection among the actors of education. Indeed, in the face of these levels of difficulties encountered by students, it seems essential that schools think about how to help their students cope with daily school stress. Taking into account these psychological difficulties should lead to the implementation of prevention programs against school malaise as well as intervention programs based on stress and anxiety management. Some programs already exist, such as the Quebec program Funambule (Tap et al., 1999), which aims to prepare adolescents to respond positively to the daily challenges they face at school.

## CONCLUSIONS

In conclusion, this study provides unprecedented results on the perception of school stress, school burnout and anxious school refusal in adolescents aged 10 to 19 years and



highlights a very high percentage of suffering among adolescents. The young people most affected are high school students, and more particularly 12th graders, without any distinction between the sexes or the type of schooling. These worrying results need to be considered since these difficulties emerge in the sensitive age group of adolescence. Further studies will undoubtedly be necessary to understand the evolution of the psychological state of adolescents in relation to the evolution of the health and social situation in France.

### CONFLICT OF INTEREST

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

### INFORMED CONSENT

Informed consent was obtained from all subjects involved in the study.

### DATA AVAILABILITY STATEMENT

Not applicable.

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