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## Parents' perceptions of children's psychosocial adaptation during the COVID-19 pandemic in Québec: Comparison with gifted and non-gifted children

Claire Baudry

Université du Québec à Trois-Rivières, [claire.baudry@uqtr.ca](mailto:claire.baudry@uqtr.ca)

Jeanne Leblanc-Lagacé

[jeanne.lagace.leblanc@uqtr.ca](mailto:jeanne.lagace.leblanc@uqtr.ca)

Line Massé

Université du Québec à Trois-Rivières, [line.masse@uqtr.ca](mailto:line.masse@uqtr.ca)

Jessica Pearson

Université du Québec à Trois-Rivières, [Jessica.Pearson2@uqtr.ca](mailto:Jessica.Pearson2@uqtr.ca)

Amélie Courtinat

Université de Toulouse, [Amelie.courtinat@univ.tlse2.fr](mailto:Amelie.courtinat@univ.tlse2.fr)

*See next page for additional authors*

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## Parents' perceptions of children's psychosocial adaptation during the COVID-19 pandemic in Québec: Comparison with gifted and non-gifted children

### Authors

Claire Baudry, Jeanne Leblanc-Lagacé, Line Massé, Jessica Pearson, Amélie Courtinat, Eileen Slater, and Geneviève Ouellet



# Parents' Perceptions of Children's Psychosocial Adaptation During the COVID-19 Pandemic in Québec: Comparison of Gifted with Non-Identified Gifted Children

Claire Baudry Jeanne Lagacé-Leblanc, Ph.D.  Amélie Courtinat-Camps, Ph.D.Line Massé, Ph.D. Eileen Slater, Ph.D. Jessica Pearson, Ph.D. Geneviève Ouellet 

## Abstract

Studies conducted in French Canadian schools following the COVID-19 lockdown report that children in a pandemic might have difficulties adapting. Gifted and twice-exceptional children—who might present special needs in this situation—could have different levels of psychosocial adaptation and mental-health needs than other children. This study assessed the psychosocial adaptation of gifted and twice-exceptional children and compared the adaptation levels of these individuals to those of non-identified gifted children. The results show that 62.5% of the gifted children had generally coped well with pandemic conditions, as did the non-identified gifted children (73.9%). Conversely, 59.5% of twice-exceptional children presented difficulties in adapting to the pandemic situation regardless of subscale (e.g., depression, anxiety, aggressiveness). Accordingly, they exhibited more internalized ( $p < .001$ ) and externalized ( $p < .001$ ) behaviors than the non-identified gifted children and more externalized behaviors than the gifted ( $p = .014$ ). The children in the gifted sample exhibited age and gender differences, with the youngest showing more externalized difficulties than the older children and the boys showing more externalized behaviors than the girls. Taken together, these results suggest that giftedness is not an indication of a propensity for developing skills for adapting to pandemic conditions. It appears that having a neurodevelopmental condition associated with giftedness is more significant because the twice-exceptional children had more difficulty adapting than the non-identified gifted and, on some subscales, than the gifted.

**Keywords:** *giftedness • child • adolescent • psychosocial adaptation • mental health • pandemic • COVID-19*

On March 11, 2020, the World Health Organization declared that the COVID-19 outbreak had reached pandemic proportions (WHO; World Health Organization, 2020). Considering the spread and rapid evolution of the situation, many countries implemented drastic containment measures involving, for employed adults, the reduction of in-person occupational activities, except for workers deemed essential (Di Domenico et al., 2020), and, for children, schooling at home. In Quebec, the first confinement lasted 9 weeks and was followed by several others in 2021, depending on the region of Quebec and the severity of the spread of the virus. These measures and the situations they created had a direct impact on the functioning and reorganization of family routines since parents working at home also had to supervise their children's schooling.

Early studies quickly highlighted that the COVID-19 pandemic and the resultant containment could have a significant impact on children's psychosocial adaptation

and mental health (Imran et al., 2020; Jiao et al., 2020; Pisano et al., 2020), characterized by internalizing behaviors (e.g., anxious and depressive symptoms, social withdrawal, and somatic complaints) and externalizing behaviors (e.g., hyperactive, aggressive, oppositional, and delinquent behavior) (Achenbach & Rescorla, 2001). Several meta-analyses now allow for a more detailed understanding of the nature of these effects on children. One study (Racine et al., 2021) involving 29 studies published all over the world (East Asia, Europe, North America, Central America, South America, and the Middle East), between March 2020 and February 2021, examined the adaptation of 80,879 children and adolescents under the age of 18 ( $M = 13$  years, 4 to 17.5 years) in a pandemic setting. The results highlighted the risk of developing clinically significant symptoms of depression and anxiety. One in four children reportedly experienced symptoms of depression (25.2% of the sample), and one in five children reportedly experienced symptoms of anxiety (20.5% of the sample). These prevalences were double those of pre-pandemic data (12.9% and 11.6% for depression and anxiety, respectively), (Lu, 2019; Racine et al., 2021; Tiirikainen et al., 2019). This meta-analysis also points out gender- and age-related

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Address correspondence to Claire Baudry: Department of Psychoeducation, Université du Québec à Trois-Rivières, Québec, Canada, 550 Bd Wilfrid-Hamel, Québec, QC G1M 3E5.  
Email: [claire.baudry@uqtr.ca](mailto:claire.baudry@uqtr.ca)

differences. Girls appeared to have more symptoms of depression and anxiety than boys. Older children developed higher rates of depression than younger children, which might be explained by the effects of social isolation and physical distance from peers, as well as by pubertal changes associated with the onset of adolescence. Results, similar to that of the Racine et al. (2021) meta-analysis, were reported by Panda et al. (2021), who added irritability and attention difficulties. Levels of anxiety (Baudry et al., 2021), as well as a sense of social isolation associated with the presence of frustration, boredom, disappointment, and nostalgia for the many canceled activities (Centers for Disease Control and Prevention, 2020; Dalton et al., 2020), were also present in the oldest age group (e.g., sports competitions, visiting grandparents).

While this lived reality for children and adolescents seems to be increasingly documented, little data are available on children with special needs, except certain conditions such as attention deficit hyperactivity disorder (ADHD; Bobo et al., 2020) and autism spectrum disorder (ASD; Kawaoka et al., 2022; Meral, 2022). Little research has been conducted on gifted children, even though they might have differences in adaptation given their characteristics and needs (Neihart & Yeo, 2018; Rinn, 2018).

While it may be assumed that being gifted is associated with high levels of well-being and good coping skills (Koenen et al., 2009; Rajput et al., 2011), there is no consensus in the literature on this. Indeed, some researchers have shown that while gifted children might not have more adaptation difficulties in general, they may have certain characteristics that make them more vulnerable (Brown, 2021; Neihart, 1999; Pfeiffer & Stocking, 2000; Preckel et al., 2015). As an example, gifted children becoming aware of their difference by comparing themselves to their peers might experience frustration and a sense of mismatch between their school environment, needs, and interests (Kennedy-Moore & Lowenthal, 2011; Niehart & Yeo, 2018). Specifically, they may feel out of step with same-age peers and have difficulty finding people who are like them and with whom they share similar interests and skills. These elements contribute to the fact that gifted children prefer to work or play alone rather than in groups (Neihart & Yeo, 2018). Gifted children have also been reported as being more hypersensitive than the non-identified gifted, in particular, on the sensory, emotional, and cognitive levels (Winkler & Voight, 2016). Together, these elements could explain their encountering greater relationship difficulties and a sense of isolation, which could impede their sense of well-being. Recently, Neihart and Yeo (2018) documented the unique psychological challenges faced by gifted children and young adolescents. They noted a higher level of anxiety and perfectionism than among the non-

identified gifted, as well as greater uncertainty about the future. Different variables have been studied to better understand the adaptation challenges experienced by some gifted children. This includes studies that focused on children's ages and associated developmental needs to determine whether key periods might be more difficult than others in terms of psychosocial adaptation. One such study found that gifted children had more difficulty adapting to adolescence than the children identified as non-identified gifted (Silverman, 2012). Accordingly, gifted junior-high students would potentially have lower self-esteem than gifted senior-high students. Similarly, the hypersensitivity shown by some gifted students causes more difficulties in younger students.

Gender is also a variable of interest often considered in research to establish whether differences between boys and girls could explain certain variations in the results observed concerning the level of adaptation, especially in the context of giftedness, where gender distinctions are very evident. Compared to gifted boys, gifted girls are more likely to deny their giftedness (Swiatek & Cross, 2007), maintain a high level of physical activity, in sports for example (Swiatek, 2001), and give help to others (Rudasill et al., 2007). Boys, on the other hand, are more likely to use humor as a social coping strategy (Swiatek 2001; Swiatek & Cross, 2007).

Within the gifted population, a subgroup with a comorbid diagnosis of giftedness has also been a frequent consideration in research. Referred to as twice-exceptionality (2e), it includes individuals with both high intellectual potential and one or more neurodevelopmental disorders such as a communication disorder, specific learning disorder, ASD, ADHD, or motor disorder (Reis et al., 2014). The psychosocial-adaptation situation varies for twice-exceptional students depending on the associated disorder. Gifted students with ADHD have been found to have more mental health problems than gifted students without ADHD, including anxiety, mood disorder, school phobia, and behavioral disorders (Antshel, 2008; Cordeiro et al., 2011). In contrast, Moon et al. (2001) found that gifted students with ADHD had more intense emotional and social problems than students with average IQs and ADHD. Furthermore, studies have shown that gifted students with ASD exhibited lower adaptive functioning (Doobay et al., 2014) and more social difficulties (Assouline et al., 2009; Doobay et al., 2014) than gifted students without ASD. Other researchers found that gifted students with ASD were more aware of their difficulties in adolescence, which can lead to more social stress, feelings of inadequacy, anxiety, and depression compared to students with an average IQ and ASD (Doobay et al., 2014; Foley-Nicpon et al., 2011). Kauder (2009) found that gifted students with ASD had lower self-esteem and feelings of inadequacy as well as more depressive symptoms and

suicidal behaviors (Vaivre-Douret, 2019) than gifted students without a disorder. Compared to students with ASD and an average IQ, however, gifted students with ASD had fewer adaptation difficulties (Beckmann & Minnaert, 2018).

In the context of the pandemic, a few studies have looked at the academic adaptation of gifted children, particularly with respect to their education and the accommodations needed to support their learning (e.g., Hill & Madigan, 2022; Kaya & Akgül, 2022; Guilbault & McCormick, 2022). To our knowledge, only three studies have looked at their psychosocial adaptation to the situation (Aboud, 2021; Duraku & Hoxha, 2020; Wolfgang & Snyderman, 2022). Duraku and Hoxha (2020) conducted an initial qualitative study in Europe, conducted at the beginning of the pandemic with 20 parents of gifted children that highlighted various difficulties faced by such children: sleep difficulties; feelings of isolation; higher levels of stress, anxiety, irritability, and boredom; disengagement from usual activities; and a lower sense of well-being. Other researchers, in the Middle East and North America, have made similar observations in interviews with the parents of gifted children (Aboud, 2021; Wolfgang & Snyderman, 2022). They added that, during periods of confinement, the children in their samples felt that they were doing things that were not necessary, which led to a series of negative feelings similar to those reported by Duraku and Hoxha (2020), plus boredom, sadness, anger, lack of motivation, and passiveness.

Given (1) the small number of studies examining the psychosocial adaptation and mental health of gifted children in a pandemic setting, (2) the unique use of qualitative interview-based designs, and (3) the very small number of children recruited in the studies (e.g., Duraku & Hoxha, 2020) limiting generalizability to the population of gifted children, a study should be conducted that addresses these limitations while comparing the population of gifted children to a population of non-identified gifted children. The last point will help determine whether gifted children face greater psychosocial challenges in adapting to the pandemic than other children. The presence of dual exceptionality in gifted youth should be considered to assess whether these children are more at risk than other gifted children and non-identified gifted children. In addition, variables such as child gender and age should be considered to measure their contribution to the adaptive functioning of gifted and twice-exceptional children.

## Objectives

This study aimed to (1) describe the overall and specific adaptive functioning of gifted children and adolescents and then twice-exceptional children living in a pandemic context using a standardized tool; (2) determine whether

certain variables influenced the adaptive functioning of gifted youth to the pandemic (e.g., age and gender); and (3) compare the adaptive functioning of gifted, twice-exceptional, and non-identified gifted children to determine if one of these groups is more at risk than another.

## Method

### Participants

The sample was composed of 235 gifted (31.5%) and non-identified gifted (68.5%) children aged 6 to 17 years from the province of Quebec (Canada). Just over half of the gifted youth were twice exceptional (56.8%), that is, they had a diagnosis of a specific learning disorder, ADHD, or ASD. Table 1 provides the sociodemographic characteristics of these children. To be recognized as "gifted," children had to demonstrate intellectual abilities that placed them in the top 10% of their peers. They also had to obtain a total score of 120 on a standardized scale (e.g., WISC-V, Wechsler, 2014) with the mean set at 100, placing the child in the 91 percentile or higher (Gagné, 2020). All were identified by psychology professionals or physicians as being gifted or twice exceptional as reported by parents in the survey.

The majority of survey respondents were mothers (97.4%), aged 40 to 49 years (50.6%). Prior to the pandemic, most parents reported working full time (71.6%). In addition, 52.4% of respondents had an annual family salary of more than C\$100,000 (according to Quebec institute of Statistics (2022) the median household after-tax income in 2019 was 80,000\$ in the province of Québec). During the pandemic, 7.2% lost their jobs and 35.7% of families experienced a wage loss of about 17% ( $SD = 24.55$ ).

### Procedure

Recruitment took place between May 1st and 27th, 2020, when the province was under a home-confinement order, except for essential workers. The population had already been under home confinement for 7 to 10 weeks at that point. Participants were recruited using social media and through advertising from two non-profit associations. The online survey was completed by the children's parents via the secure *Survey Monkey* platform. They completed the survey for one child regardless of the number of children. The platform randomly generated the instruction to answer (in a proportion of 50%) for either the oldest or the youngest child between the ages of 6 and 17 years.

Consent was obtained from all participants. All procedures were approved by the research ethics board of the principal investigator's university (Université du Québec à Trois-Rivières).

**Table 1:** Socio-demographic characteristics of gifted, twice-exceptional, and non-identified gifted children

Baseline Characteristics		Gifted n (%)	Twice-exceptional n (%)	Non-identified gifted n (%)
Gender	Female	14 (12.7)	10 (9.1)	86 (78.2)
	Male	18 (14.4)	32 (25.6)	75 (60.0)
Age	6–11 years	23 (14.3)	29 (18.0)	109 (67.7)
	12–17 years	9 (12.2)	13 (17.6)	52 (70.3)
Type of school	Public	26 (12.7)	33 (16.1)	146 (71.2)
	Private	6 (20.7)	9 (31.0)	14 (48.3)
	Other	-	-	1 (100.0)
Family structure*	Nuclear	28 (16.7)	29 (17.3)	111 (66.1)
	Single parent	3 (8.3)	6 (16.7)	27 (75.0)
	Blended	-	7 (25.0)	21 (75.0)
	Total	32 (13.6)	42 (17.9)	161 (68.5)

Note: \*N = 232.


## Instruments

As this study is part of a larger research project, only the instruments used in the context of this article are presented in this section.

### Socio-demographic questionnaire

This questionnaire had two sections. The first section, consisting of 15 questions, was designed to collect sociodemographic information about the family, such as gender and age of children and parents, children's schooling, parents' education, region, family and employment status, presence of pre-pandemic diagnoses or other adaptation difficulties in children (e.g., Before the pandemic, did your child have a mental-health diagnosis?). The second section included 26 questions about their pandemic experience, such as direct exposure of the children and parents to COVID-19 during the pandemic, exposure to pandemic-related information, and the effects of the pandemic on their current situation.

### Achenbach System of Empirically Based Assessment – Children Behavior Checklist (ASEBA-CBCL)

The ASEBA-CBCL 6-18 (Achenbach & Rescorla, 2001) was completed by parents to assess the mental health and adaptive functioning of the children and adolescents. This instrument includes 112 items rated using a 3-point Likert-type scale (0 = Does not apply, 1 = More or less or sometimes true, 2 = Very true or often true) for the children's behaviors in the preceding month. A raw overall score is obtained by summing the item responses for each scale and subscale. This is then converted into a *T*-score, which is used to determine whether the child is at a normal, at-risk, or clinical threshold, depending on age and gender. The ASEBA-CBCL contains three scales (Internalizing Problems, Externalizing Problems, *SENG Journal Vol. 2, No. 1, 24-37* 

and Total Problems) and eight subscales (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior, and Aggressive Behavior). The instrument has excellent psychometric properties that are recognized internationally. Reported internal consistency ranged from good to excellent ( $\alpha = 0.78$  to  $0.97$ ) as did test–retest reliability ( $r = 0.96$  to  $1.00$ ) (Achenbach, 2009). In addition, construct validity and content validity were satisfactory (Achenbach & Rescorla, 2001).

### Statistical analyses

Statistical analyses were conducted with IBM SPSS Statistics software, version 24 (IBM Corporation, 2017). A review of the normality of the distributions and the presence of missing or extreme data was performed according to standard procedures (Tabachnik & Fidell, 2019). The data observed for the ASEBA-CBCL Aggressive Behavior variable for non-identified gifted children did not follow a normal distribution. Examination of the variable showed that almost all these children had a profile within the norm, which might explain the anomalous distribution. Nevertheless, no intervention is necessary since the analyses used are sufficiently robust and not very sensitive to normality.

Descriptive analyses were conducted to provide a picture of the overall adaptation of the children. The raw scores were transformed into *T*-scores (min = 50, max = 100). To determine the prevalence of difficulties in the study population, each of the *T*-scores was then categorized according to the standards established to determine the critical threshold of the scale (Achenbach & Rescorla, 2001). For the overall scales, a *T*-score  $\leq 59$  is considered in the normal range, a *T*-score  $\geq 60$  and  $\leq 63$  is a borderline-range threshold, and a *T*-score  $\geq 64$

indicates clinically significant symptomatology. With respect to the subscales, a *T*-score  $\leq 64$  is considered normal, a *T*-score  $\geq 65$  and  $\leq 69$  is considered clinical-range threshold, and a *T*-score  $\geq 70$  indicates clinically significant symptomatology. To compare the group differences according to the independent variables (gender, age, identification), two two-way MANOVAs were performed on the *T*-scores of the two ASEBA-CBCL overall scales. The first two-way MANOVA was performed to analyze the effect of gender (male/female) and belonging to one of these groups (gifted/twice-exceptional/ non-identified gifted) on functional adaptation. The second one was carried out to analyze the effect of age (6–11 years / 12–17 years) and belonging to one of these groups (gifted /twice-exceptional/ non-identified gifted) on functional adaptation. For both MANOVAs, the Box's test of equality of covariance matrices checks the assumption of homogeneity of covariance across the groups. Indeed, the Box's M test was not significant ( $p < .005$ ), indicating no significant differences between the covariance matrices (Huberty & Petoskey, 2000). Therefore, the assumption was not violated, and Wilk's lambda is an appropriate test to use. The correlations in Table 2 show no multicollinearity between internalizing and externalizing problems ( $r = .595$ ; moderate correlation). Lastly, a series of one-way ANOVAs was conducted to compare the effect of identification on the eight ASEBA-CBCL subscales.

**Prevalence of adaptation difficulties**

The ASEBA-CBCL results show that 62.5% of gifted children, 40.5% of twice-exceptional children, and 73.9% of non-identified gifted children were able to generally cope psychosocially to their situation. The findings also indicate that 37.5% of the gifted children, 59.5% of the twice-exceptional children, and 26.1% of the non-identified gifted children were at risk of adaptation difficulties or had clinically significant diff-

iculties. With respect to the two major subscales (Internalizing problems and Externalizing problems), 68.8% of the gifted children, 54.8% of the twice-exceptional children, and 70.8% of the non-identified gifted children exhibited internalizing behaviors within the norm. With respect to externalizing behaviors, 59.4% of the gifted children, 42.9% of the twice-exceptional children, and 78.9% of the non-identified gifted children scored within the norm. Table 3 presents the prevalence of adaptation difficulties in gifted, twice-exceptional, and non-identified gifted children according to the clinical standards for each of the ASEBA-CBCL scales.

**Influence of personal characteristics on adaptation difficulties**

The first MANOVA showed no significant multivariate effect for the interaction effect [ $F = .255, p = .907$ ; Wilks'  $\Lambda = .996, \eta^2 = .002$ ]. Therefore, there is no overall difference between the functional adaptation scales and the interaction of gender and group membership (gifted, twice-exceptional, or non-identified gifted). Nevertheless, there is a multivariate main effect with the gender variable: [ $F = 6.536, p = .002$ ; Wilks'  $\Lambda = .946, \eta^2 = .054$ ] and group membership [ $F = 5.901, p < .001$ ; and Wilks'  $\Lambda = .904, \eta^2 = .049$ ].

Prior to conducting a series of follow-up ANOVAs, the homogeneity of variance assumption was tested for the two functional adaptive scales. Based on a series of Levene's *F* tests, the homogeneity of variance assumption was considered satisfied ( $p > .05$ ). A series of ANOVAs was conducted on each of the two dependent variables as a follow-up test to the MANOVA. The results are presented in Table 4.

Gender differences on the externalizing problem scale show that boys ( $M = 57.10, SD = 10.10$ ) had significantly more problems than girls ( $M = 51.98, SD = 8.49$ ). Additionally, a series of post-hoc analyses (Bonferroni) were performed to examine individual

**Table 2:** Correlations between the ASEBA-CBCL scales

Scale and subscales	1	2	3	4	5	6	7	8	9	10
1. Anxious/Depressed	—	.529	.520	.572	.611	.410	.471	.443	.862	.542
2. Depressed		—	.409	.409	.537	.296	.550	.277	.725	.467
3. Somatic Complaints			—	.387	.486	.303	.335	.300	.655	.388
4. Social Problems				—	.510	.548	.479	.584	.561	.617
5. Thought Problems					—	.429	.665	.387	.684	.620
6. Attention Problems						—	.401	.566	.411	.604
7. Rule-Breaking Behavior							—	.434	.547	.769
8. Aggressive Behavior								—	.411	.842
9. Internalizing Problems									—	.595
10. Externalizing Problems										—

Note: All correlations are significant at the 0.01 level (2-tailed).

**Table 3:** Frequency of adaptation difficulties in gifted, twice-exceptional, and non-identified gifted according to the clinical scales of the ASEBA-CBCL

Scale and Subscales	Gifted n (%)			Twice n (%)			Non-identified gifted n (%)		
	Normal range	Borderline range	Clinical range	Normal range	Borderline range	Clinical range	Normal range	Borderline range	Clinical range
Internalizing Problems	22 (68.8)	6 (18.8)	4 (12.5)	23 (54.8)	5 (11.9)	14 (33.3)	114 (70.8)	20 (12.4)	27 (16.8)
Anxious/Depressed	25 (78.1)	4 (12.5)	3 (9.4)	26 (61.9)	10 (23.8)	6 (14.3)	131 (81.4)	16 (9.9)	14 (8.7)
Depressed	29 (90.6)	1 (3.1)	2 (6.3)	30 (71.4)	7 (16.7)	5 (11.9)	138 (85.7)	11 (6.8)	12 (7.5)
Somatic Complaints	29 (90.6)	2 (6.3)	1 (3.1)	36 (85.7)	5 (11.9)	1 (2.4)	154 (95.7)	4 (2.5)	3 (1.9)
Externalizing Problems	19 (59.4)	4 (12.5)	9 (28.1)	18 (42.9)	8 (19.0)	16 (38.1)	127 (78.9)	12 (7.5)	22 (13.7)
Social Problems	30 (93.8)	1 (3.1)	1 (3.1)	36 (85.7)	2 (4.8)	4 (9.5)	150 (93.2)	5 (3.1)	6 (3.7)
Thought Problems	19 (59.4)	5 (15.6)	8 (25.0)	20 (47.6)	8 (19.0)	14 (33.3)	121 (75.2)	16 (9.9)	24 (14.9)
Attention Problems	27 (84.4)	3 (9.4)	2 (6.3)	28 (66.7)	4 (9.5)	10 (23.8)	136 (84.5)	12 (7.5)	13 (8.1)
Rule-Breaking Behavior	20 (62.5)	6 (18.8)	6 (18.8)	21 (50.0)	9 (21.4)	12 (28.6)	125 (77.6)	20 (12.4)	16 (9.9)
Aggressive Behavior	27 (84.4)	3 (9.4)	2 (6.3)	31 (73.8)	3 (7.1)	8 (19.0)	145 (90.1)	8 (5.0)	8 (5.0)
Total	20 (62.5)	5 (15.6)	7 (21.9)	17 (40.5)	8 (19.0)	17 (40.5)	119 (73.9)	18 (11.2)	24 (14.9)

mean difference comparisons across all three levels of group membership. The results revealed that post-hoc mean comparisons for internalizing problems were statistically significant between twice-exceptional and non-identified gifted students ( $p < .001$ ). Twice-exceptional students ( $M = 59.33, SD = 9.35$ ) showed more internalizing problems than non-identified gifted students ( $M = 51.54, SD = 11.68$ ). In addition, the results revealed that post-hoc mean comparisons for externalizing problems were statistically significant between twice-exceptional and non-identified gifted students ( $p < .001$ ) and between twice-exceptional and gifted students ( $p = .014$ ). Twice-exceptional students ( $M = 61.69, SD = 8.27$ ) showed more externalizing problems than non-identified gifted students ( $M = 52.69, SD = 9.39$ ) and gifted students ( $M = 55.65, SD = 8.83$ ).

The second MANOVA Age X Group Membership showed no significant multivariate effect for the interaction effect [ $F(5,229) = .073, p = .990$ ; Wilks'  $\Lambda = .999, \eta^2 = .001$ ]. Therefore, there was no overall difference between the functional adaptation scales and the interaction of age and group membership. Nevertheless, there is a multivariate main effect with the age variable: [ $F(2,228) = 4.136, p = .017$ ; Wilks'  $\Lambda = .965, \eta^2 = .035$ ], and group membership [ $F(5,229) = 6.865, p < .001$ ; Wilks'  $\Lambda = .890, \eta^2 = .057$ ].

A series of ANOVAs were conducted on each of the two dependent variables as a follow-up test to the MANOVA. All the ANOVAs were significant ( $p < .001$ ) for belonging to a variable group (as the previous MANOVA). The ANOVAs with age were significant only for the externalizing problem scale [ $F = 4.963, p = .027, \eta^2 = .021$ ]. The means show that the children aged 6 to 11 years ( $M = 55.89, SD = 9.62$ ) had more externalizing behavior than the children aged 12 to 17 ( $M = 52.12, SD = 9.45$ ).

### Comparison of specific adaptation difficulties between subgroups: gifted, twice-exceptional, and non-identified gifted

ANOVAs revealed that there were statistically significant differences in all subscales, except for somatic complaints, as shown in Table 5. Post-hoc comparisons using the Bonferroni test indicate that the twice-exceptional students presented with significantly more difficulties than non-identified gifted students in certain subscales: anxious/depressed ( $p = .011$ ), depressed ( $p = .004$ ), social problems ( $p = .007$ ), thought problems ( $p = .006$ ), attention problems ( $p = .002$ ), and rule-breaking behavior ( $p < .000$ ). For aggressive behavior subscales, twice-exceptional students presented with significantly more difficulties than non-identified gifted students ( $p < .000$ ) and gifted students ( $p = .015$ ).



**Table 4:** Multivariate and univariate analyses of variance for Gender X Group membership on overall adaptation scales

Variable	MANOVA F (5,229)	ANOVA F(2,235)	
		Internalizing Problems	Externalizing Problems
Gender (G)	6.536***	.586	5.838*
Appartenance (A)	5.901***	8.251***	10,761***
G X A	.255	.505	.137

Note: The *F* ratios are the approximation of Wilks' *F* lambda.  
 \*\*\* *p* < .001, \*\* *p* < .01, \* *p* < .05

## Discussion

The objectives of this study were to (1) document the psychosocial adaptation of gifted and twice-exceptional children and adolescents living in the context of the COVID-19 pandemic; (2) test whether certain sociodemographic variables (gender, age, and group membership: gifted, twice-exceptional, or non-identified gifted) increased or decreased certain adaptation difficulties in gifted and twice-exceptional children; and (3) compare the psychosocial adaptation of gifted, twice-exceptional, and non-identified gifted children to determine if any one group was more at risk.

### Overall, externalized, and internalized adaptation of gifted children and adolescents in a pandemic setting

According to their parents, more than half of the gifted children in the sample had no psychosocial adaptation difficulties when measured at the beginning of the COVID-19 pandemic. This is comparable to the results for the non-identified gifted children in this study's sample, two-thirds of whom had generally adapted to the pandemic context. Other research shows similarly encouraging results with respect to overall adaptation, with 92% of children adapting well at the beginning of the pandemic and only 8% showing difficulties (e.g., Pisano et al., 2020). These adaptation capacities can be explained in the same way for gifted and non-identified

gifted children. In fact, according to some parents of gifted children, as in other studies conducted with non-identified gifted children (Bobo et al., 2020, Baudry et al., 2021; Meral, 2022), these skills related to the fact that their children felt happier during confinement when they had more time for activities as well as their interests and passions. The children mentioned various elements that facilitated their coping and promoted their

well-being, such as access to technology (including video games and social media), family time to play sports, reading, drawing, or learning new skills in a self-directed way (e.g., cooking) (Duraku & Hoxha, 2020). The children also appear to have used different coping strategies to manage the stress that might have been present (e.g., self-confidence, optimism, and seeking social support when they needed it; Kaya & Islekeller-Bozca, 2021). The sample in our study consisted of socioeconomically advantaged subjects, which might mean that these families had, among other advantages, a supportive environment to help their children cope (such as access to a variety of resources or more space).

Despite these results, the fact remains that more than a third of the gifted children in the sample either had sufficient internalizing or externalizing symptoms to put them at risk of developing maladaptation or confirm the presence of difficulties. Concerning the subscales more specific to psychosocial coping difficulties, the gifted youth had results similar to those observed in the literature on non-identified gifted children (Imran et al., 2020; Pisano et al., 2020). Thus, on the internalizing scales, more than half of the gifted children had no symptoms, while slightly less than one-third were at risk or presented clinically significant symptoms. More specifically, a little more than one child in ten reported anxiety-related difficulties and nearly one out of ten had depression-related problems. On the externalizing

**Table 5:** Means, Standard Deviations, and One-way Analyses of Variance in adaptive functioning sub-scales

Subscale	Gifted		Twice-Exceptional		Non-identified gifted		F (2,232)	$\eta^2$
	M	SD	M	SD	M	SD		
Anxious/Depressed	56.68	7.35	60.14	8.43	56.13	7.79	4.355*	.036
Depressed	55.65	7.67	59.97	8.39	55.57	7.71	5.410**	.045
Somatic Complaints	53.87	6.84	55.97	6.05	53.62	5.34	2.855	.024
Social Problems	54.15	5.03	57.09	7.66	53.97	5.46	4.804**	.040
Thought Problems	60.75	8.50	63.21	8.55	58.67	8.33	5.128**	.042
Attention Problems	57.46	7.06	61.71	8.26	57.13	7.75	5.880**	.048
Rule-Breaking Behavior	60.12	7.59	63.85	7.05	58.21	7.58	9.586***	.076
Aggressive Behavior	55.65	6.77	60.42	9.67	54.13	6.42	12.912***	.100

Note: \*\*\* *p* < .001, \*\* *p* < .01, \* *p* < .05

scales, more than half of the gifted children had no symptoms, while just over 40% were at risk or had clinically significant symptoms. Thought problems were the most prevalent, with just over one-third of gifted children reporting sleep difficulties, including difficulty falling asleep, waking up during the night, and staying asleep, as well as nervous tension and strange ideas. In terms of externalized behaviors, oppositional behaviors and rule-breaking behavior were reported for nearly one child out of three and attention problems for slightly more than one child out of six. The overall results, for both internalizing and externalizing behavior, appear similar to those found in other studies on gifted children (Duraku & Hoxha, 2020), non-identified gifted children (Imran et al., 2020; Jiao et al., 2020; Pisano et al., 2020), or children with adaptation disorders (Kawaoka et al., 2022). For example, Pisano et al. (2020) reported the presence of risky and clinically significant behaviors in similar proportions at the internalizing (nearly one-third of their sample) and externalizing levels. The presence of symptoms of anxiety/depression, sleep difficulties, as well as oppositional behaviors are also reported in identical proportions. While being gifted does not seem to influence how well these children have adapted to a pandemic context, it appears that being twice exceptional might have an influence.

### **Overall, externalizing, and internalizing adaptation of twice-exceptional children in a pandemic context**

Indeed, it appears that twice-exceptional children and adolescents adapt differently from other gifted young people. Less than half of them were able to adapt overall to the pandemic situation and more than a third had clinically significant difficulties in adapting overall. On the internalizing scales, slightly more than half of the twice-exceptional youth had no symptoms, while more than a quarter were at risk or had clinically significant symptoms. More specifically, slightly more than one child in three reported anxiety-related difficulties and slightly more than one child in four had depression-related problems. On the externalizing scales, more than half of the children were at risk or had clinically significant symptoms. The difficulties most reported by parents were thought problems, attention problems, and rule-breaking behavior. While twice-exceptional children are often the focus of concerns about their psychosocial adaptation skills, it seems that, in the pandemic context, their vulnerability must also be considered in light of these findings. It appears that being twice exceptional might exacerbate difficulties already present outside of the pandemic context (Foley-Nicpon et al., 2011; Mullet & Rinn, 2015).

### **Contribution of sociodemographic variables**

As for age, the gifted children aged 6–11 exhibited more externalizing behaviors than the older children

(12–17 years). It does not appear that, in the context of a pandemic, this result is directly related to giftedness since several other studies have reported it in the non-identified gifted population. For example, Imran et al. (2020) reported that the youngest children in their sample exhibited more aggressive behavior (e.g., opposition, anger, defiance) as well as regressive behavior (e.g., needing to be hugged often). They suggest that parents might be passing on their stress to the younger children. That would partly account for the differences between the younger children and adolescents. Since adolescents tend, at this developmental stage, to be closer to their peers and more distant from their parents, they might also be less affected by their parents' stress (Baudry et al., 2021). Although not typical, it might be possible to make a link between the response of younger children, giftedness, school closures, and homeschooling, even though there is no study comparing the situation before and during the pandemic. Indeed, in the context of confinement and home schooling, the younger gifted children might not have been stimulated to the extent they needed. Moreover, they might exhibit feelings of boredom (a well-documented issue for these children) and engage in inappropriate behavior. This could result in more externalizing behavior such as attention problems or aggressive or oppositional behavior, especially among twice-exceptional children. Such behavior would not be surprising when the parents were working at home and could not be available to take care of their child all the time, as might be the case in the classroom where an adult could keep them occupied. This is especially true for the younger children, since adolescents tend to be more independent and self-reliant. Thus, the lack of stimulation, the lack of adult guidance and supervision, and the lack of concrete accomplishments that do not counteract boredom could be linked in part to the presence of externalizing behavior.

As for gender, boys showed more externalizing behavior than girls. As with the differences between the two age groups, this gender difference does not appear to be specific to gifted children, nor to the pandemic. Indeed, a Baudry et al. (2021) study in the pandemic context involving the non-identified gifted concluded that the boys and girls in the sample experienced the same differences in adaptation difficulties. The gifted boys in this study had more externalizing difficulties and tended to argue more often, shout, or fight and to have more mood swings than girls. The scientific literature recognizes that such gender differences occur even in the context of so-called "normal" life (American Psychological Association, 2013).

### **Comparing the adaptation of gifted, twice-exceptional, and non-identified gifted youth**

Based on the results, and as suggested by the descriptive analyses, the adaptive functioning of twice-exceptional

children appears to be different when compared to gifted children and non-identified gifted children. The gifted children were indistinguishable from the non-identified gifted children and demonstrated similar coping skills to their peers, as is the case outside of the pandemic (Brasseur, 2021). The twice-exceptional children stood out and presented more adaptation difficulties compared to the gifted and non-identified gifted children. Specifically, they differed the most from the non-identified gifted children on a set of subscales, being more at risk of or presented with more overall adaptation difficulties, more internalizing behavior, and more externalizing behavior than the non-identified gifted children. They had more anxiety, depression, social, thought, attachment, oppositional, and aggressive symptoms. Although not significantly different from other gifted children without dual exceptionality on the total, internalizing, and externalizing scales, the twice-exceptional children exhibited significantly more aggressive behavior than the gifted children. Taken together, these findings could be explained in part by the presence of the specific characteristics and needs that these twice-exceptional children already had before the pandemic (Foley-Nicpon et al., 2011) which could be exacerbated by the unique living conditions imposed by the pandemic (Kawaoka et al., 2022; Meral, 2022).

Considering the presence of neurodevelopmental difficulties in twice-exceptional children associated with more difficulties in psychosocial adaptation and higher levels of anxiety and depression than in other gifted children (Doobay et al., 2014; Mugnaini et al., 2009), it seems reasonable to conclude that, in the pandemic context, these children might react more strongly and have more anxiety, sleep difficulties, and aggression than others dealing with the same situation. A higher level of anxiety, depressive symptoms, and sleep difficulties could also be explained by their thinking and reaction to the magnitude, severity, and uncertainty of the situation. Such a scenario is highly reflective of the 'unknown' that gifted children have more difficulty dealing with highly sensitive to change and, for some, experiencing a sense of inadequacy between their environment and their needs, it could be as Neihart and Yeo (2018) posited that the substantial environmental change (e.g., school closure, organization of home schooling, family reorganization) imposed by the pandemic impacted adaptive functioning generating anger, aggression and oppositional behavior. These results are consistent with those of qualitative studies, which, while not specifically addressing the twice-exceptional population, have addressed the issue of adaptation of gifted children through interviews with parents. The parents emphasized how the pandemic situation seems to have impacted their children's adaptive functioning including sleep difficulties, feelings of loneliness, boredom, sadness, and anger (Duraku & Hoxha, 2020). These results are consistent with past

research indicating that twice exceptional children are often at greater risk than others for adaptation difficulties (Mugnaini et al., 2009) and that it is therefore important to consider these factors as indicators of care in order to prevent the situation from worsening and leading to irreversible problems.

Another factor implicated in the adaptation difficulties presented by gifted and twice-exceptional children could be school closures. Wolfgang and Snyderman (2022) reported that, when not being able to be around and interact with their friends, gifted youth might develop a sense of isolation such as described in other studies on the non-identified gifted population (Baudry et al., 2021; Pisano et al., 2020). In the context of a pandemic, this sense of isolation is associated with higher levels of stress and anxiety than when it is absent (Dalton et al., 2020). Gifted children might present relational issues in normal times, as they often lack a sense of connection with same age peers (Terrassier, 2009). Given that, it is conceivable that school closures might further reduce their opportunities for interaction, increasing feelings of isolation that are related to adaptation difficulties, such as those found herein. In addition, the mismatch between the few opportunities for interacting with others in confinement and their need for connected relationships could not only contribute to a sense of isolation but fuel a sense of mismatch between needs and the response to their needs. This may be even more true for adolescents, although the present results do not demonstrate this since relational dimensions take on greater significance in this period of life when identity construction and the development of autonomy and independence take on greater importance.

## Limitations

There are several limitations to this study that must be considered when interpreting the results. They will help to orient the reflection for future studies.

First, the self-report instruments completed by the parents do not capture the perspectives of their children. Even if parents are with their child long enough to get an accurate picture of the situation, they cannot express the child's experience as accurately as the child. The parents themselves—possibly stressed or tired—might present the situation more negatively or more positively than it is. Second, the sampling method was a convenience sampling with recruitment through social networks. This type of sampling affects the level of representativeness of the study population, especially since the sample was relatively small and the participants were from high socio-economic backgrounds. Third, while the specific study of gifted children provided a clearer picture of these children, the study of moderating variables could enhance our understanding of the psychosocial adaptation of these children. Fourth, while this study documents how children in the province of

Quebec fared during confinement, the data do not allow for an assessment of how their adaptation changed from the pre-pandemic period. Thus, children with pre-pandemic difficulties might have shown an overall improvement in functioning, despite having an at-risk or clinical score on the adaptation scales. Conversely, other children might have more difficulty in a pandemic setting, but still be functioning within the average range for adaptive behaviors.

Lastly, as this study is exploratory in nature, further studies should consider certain family processes, including parental stress and mental health, as indicators of the impact of the pandemic and as factors influencing the adaptation of gifted children.

## Implications and Conclusion

In conclusion, in this pandemic context in which certain difficulties seem to emerge more markedly in the twice-exceptional compared to gifted and non-identified gifted children, it seems both relevant and important to

better identify them in order to put in place strategies that support and allow for better adaptive functioning. A greater awareness of the presence of difficulties could enable both parents and teachers to respond to the needs of these young people with greater consideration and empathy for the potentially stressful experiences associated with the pandemic. Duraku and Hoxha (2020) relate several strategies mentioned by parents of gifted children. Family activities, setting routines, rule adaptation and flexibility, the quality of communication between parents and children, the opportunities for family talks, and the emotional support offered by parents could be key elements in their child's sense of well-being. In the same sense, the importance of considering the emotional and affective needs of gifted youth and allowing them to express them has also been reported (AlAli, 2021). These elements have been implemented with gifted and non-identified gifted children and adolescents with consistently positive effects on youth and families (Bobo et al., 2020).

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## Author Information

**Claire Baudry** is a full professor in the Department of Psychoeducation Université du Québec à Trois-Rivières. Her expertise is in cognitive development and psychosocial adaptation of children, parent-child relationships and teacher-student relationships. Her expertise in giftedness (including school adjustment and the teacher-student relationship) has led her to focus on the influence of teacher / gifted child interactions on the latter's school and social-emotional adjustment. Since 2020, she has been leading a project on psychosocial and academic adaptation of youth living in a pandemic context.

**Jeanne Lagacé-Leblanc, Ph.D.** obtained her doctorate in Psychoeducation. After obtaining her Ph.D., she became a postdoctoral fellow in the research Unit of Parenting and Special Education of the Faculty of Psychology and Educational Science at Katholieke Universiteit Leuven (KU Leuven) in Belgium. Her research interests include the experiences of students with disabilities, the effectiveness and limitations to implementing reasonable accommodations, and inclusive teaching practices for postsecondary instructors.

**Line Massé** is a full professor in the Department of Psychoeducation. She has developed solid expertise in giftedness and the education of gifted children, having taught them for five years, worked for more than 15 years as a pedagogical consultant to develop educational services for them, and completed her master's thesis and doctoral dissertation in this field. Her research projects focus on young people with adjustment difficulties at school, school inclusion, the education of gifted students, and the development and evaluation of programs or services.

**Jessica Pearson**, is a young researcher and professor in the Department of Psychoeducation. Her work examines the influence of early experiences on temperament and cognitive development in children. She has acquired

expertise in observing maternal behaviors and child attachment during mother-child interactions. Her current research program, supported by FRQSC and SSHRC funding, examines prospectively and longitudinally the influence of individual and family factors on child development. With Baudry, she is co-editing a book on adjustment of children and their families during the COVID-19 pandemic.

**Amélie Courtinat-Camps**, is a full professor in the department of Developmental Psychology at University of Toulouse, France. She is also a member of the "Psychology of Socialization: Development and Work" laboratory. She has developed expertise in giftedness for fifteen years and completed her master's thesis and doctoral dissertation in this field. She is currently working on social and emotional development (identity building, self-esteem, etc.) and the school experience of young people with special needs (SEN) or disabilities.

**Eileen Slater, Ph.D.** has worked as a science teacher from K through Tertiary, gifted education teacher and program coordinator, education consultant, and in school leadership including as a head of science. Finding aspects of the current model of education frustrating from an inclusion perspective, she turned her focus to education research, completing a Ph.D. in 2016. Eileen's research has subsequently focused on inclusive education and education measurement across many educationally vulnerable groups. As a psychometrician, she currently runs *Allegiance Educational Assessments* in Perth, Western Australia.

**Geneviève Ouellet**, is a doctoral student in psychology at University du Québec à Trois-Rivières. Her research project focus on gifted children, i.e. teacher-student relationship and their school engagement. She has been coordinating a project on the psychosocial and school adaptation of children and adolescents, including gifted children living in the context of a pandemic.