Academic Impairments Faced by College Students with Attention-Deficit Hyperactivity Disorder: A Qualitative Study

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Abstract

Few qualitative studies have focused on the experiences of students with attention-deficit/hyperactivity disorder (ADHD) pursuing postsecondary education, and in particular, how their academic difficulties manifest themselves. This study provides a better understanding of how ADHD affects students in their studies. In-depth interviews were conducted with 29 college and university students with ADHD, their relatives (n = 26), and their counselors (n = 9). Participants reported significant academic impairment (e.g., difficulties related to attention, emotional regulation, motivation, time management, inhibition, working memory, organization, and planning) and a complex relationship with the ADHD label. The difficulties experienced by students seem to be closely related to deficits in executive functions. This interrelation complicates the understanding of functional impairment. Implications for practice provide recommendations based on the literature on how to improve the academic success of students with ADHD in postsecondary education.

Keywords: ADHD, college students, academic impairments, executive function, qualitative study

Attention-deficit/hyperactivity disorder (ADHD) often persists into adolescence and adulthood (Barkley et al., 2008). It is characterized by clear evidence that symptoms of inattention, hyperactivity, and impulsivity interfere with or reduce the quality of social, academic, or occupational functioning (APA, 2013). Assessing these limitations is central to understanding ADHD (Gathje et al., 2008). Conceptually, it is important to distinguish between ADHD symptoms—"the behavior expressions associated with the disorder"—and impairments—"the consequences that ensue for the individual as a result of these behaviors" (Barkley et al., 2006). Examples would be poor academic performance, professional problems, or frequent conflicts (APA, 2013). Research has shown substantial academic impairment for these individuals. However, research on ADHD impairment has largely been quantitative and focused on children. This gap in the research is concerning. Thus, this study aims to contribute to knowledge in focusing on academic impairments on college and university students with ADHD.

Despite the significant difficulties associated with ADHD, more and more people are continuing their education after high school (Pryor et al., 2012). Samples of college students have shown prevalence rates of current ADHD ranging from approximatively 2% to 8% in the United States (DuPaul et al., 2009) and 7.11% in Canada (Yallop et al., 2015). College students with ADHD differ from peers with ADHD who do not attend college; they have higher cognitive abilities, past experience with school success, and better coping skills (Glutting et al., 2005). Nevertheless, students with ADHD face additional challenges in adjusting to college or university life compared to students without ADHD (Weyandt & DuPaul, 2013). Indeed, students with ADHD are more likely to interrupt their education (Brown, 2005), drop courses (Advokat et al., 2011), or fail to graduate (Barkley et al., 2008) than their counterparts without the condition. Moreover, students with ADHD admitted to postsecondary institutions tend to get lower grade point averages (GPAs) than their peers (Green & Rabiner, 2012). They also face several academic difficulties affecting their success. Compared to students without ADHD, they report having difficulty estimating time (Prevatt et al., 2011), needing more time during examinations, having more difficulty completing tests

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on time (DuPaul et al., 2009), and tending to put off studying and completing assignments (Kane et al., 2011). Students with ADHD find it more difficult than students without ADHD to avoid distractions and stay focused, take class notes, remember necessary items, persist in cognitively challenging tasks, and think through the consequences of their actions (Advokat et al., 2011; Fleming & McMahon, 2012). They also have to read material repeatedly to understand it (Lewandowski et al., 2008). Students with ADHD report needing to work harder than their peers to earn good grades (DuPaul et al., 2009) and feeling less confident about their ability to succeed academically (Blase et al., 2009; Heiligenstein et al., 1999; Kane et al., 2011; Lewandowski et al., 2008). Many students with ADHD feel shame and guilt about their academic achievement, which can lead to avoidance and procrastination behaviors (Stamp et al., 2014). In addition, they have difficulty sitting still during classes and exams or when writing assignments (Gilbert, 2005).

ADHD is now viewed as involving far more than just its diagnostic symptoms of inattention, impulsivity, and hyperactivity. Current research indicates that executive-function deficits can play a large role in the academic functioning and performance of students with ADHD (e.g., Weyandt et al., 2013). Moreover, college represents a unique environment wherein the effective use of complex executive functioning skills, such as planning and organization and self-regulation of behavior, is frequently required. Multiple models of ADHD have garnered substantial empirical support, and future conceptualizations of the disorder will likely acknowledge that no simple cognitive impairment adequately explains all cases of ADHD (Willcut, 2014). Among these models, the one proposed by Barkley (1997, 2015) is one of the most recognized. ADHD has come to be understood as a disorder associated with impaired executive functioning and motivational deficits that manifest at various points throughout development. According to Barkley (2012), the executive functions can be viewed as "those self-directed actions needed to choose goals and to create, enact, and sustain actions toward those goals" (p. 60). Barkley describes executive functions as essentially conscious, effortful actions. Self-management across time, self-organization and problem solving, self-restraint (inhibition), self-motivation, and self-regulation of emotions are impaired executive functions in adults with ADHD. Furthermore, Barkley views less conscious functions, such as alertness, attention, and memory, as quite different from executive functions, which operate more automatically on a "pre-executive level." Barkley considers excessive daydreaming, getting bored easily, feeling like being in a fog, being underactive, having difficulty staying alert in boring situations, and so on to be symptoms of "sluggish cognitive tempo" (SCT), which is a disorder distinctly different from ADHD. SCT does, however, significantly impair executive functioning and adaptation in daily life. In comparison, Brown (2013), who proposed a quite similar model, argued that executive functions operate mostly in automaticity, without deliberation or conscious choice. Nevertheless, Brown included "focus" and "memory" among executive functions impaired in ADHD. Regardless of some differences, ADHD is viewed as a developmental impairment of executive functions. This is consistent with studies suggesting that the academic difficulties experienced by students with ADHD are probably due not only to symptoms of inattention or hyperactivity/impulsivity, but also to a lack of adequate preparation in terms of organization, time management, and studying (Advokat et al., 2011; Blase et al., 2009; Lewandowski et al., 2008; Reaser et al., 2007; Weyandt et al., 2013). For example, executive-function deficits related to organization, planning, and self-control can affect educational outcomes for students with ADHD (Garner, 2009; Heiligenstein et al., 1999).

Undeniably, students with ADHD at the postsecondary level face a number of difficulties that can affect their academic success. Moreover, little qualitative research has focused on the experience of students with ADHD in postsecondary education and, in particular, on how they experience academic difficulties. Much more research in this area is warranted (DuPaul et al., 2009), and, in particular, including students' voices is crucial. By learning about the academic experiences of students with ADHD, colleges and universities might be better equipped to understand and respond inclusively. Therefore, it is necessary to better understand the difficulties confronting them in order to gain a better understanding of the disorder and develop appropriate interventions. This research was conducted as part of a larger study that aimed to document the experience of students with ADHD in postsecondary education. The purpose of this qualitative study was to elicit greater understanding of how ADHD can affect the student in the college or university environment. Two questions guided this study: (a) How does ADHD affect students in learning?, and (b) How do students with ADHD perceive having ADHD in postsecondary education?

Methods

Participants

The sample consisted of 29 French-speaking Canadian students with ADHD, including 19 women and 10 men, aged 18 to 36 (M = 23.9, SD = 4.61); 9 students were over 25 years old (older than the typical age) and reported being back in the system after a hiatus (M = 2.15 years, SD = 1.74). The students were attending CEGEP (postsecondary general and vocational colleges specific to Quebec; it's the step between secondary school and university) in preuniversity (n = 6), technical programs (n = 4), or university in certificate (n = 1); bachelor's (n = 13); master's (n = 4); or doctoral (n = 1) programs. All participants had a primary diagnosis of ADHD made by a family physician (62.0%), neuropsychologist (34.5%), or psychologist (3.5%). A total of 51.7% of participants were diagnosed with at least one comorbidity, with anxiety disorders accounting for 42.8% of the comorbidities and learning disabilities for 35.7%. The majority of participants (82.8%) took medication (self-reported) for their ADHD. Twenty of the 29 participants were receiving academic accommodations (e.g., extended examination time) for condition-related limitations. A designated relative (18 parents, 7 partners, 1 cousin) volunteered to participate in the study for 26 of the students. In addition, the participants' counselors from institutional offices of disability services (ODSs) (n = 9) were interviewed. The counselors had an average of 5.5 years of experience (min = 0.5 years, max = 15 years) working with postsecondary students with ADHD.

Measures

Based on prior professional experiences with ADHD and the fields of school psychology and higher education, the primary researcher and two other researchers developed a semi-structured interview guide. The interview guide was tested with a student with ADHD and their parent to be sure the questions were clear and understandable. It included a list of questions asked in each interview, and which encouraged participants to talk freely, in line with the exploratory nature of the study. For the purpose of this article, we focus on the actual impairments due to ADHD (theme 1 of the interview guide). Two central questions were asked : (a) How does your ADHD affect you in your studies? Can you give me some examples?, and (b) What do you think affects you the most? Can you tell me more about it?

Procedure

All the following procedures were approved by the institutional review board (IRB) of the principal researcher. Participants were recruited from six postsecondary institutions in the province of Quebec (Canada). ODS staff at each institution sent recruitment emails directly to students with ADHD. Information about the research project and instructions for contacting the first author were sent. In addition, flyers publicizing the study were posted on campus, in counseling-center waiting rooms, and on institutional websites. Students volunteering to participate in the study contacted the first author by email; a meeting was then organized. Inclusion criteria included (1) being a student at a college or university participating in the research project and (2) having a diagnosis of ADHD attested by a professional assessment. No exclusion criteria were employed.

The first author conducted in-depth semi-structured interviews with all the participants. Interviews with students, lasting from 50 to 120 minutes, were conducted in a private office on the campus of their postsecondary institutions. Students received $20 as compensation for participating. They also had to provide contact information for a designated relative and for their ODS counselors, if applicable. Informed consent was obtained prior to the interviews. Telephone interviews lasting 15 to 45 minutes were organized with the relatives. Interviews with counselors, running from 50 to 100 minutes, were conducted in their offices. The audio of all the interviews was recorded and transcribed while respecting anonymity and data confidentiality.

Data Analysis

The collected data were analyzed with NVivo version 11.4.3 (Qualitative Solution and Research Software [QSRS], 2017) using mixed thematic analysis (Miles et al., 2014). All data were stored in a secure database; participants were assigned identification codes (IDs). The coding was first carried out based on the literature on executive functions affecting the education of students with ADHD, followed by giving attention to emerging themes (Creswell, 2014; Miles et al., 2014). Specifically, the codes were revised from a more inductive perspective leading to the development of new codes that were added to the original code grid. In addition, a master's student established interrater reliability based on 10% of the total corpus, that is, all of the interviews with three students, three relatives, and one counselor. The master's student received training before coding took place; the definition of each code and examples representing them were discussed. Meetings were organized with

the principal researcher: the first with the master's student to discuss coding issues and the second with another researcher to reach a consensus on certain themes. Nvivo was used to obtain the Kappa coefficient (Cohen, 1960). This nonparametric test was used to quantify the agreement between the principal researcher and the master's student in the qualitative data. This coefficient is between -1 and +1. Coefficient between 0.40 and 0.60 is average, from 0.60 is satisfying, and above 0.80 is excellent. The more the coefficient is closer to 1, the more the judges have a high degree of agreement. The interrater reliability (IRR) obtained was excellent (k = 0.90). Reports on each of the categories were produced to select the quotes that best represented the perceptions of the participants. The data for the different categories of respondents were triangulated.

Results

Two main themes emerged from the qualitative analysis: (1) ADHD functional impairments and (2) the relationship with the ADHD label.

Theme 1: ADHD Functional Impairments

Seven interrelated subthemes emerged related to ADHD functional impairments, namely impairments related to (a) attention difficulties, (b) emotional-regulation difficulties, (c) motivational difficulties, (d) time-management difficulties, (e) inhibition difficulties, (f) working-memory difficulties, and (g) organization/planning difficulties. The percentage presented for each subtheme refers to the proportion of participants who reported this difficulty (S=student, R=relative, and C=counselor).

Attention Difficulties (S = 100%; R = 76.9%; C = 77.7%)

Participants reported significant functional impairments related to attention difficulties. They had difficulty sustaining their attention for a certain period of time, causing them to lose track of what was being taught in class, taking longer on exams, or forgetting to answer test questions. With regard to one participant, relatives reported that, without medication for ADHD, "[the student] has a much harder time concentrating" [Male, ID 212]. Several students also mentioned that reading assignments demands great attention and takes much more time. One student provided some details:

> I understand what I read. But often when I read, my mind starts to wander after a while, sometimes after just 5 minutes I see the words, but they don't seem to have any meaning. At some point, I realize that I don't know what I've read. [Male, ID 117]

Moreover, the difficulties encountered can also cause them to struggle in selecting the most important pieces of information, such as in a text or a teacher's presentation. One student recounted the following.

> Everything often seems relevant to me in class. I have a hard time synthesizing and saying to myself, "This is irrelevant, this is it, this is irrelevant." So, I listen, listen, listen, listen, listen, and listen. I get to a point where I don't listen anymore because everything is important. [Female, ID 108]

Without medication, students can face crippling attention difficulties that are demanding in terms of time and energy, as reported by one student: "When I tried to read, it would take about 15 minutes and I was exhausted. I had to nap for at least an hour to get over it" [Male, ID 111].

Some students reported that their listening skills in class are limited, especially during classical (lecture-style) teaching. A counselor also described this as a major challenge reported by students with ADHD:

> They told me that students with ADHD are really challenged when instructors use traditional teaching methods, don't give examples, don't put students to work, and don't break down the class into teams. Such courses just seem like a flood of words. [Female, ID 305]

One student said that, even with ADHD medication, it was still difficult to stay alert during lectures: "Even at 72 [mg], I have a hard time following a lecture" [Male, ID 117]. It also seems problematic when the context requires the student to manage and share their attentional resources. For example, students have trouble taking notes in class while paying attention to what the teacher is saying. One student stated: "If I listen to the teacher, taking notes is harder. It's like one or the other" [Female, ID 126]. One student found note taking was a significant challenge when starting university, as it was the first time in her school career that course notes were not provided. While significant at the start of her education, this problem has decreased over time: "At the beginning, taking class notes was really complicated. I had trouble focusing on what the teacher saying and writing at the same time. While it was difficult, over time I finally managed" [Female, ID 101].

Emotional-Regulation Difficulties (S = 48.2%; R = 61.5%; C = 77.7%)

Students reported difficulties in managing their emotions related to their learning. Some tended to exaggerate situations or push the "panic button" easily, anticipate the future, and let themselves be overcome by more negative emotions. One student reported what she experiences when she feels overwhelmed by emotions caused by academic tasks:

> It's really like the level in an overflow rising when I have a lot of assignments to do and can't see my way clear. I know I will manage, but, for now, it's just too much; just overload and then (gagging noise). [Female, ID 103]

In addition, the stress generated by tests seemed quite important for some students, even to the point of causing memory lapses in some. One student mentioned that she was not performing up to her potential because of this:

> I had an examination in the only subject I thought I knew fairly well. But the exam didn't go well because I had lost a lot of self-confidence and had big blanks during the exam. It looks like I forgot just about everything and I was really disappointed. [Female, ID 109]

As this student mentioned, academic anxiety was closely related to self-esteem. Another student related: "I get really stressed out. I have a hard time trusting myself. This is also affecting my self-esteem so that I'm always afraid of not being good enough" [Female, ID 110]. Students pointed to academic success being a major source of stress and that was also raised by several relatives. One mentioned her child is constantly questioning her success: "She is always anxious about whether she will pass or not. And if she passes, she gets anxious about passing the next exam" [Female, ID 203].

When overwhelmed by emotions, students can struggle to contain themselves and deal with the situation's emotional load adequately. A student reported that worrying makes him less productive and this disrupts his schedule. Others said they sometimes have to leave their class because they were so emotional about the situation. For example, some students mentioned that this happened after receiving a bad exam grade, because of a teacher's comment, or due to misunderstanding a concept being taught. In addition to experiencing strong emotions, they can find it difficult to divert their attention away from whatever is upsetting them emotionally. In this regard, a student described her emotional state when she felt ridiculed by her teacher for being unable to answer a question:

> Since I am highly sensitive, I experience emotions strongly. For example, if something happens to me, I really feel it. That's what happened in that situation: I almost cried! It's often like that. If someone says something unpleasant to me, it weighs down on me for a long time and I'm more irritable. [Female, ID 108]

Some relatives reported that the students with ADHD experienced extreme emotions. For example, they could slide "from laughter to tears" [Female, ID 208] or quickly get angry or upset. In this regard, a relative mentioned that her son "flies off the handle at the drop of a hat; so let's say he is short-tempered" [Female, ID 213].

Motivational Difficulties (S = 55.1%; R = 11.5%; C = 66.6%)

Participants frequently reported the students had difficulty initiating work or tasks. Often, the hardest part was "getting started" [Female, ID 123]. A student [Male, ID 106] also pointed out that the problem was in overcoming inertia: "I can make a plan, but then it has to be carried out." Another student explained that making out her schedule was not a problem, but finding the motivation to stick to it was a major challenge:

> Right now, writing is very difficult, because I make my own schedule. It's quite a challenge [...] I try to set my own routine. I try to put the time in, but I have a really hard time sticking to my routine. [Female, ID 123]

As one student explained [Male, ID 106], the difficulty in getting started and maintaining inertia "impact the quality of my work." Another student [Male, ID 112] also said he "has to really like what he's working on or risk botching it."

In addition, students found it more difficult to get down to work when they were off their ADHD medication. One student noted, "without medication, I am like a larva" [Female, ID 103]. Another shared, "when I don't take them, it's easy to give up" [Male, ID 113].

Some students explained that, even though they intended to do a particular task, they often had other things more interesting to do. In fact, simply thinking about doing the work could generate more negative emotions that discouraged the student. For others, even enjoyable tasks were more difficult to start because they could be easily distracted. In this regard,

one student mentioned that "motivating myself to do the task is always difficult because there are always a thousand distractions" [Female, ID 101]. Students also had a strong tendency to procrastinate: they would start tasks at the last minute, even if it were something important such as studying for an exam or completing a long assignment. They associated the task with negative emotions, which led to procrastination, as one student explained:

> Telling myself that I'm going to do something does not motivate me. I could try to spread it out on a daily basis to finish in time, but that doesn't motivate me. I try to find motivation, but it's still hard. I tell myself that I have to get it done before the due date. [Male, ID 113]

For other students, the pressure they felt seemed to play a role in procrastination. One explained that he was unable to study until he felt the pressure of an approaching deadline. For another, it was the opposite: the greater the pressure he felt about the task, the more he avoided the task. Either way, they put off studying or doing assignments until the last minute. Students also reported that they lacked persistence in completing tasks, got tired easily, and quickly lost interest in what they were doing.

Time-Management Difficulties (S = 44.8%; R = 11.5%; C = 66.6%)

Students reported having difficulty managing time, especially with respect to priorities over time. As this student explained, such difficulties can impact academic performance:

> I have a hard time prioritizing my time. It's like being on a treadmill and having to jump over obstacles and I don't want to fall. That has resulted in many, many, many delays. [Female, ID 128]

In addition, a counselor explained how challenging it was for a student with ADHD who has to juggle several other responsibilities:

> They also have a lot to manage at university…. There is a lot more studying, but [university] requires spending quite a bit of time reading. The financial aspect is also an issue, because students often have to have a job. [Female, ID 304]

Another counselor added that "it's the same for older students coming back after a hiatus, because they might have children or a family or gone through a separation or heartbreaking experience. All that adds up to more burdens" [Female, ID 303]. Some students pointed out that balancing family, study, and work called for adjustments, such as finding time to study and for their families. Moreover, having to deal with several things at once, in addition to school, has an even greater impact on managing emotions. One student related how she felt about managing scholarship applications: "It's over-overwhelming. It's like drowning. So, for example, just applying for scholarships literally puts me in crisis mode" [Female, ID 120].

Students also reported having trouble estimating the time required to complete a task. Some overload their schedules, thinking they can do everything planned, only to realize that it was too much and that they could not stick to the original plan. One student attributed this to a poor perception of time: "I managed to overload my schedule, because I wanted to do everything! One day, I want to do it all, but that's attention deficit. We don't see time, we don't see real time" [Female, ID 108]. Similarly, another student reported having requested extensions several times to complete work.

While some struggle planning ahead to avoid being at the last minute, others underestimate the time it takes to complete a task, so that work piles up and finishing it becomes an issue. Another student explained that his difficulties with time management were related to planning issues: "I have trouble projecting myself into the future, like with my schedule. I have trouble devising a schedule, a fixed one for the week" [Male, ID 102].

Inhibition Difficulties (S = 48.2%; R = 15.3%; C = 33.3%)

In terms of inhibition, students with ADHD had a hard time resisting distractions. Indeed, they had difficulty focusing only on selected stimuli without being distracted by other sources. This could significantly limit their concentration and make reading difficult:

> What bothers me the most about my ADHD is the fact that there are so many things going on around me that keep me from concentrating all the time… So, I have to reread material. Sometimes when I read, I reread a line or paragraph. [Male, ID 125]

They also found it difficult to reign in their thoughts. One student [Male, ID 102] said "my brain is in overdrive" and, according to him, that significantly affects his concentration. A relative also related that this difficulty impacts on sleep: "Sometimes he has a really hard time falling asleep at night because of the thoughts racing around in his head" [Female, ID 205].

Indeed, students reported having difficulty being still. One mentioned that "it's stronger than me. I'll jiggle a leg. It's like overflowing with energy. I've got energy to spare" [Male, ID 102]. For other students, this agitation was more mental than physical. For example, one student mentioned that: "I still get fidgety legs. It is incredible, but it's a lot less worse; it's really more in my head" [Male, ID 105]. Many students find sitting for a long period of time difficult. One also reported an impact on concentration: "If I sit too long, I just have to fidget. It looks like I've lost control; I have a lot of tics. Since I move around a lot, I get distracted, too" [Female, ID 115]. According to one relative, having several classes in a day also increased a student's physical agitation: "When he had several classes the same day, he not only had trouble concentrating but just sitting still" [Female, ID 205]. Another student [Female, ID 126] reported that her agitation increased when she didn't exercise: "I've had a harder time sitting still since starting CEGEP because I had to really cut back on sports since I have less time than in high school." One student indicated that she sometimes said whatever comes into her head without thinking about the consequences: "The words just come out faster than I can control" [Female, ID 115]. Others reported talking a lot and, for one student [Female, ID 128], this was true even when taking her ADHD medication: "I talk a lot, a real chatterbox despite the medication."

Working Memory Difficulties (S = 34.4%; R = 19.2%; C = 33.3%)

Students had difficulty remembering what they read. One [Female, ID 116] stated: "No matter how much I reread something, it just doesn't sink in." Another pointed out that this difficulty is particularly an issue when she doesn't take her ADHD medication:

> If I don't take my medication, whenever I have to read, I have to reread it 8 times because I can't remember. So, the issue's more at the level of being able to retain information and being able to concentrate on doing something. It's a definite challenge. [Female, ID 103]

One student [Male, ID 111] underscored that encoding information when reading "took all of his energy." In addition, he has trouble remembering information when the subjects are complex or he had little interest in the content. A few students also mentioned lack of "confidence in retaining information." Others found it difficult to remember what they had read if they had multiple tasks in a week. For example, a student [Male, ID 121] recounted: "It's sometimes a little hard to remember everything when I have other classes in the same week." Moreover, it affected their ability to retrieve information and to explain what they had read. One student recounted:

> At the master's level, the teachers were much more…let's say that they would often ask for our input, like explaining what we read that week some issue… When confronted point-blank like that…I have the impression that I can't actually deliver what I have studied. [Male, ID 121]

Another student [Female, ID 115] finds remembering what she heard problematic: "It goes out as fast as it comes in." This difficulty led her to consider dropping out of her program.

Organization/Planning Difficulties (S = 37.9%; R = 3.8%; C = 55.5%)

The students tended not to write down important information, leading to consequences such as: "I was like 'Ah, it's okay I'm going to do this then.' But if I don't write it down somewhere, I forget it. And then small tasks accumulate in a large pile" [Male, ID 117]. Students also reported difficulties with organizing and synthesizing their ideas when writing for assignments. As this student mentioned, structuring their ideas is challenging: "Another big problem is that I find myself facing a huge body of ideas, lots of ideas that I want to develop, but they shoot off in every direction. Organizing them is really complicated!" [Female, ID 123]. According to another student, the problem was not getting ideas but ordering them: "Let's say I'm able to realize that I have all these ideas and can put them down on paper. Prioritizing is what's difficult. Everything is equally important" [Female, ID 128].

Theme 2: Relationship with the ADHD Label (S = 17.2%; R = 15.3%; C = 11.1%)

Some students reported negative outcomes related to their diagnoses. One student [Female, ID 109] viewed her condition "as being a very big inconvenience." The difficulties she experienced academically led her to question her ability to succeed in university. She wondered: "Am I supposed to be in college? Am I supposed to continue studying? Is school right for me or should I have quit after my technical degree?" Another student had similar reflections: "It's also that your self-esteem is really fragile, because you tell yourself, 'I just must be no good. I just must not deserve anything. Maybe I'm not in the right place'" [Female, ID 123]. These words echo the self-esteem of other students in this study. They

mentioned that their diagnosis severely undermined their self-confidence because they had the feeling, for example, of not being "equal to the others in the group." Another student brought this comparison to students without ADHD which appears to affect her self-esteem:

> What affects me the most and hurts me the most—I don't know—but maybe it's that it affects my self-esteem and that colors everything else. I want to study more...because I feel like I'm not really [good] enough, specifically because, if I compare myself to others, I have to work harder. [Female, ID 110]

For other students, what affected them most about their ADHD was the feeling that they needed the medication to function in everyday life. As one student explained: "What I find really annoying about having ADHD is that I need to take a pill. I'm not myself without it" [Female, ID 129]. Another student expressed embarrassment with his symptoms of hyperactivity: "Sometimes, I'm so embarrassed to tell people I have ADHD. Sometimes, I just want to say I have ADD, because I don't consider myself hyperactive" [Male, ID 125]. Such perceptions appear to be strongly influenced by the opinions of others: "Based on my personal experience, we consider hyperactive people as—I don't know how to say it—as aggressive and taking up a lot of space. They aren't necessarily liked" [Male, ID 125].

Two students mentioned that "school is not adapted" for people with ADHD. One mentioned that having ADHD in college "is very difficult every day. Even now, with the success I'm having, it is still extremely painful" [Male, ID 111]. While recognizing the major difficulties encountered at school by her child, a parent explained that ADHD has also had positive impacts:

> In fact, having ADHD at school, I think, got her through some very difficult times and times where she almost lacked confidence. Her ADHD has made her the she is today… So, in the end, her ADHD has really helped her work hard and become the person she is. [Female, ID 203]

Discussion

The purpose of the current study was to elicit greater understanding of how ADHD affects the student in the college or university environment. Interviews with participants provided a better understanding of the academic difficulties experienced by college students with ADHD, which seem to be closely related to deficits in executive functions. The close relationship between executive functions when difficulties arise shows the complexity of what they experience. Their points of view also help contextualize in detail what they are going through.

How Does ADHD Affect Students in Their Studies?

Many of the difficulties reported by participants relate to problems implementing learning and study strategies. Students find it difficult to maintain their attention and remember what they read, to take notes while they listen to the instructor, to prepare for exams, and to plan and write their assignment on time. These difficulties and others can be explained by the close relationship between executive functions when difficulties arise (Barkley, 2012). For example, college and university classes require students to draw upon working memory and attention skills (Bauerlein, 2011). The results of our study show, however, that ADHD often impairs these skills. Thus, the encoding difficulties reported by students can be explained by students having difficulty in staying focused. Similarly, the trouble in inhibiting behaviors, cognitions, and emotions can affect their attentional abilities and thus account for the difficulties on this level. Because of these inhibition difficulties, students with ADHD can encounter deficits in auditory-verbal and visual-spatial working memory (Gropper & Tannock, 2009), which could also explain the significant difficulties with working memory and managing emotions reported by students.

Indeed, some of the students in our study discussed having difficulty managing their emotions, which seems to impact their performance, whether in terms of exams or daily school tasks. There is some evidence that stress and anxiety might be related to executive functioning and academic achievement (Pertерson et al., 2006). Similarly, students in our study reported poor emotional management, which seems to affect other functions such as attention, memory, and time management. These findings are consistent with past research work reporting that students had a tendency to worry about their studies, had significant anxiety during tests, and failed to apply appropriate learning strategies, leading to difficulties in adapting to university life (Advokat et al., 2011; DuPaul et al., 2009). According to Kwon et al. (2018), the constant worrying reported by students with ADHD could be a result of their history of repeated negative experiences and failed efforts, leading them to doubt themselves and their ability to achieve their goals. This research might suggest that experiences of students in our study can account for their lack of self-con-

fidence. This lack of confidence might also relate to low academic self-efficacy (e.g., less confidence in their ability to perform academic tasks). Self-efficacy can also impact motivation and persistence in mastering difficult academic tasks (Bandura, 1993). This hypothesis is also plausible given the significant motivational deficits reported by students in our study. For example, students in our study reported difficulty generating positive emotions that might help them organize behavior in anticipation of the future and to pursue long-term goals and self-interest; in other words, converting intent into action. This outcome is consistent with the principle that motivation shares a close relationship with the executive functions needed in setting long-term goals, planning and scheduling, implementing tasks, and reevaluating goals (Barkley, 1997). Individuals with ADHD are more likely to choose smaller immediate rewards rather than larger rewards that take longer to obtain (Sonuga-Barke et al., 2008). Thus, the experience of dealing with delay can be frustrating, leading to choices that minimize delay. For example, some students in our study reported consistently put off studying, even if another option produced a greater reward after a longer delay.

Participants also reported significant problems with time management and organization/planning. These problems are indeed very often reported in the literature for students with ADHD (e.g., Weyandt et al., 2013). The poor time management reported by students in our study can be explained by challenges they report in planning and completing tasks because of procrastinating (Asherson et al., 2007). Rabin et al. (2011) documented that executive functions of initiation, plan/organize, inhibit, self–monitor, working memory, task monitor, and organization of materials are significant predictors of academic procrastination. Once again, executive-function deficits shed light on the findings of our study. In addition, the difficulties related to time management and organization/planning reported by the students might be exacerbated by the students entering adulthood and dealing with the challenges that this represents. For example, they must face new financial responsibilities, maintain good personal health, and become academically independent (Schulenberg et al., 2004), making it even more difficult for them to manage their education. They must therefore implement major adaptation strategies (Farrell, 2003), which are often beyond them.

Students in our study report functional impairments in various contexts, such as when studying, doing assignments, or attending class. They also report experiencing more problems with traditional teaching. This is consistent with Jansen et al. (2017), who reported that traditional teaching tended to increase the chances of students with ADHD to encounter problems. ADHD medication should also be considered at the onset of functional impairments in students with ADHD. Even with ADHD medication, many students reported having trouble functioning in their studies and experience significant suffering. Other students, however, reported that the medication does not always help. On the one hand, these perceptions are not surprising, since medication helps students but cannot completely eliminate academic deficits. On the other, these perceptions raise the importance of considering a multimodal approach, combining medication and psychosocial intervention.

How do Students Perceive Having ADHD in Postsecondary Education?

In this current study, the participants reported negative outcomes related to their diagnosis of ADHD. Students perceived that postsecondary institutions are not adapted for students with ADHD. According to Heiney (2011), there is an incompatibility between the learning style of students with ADHD and the traditional way in which material is taught in the higher education system. The relationship of the students in our study with their ADHD diagnosis is similar to the results obtained by Lefler et al. (2016), who reported diagnosis-related stigma and embarrassment. The students in that study also reported that ADHD had positive impacts, which was not the case in our study. This could be explained by the formulation of our interview question, suggesting negative impacts due to ADHD. As has been documented more broadly, the ADHD label can be stigmatizing for students, which can sometimes lead to the internalization of collective beliefs and cause the students to doubt their abilities and have lower self-esteem (Corrigan & Watson, 2002). This could also explain the embarrassment that some students experience with their condition and the doubts expressed about their ability to succeed. In addition, it is important to consider the discomfort students feel about needing ADHD medication to function in everyday life, because it could possibly represent a risk for nonadherence to pharmacological treatment (Franklin, 2019).

Limits

This study has some limitations. First, the student participants were French-speaking Canadians attending CEGEPs and universities in Quebec. Consequently, caution must be applied when generalizing these results to young adults and adults in other countries, cultures, and age groups. In addition, care must be taken in interpreting the participants' individual per-

ceptions, as other factors in the students' lives might have influenced their perceptions. The fact that some students in our study were enrolled in and benefited from the adapted services of their institutions might have influenced how they perceived their experiences. Similarly, a large majority of the students were taking ADHD medication. We know that medication has a positive influence on the academic sphere by attenuating negative impacts (Weyandt et al., 2017). Therefore, our results might be influenced by this variable. No data were collected to verify whether the students receiving medication adhered to their doses or whether they took the medication only during the week or during the examination period. Lastly, the study was designed and structured to capture a "moment in time." Ideally, a full picture of the experience of a college student with ADHD would include multiple interviews over several years. This timespan would allow researchers to have a more complete picture of the difficulties experienced by students on their pathway to postsecondary education. This would yield a better idea—in "real time"—of the functional impairments that might emerge throughout a student's academic career and which might influence their experiences. Despite these limitations, we believe that this study is important because it is one of the few that qualitatively analyzes how ADHD affects students in their schooling. In addition, this study involved postsecondary students in the Province of Quebec (Canada) which is a population that has received little research attention. In addition, collecting information from relatives and counselors ensures a comprehensive understanding of the academic experiences of the students with ADHD and contributes to the richness of analysis and data triangulation.

Implications for Practice and Research

The results of this study have many implications. Although modest, this study constitutes an important contribution to the literature by presenting the unique perspective of French-speaking Canadians students with ADHD about their condition. In particular, they reported significant functional impairments academically. Institutions need to be aware of these impairments because results reflect more complex problems related to the inclusion of students with ADHD. Although some students seem to be functioning quite normally on the surface, their distress is unquestionable. Indeed, even though they reported having succeeded in school, it can still be extremely painful to live with that condition in postsecondary education. Efforts should be made to develop a more inclusive learning environment. For ODS counselors, it is also essential that they assess and describe the functioning of students, thereby improving decisions on accommodations (Weis et al., 2019) and service offering. Counselors should consider past and present functional impairment rather than the diagnosis itself in guiding future interventions.

As discussed, it appears more than relevant to focus on executive functions in students with ADHD to improve their situations. For most of them, the issue is not so much setting goals and willingness to do things, but rather that ADHD is an obstacle to the constant progress towards their goals, especially when results are not immediate. Indeed, it is more difficult for a person with ADHD to tackle a task that is not fundamentally pleasant, unless forced to, such as by an approaching deadline. These deficits presented by students in our study have important implications for postsecondary education, where tasks are often spread over long periods of time and where distractions abound. Strategies to increase motivation to pursue long-term goals should therefore be an important component of interventions for students with ADHD. In addition, it seems important that initiatives involving cognitive–behavioral therapy (CBT) be developed in postsecondary institutions. This type of intervention can successfully treat executive dysfunctions in young adults and adults with ADHD (Safren et al., 2005; Solanto et al., 2010). Treatments that incorporate such approaches have also been found to be effective in addressing irrational beliefs and negative self-attributions (Ramsay & Rostain, 2015). More recently, short-term interventions (three or six sessions) to enhance time management and organizational and planning skills have also been shown to improve self-rated ADHD symptoms (Van der Oord et al., 2020).

Similarly, ODSs might benefit from including coaching programs or intervention programs focused on organizational skills in their practices to help students with ADHD manage their time more effectively (LaCount et al., 2015). Coaching is another approach to help college students with ADHD to identify important goals as well as to develop plans and strategies for achieving them, focusing on barriers that might affect academic success, such as difficulties with organizational and time management (Zwart & Kalleymeyn, 2001). Considering the results of our study, this intervention approach is particularly relevant because it improves the feeling of self-efficacy and the level of self-confidence of students academically. Parker and Boutelle (2009) also showed that coaching was very effective in helping students with ADHD achieve their goals and reduce the daily anxiety associated with pursuing and succeeding in

postsecondary education. For instructors, it might be appropriate to adopt the principles of universal design for learning (UDL) (Rose & Meyer, 2006), which could benefit all students and not just those with ADHD. UDL offers several ways that specifically target deficit in executive function in students with ADHD. Overall, several approaches are effective in improving ADHD in students with ADHD. Nevertheless, it is essential to keep in mind that the most important thing is to help students transition from intent to action. Thus, ODS and instructors have a key role to play.

With respect to students' negative perceptions of their ADHD, it might be appropriate to support them in developing a better understanding of their diagnoses and inform them of supportive measures. Thus, there should be efforts to offer interventions that allow students to get to know themselves (e.g., strengths, needs, etc.), to accept themselves, to understand the impacts of the disorder, and to identify their needs. These are all essential skills in succeeding in postsecondary education (Getzel & Thoma, 2008). In addition, many students are unaware of the difficulties they might encounter in their courses (managing deadlines, organizing study, etc.). We must therefore inform them and help them make the right choices. Lastly, since the students most at-risk rarely take advantage of support services (Philion et al., 2010) postsecondary institutions must work to promote services in place and to reflect on their accessibility.

The academic experience of students with ADHD can be heterogeneous from one student to another, even if they live with the same condition. It would therefore be interesting to better understand the differences that may exist within this specific group of students. Future research could examine academic impairments in specific groups of students with ADHD, such as advanced or professional school grad students, first-generation students, or students returning to school.

Finally, further research should continue to focus on understanding the experiences of students with ADHD in the context of postsecondary education, and the characteristics of learning environments that influence academic success. What's interesting with aspects of students' voice research lies in its ability to think out of the box and enable researchers or clinicians to examine academic impairments through a different lense. As this article has shown, listening to what students with ADHD have to say about their experiences as learners, leads to better understanding and finer appreciation of these experiences and contributes in improving students' academic success.

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