

Positive Mental Health in Youth with ADHD: Exploring the Role of Social Support

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ABSTRACT

Positive mental health in youth has important implications for overall well-being. This study examined the extent to which different types of social support are associated with positive mental health among individuals, ages 15–24, diagnosed with attention deficit/hyperactivity disorder (ADHD). Compared to respondents without a diagnosis of ADHD, those with a diagnosis had significantly lower scores on measures of positive mental health and on four of five types of social support. Among the five types of social support, social integration and reassurance of worth were found to be significant predictors of positive mental health in respondents diagnosed with ADHD.

Keywords: attention deficit/hyperactivity disorder, positive mental health, social support, youth

RÉSUMÉ

Cette étude vise à déterminer comment des différents types de soutien social sont associés à une santé mentale positive chez les jeunes de 15 à 24 ans diagnostiqués d'un trouble déficitaire de l'attention / hyperactivité (TDAH). Comparativement aux répondants sans diagnostic de TDAH, ceux qui ont un diagnostic ont eu des scores nettement inférieurs aux mesures de la santé mentale positive ainsi qu'à quatre des cinq types de soutien social. Parmi les cinq types de soutien social, l'intégration sociale et la réassurance de la valeur se sont révélées des prédicteurs significatifs d'une santé mentale positive chez les répondants avec un diagnostic de TDAH.

Mots clés : trouble déficitaire de l'attention/hyperactivité, santé mentale positive, types de soutien social, les jeunes

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Attention deficit/hyperactivity disorder (ADHD) can have significant adverse effects on individual mental health, peer relationships, and overall well-being (Kessler et al., 2006; Wehmeier, Schacht, & Barkley, 2010), highlighting the public health concern that positive mental health should be addressed. Previous research has revealed that individuals diagnosed with ADHD report experiencing less social support than individuals without ADHD (Bernardi et al., 2012). Since people can experience positive mental health despite facing challenges or adversity (Canadian Institute for Health Information [CIHI], 2009), it is important to understand the factors that may protect against the negative effects of ADHD and promote the development and maintenance of positive mental health in diagnosed individuals. The current study explored the relationship between ADHD and positive mental health by examining the association between social support and positive mental health in youth, between the ages of 15 to 24 years, reporting a diagnosis of ADHD.

The Impact of ADHD on Mental Health and Well-Being in Youth

ADHD is a neurodevelopmental disorder characterized by persistent inattention and/or hyperactivity and impulsivity (American Psychiatric Association, 2013). Symptoms of ADHD are observed before the age of 12 years and affect approximately 5% of children and 2.5% of adults, with more males than females being diagnosed (American Psychiatric Association, 2013; Polanczyk et al., 2007). Although ADHD typically presents differently across the stages of development, most children diagnosed with ADHD continue to experience impairment in functioning throughout adolescence and into adulthood.

Persisting symptoms of inattention, hyperactivity, and impulsivity can have particularly negative consequences among youth. Specifically, adolescents diagnosed with ADHD are less likely to finish high school and have greater academic difficulties (Breslau, Miller, Chung, & Schweitzer, 2011). Additionally, impairments in employment can negatively impact job performance and the ability to retain a position (Erskine et al., 2016). During a developmental period where peer acceptance is highly valued, ADHD symptoms can lead to social impairments (Sibley, Evans, & Serpell, 2010) and social rejection (Eccleston, Williams, Knowles, & Soulsby, 2019). Young people with ADHD are also at an increased risk of arrests, convictions, and incarceration due to antisocial behaviours (Mohr-Jensen & Steinhausen, 2016). Lastly, youth are already at an increased risk of experiencing mental health issues; however, ADHD is highly comorbid with other mental disorders such as depression, anxiety, and conduct disorder (Biederman et al., 2006), which can further impact overall well-being. Ultimately, difficulties in various domains (e.g., social and psychological well-being, employment, and academics) due to ADHD symptoms can result in poorer well-being, emphasizing the importance of positive mental health.

The Importance of Positive Mental Health in Youth

Mental health was once generally defined as the absence of mental illness; however, this definition has since been expanded to include aspects of thriving in addition to aspects of struggle. For instance, the World Health Organization (WHO; World Health Organization, 2001) defines mental health as a state of well-being in which an individual can successfully cope with normal life stressors, contribute to society, work productively and fruitfully, and understand their own potential. In line with this definition, the Public Health Agency of Canada (PHAC; Public Health Agency of Canada, 2006) broadly defines positive mental

health by the ability to enjoy life, successfully endure challenges, and maintain positive emotional, spiritual, and social well-being. Positive mental health has been continually recognized as relevant for understanding adolescent development (Keyes, 2006).

Between the ages of 15 and 24, youth are confronted with a unique stage of development in which they experience tremendous cognitive, emotional, physical, psychological, and behavioural changes (Bonnie, Stroud, & Breiner, 2015). Given that this developmental period is already challenging and contains many aspects of change, ADHD can impose additional challenges through emotional dysregulation (Bunford, Evans, & Langberg, 2018), greater difficulties with psychological well-being (Biederman et al., 2006), and impulsivity (American Psychiatric Association, 2013). Although many challenges associated with ADHD originate in childhood, some challenges may not be evident until adolescence, or worsen at this time (e.g., difficulty in achieving academic or occupational success). As these symptoms begin to develop and progress, positive mental health may act as a buffer against further impairment and contribute to more positive outcomes in early adulthood (CIHI, 2009). As such, it is important to investigate the factors that may promote positive mental health in youth and particularly in those experiencing neurodevelopmental challenges.

To appreciate the value of examining positive mental health in youth with ADHD, it is important to note that similar concepts, such as resilience and quality of life, have been researched as protective factors against ADHD symptoms. Due to this, the similarities and differences between resilience, quality of life (QoL), and positive mental health research should be addressed. QoL is both similar and different from positive mental health in the domains that each construct measures. Specifically, both assess the emotional and social well-being of the respondent; however, many QoL measures place emphasis on physical health rather than psychological health (Centre for Disease Control and Prevention [CDC], 2018) and measure other factors besides psychological health including work and household responsibilities (e.g., Endicott, Nee, Harrison, & Blumenthal, 1993). Additionally, the concepts of QoL and positive mental health differ in that QoL tends to focus on negative affect and presence of undesirable conditions, whereas positive mental health focuses on positive well-being (CDC, 2018; Keyes, Fredrickson, & Park, 2012). The CDC notes that unlike QoL, positive mental health “calls attention to the psychological components that comprise well-being from the perspective of individuals interested primarily in the mental health domain” (CDC, 2018).

With respect to the relationship between resilience and positive mental health, resilience has been described as an aspect of positive mental health (Srivastava, 2011). Masten and Obradović (2006) define resilience as “positive patterns of adaptation in the context of adversity” (p. 14). Specifically, positive mental health emphasizes an “individual’s ability to enjoy life, and create a balance between life activities and efforts to achieve psychological resilience” (Srivastava, 2011, p. 75).

Social Support and Social Experiences Among Individuals with ADHD

Social support can be defined as “support accessible to an individual through social ties to other individuals, groups, and the larger community” (Lin, Simeone, Ensel, & Kuo, 1979, p. 109). Social support is associated with a number of positive outcomes, including better physical and psychological health, and has been shown to protect against trauma-related mental illnesses and reduce medical morbidity and mortality (Ozbay et al., 2007). Research has also identified social support as a key factor in the development

of resilience (e.g., Rutter, 1985). However, for individuals with ADHD, obtaining social support can be challenging. Specifically, from childhood to adulthood, research has identified that individuals with ADHD experience greater difficulties with social functioning, including poorer relationships, than individuals without ADHD (Harpin, Mazzone, Raynaud, Kahle, & Hodgkins, 2016). Children with ADHD have fewer friends and experience more peer rejection (Hoza et al., 2005), while adults with ADHD report significantly lower social functioning and interpersonal social support than individuals without ADHD (Bernardi et al., 2012). Qualitative research among adolescents with ADHD has found that many of these individuals experience bullying and rejection and fear the social stigma surrounding their diagnosis (Eccleston et al., 2019). Given the importance of peer acceptance to youth, negative social experiences could further contribute to mental health problems while positive social experiences could serve as a protective factor.

Symptoms of inattention, hyperactivity, and impulsivity can negatively impact one's social interactions. For example, hyperactivity and impulsivity can result in behaviours that violate social norms and are interrupting, controlling, intrusive, emotionally driven, or aggressive (Soucisse, Maisonneuve, & Normand, 2015). One study indicated that adolescents with ADHD have greater difficulties with emotional dysregulation, which may adversely impact one's ability to recognize consistent social successes (Bunford et al., 2018). In this study, a community sample was compared to adolescents with ADHD. Results indicated that adolescents with ADHD had decreased awareness of emotional responses and flexibility, difficulties exhibiting behavioural control when experiencing intense emotions, and difficulties with socially inappropriate emotional responses. Notably, these authors found that emotional dysregulation (e.g., emotional excitability/impatience, difficulties managing behaviours when experiencing strong emotions, and inflexibility/slow return to baseline) in adolescents with ADHD predicted social impairment after controlling for comorbid oppositional defiant disorder (ODD; Bunford et al., 2018).

Researchers have also identified deficits in social comprehension and problem-solving as factors that can contribute to difficulties in social functioning among adolescents with ADHD (Sibley et al., 2010). The inability to properly understand social scenarios or to solve social problems can lead to inappropriate responses and negative outcomes in social situations. Although symptoms of impulsivity, hyperactivity, and inattention, contribute to social impairment in individuals with ADHD, exploring the role of social support is important as it may serve as a protective factor against poor mental health.

Social acceptance is defined as being accepted by peers and having one's presence preferred by others for activities and tasks (Wentzel, Jablansky, & Scalise, 2020). Previous research on resilience has highlighted that social acceptance is a protective factor in the relationship between ADHD symptom severity and poor academic achievement (Dvorsky, Langberg, Evans, & Becker, 2016). Furthermore, self-perceived social acceptance may protect against symptoms of depression among individuals diagnosed with ADHD (McQuade et al., 2014). Due to this, it seems likely that aspects of social support (e.g., a high level of social integration) will be associated with positive mental health in youth with ADHD.

The Current Study

Increased positive mental health in adolescents is associated with social support from families, including strong family attachment and positive involvement; schools, including opportunities for involvement and

positive reinforcement for academic achievement; and communities, including feeling connected and maintaining prosocial relationships (Patel, Flisher, Hetrick, & McGorry, 2007). Although research has examined social support, QoL, resilience, and mental health outcomes among individuals with ADHD, little research has specifically examined protective factors under the unique lens of positive mental health. Examining social support and its association with positive mental health in youth diagnosed with ADHD contributes to the growing body of literature on protective factors and highlights the importance of understanding factors that promote the ability to thrive in spite of adversity. Given that social support is particularly crucial for youth, the aims of the current study were twofold: The first aim was to examine whether positive mental health differs between youth reporting a diagnosis of ADHD and youth not reporting a diagnosis of ADHD. The second aim was to determine whether there is an association between specific types of social support and positive mental health in youth diagnosed with ADHD.

METHOD

Data Collection and Participants

Data for the current study were obtained from the Public Use Microdata File of the 2012 Canadian Community Health Survey – Mental Health (CCHS-MH; Statistics Canada, 2013), which can be accessed at <http://sda.chass.utoronto.ca/sdaweb/sda.htm> and is made available for public use including the purpose of conducting research. CCHS-MH recruited 25,113 Canadian participants that were selected utilizing a three-phase design (Statistics Canada, 2013). First, geographical regions were identified and grouped into clusters; second, households were randomly selected from each cluster; and third, one individual from each of the selected households was randomly selected. Exclusion criteria included residence in one of the three Canadian territories, living on a reserve or other Aboriginal establishment, being a full-time member of the Canadian Forces, and being institutionalized at the time of the survey. These exclusions represented approximately 3% of the target population. Data were collected from January to December of 2012 through CCHS-MH using computer-assisted personal interviewing. The interview was tailored to each individual based on his or her personal characteristics and responses throughout the survey. Although most interviews were conducted in person, some were conducted via telephone. All interviews were completed by the selected individuals (i.e., proxy interviews were not permitted).

Respondent age on the CCHS-MH ranged from 15 to 80 years. For the purposes of the current study, data from respondents, aged 15 to 24 years, were used. Of the 3,999 respondents within this age range, 244 reported having been diagnosed with ADHD by a medical professional. Of the remaining respondents who reported not having been diagnosed with ADHD ($n = 3,755$), an age- and sex-matched comparison group was created. In both groups, 58.6% of respondents ($n = 143$) were between 15 and 19 years of age and 41.4% ($n = 101$) were between 20 and 24 years of age, and both groups consisted of 63.5% ($n = 155$) male and 36.5% ($n = 89$) female respondents.

Measures

Self-report of ADHD. A series of mental disorders were listed, and participants were asked to answer “yes” or “no” to any mental disorders that they had been diagnosed with. To clarify criteria and requirements

for diagnoses, researchers stated, “Remember, we’re interested in conditions diagnosed by a health professional and are expected to last or have already lasted 6 months or more.” The question utilized to determine whether participants had been diagnosed with ADHD referred to its former title, attention deficit disorder (ADD) and directly asked, “do you have attention deficit disorder?”

Assessment of comorbid mental health disorders—lifetime and 12-month prevalence. To reduce respondent burden, the survey modules for depression, mania and generalized anxiety disorder were preceded by a section with screener questions for each disorder. Participants who responded “no” to the screening questions were not asked questions from the module associated with that disorder and were categorized as failing to meet the criteria for that disorder. The Alcohol Abuse and Dependence and Substance Use, Abuse and Dependence modules did not require screening questions as all respondents were administered a minimum set of questions on their use of alcohol and drugs. The questions used for the CCHS-MH modules on other mental disorders like major depressive disorder, generalized anxiety disorder, bipolar I and II disorder, and substance use were based on the World Health Organization version of the Composite International Diagnostic Interview (WHO-CIDI). The WHO-CIDI is a standardized instrument used for the assessment and diagnosis of mental disorders and conditions and is based on the definitions and criteria of *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1994) and *International Classification of Diseases and Related Health Problems* (World Health Organization, 1992). Algorithms were used to calculate lifetime and 12-month prevalence criteria based on respondents’ answers. Similar to the question on ADHD, respondents were asked to self-report if they had been diagnosed with a learning disability by a professional with the question “do you have a learning disability?”

Positive mental health. The Mental Health Continuum-Short Form (MHC-SF) used to assess positive mental health consists of 14 self-report items rated on a six-point Likert scale ranging from 0 (*never*) to 5 (*every day*) (Keyes, 2005). The MHC-SF includes six items that assess psychological well-being (e.g., “In the past month, how often did you feel that your life has a sense of direction or meaning to it?”); five items that assess social well-being (e.g., “In the past month, how often did you feel that you had something to contribute to society?”); and three items that assess emotional well-being (e.g., “In the past month, how often did you feel happy?”). In the current study, a continuous scale score of positive mental health was utilized by summing all 14 items. The minimum possible score was 0, and the maximum was 70, where higher scores indicate greater positive mental health. The MHC-SF has been shown to have good reliability and validity (Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes 2011) and has been validated in adolescent (Keyes, 2006) and young adult populations (Keyes et al., 2012). In the current sample, Cronbach’s alpha for the MHC-SF was .899.

Social support. The Social Provisions Scale-10 (SPS-10; Caron, 2013) used to assess social support is a shortened version of the original social provisions scale (Cutrona & Russell, 1987). The social provision scale was developed from Weiss’s (1974) social provision theory and the corresponding subscales are defined by the aspects of the social provision theory (Cutrona & Russell, 1987). The SPS-10 consists of 10 self-reported items each rated on a four-point Likert scale ranging from 1 (*Strongly Disagree*) to 4 (*Strongly Agree*). The scale consists of five subscales (each with two items): (1) Attachment: (e.g., “I have close relationships that provide me with a sense of emotional security and well-being”); (2) Social Integration (e.g., “There are people who enjoy the same social activities as I do”); (3) Reassurance of Worth (e.g., “There

are people that admire my talents and abilities”); (4) Reliable Alliance (e.g., “There are people I can count on in an emergency”); and (5) Guidance: (e.g., “There is a trustworthy person I could turn to for advice if I were having problems”). Each subscale score ranges from 2 to 10, with higher scores indicating a greater level of social support. The SPS-10 has been shown to have good reliability and validity (Caron, 2013). In the current sample, Cronbach’s alpha for the Attachment, Social Integration, Reassurance of Worth, Reliable Alliance, and Guidance subscales were .695, .711, .727, .709, .813, respectively, while the Cronbach’s alpha for the overall scale score was .899. This measure has been previously utilized with youth (Pervez, 2020).

Statistical Analysis

First, means and standard deviations were calculated for the MHC-SF scale score and SPS-10 subscale scores for the two age- and sex-matched groups: (1) respondents who reported a diagnosis of ADHD and, (2) respondents who reported no diagnosis of ADHD. Second, independent sample *t*-tests were used to compare these two groups on MHC-SF scale scores and SPS-10 subscale scores. Third, a series of chi squares were used to compare the ADHD and control group on sociodemographic variables including education and income and a number of comorbid mental illnesses. Fourth, data from respondents who reported a diagnosis of ADHD were included in a stepwise regression analysis to examine statistical predictors of MHC-SF scale score. To control for age and sex, these variables were included in Step 1 of the regression analysis. Step 2 included the five SPS-10 subscale scores as predictors. All statistical analyses were completed using IBM SPSS Statistics Software Version 25.

RESULTS

Of the 3,999 respondents aged 15 to 24 years, 6.1% ($n = 244$) reported having been diagnosed with ADHD by a medical professional. Sociodemographic variables for the ADHD and control groups, as well as sex differences on these variables within the ADHD group can be found in Table 1. There were no significant differences in education between the ADHD and control group, (3) = 2.683, $p = .443$, and in income between the ADHD and control group, (5) = 6.858, $p = .231$. A series of chi square tests were utilized to compare the ADHD and control group on psychiatric disorders including learning disabilities, major depressive disorder, bipolar I and II disorders, as well as alcohol, cannabis, and other drug abuse and dependence. The results of these tests can be found in Table 2.

Six independent sample *t*-tests were used to compare the group of individuals reporting a diagnosis of ADHD to a random sample of age- and sex-matched controls not reporting a diagnosis of ADHD on positive mental health and five types of social support. Compared to respondents in the ADHD group, the control group scored significantly higher on positive mental health and four of the five SPS-10 subscales (see Table 3). There was no difference between the groups on the SPS-10 Guidance subscale score.

A stepwise regression analysis was conducted to examine social support predictors of positive mental health after controlling for the age and sex of the respondent in the ADHD group (see Table 4). In Step 1 of this analysis, age was found to account for a modest proportion of the variance in MHC-SF score, $R^2 = .034$, $F(2, 218) = 3.874$, $p = .022$, indicating that respondents aged 15 to 19 years scored higher on positive mental health than respondents aged 20 to 24 years. In Step 2, the five facets of social support

Table 1
Sociodemographic Frequencies for Individuals Diagnosed with ADHD and Age- and Sex-Matched Controls
Not Diagnosed with ADHD

Sociodemographic variable	Frequency, <i>n</i> (%)			
	ADHD Total <i>n</i> = 244	Control <i>n</i> = 244	ADHD (males) <i>n</i> = 155	ADHD (fe- males) <i>n</i> = 89
Age				
15–19	143 (58.61)	143 (58.61)	90 (58.06)	53 (59.55)
20–24	101 (41.39)	101 (41.39)	65 (41.94)	36 (40.45)
Education				
Less than secondary school	115 (47.72)	101 (41.39)	77 (50.33)	38 (43.18)
Secondary school graduation	52 (21.58)	54 (22.13)	34 (22.22)	18 (20.45)
Some post-secondary school	36 (14.94)	39 (15.98)	23 (15.03)	13 (14.77)
Post-secondary graduation	38 (15.77)	50 (20.49)	19 (12.42)	19 (21.59)
Income				
Less than \$10,000	75 (30.74)	83 (34.02)	48 (30.97)	27 (30.34)
\$10,000–\$19,999	60 (24.59)	51 (20.90)	32 (20.65)	28 (31.46)
\$20,000–\$29,999	25 (10.25)	24 (9.84)	20 (12.90)	5 (5.62)
\$30,000–\$39,999	10 (4.10)	14 (5.74)	7 (4.52)	3 (3.37)
\$40,000–\$49,999	8 (3.28)	4 (1.64)	7 (4.52)	1 (1.12)
\$50,000 or more	3 (1.23)	10 (4.10)	3 (1.94)	0 (0.00)
Not stated	63 (25.82)	58 (23.77)	38 (24.52)	25 (28.09)

Table 2
Lifetime and 12-Month Prevalence Rates of Mental Disorders in the ADHD Group and Control Group

Mental Disorder	Frequency, <i>n</i> (%)		χ^2	<i>p</i>
	ADHD (<i>n</i> = 244)	Control (<i>n</i> = 244)		
Learning disability	127 (52.05)	19 (7.79)	113.996	<.000***
Lifetime				
Major depressive disorder	41 (16.87)	23 (9.43)	5.91	.015*
Bipolar I	9 (3.69)	2 (.82)	4.557	.033*
Bipolar II	5 (2.06)	1 (.41)	2.717	.099
Generalized anxiety disorder	31 (12.81)	13 (5.35)	8.180	.004**
Alcohol abuse	45 (18.75)	32 (13.11)	2.872	.090
Alcohol dependence	16 (6.72)	9 (3.69)	2.255	.133
Cannabis abuse	33 (13.58)	21 (8.64)	3.000	.083
Cannabis dependence	16 (6.61)	6 (2.47)	4.805	.028*
Other drug abuse	16 (6.64)	5 (2.07)	6.024	.014*
Other drug dependence	12 (4.98)	9 (3.73)	.448	.503
12-month				
Major depressive disorder	33 (13.58)	11 (4.53)	12.095	<.001**
Bipolar I	6 (2.46)	1 (.41)	3.623	.057
Bipolar II	4 (1.65)	0 (0.00)	4.050	.044*
Generalized anxiety disorder	10 (4.13)	5 (2.06)	1.741	.187
Alcohol abuse	23 (9.50)	16 (6.58)	1.398	.237
Alcohol dependence	13 (5.44)	4 (1.64)	5.134	.023*
Cannabis abuse	11 (4.53)	8 (3.29)	.493	.483
Cannabis dependence	10 (4.13)	4 (1.65)	2.673	.102
Other drug abuse	5 (2.07)	1 (.41)	2.700	.100
Other drug dependence	5 (2.07)	4 (1.66)	.113	.737

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

Table 3
Means and Standard Deviations for PMH and SPS-10 Subscale Scores for the Group Diagnosed with ADHD
and Age- and Sex-Matched Control Group Not Diagnosed with ADHD

	Diagnosed with ADHD		Not Diagnosed with ADHD		t	df
	N = 244		N = 244			
	M	SD	M	SD		
Positive Mental Health	48.8	12.7	54.3	10.8	-4.985***	463
Social Provisions Scale						
Attachment	7.1	1	7.3	.9	-2.65 **	481
Guidance	7.2	1.1	7.4	.9	-1.725	481
Reliable alliance	7.2	1	7.5	.9	-3.21**	482
Social integration	6.7	1.2	7.1	1	-4.012***	482
Reassurance of worth	6.8	1	7	1	-2.14*	482

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

Table 4
Summary of Stepwise Regression Analysis for Variables Predicting PMH among 15 to 24-Year-Olds Diagnosed with ADHD (N = 244)

Predictor	Model 1				Model 2			
	B	SE B	95% CI		B	SE B	95% CI	
			LL	UL			LL	UL
Sex	-2.956	1.770	-6.445	0.533	-2.221	1.551	-5.278	0.836
Age	-3.901	1.729	-7.308	-0.494	-2.902	1.491	-5.842	0.038
SPS-10								
Guidance					-1.471	1.179	-3.796	0.853
Reliable alliance					2.203	1.175	-0.112	4.519
Social integration					3.062	.877	1.333	4.791
Attachment					1.268	1.110	-0.921	3.457
Reassurance of worth					2.630	1.046	0.568	4.692
Change in R2		.034*				.279***		
F for change in R2		3.874				17.319		

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

entered accounted for a significant contribution to positive mental health over and above that of age, $F(7, 213) = 13.892, p < .001$. Of the five SPS-10 subscales entered at step 2, two were found to make significant unique contributes to MHC-SF score: (1) Social Integration, $t(212) = 3.491, p = .001$ and, (2) Reassurance of Worth, $t(211) = 2.514, p = .013$. Respondents who scored higher on Social Integration and Reassurance of Worth scored higher on positive mental health. The model generated by Step 2 of this analysis accounted for 31.3% of the variance in positive mental health score.

DISCUSSION

In the current study, youth diagnosed with ADHD scored significantly lower on positive mental health than age- and sex-matched controls not diagnosed with ADHD. Among those with ADHD, social integration and reassurance of worth were found to be significantly associated with higher levels of positive mental health within the regression model. This study contributes to the growing body of literature on protective factors by highlighting the differences in positive mental health between youth with and without ADHD, as well as the domains of social support that may better predict positive mental health among those diagnosed with ADHD.

As expected, respondents reporting a diagnosis of ADHD scored significantly lower on positive mental health. This is in line with previous research showing that children and adolescents diagnosed with ADHD experience lower health related QoL than matched controls without ADHD (Limbers, Ripperger-Suhler, Boutton, Ransom, & Varni, 2011). Furthermore, it is not surprising that those reporting a diagnosis of ADHD were also more likely to have reported being diagnosed with a learning disability, have a 12-month prevalence of major depressive disorder, bipolar II disorder, and alcohol dependence, and lifetime prevalence of major depressive disorder, bipolar I disorder, generalized anxiety disorder, cannabis dependence and drug abuse (excluding cannabis use). Individuals with ADHD are more susceptible to co-occurring mental health problems (Kessler et al., 2006), academic (Breslau et al., 2011) and employment challenges (Erskine et al., 2016), and difficulties with emotional regulation (Bunford et al., 2018). Given these co-occurring problems in this population, this may intensify the existing challenges associated with ADHD. In a study of adolescent mental health, Keyes (2006) found that adolescents exhibiting symptoms of depression and conduct disorder reported lower levels of positive mental health, and these adolescents were found to have a poorer self-concept, fewer feelings of closeness with others, and less successful integration in their schools. These findings suggest that comorbid issues contributed to the relationship between ADHD and positive mental health in the current study. It seems likely that ADHD symptoms (i.e., inattention, hyperactivity, and/or impulsivity) may interact with disruptions in mood, peer relations, and self-perceptions to lower the quality of mental health in this population.

Social support has been established as a protective factor against mental health problems in adolescents (Patel et al., 2007). The results of the current study suggest that social support in the forms of social integration and reassurance of worth may be particularly important for mental health in youth diagnosed with ADHD. Similar to social acceptance, social integration refers to a sense of group belonging established by sharing common interests and participating in social activities with others (Weiss, 1969). In the current study, social integration was found to have the strongest association with positive mental health, accounting for nearly 24% of the variance among youth with ADHD. This aligns with previous research on resilience,

which has shown social acceptance to be a protective factor against the negative effects of ADHD (Dvorsky & Langberg, 2016).

Research related to social connectedness revealed that individuals with ADHD often feel different than their peers in social situations due to stereotypes, such as being labelled a “problem child” (Jones & Hesse, 2018). Furthermore, research has frequently documented increased peer rejection, an indicator of poorer social integration, among individuals with ADHD (e.g., Bagwell, Molina, Pelham, & Hoza, 2001; Eccleston et al., 2019; Kok, Groen, Fuermaier, & Tucha, 2016) which may contribute to poorer mental health outcomes over time (e.g., antisocial behaviours; Mohr-Jensen & Steinhausen, 2016). Peer rejection experienced by individuals with ADHD may be best understood by considering the social impairments typically seen. These social impairments include socially inappropriate emotional responses, impatience and impulsivity, and difficulties with understanding social scenarios and solving social problems. The current findings suggest that among youth diagnosed with ADHD, those who report higher levels of social integration also report better mental health outcomes.

Reassurance of worth was also found to have a significant association with positive mental health in youth diagnosed with ADHD—but to a lesser extent than social integration—accounting for an additional 4.5% of the variance in positive mental health. Reassurance of worth is provided by others who reinforce an individual’s competence and value (Weiss, 1969). As youth develop, this form of social support is ideally provided by those closest to them, including family members, friends, teachers, and coaches. Parents or other caregivers play a particularly important role in promoting a sense of worth, which is important as it may influence prosocial behaviours and promote positive well-being (Parker & Benson, 2004).

Promoting self-worth in children can be facilitated by strong caregiver–child relationships with positive interactions (Bulanda & Majumdar, 2009). However, this may be challenging for many parents of children with ADHD because they must first manage their child’s symptoms. Research has indicated that greater severity of ADHD symptoms and behavioural problems of children is associated with parental psychological distress (Harrison & Sofronoff, 2002). Furthermore, these parents may begin to incorrectly perceive their child’s challenging behaviours (e.g., interrupting others, failing to attend to directions) as deliberate noncompliance (Goldstein & Goldstein, 1992). Such attributions, when combined with persistent parental frustration, may challenge some parents’ ability to provide a relationship that encourages self-worth. Unfortunately, these patterns of interaction within the family system may persist as adolescents with ADHD experience more parent–child conflict than adolescents without ADHD (Barkley, Anastopoulos, Guevremont, & Fletcher, 1992). Adolescence and young adulthood bring new challenges for parents in allowing for further independence and autonomy in the decision-making of their disorder (e.g., medication adherence). As a result, some parents may continue to be challenged in their ability to provide reassurance of worth to their adolescent/young adult. This study suggests a relationship between receiving higher levels of reassurance of worth from others and experiencing better positive mental health outcomes among youth with ADHD.

Findings of the current study shed light on the types of social support that may play an important role in positive mental health for youth with ADHD. Nonetheless, there are some important limitations that should be discussed. First, given the nature of the data set on which this research is based, a cross-sectional design was employed, and therefore it is not possible to determine the directionality of the observed relationships between positive mental health and social support. Future longitudinal designs could help overcome this

limitation. Second, data utilized in the current study are subject to biases introduced by both respondent self-reporting and misdiagnoses of ADHD. During the survey, respondents were asked to indicate whether they had previously been diagnosed with ADHD by a medical professional. Responses to this question may have been inaccurate if participants indicated having received a diagnosis of ADHD after only an informal diagnosis was made, or if they had received a misdiagnosis of the disorder. Furthermore, the dependent variable (positive mental health) and independent variables (facets of social support) were each self-report measures. As a result, due to responder bias, the strength of associations between these variables may have been inflated. Third, the respondents in the ADHD group were not asked to provide the subtype of ADHD that they were diagnosed with (predominately inattentive presentation, predominately hyperactive/impulsive presentation, or combined presentation). It is possible that differences could exist within the subtypes, particularly due to the implications of impulsivity in social settings. Additionally, participants were not asked if they had a diagnosis of ODD or conduct disorder, disorders highly comorbid with ADHD, which could have a significant effect on positive mental health and social interactions. Fourth, it is important to note that there was no significant difference between the ADHD and control groups on education and income. This does not align with the literature as individuals with ADHD are more likely to drop out of high school and have greater difficulties in employment (Breslau et al., 2011; Erskine et al., 2016). Had the respective groups reflected the differences often found in previous research, it is possible one would find greater differences in positive mental health and social support between the two groups than what was highlighted in these results. Lastly, respondents were only asked to indicate whether or not they had been diagnosed with ADHD and no information regarding treatment for ADHD was reported. This information is important to consider because, while some participants may have abstained from treatment, others may have availed themselves of medication, therapy, or both. Given this limitation, future research could focus on the influence of specific treatments on positive mental health in this population. Despite these limitations, the compiled data utilized in this study is believed to be representative of Canadians between the ages of 15 and 24 who have been diagnosed with ADHD.

The findings of the current study highlight the need for more public health discussion regarding positive mental health in youth living with ADHD. More specifically, because many of these individuals experience social deficits in childhood, it seems appropriate to address impairments in children to foster effective social skills before entering adolescence. Previous research has suggested that there is limited evidence in support of or against social skills training (Storebø et al., 2011). This may be due to a lack of attention on emotion dysregulation (Bunford et al., 2018). It is possible that targeting emotionally inappropriate responses in social situations and ability to self-regulate may improve social functioning. Due to the lack of consensus in this area, research should continue to explore early childhood interventions in the form of play-based social skills training, with attention to emotion regulation, to determine if this is an effective method to improve social skills. A recent pilot study suggests that the Regulating Emotions Like An eXpert (RELAX) intervention may be an effective intervention to improve emotional dysregulation in adolescents with ADHD (Breux & Langberg, 2020).

Additionally, given the limited research on effective methods to reduce social impairments and increase social support, it is important for future research to focus on the social skills training in youth with ADHD to address concerns of positive mental health in this population. Accessible prosocial activities for youth (i.e.,

extracurricular activities), may provide a sense of social belonging and well-being in this group. Further, educating parents and teachers on the challenges faced by youth with ADHD, as well as the importance of positive reinforcement in promoting self-worth, are important objectives. Ultimately, enhancing the development and display of social skills and increasing the available social supports for children with ADHD may ease the transition into adolescence and emerging adulthood and improve positive mental health outcomes. Lastly, future research should also address the needs of young adults and adults with ADHD to help promote success in post-secondary education and employment settings. This may include access to additional program supports and accommodations to assist with self-management.

It is well-established that youth with ADHD experience impairments that can negatively impact well-being. As such, it is important to further develop what is currently understood about promoting positive mental health in this population. The current research emphasizes the importance of social support as one possible means of promoting positive mental health in youth diagnosed with ADHD.

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