# PSYCHOLOGICAL DISTRESS OF ADOLESCENTS WITH LEARNING DISABILITIES: THE MODERATING EFFECTS OF AGE, GENDER, AND SOCIAL SUPPORT

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# PSYCHOLOGICAL DISTRESS OF ADOLESCENTS WITH LEARNING DISABILITIES: THE MODERATING EFFECTS OF AGE, GENDER, AND SOCIAL SUPPORT

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## Abstract

Previous research indicates that adolescents with learning disabilities are at an increased risk of developing mental health issues relative to their non-learning disabled peers (e.g., Svetaz, Ireland, & Blum, 2000). Age, gender (e.g., Valas, 1999), and social support (e.g., Choenarom, Williams, & Hagerty, 2005) appear to be important variables that can influence the mental health status of both learning disabled and non-learning disabled individuals. The current study examined the effects of four types of social support (tangible, affective, positive social interaction, and emotional/informational) as well as age and gender on the level of distress being experienced by 454 adolescents between the ages of 12 and 19 with diagnosed learning disabilities. Data for the study were taken from the 2005 Canadian Community Health Survey (Statistics Canada, 2006). Multivariate analyses based on the entire sample indicated that female adolescents with learning disabilities reported significantly higher levels of distress than male adolescents with learning disabilities. In addition, adolescents with higher levels of perceived tangible social support and emotional/informational support were found to report less distress. Separate analyses based on gender indicated that older male adolescents reported higher levels of distress. In addition, males with higher levels of perceived tangible social support and positive social interactions reported lower levels of distress. For female adolescents, higher levels of perceived affection were associated with lower levels of distress. The clinical implications of the study's findings are discussed.

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## INTRODUCTION

It is estimated that approximately 10% of Canadians have a learning disability (Learning Disabilities Association of Canada, 2005). While it is well-recognized that learning disabilities can hinder educational progress and negatively affect self-esteem, social status, interpersonal relations, and occupational choices (Sattler, 2006), recent studies report that individuals with learning disabilities are at an increased risk of developing mental health problems relative to individuals without learning disabilities (Maag & Reid, 2006; Smiley, 2005; Svetaz et al., 2000; Wilson, Armstrong, Furrie, & Walcot, 2009). This appears to be especially true for adolescents with learning disabilities (Public Health Agency of Canada, 2004; Singleton, 2007). Given that not every adolescent with a learning disability will develop mental health concerns, it is important to identify the factors that (1) are associated with an increased likelihood of an adolescent with a learning disability experiencing mental health problems and (2) can reduce the likelihood of an adolescent with a learning disability experiencing mental health problems. Previous research on individuals with and without learning disabilities indicates that age, gender (Alexander-Passe, 2007; Valas, 1999; Wilson et al., 2009), and social support (Choenarom et al., 2005; Goldberg, Higgins, Raskind, & Herman, 2003; Svetaz et al., 2000) are important variables that can impact mental health status. The current study examines these variables in order to obtain a better understanding of how they may influence the mental health status of adolescents with learning disabilities.

*Learning Disabilities*

The Learning Disabilities Association of Canada (2005) defines learning disabilities as:

> [A] number of disorders which may affect the acquisition, organization, retention, understanding or use of verbal or nonverbal information. These disorders affect learning in individuals who otherwise demonstrate at least average abilities essential for thinking and/or reasoning. As such, learning disabilities are distinct from global intellectual deficiency. Learning disabilities result from impairments in one or more processes related to perceiving, thinking, remembering or learning. These include, but are not limited to: language processing; phonological processing; visual spatial processing; processing speed; memory and attention; and executive functions (Official Definition of Learning Disabilities, para. 1 & 2).

While learning disabilities can range in severity, they are considered to be lifelong conditions (Learning Disabilities Association of Canada, 2005). Twice as many boys as girls are identified as learning disabled (Kronenberger & Dunn, 2003) and even though an individual will not outgrow a learning disability, the appropriate interventions can greatly enhance their performance in the identified area of weakness (Kronenberger & Dunn, 2003).

*Learning Disabilities and Mental Health*

Results from a significant number of studies indicate that, overall, the prevalence of mental health problems is higher in individuals with learning disabilities than in the general population (Maag & Reid, 2006; Smiley, 2005; Svetaz et al., 2000; Wilson et al., 2009). It has been estimated that 30-40% of individuals with a learning disability suffer with some form of psychological distress (Kahn, Cowan, & Roy, 1997; Munden & Perry, 2000; Raghavan, Marshall, Lockwood, & Duggan, 2004). This compares to a prevalence

rate of 10-25% in the general population (Mental Health Foundation, as cited in Raghavan et al., 2004). Recently, Wilson et al. (2009) examined mental health data from the 2002 Canadian Community Health Survey of individuals with learning disabilities, aged 15 to 44, and found that individuals with learning disabilities were more than twice as likely as individuals without learning disabilities to report distress, depression, anxiety, and suicidal thoughts, even after potentially confounding variables such as income, education, social support, and physical health had been controlled for.

It appears that the impact of having a learning disability may be even greater for the adolescent population. Lackaye, Margalit, Zir, and Ziman (2006) compared the self-perceptions of self-efficacy, mood, effort, and hope of 246 adolescents with and without learning disabilities. The results showed that students with learning disabilities reported lower academic self-efficacy and lower social self-efficacy than students without learning disabilities. They also rated their mood as more negative and reported lower levels of hope and less investment of effort in their academic work. Even when students were matched for their level of academic performance, their specific and global self-perceptions continued to reflect distress. Yu, Zhamg, and Yan (2005) interviewed 34 learning disabled and 64 non-learning disabled children that were randomly selected from grades 4, 5, and 6 in a primary school in Beijing. They found that children with learning disabilities reported higher degrees of loneliness and lower levels of peer acceptance. Valas (1999) asked 1,434 students from grades 4, 7 and 9 a variety of questions related to peer acceptance, loneliness, self-esteem, and depression. Compared to students without learning disabilities, students with learning disabilities reported being less accepted by

their peers, having lower self-esteem, and experiencing more loneliness. Pavri and Monda-Amaya (2000) interviewed learning disabled students in grades 3-5 and found that even though some students with learning disabilities felt part of a social network they often reported school-related loneliness.

Studies also find that students with learning disabilities tend to experience more depression, stress, and anxiety than their non-learning disabled peers. Palladino, Poli, Masi, and Marcheschi (2000) administered the Children's Depression Inventory (CDI) to a group of preadolescents with and without learning disabilities aged 11 to 14. They found that students with learning disabilities had significantly higher scores on the CDI than students without learning disabilities. In addition, 43% of the learning disabled children met criteria for depression while none of the non-disabled individuals met criteria. Using interview data from the National Longitudinal Study of Adolescent Health, Svetaz and Colleagues (2000) compared degree of emotional distress, suicidal behaviours, and violence involvement between 20,780 adolescents with and without learning disabilities. They found that adolescents with learning disabilities had twice the risk of emotional distress of adolescents without learning disabilities. In addition, males and females with learning disabilities were more involved with violence, and were at twice the risk for attempting suicide of their non-disabled peers. Peleg (2009) examined the results of the Test Anxiety Questionnaire (TAQ), the Self-Esteem Inventory (SEI), and the academic achievement of grade 10 and 11 Arab boys with and without learning disabilities. In comparison to boys without learning disabilities, boys with learning disabilities were found to experience higher levels of test anxiety and lower levels of self-

esteem. Feurer and Andrews (2009) examined school-related stress and depression in adolescents with and without learning disabilities. Participants were 87 students, aged 14 to 19 from two schools in Calgary. The students completed the School Situation Survey, which assesses four sources of school-related stress: teacher interactions, academic stress, peer interactions, and academic self-concept, as well as the manifestations of stress in three domains: emotional, behavioural, or physiological. Students also completed the Beck Depression Inventory (BDI). Results of the study indicated that while students with learning disabilities experienced higher levels of stress related to their academic self-concept than their non-learning disabled peers, they did not differ from non-learning disabled students in any other area of school-related stress or in terms of depressive symptoms. In addition, school-related stress was found to be positively and significantly correlated with total depression scores for both learning disabled and non-learning disabled students. However, while the four school-related stress variables were all significant predictors of depression for the total sample and the non-learning disabled group, only academic stress and peer interaction stress were significant predictors of depression scores for students with learning disabilities. Alexander-Passe (2007) also administered the School Situation Survey to three different age groups of students (ages: 8 to 10 years, 11 to 13 years, and 14 to 17 years) with and without a diagnosis of dyslexia. They found that students with dyslexia experienced more stress in all areas assessed with the School Situation Survey, especially in the areas of peer interactions and academic self-concept. In other words, students with dyslexia felt most stressed by their classmates' feelings towards them and had a poorer sense of self-worth related to their

academic ability than students without dyslexia.

It is evident that adolescents with learning disabilities experience more mental health problems than the general population. In particular, they often experience higher levels of distress, depression, anxiety, and loneliness. It is therefore essential that research examines the factors that may decrease the risk of adolescents with learning disabilities developing these mental health issues.

### *Mediating Variables*

Research suggests that age, gender, and social support may influence the risk of individuals developing mental health issues. This section will explore these variables and their association with mental health for individuals with and without learning disabilities.

#### *Age*

In general, mental illnesses tend to peak during adolescence and young adulthood (Public Health Agency of Canada, 2004; Singleton, 2007). Adolescents experience many physical, emotional, and social changes as they transition from childhood to adulthood which can precipitate and perpetuate mental health difficulties. In addition, younger and older adolescents are at life stages that are biologically, socially, and emotionally distinct. These differences may account for why younger and older adolescents vary in the types of mental disorders they develop and how they express their difficulties (Singleton, 2007). Furthermore, research shows that the incidence of mental health problems such as anxiety and depression seems to increase in later adolescence (Singleton, 2007).

Studies that have looked specifically at individuals with learning disabilities also report a relationship between age and mental health status. Valas (1999) looked at peer acceptance, loneliness, self-esteem, and depression in 1,434 students in grades 4, 7, and 9 who were identified as learning disabled or low achieving. Results of the study showed an influence of age on peer acceptance, loneliness, and self-esteem. While older students reported feeling more accepted by their peers and less lonely than younger students, they also reported having lower self-esteem than younger students. Lackaye and Margalit (2008) compared the general and specific academic self-efficacy beliefs, academic achievement, loneliness, effort, and hope of learning disabled and non-learning disabled students in grade 7 and grade 10. Overall, learning disabled students were found to have significantly lower academic achievement, low levels of hope for the future, and lower self-efficacy in history than non-learning disabled students. The most pronounced differences between the learning disabled and non-learning disabled students were observed among students in the seventh grade. In addition, the study found that as non-learning disabled students moved into high school they showed lower math self-efficacy, general academic self-efficacy, and lower effort investment than they did in grade 7. However, there were no changes observed from grade 7 to 10 for the students with learning disabilities. Lackaye and Margalit (2008) suggest that this may be because the learning disabled group had already faced severe difficulties in grade 7. On the other hand, the level of loneliness for students with learning disabilities was lower in middle school than in high school, whereas the non-learning disabled group reported a stable-level of loneliness. Students with learning disabilities may have felt more alienated when

they moved from the small, more intimate and supportive elementary schools to the large and more challenging middle schools. The move to high school may be seen as a continuation of pressures of middle school, and seem less threatening to students with learning disabilities who had experienced stresses at an earlier stage (Lackaye & Margalit, 2008).

In summary, it appears that younger and older adolescents may experience different mental health concerns. A variety of variables such as loneliness, self-esteem, and acceptance can be impacted by an adolescent's stage of life. Due to these differences, it is essential that researchers consider the stage of adolescent development when examining mental health issues.

*Gender*

Research indicates that, in general, the incidence of mental illness is higher in women (Public Health Agency of Canada, 2004). In a random sample of 56, 889 individuals aged 16-84, Wamala, Ahnquist, and Mansdotter (2009) found that women reported significantly more psychological distress than men. Similarly, in a survey of 646 students, aged 14 to 19, attending a continuation school, Galaif Sussman, Chih-Ping, and Wills (2003) found that females reported significantly more depression and higher levels of stress than males. Through questionnaires and interviews with 2,589 adolescents, Helsen, Vollebergh, and Meeus (2000) found that, on average, girls in their study reported significantly more emotional problems than boys.

Studies looking at mental health issues in individuals with learning disabilities report similar findings in terms of gender differences. Wilson et al. (2009) found that women in their study with learning disabilities experienced more mental health issues than males with learning disabilities. Similarly, Hastings, Hatton, Taylor, and Maddison (2004) found a significantly increased rate of affective and neurotic symptoms, as measured by the PAS–ADD Checklist, in women versus men with learning disabilities. Valas (1999) also found a direct effect of gender on the levels of self-reported peer acceptance, self-esteem, and depression of the learning disabled students in his study. Specifically, female students with learning disabilities reported being less accepted by their peers, having lower self-esteem, and being more depressed than boys with learning disabilities. Heath and Ross (2000) compared the scores of 204 children with and without learning disabilities on the CDI. They found girls with learning disabilities reported greater levels of depressive symptoms and a higher prevalence of depression than girls without learning disabilities, whereas there was no difference in mean levels of depressive symptoms or prevalence of depression for boys with learning disabilities relative to boys without learning disabilities. More specifically, boys with and without learning disabilities reported moderate levels of depressive symptom whereas girls without learning disabilities reported little or no depressive symptoms and girls with learning disabilities reported high levels of depressive symptoms (for example, loss of pleasure, negative self-esteem, and interpersonal problems). It appears that having a learning disability may be particularly detrimental to girls' emotional functioning.

Males and females with learning disabilities also appear to differ in terms of the types of mental health issues they experience. A recent research study that included males and females between the ages of 15 and 44, found that males with learning disabilities were more likely to report depressive episodes, anxiety disorders, and consultation with professionals, while females with learning disabilities were more likely to report high distress, suicidal thoughts, and poor general mental health (Wilson et al., 2009). In addition, Alexander-Passe (2007) examined the psychosocial functioning of male and female students in grades 3 to 12 with dyslexia. He found that females reported peer interaction, teacher interaction, and academic self-concept as high sources of stress, and were more likely to misbehave or act out while males reported academic stress to be the highest source of stress, and reported more emotional and physiological symptoms of stress.

In general, research indicates that females report more mental health concerns than males. In addition, it appears that having a learning disability has a greater impact on a female's emotional functioning. This information needs to be considered when studying adolescents with learning disabilities.

*Social Support*

Windle's (1992) stress-buffering model asserts that social support mitigates the relationship between stressful life events and depression and there is a considerable amount of research that indicates that social support can positively influence mental health. Choenarom et al. (2005) reported that promoting a sense of belonging and social

support decreased the effect of stress on depression regardless of the stress level in a group of 90 men and women with a history of depression. Similarly, Lara, Leader, and Klein (1997) examined interviews and self-report measures of patients with major depression and found that "social support significantly predicted both severity of depression and recovery from depression at follow-up over and above the effects of initial depression severity, dysthymia, and neuroticism" (p. 478).

In terms of the adolescent population, Resnick et al.'s (1997) study of high school students found that parent-family connectedness and perceived school connectedness were protective against emotional distress, suicidal thoughts and behaviours, violence, and use of substances. Similarly, Galaif et al. (2007) found that, over time, adolescents who sought social support from friends and family were less likely to experience stress or to use maladaptive anger coping strategies to deal with their problems. DuBois et al. (2002) found in a longitudinal study of 350 young adolescents that social support, especially from significant adults, enhanced feelings of self-worth. More specifically, greater social support resulted in higher levels of self-esteem that were then associated with reduced rates of emotional and behavioural problems over a two year period.

Researchers have also examined the effect of social support during different stages of adolescence. Helsen et al. (2000) categorized individuals in their study into four age groups: early adolescence (between 12 and 14), middle adolescence (between 15 and 17), late adolescence (between 18 and 20), and post-adolescence (between 21 and 24) and found that low levels of parental support were associated with higher levels of emotional problems in all age groups.

Research conducted with individuals who have learning disabilities has also found social support to be central in diminishing risk and promoting well-being. Studies that have compared learning disabled and non-learning disabled student populations suggest that students with disabilities often perceive themselves as having less social support than students without learning disabilities (Heilman, 2006; Martinez, 2006). In addition, Martinez's (2006) survey of 120 middle school students found that students with multiple learning disabilities may in fact experience poorer parent, classmate, and friend support compared to students with a single learning disability and peers without a learning disability. This is of considerable relevance given that family and school connectedness are associated with a diminished risk of emotional distress, suicide attempts, and violence involvement among adolescents with learning disabilities (Svetaz et al., 2000) and that students with learning disabilities who perceive they receive more support from their parents and classmates have been reported to have higher self-esteem (Hagborg, 2003; LaBarbera, 2008; Rothman & Cosden, 1995). In fact, LaBarbera (2008) found that support from parents emerged as the strongest predictor of global self-worth, predicting 35% of the variance in students' self-esteem. Consistent with these findings are studies that show that individuals who are not accepted by their peers are at risk of developing low self-concept (Pijl & Frostad, 2010) and that low levels of home support can also adversely affect the outcome of children with learning disabilities (Muter & Snowling, 2009). These studies indicate how important it is for all students to have supportive relationships with family and peers.

While it is evident that social support in general can be beneficial to mental health status, relatively few studies have examined the individual influences of different types of social support on mental health. In one such study, Wareham, Fowler, and Pike (2007) examined the extent to which four subtypes of social support (tangible, affection, emotional/informational, and positive social interactions) predicted the severity and duration of depressive symptoms in Canadian adults. Using data from the Canadian Mental Health Survey (2002), the researchers found that both positive social interaction and emotional/informational support were found to be associated with a significant decrease in the duration of depression. However, while positive social interaction was significantly associated with decreases in depression severity, emotional/informational support was significantly associated with increases in depression severity. Wareham et al. suggest that one possible explanation for the increases in depression severity associated with emotional/informational support is that through talking to others about how one is feeling may have made individuals in the study more aware of their depressive symptomatology which resulted in their reporting more depressive symptoms.

It also appears that the effects of the various subtypes of social supports on mental health may differ for males and females. Slavin and Rainer (1990) used questionnaire data to assess the relationship between perceived emotional support from family, nonfamily adults, and peers and depression in 333 high school students. Emotional support was assessed using the Perceived Emotional/Personal Support Scale and depression was assessed using the CDI. Results of the analyses suggested that while perceived family emotional support was negatively correlated with depression among all

students in the sample, the relationship was stronger for females. Similarly, increases in nonfamily perceived social support predicted a decrease in depressive symptoms in girls, but not in boys. Boys' depressive symptoms appear to be more independent of the quality of such relationships.

Pretorious (1996) examined gender and the effects of different types of social support on depressive symptoms in 437 undergraduate psychology students. Three measures of social support were used: Social Support Questionnaire, the Perceived Social Support Scale, and the Inventory of Socially Supportive Behaviours. Depression was assessed using the CES-Depression scale. The results of the study indicated that women experienced more benefit, in terms of their mental health, from perceived social support than did their male counterparts. These benefits were primarily attributed to obtaining guidance and emotional support from family and friends. In addition, depressive symptoms in women decreased with increased levels of social support. Unexpectedly, an increase in tangible assistance (support of a material nature; e.g., lending or providing money) was associated with an increase in depression among men under conditions of high stress. To account for this finding, Pretorious suggested that high levels of tangible assistance may exacerbate feelings of inadequacy and thereby affect perceptions of masculine competence and feelings of dependence. Therefore, traditional sex roles may have a vital impact on the extent to which social support is beneficial to the recipient.

Similar gender differences in the utility of social support have been noted in the clinical population. Skaraster, Dencker, Bergbom, Haggstrom, and Fridlund (2003a)

interviewed 13 Swedish-speaking women who had been hospitalized previously for major depression. An analysis of the interview transcript data revealed social support as the most significant factor associated with how women coped with major depression. More specifically, women felt that being with other people (positive social support) and having someone to confide in and talk to about their feelings (emotional/information support) was vital in coping. In addition, Skaraster, Dencker, Bergbom, Haggstrom, and Fridlund (2003b) conducted a second study that looked at how males cope with major depression in daily life. Similar to their findings with females (Skaraster et al, 2003a), the results of transcript analyses revealed that positive social interaction or being socially integrated was vital to restoring the man's place in the public domain and coping with depression. Furthermore, informational support acknowledged by the men and their families was seen as particularly important to the healing process. Wareham et al. (2007) also conducted separate gender analyses in their study and found that different types of social support were important in predicting either the severity or duration of depression in males versus females. For males, positive social interaction, tangible social support, and affection decreased the severity and duration of depression. However, there was a positive relationship between emotional/information support and the severity of depression suggesting that greater emotional/information support is linked with an increase in depression severity in males. For females, positive social interactions, affection, and emotional/informational support decreased the severity and duration of depression. On the other hand, tangible social support was positively related to the severity of depression, suggesting that greater levels of tangible support increased the

severity of depression in female participants. Wareham et al. suggest that Hobfoll's (1998) conservation of resources (COR) theory and Gouldner's (1960) norm of reciprocity theory may help to account for these gender differences. COR theory suggests that the utility and importance of a particular type of resource (for example, tangible versus emotional/informational support) may vary by context. That is, within one particular culture or situation, tangible support might be more valued, compared to emotional or informational support (Wareham et al). Thus, the context of being male or female might create differences in the types of social resources that are most influential. According to the norm of reciprocity (Gouldner), people tend to feel obligated to reciprocate that which they have received from others and from which they have derived some benefit. It is further argued that people tend not to want to over benefit from supportive associations and that there may be negative emotions associated with feeling that we are indebted to others for their support. In keeping with the COR and norm of reciprocity theories, Wareham et al. suggest that men may feel more burdened if they think that they must reciprocate a resource (for example, emotional/informational support) if it is not 'natural' to do so or if it is not the typical resource available in their reservoirs.

Overall, research supports the idea that social support is beneficial to the mental health status of both the learning disabled and general population. However, research findings as to the effects of different types of social support have been less consistent and there have been no studies to date that have examined the influence of different types of social support on the psychosocial functioning of adolescents with learning disabilities.

Given that adolescents with learning disabilities have an increased risk for developing mental health issues, it is important to understand which types of social support may be most influential in reducing this risk.

## THE PRESENT STUDY

Given the noted relationships between mental health and social support and the prevalence of mental health issues among adolescence with learning disabilities, it would seem that research looking specifically at the role of social support in the mental health of adolescents with learning disabilities is long overdue. In addition, clarification regarding the influence of specific types of social support is also needed.

The current study set out to examine the individual influences of four subtypes of social support (tangible, affection, positive social interaction, and emotional/ informational) on distress levels in adolescents with learning disabilities. Four subtypes of social support, rather than one overall measure of social support, were used in an effort to take into account the multidimensional nature of social support. In addition, the study examined the relationship of age and gender to distress levels.

# METHOD

*Participants*

For the purpose of the present study, a subset of participants was extracted from the Canadian Community Health Survey (CCHS; Statistics Canada, 2005) dataset, which is a cross-sectional survey designed to capture the mental, physical, and social health of respondents. The national health survey (CCHS; Statistics Canada, 2005) used for this investigation had a total sample of 132,221 Canadian residents, aged 12 years and older, living in private occupied dwellings in 122 health regions covering all provinces and territories. Individuals living on Indian Reserves and on Crown Lands, residents of institutions, full-time members of the Canadian Forces, and residents of some more remote areas were excluded from the study.

For the current study, individuals were selected based on three criteria. First, 3608 individuals who reported a learning disability diagnosed by a professional were examined. Second, the current research effort is focused on the adolescent population, aged 12-19. The use of this age group limited the sample to 454 adolescent participants with learning disabilities, 63 percent male (n= 288) and 37 percent female (n= 166). Third, only those respondents who completely answered questions pertaining to the distress scale and the social-support module were selected for the study. Those participants who failed to answer questions within either of the modules (i.e., *not applicable* or *not stated* response options) were excluded from the current analysis. The

total number of respondents for each question ranged from 359-377. Table 1 provides the frequencies for gender, age, and provincial distribution.

Table 1

*Gender, Age, and Provincial Distribution Frequency*

| Demographic variable | N | % |
|---|---|---|
| Gender | | |
| Male | 288 | 63.4 |
| Female | 166 | 36.6 |
| Age | | |
| 12 to 14 years | 169 | 37.2 |
| 15 to 17 years | 177 | 39.0 |
| 18 to 19 years | 108 | 23.8 |
| Provincial Distribution | | |
| Quebec | 230 | 50.7 |
| Alberta | 97 | 21.4 |
| British Columbia | 127 | 28.0 |

*Note.* N=454. Other provinces are not included in the current study as they did not meet the selection criteria. That is, other provinces did not fully complete the distress and social support survey modules.

*Data Collection Method*

*Data Source:* The CCHS (Cycle 3.1; Statistics Canada, 2005) questionnaire was administered using computer-assisted interviewing (CAI). Sample units selected from the area frame were interviewed using the computer-assisted personal interviewing (CAPI) method; while units selected from the random-digit dialing (RDD) and telephone list frames were interviewed using the computer-assisted telephone interviewing (CATI)

method. In the case in which the selected respondent was absent for an extended period of time or incapable of completing an interview then a proxy interview (i.e., a knowledgeable member of the household supplied information about the selected respondent) was used. Proxy interviews provided accurate answers for most of the survey questions but more sensitive or personal questions could not be answered. As a result, every effort was taken to keep interviews to a minimum.

*Minimizing nonresponse:* An introductory letter and brochure were delivered to each dwelling before individuals were contacted by an interviewer. These items explained the importance of the survey and provided examples of how CCHS (Cycle 3.1, Statistics Canada, 2005) data would be used. To remove language as a barrier to conducting interviews, each of the Statistics Canada Regional Offices recruited interviewers with a wide range of language competencies. When necessary, cases were transferred to an interviewer with the language competency needed to complete an interview. At the end of data collection, a national response rate of 79% was achieved.

*Imputation:* Many CCHS (Cycle 3.1, Statistics Canada, 2005) questions/questionnaires modules were only appropriate for self-response, due to their private or sensitive nature, and were skipped when the questionnaire was answered by proxy respondents. Proxy interviews were only allowed if it was confirmed that the selected respondent would not be present for the entire collection period, or in cases of mental or physical language barrier.

*Weighting:* The principle behind estimation in a probability sample such as the CCHS (Cycle 3.1, Statistics Canada, 2005) is that each person in the sample "represents"

(besides himself or herself) several other persons who are not in the sample. For example, in a simple random sample of the population, each person in the sample represents 50 persons in the population. In the terminology used here, it can be said that each person has a weight of 50.

The weighting phase is a step that calculates, for each person, his or her associated sampling weight. This weight appears on the microdata file, and must be used to derive meaningful estimates from this survey. In order for estimates produced from survey data to be representative of the covered population-and not just the sample itself-a user must incorporate the survey weights into their calculations. A survey weight is given to each person included in the final sample: that is, the sample of persons having answered the survey. This weight corresponds to the number of persons represented by the respondents for the entire population. Consequently, the weights that have been derived for CCHS (Cycle 3.1, Statistics Canada, 2005) may be found at the end of the data file.

*Data Quality:* In total and after removing the out-of-scope units, 168,464 households were selected to participate in the CCHS (Cycle 3.1; Statistics Canada, 2005). Out of these selected households a response was obtained for 143,076, resulting in an overall household-level response rate of 84.9%. Among these responding households, 143,076 individuals were selected to participate in the CCHS (Cycle 3.1; Statistics Canada, 2005). A response was obtained for 132,947 individuals, resulting in an overall person-level response rate of 92.9%. Total non-response was handled by adjusting the

weight of persons who responded to the survey to compensate for those who did not respond.

*Study Variables*

Description of the distress and social support scales used for data collection is adapted from the file description provided by the CCHS (Cycle 3.1, Statistics Canada, 2005). The Kessler Distress Scale (K10) was utilized.

*Kessler Distress Scale (K10)* (Kessler, 1996) – The K10 is a subset of items from the Composite International Diagnostic Interview (CIDI). The CIDI is a structured diagnostic instrument that was designed in accordance with the definitions and criteria of both the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R; American Psychiatric Association, 1987) and the Diagnostic Criteria for the Research of the International Classification of Diseases (ICD-10; World Health Organization, 1992). The K10 scale contains 10 questions about non-specific psychological distress and seeks to measure the level of current anxiety and depressive symptoms adolescents have experienced within the past month. Scores range between 0 and 40, with higher scores indicating higher levels of distress (Statistics Canada, 2005).

*The Medical Outcomes Study (MOS) Social Support Survey* (Sherbourne & Stewart, 1991) - perceived social support was assessed using the MOS Social Support Survey. This scale provides indicators of four categories of social support: emotional/informational (e.g., "someone to share your most private worries and fears with"), tangible (e.g., "someone to take you to the doctor if you need it and someone to

help you with daily chores if you are sick"), affectionate (e.g., "someone to love you and make you feel wanted"), and positive social interactions (e.g., "someone to have a good time with"). Social support, as experienced by participants in the past 12 months, was assessed on a 5-point scale ranging from none (a score of 0) of the time to all of the time (a score of 4). Participants were asked how often they had experienced a variety of items related to each social support subcategory. Total scores for each subscale range as follows:

Tangible support (minimum = 0, maximum = 16)

Affection (minimum = 0, maximum = 12)

Positive social interactions (minimum = 0, maximum = 16)

Emotional/information support (minimum = 0, maximum =32)

Higher scores on the subscales indicate a greater degree of self-reported social support. Support in general was assessed, as opposed to support from particular individuals (CCHS, Cycle 3.1; Statistics Canada, 2005).

*Gender* – given the increased prevalence of mental health concerns in females (for example, Public Health Agency of Canada, 2004), gender was included as a variable in this study.

*Age* - in keeping with research done by Helsen et al. (2000), participants in this study were categorized into three age groups: young adolescence (12 to 14), middle adolescence (15 to 17), and older adolescence (18 to 19). These discrete categories were used to take into consideration the multiple changes that occur over the course of adolescence (Singleton, 2007).

## RESULTS

Means and standard deviations of distress scale scores and the four subtypes of social support scores for the entire sample are shown in Table 2. Separate scores for males and females are shown in Table 3.

Table 2

*Means for Distress Scale Scores and Subtypes of Social Support for Entire Sample*

| Variable | M | SD |
|---|---|---|
| Distress scale score | 8.39 | 6.36 |
| Social support | | |
| Tangible | 13.45 | 3.00 |
| Affection | 10.50 | 2.22 |
| Positive social interaction | 13.61 | 2.96 |
| Emotional/informational | 26.35 | 6.18 |

*Note.* N = 454.

Table 3

*Means for Distress Scale Scores and Subtypes of Social Support for Males and Females*

| Variable | M | SD |
|---|---|---|
| Males (n = 288) | | |
| Distress scale score | 7.28 | 5.80 |
| Social support | | |
| Tangible | 13.56 | 2.87 |
| Affection | 10.35 | 2.36 |
| Positive social interaction | 13.52 | 2.88 |
| Emotional/informational | 26.03 | 6.07 |

| | | |
|---|---|---|
| Females (n = 166) | | |
| Distress scale score | 10.29 | 6.85 |
| Social support | | |
| Tangible | 13.26 | 3.20 |
| Affection | 10.73 | 1.95 |
| Positive social interaction | 13.75 | 3.09 |
| Emotional/informational | 26.88 | 6.34 |

*Note.* N = 454.

*Predictors of Distress*

Stepwise multiple regression analysis was conducted to assess whether and the extent to which the four types of social support, gender, and age predicted chronic distress of individuals with learning disabilities. The resulting model included three significant predictors (Tangible Social Support, Gender, and Emotional/Informational Support) and accounted for 17% of the variance in distress scores. Step 1 of the analysis revealed that tangible social support significantly predicted distress, $F(1, 350) = 33.08$, $p < .01$. Tangible social support was negatively associated with distress such that increased experience of this form of social support was related to decreased distress among participants in the current sample. Step 2 of this analysis revealed that gender also predicted chronic distress in this sample, $F(2, 350) = 32.28$, $p < .01$. Females with learning disabilities reported experiencing more distress than did their male counterparts. Finally, Step 3 of the analysis revealed that emotional/information support was negatively related to chronic distress scores, $F(3, 350) = 24.31$, $p < .01$. That is, it appears that, for the current sample, increased experience of this form of social support is associated with

decreased chronic stress. Complete statistics of the regression model are shown in Table 4.

Table 4

*Stepwise Regression Analysis for Variables Predicting Distress for the Entire Sample*

| Variable | B | SE B | R | R2 |
|---|---|---|---|---|
| Step 1 | | | | |
| Tangible social support | -.636 | .111 | -.294 | .087 |
| Step 2 | | | | |
| Tangible social support | -.630 | .106 | -.292 | .156 |
| Gender | 3.211 | .598 | .264 | |
| Step 3 | | | | |
| Tangible social support | -.405 | .135 | -.188 | .174 |
| Sex | 3.322 | .594 | .274 | |
| Emotional or informational | -.160 | .060 | -.167 | |

*Note.* N=454. For Steps 1, 2 and 3, $p < .01$.

*Separate Gender Analyses*

Stepwise multiple regression analyses were conducted to determine whether, and the extent to which, the four subtypes of social support predicted distress for males and females with learning disabilities.

*Males.* The resulting model included three significant predictors of distress (tangible social support, age, and positive social interactions) and accounted for 11% of the variance in distress. The first step of the analysis revealed that tangible social support was negatively related to distress, $F(1,216)=16.81$, $p<.01$. Participants who reported

greater amounts of tangible social support experienced less chronic distress. Step 2 of the analysis found that age was related to distress in the current sample, $F(2,216)=10.55$, $p<.01$. Older boys experienced more distress. Finally, Step 3 of the analysis revealed that emotional/information support was negatively related to chronic distress scores, $F(3, 216) = 8.47$, $p< .01$. That is, it appears that, for the current sample, increased experience of this form of social support is associated with decreased stress. Table 5 presents a complete review of the regression model.

Table 5

*Stepwise Regression Analysis for Variables Predicting Distress for Males*

| Variable | B | SE B | R | R2 |
|---|---|---|---|---|
| Step 1 | | | | |
| Tangible social support | -.532 | .130 | -.269 | .073 |
| Step 2 | | | | |
| Tangible social support | -.484 | .131 | -.245 | .090 |
| Age | .959 | .476 | .134 | |
| Step 3 | | | | |
| Tangible social support | -.289 | .163 | -.146 | .107 |
| Age | .967 | .473 | .135 | |
| Positive social interaction | -.324 | .162 | -.165 | |

*Females.* The resulting model for chronic distress included just one significant predictor (affection), and accounted for 19% of the variance in chronic distress. The analysis revealed that affection significantly predicted chronic distress, $F(1,133) = 30.86$, $p < .01$. Affection was negatively associated with chronic distress such that increased

affection was related to a decrease of chronic distress among learning disabled females in the current sample. Table 6 presents a complete review of the regression model.

Table 6

*Stepwise Regression Analysis for Variables Predicting Distress for Females*

| Variable | B | SE B | R | R2 |
|---|---|---|---|---|
| Step 1 | | | | |
| Affection | -1.59 | .286 | -1.588 | .189 |

## DISCUSSION

The Learning Disabilities Association of Canada (2005) states that the current prevalence of learning disabilities in Canada is approximately 10%. This is of considerable relevance given that recent research suggests that, relative to general population, individuals with learning disabilities are at an increased risk of developing depression and anxiety and are more prone to thoughts of suicide (Palladino et al., 2000; Wilson et al., 2000). In addition, individuals with learning disabilities report experiencing higher degrees of loneliness, lower peer acceptance, and lower self-esteem than individuals without learning disabilities (Pavri & Monda-Amaya, 2000; Valas, 1999; Yu et al., 2005). Adolescents may be especially vulnerable to the negative effects of having a learning disability (Singleton, 2007).

Research findings from the general population suggest a positive relationship between perceived levels of social support and mental health. More specifically, it appears that for many individuals, the perception of adequate levels of social support can protect them against emotional distress, suicidal thoughts and behaviours, violence, and use of substances (Resnick et al., 1997). Social support has also been shown to predict the severity of depressive symptoms an individual experiences as well as their recovery from depressive episodes (Lara et al., 1997). Social support also appears to be associated with decreased levels of behavioural and emotional problems and to enhance feelings of self-worth (Dubois et al., 2002). Studies that have focused on individuals with learning disabilities also report that social support is central in diminishing the risk of emotional distress and enhances general well-being. Within this population, social support has been

found to be associated with a decreased rate of suicide attempts and learning disabled individuals who report higher levels of social support are less likely to be involved in violent activities (Svetaz et al., 2000). Decreased levels of depressive symptomatology, higher levels of self-esteem and higher self-perceptions have also been observed in individuals with learning disabilities who report higher levels of social support (Hagborg, 2003; LaBarbera, 2008; Rothman & Cosden, 1995). While there are a number of studies that have looked at the relationship between social support and mental health of individuals with and without learning disabilities, there is limited research on the moderating effects of social support on the level of distress for adolescents with learning disabilities. To address this gap in the literature, the present study set out to examine the effects of specific types of social support (tangible, affection, positive social interaction, and emotional/information support) on distress levels in a group of male and female adolescents with learning disabilities. Given that previous research suggests that age and gender are important variables to consider when looking at the relationship between social support and mental health, their relationship to distress was also examined.

*Social Support and Level of Distress*

The primary purpose of the present study was to examine the effects of four different types of social support on the distress levels of adolescents with learning disabilities. Based on the scores on the K10, participants in the present study reported, on average, that they were experiencing low levels of distress. In addition, scores from the MOS suggest that, on average, participants in the study perceived themselves to be the

recipients of generally high levels of support in each of the four social support areas assessed. Results of the multivariate analyses that were conducted on the entire sample indicated that both tangible support and emotional/informational support were associated with the adolescents' levels of distress. On average, participants who reported having higher levels of these types of support reported lower levels of distress. It appears that, for adolescents with learning disabilities, having someone offer material and behavioural assistance and having someone to confide in and understand their problems results in a reduced level of distress relative to adolescents who do not perceive that they have these types of support. The finding of lower levels of distress in individuals with higher levels of emotional/informational support is consistent with previous studies of individuals with learning disabilities which found that emotional/informational support appeared to significantly decrease the duration (Wareham et al., 2007) and severity of depression symptoms (McCall, Reboussin, & Rapp, 2001; Slavin & Rainer, 1990). The finding of decreased levels of distress in individuals with higher perceived levels of tangible support contrasts with findings from previous studies which report that tangible support either has no effect on (Bambara, Turner, Williams & Haselkorn, 2011) or actually increases the severity of depressive symptoms (Wareham et al, 2007). The younger age of the participants in this study may account in part for the discrepant findings. Adolescents may find it easier to accept tangible support than older individuals who may feel that, as adults, they should be able to take care of themselves.

*Gender, Social Support, and Level of Distress*

Previous research indicates that twice as many boys as girls are identified as learning disabled (Kronenberger & Dunn, 2003). In keeping with this research, the current sample of learning disabled adolescents was comprised of approximately one third female participants and two third male participants. Results from the study found gender to be a significant predictor of level of distress, in that females reported experiencing significantly higher levels of distress than their male counterparts. This finding is consistent with previous research which indicates that, in general, girls report more depression, higher levels of stress, and more emotional problems than boys (Galaif et al., 2003; Helsen et al., 2000). In comparison to males with learning disabilities, girls with learning disabilities report being less accepted by their peers and having lower levels of self-esteem, which may result in their experiencing higher levels of distress than their male peers (Valas, 1999).

Separate gender analyses also indicated gender differences in the types of social support associated with lower levels of distress. For adolescent males in the study, increases in tangible support and positive social interactions were found to be associated with decreased levels of distress. This finding is consistent with research by Wareham et al. (2007) who found that for males in their study, positive social interaction and tangible social support were associated with a shorter duration of depression. Similarly, Skaraster et al. (2003b) reported that, for male participants in their study, positive social interaction or being socially integrated was vital to restoring their ability to cope with depression. It

appears that, for the adolescent males in the present study, feeling that they have access to behavioural and material aid, as well as, having the opportunity to relax and do fun things with friends decreased their distress level. However, it is also important to note that the present findings contrast with those from a study done by Pretorious (1996) which indicated that an increase in tangible assistance was associated with an increase in depression among men under conditions of high stress. Pretorious (1996) accounted for this finding by suggesting that high levels of tangible assistance may exacerbate feelings of inadequacy and thereby affect perceptions of masculine competence and feelings of dependence. Therefore, traditional sex roles may have a significant impact on the extent to which social support is beneficial to the recipient. The differences between the findings of the present study and those of Pretorious (1996) may be in part due to differences in the ages of the males being studied. Pretorious' study focused on non-learning disabled adults, whereas the present study examines adolescents with learning disabilities. It may be the case that while adolescent males with learning disabilities may be accepting of tangible support, as they get older they experience detriments in their mental health status when they perceive themselves to be the recipients of higher levels of this type of support as they feel it is incongruent with their need to be perceived as independent and competent. Furthermore, the discrepancy in findings may relate to the advances in support, research, and special education since Pretorious study in 1996. These advances may have led to a change in male's perception of the support they are receiving in school.

For female adolescents in the study, social support in the form of affection was associated with lower levels of distress. This suggests that it is important for female adolescents to have someone who makes them feel wanted or loved. Wareham et al. (2007) reported similar findings in that females in their study who reported higher levels of affection also reported shorter durations of depression.

Possible explanations as to why males and females appear to benefit from different types of social support are available in the literature. Wareham et al. (2007) suggest that Hobfall's (1998) conservation of resources (COR) theory may account for some of these gender differences. COR theory suggests that social support along with external resources (e.g. material possessions, financial means) and personal coping style (e.g. hardiness, control, mastery, sense of coherence) are components of what might be broadly defined as a 'reservoir of resources' on which a person can draw to negotiate stressful life events (Hobfoll, 1998, 2002). Hobfoll (1998) states that when a person encounters stress, they draw on this reservoir of resources to help them cope. Resource depletion occurs as people attempt to negotiate their circumstances. COR theory also postulates that the utility and importance of a particular type of resource may vary by context. In terms of social support, it would be argued that within a particular culture or situation, one subtype of social support might be more influential or valued relative to another subtype of social support. Therefore it is possible that the context of being male or female might also create differences in the type of social resources that are most influential or valued by an individual. If resource reservoirs are context-sensitive, it may be the case that men and women have different reservoirs (Wareham et al., 2007). Thus,

the findings in the present study that tangible and emotional/informational support were associated with lower levels of distress for males while affection was associated with lower levels of distress in females could be accounted for by the COR theory.

*Age and Distress*

Results of the analysis conducted on the entire sample indicated that for this group of adolescents, age was a not a significant predictor of distress. However, in the separate gender analysis, older male adolescents were observed to report significantly higher levels of distress than younger male adolescents. It is possible that as adolescent males get older their learning disability may impact their educational and occupational opportunities more significantly. This could, in turn, negatively affect their attempts to become independent, self-sufficient individuals. Failure to obtain independence might then result in increased feelings of distress.

*Implications of the Current Findings*

The results of the present study suggest that appropriate forms of social support can decrease feelings of distress in adolescents with learning disabilities. It is therefore important that parents and the professionals who work with learning disabled adolescents ensure that these individuals are provided with adequate support both at school and at home.

Support from the family is important for students with learning disabilities. Low levels of home support and dysfunctional family relations have been shown to adversely affect the outcome of children with learning disabilities (Muter & Snowling, 2009). In

addition, Barkauskiene (2009) found that when children with learning disabilities received parenting that consisted of high maternal control and negative affection they tended to experience increased levels of internalizing and externalizing problems and attention difficulties. On the other hand, when parenting was characterized by positive feelings and a mother's behaviour of support and discussion with a child, no relationship between learning disabilities and adjustment problems or attention problems was observed.

Adolescence is a critical time during which relationships with peers and adults other than family members become highly relevant (Dole, 2000). As a result the supports provided by the school environment take on added importance. In this regard, school personnel need to be aware that students with learning disabilities are at an increased risk of mental health issues and that providing a socially supportive environment for these students may reduce this risk. Guidance counsellors are especially well-positioned to work with at-risk adolescents and to provide them with the support they may need to successfully navigate this period in their development. They can also support students in their efforts to find ways to enhance their feelings of social integration. Encouraging students with learning disabilities to be involved in extracurricular activities may be of benefit given that research has found that participation in games and outdoor activities enhance feelings of social competence in individuals with learning disabilities more so than for students without disabilities (Margalit, Raviv, & Pahn-Steinmetz, 1988). In addition, positive experiences outside of academic school work can help students develop leadership skills and friendships (Margalit et al., 1988; Miller, Snider, & Rzonca, 1990).

Similarly, Goldberg et al. (2003) report that learning disabled students described as "successful" tended to be those that participated in community activities, were involved in voluntary social organizations including churches and clubs, and took leadership and other active roles in their community and with friends.

Goldberg et al. (2003) examined six attributes that may lead to success for individuals with learning disabilities: self-awareness, proactivity, perseverance, appropriate goal setting, effective use of social support systems, and emotional stability or emotional coping strategies. The results showed that successful individuals with learning disabilities were aware of their strengths and weaknesses, and were politically, economically, and socially engaged in the world around them. They made use of the social supports available to them and sought help to reach their goals. As adults, they demonstrated the ability to reciprocate and provide care and support for others and had developed strong and intimate peer and family relationships that assisted them in coping with stressful times and maintaining emotional stability.

Social skills training may also benefit adolescents with learning disabilities because it can provide them with necessary skills to develop positive peer relationships, and help them effectively connect with peers as sources of support in times of stress (Margalit et al., 1988). Misha and Muskat (2004) describe a collaborative program that used direct and indirect intervention to enhance protective factors for students between the ages of 10 and 17. This program strove "to increase support in families and school, improve peer relationships, and reduce barriers such as the stigma of a learning disability" (p.144). An evaluation of this program found that "the group members made

gains in their psychosocial functioning and that the indirect interventions led to greater understanding of learning disabilities among parents, teachers, and school-based social worker" (p.135). Therefore, it may be beneficial for schools and other settings that work with individuals with learning disabilities to provide support groups for learning disabled students and their parents.

*Limitations and Future Research*

While the current findings are indicative of a moderating effect of social support and gender on distress levels of individuals with learning disabilities, the results should be interpreted with caution. First, this research is limited to adolescents with learning disabilities and it cannot be assumed that similar findings would be found with other age groups. Second, due to the fact that adolescents from the other provinces did not meet the eligibility criteria for this study, the present results are based on information from only three Canadian provinces (Quebec, Alberta, and British Columbia) with over 50% of participants being from Quebec. It is therefore not possible to determine if province of residence had any bearing on the current findings. In addition, it may be the case that the findings may not generalize to adolescences in the rest of Canada. Future research may wish to compare findings between the different provinces and territories. Third, the current study combined emotional social support and informational social support into one variable which may have resulted in a loss of information because of inherent differences in emotional support and informational support. Future studies may want to examine the role of these variables as separate entities. Fourth, this study did not

examine the influence of social support in relation to specific types of learning disabilities. It is possible that the influence of social support might vary significantly depending on the specific type of learning disability. The study also did not look specifically at the influence of social support on the distress levels of individuals diagnosed with more than one type of learning disability or on the impact of diagnoses such as Attention Deficit Hyperactivity Disorder (ADHD) which are highly co-morbid with learning disabilities (Learning Disability Association of Canada, 2005). Future research should examine the influence of social support on the mental well-being of individuals with different types of learning deficits, multiple forms of learning disabilities and co-morbidities such as ADHD. Finally, this study focused on the influence of four specific subtypes of social support as well as gender and age on distress in adolescents. It is possible that other variables such as ethnicity, socio-economic status, health status, or other life events could have influenced the distress levels of the individuals with learning disabilities in this study. Future research should assess the moderating effects of the four types of social support in addition to the aforementioned variables to determine to what extent these variables predict distress in a similar sample.

With increased recognition of the social supports that are beneficial to adolescents with learning disabilities, more efforts need to made in building awareness among mental health and educational professionals of the coexistence of mental health disorders and learning disabilities in the adolescent population and what can be done to reduce the likelihood of an adolescent with a learning disability developing mental health concerns.

Future studies should also focus on the development and evaluation of strategies that may help enhance social support levels for adolescents with learning disabilities.

*Conclusion*

The finding in this study that higher levels of social support are associated with lower levels of distress in adolescents with learning disabilities suggests that social support has a role to play in reducing the likelihood that an adolescent with a learning disability will develop mental health issues. This is of considerable relevance in that it suggests that ensuring that adolescents with learning disabilities perceive themselves to have adequate social support is one way in which to enhance their mental well-being. It is important for parents, educators and others who are involved with adolescents with learning disabilities to understand the influence of the social environments in which these individuals live on their quality of life and emotional functioning. Given that it appears that gender may mediate the association between social support and distress, it is also important to consider the type of social support intervention that will be most beneficial for individuals of both genders.

For an adolescent who appears to be struggling emotionally, the results of the present study suggest it may be beneficial for any professional who works with them to assess the adolescent's social support systems to determine if the adolescent perceives themselves to be deficient in any particular area. The professional can then work with relevant individuals (for example, parents and/or school personnel) to see what can be done to enhance this aspect of the adolescent's social environment.

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