



## RESEARCH ARTICLE

# Age, sex and relationship strengths: Internalizing symptom differences in children and youth within a clinical sample

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### Abstract

**Background:** Internalizing problems such as depression, anxiety and anhedonia are particularly problematic due to their covert nature. Due to their deleterious effects on psychological well-being, social connection and education, it is important to understand the development of internalizing problems and their unique contributors. **Objectives:** Examine whether internalizing symptoms vary by (i) age, and (ii) sex, and whether (iii) relationship strengths are associated with sex and internalizing symptoms. **Method:** Using a polynomial model with Tweedie distribution with log link, this study examined relationships for 18,701 clinically referred children and adolescents between 4 and 18 years of age assessed using the interRAI Child and Youth Mental Health assessment. **Results:** Internalizing symptoms reported by children and adolescents varied by age and sex. Sex differences in internalizing symptoms became prominent after about six years of age with female adolescents reporting higher levels when compared to male peers. An increase in relationship strengths corresponded with a decrease in internalizing symptoms for both sexes. However, the pattern depended on sex. In our sample, females required a greater number of relationship strengths to observe a decrease in internalizing symptoms. **Conclusions:** The current study illustrates a difference in internalizing symptoms between females and males with respect to age and relationship strengths. The results may have implications for prevention and intervention strategies geared towards internalizing symptoms for children and adolescents.

**Key Words:** interRAI, relationship strengths, internalizing symptoms, children, adolescents

### Résumé

**Contexte:** Les problèmes d'internalisation comme la dépression, l'anxiété et l'anhédonie sont particulièrement problématiques en raison de leur nature cachée. À cause de leurs effets délétères sur le bien-être psychologique, la connexion sociale et l'éducation, il importe de comprendre le développement des problèmes d'internalisation et de leurs contributeurs uniques. **Objectifs:** Examiner si les symptômes d'internalisation varient selon (i) l'âge, et (ii) le sexe, et si (iii) les forces des relations sont associées au sexe et aux symptômes internalisants. **Méthode:** À l'aide d'un modèle polynomial avec distribution Tweedie et lien de connexion, la présente étude a examiné les relations pour 18 701 enfants

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et adolescents référés cliniquement, âgés entre 4 et 18 ans et évalués à l'aide de l'évaluation de la santé mentale des enfants et des jeunes (interRAI). **Résultats:** Les symptômes internalisants déclarés par les enfants et les adolescents variaient selon l'âge et le sexe. Les différences de sexe dans les symptômes internalisants sont devenues proéminentes après environ 6 ans d'âge, les adolescentes déclarant des niveaux plus élevés lorsque comparées à leurs pairs masculins. Une augmentation des forces des relations correspondait à une diminution des symptômes internalisants pour les deux sexes. Toutefois, le modèle dépendait du sexe. Dans notre échantillon, les filles avaient besoin d'un plus grand nombre de forces des relations pour observer une diminution des symptômes internalisants. **Conclusions:** La présente étude illustre une différence des symptômes internalisants entre les filles et les garçons relativement à l'âge et aux forces des relations. Les résultats peuvent avoir des implications pour les stratégies de prévention et d'intervention axées sur les symptômes internalisants pour les enfants et les adolescents.

**Mots clés:** interRAI, forces des relations, symptômes internalisants, enfants, adolescents

## Introduction

Child psychopathology is often categorized into two broad categories, internalizing and externalizing, to describe the nature of the symptoms that are expressed (1-3). Internalizing problems, our focus for this paper, are characterized by symptoms and behaviours that are displayed inwardly and marked with feelings of guilt, worry and social withdrawal (2, 4). Despite there being overlap between the two categories, investigation of each side of the taxonomy to describe child psychopathology is encouraged to gain a deeper understanding of unique contributing factors and developmental trends (2). Our understanding of internalizing problems in childhood has lagged behind other mental health difficulties, including those of externalizing problems due to difficulties in their identification when experienced by children and adolescents and views that they are considered less disruptive than externalizing problems (5).

Prevalence rates for childhood anxiety disorders range from 6 to 20% (6) and approximately 3 to 9% for depression (7, 8), making internalizing problems some of the most common mental health concerns in childhood, with higher prevalence rates in females than males (9-11). Despite anxious and depressive thoughts being less prevalent in childhood compared to adolescence (12), younger children often experience internalizing problems and associated maladaptive outcomes (4, 13, 14). Children and adolescents with internalizing difficulties (e.g., anxiety, depression) can develop a loss of interest in previously pleasurable activities (anhedonia) (15), and experience compromised personal, social and academic functioning (2, 4, 14-16). In the absence of adequate, prompt intervention and treatment, internalizing issues may persist into adulthood (12, 17) and for some, may manifest into self-harm and suicide (18-21). Given their deleterious effects on quality of life (22), it is important to gain a better understanding about internalizing problems.

To aid in our understanding, adopting a developmental psychopathology perspective is important as psychopathology is a product of a dynamic, interactive process over the child's lifespan (10, 23, 24). Specifically, this framework elucidates that the development of psychopathology is dynamic in nature and dependent not only on the interactions of different domains on the child or adolescent's life, but their individual characteristics and environmental contexts as well (10, 23, 24). Extant literature has discovered relationships between certain backgrounds (e.g., immigrant status, impoverished neighbourhoods, and those not living with biological parents) and mental health. For example, Bowe (25) found that first-generation immigrant adolescents reported fewer internalizing symptoms compared to second-generation immigrant peers. Furthermore, immigrant families typically experience greater financial hardships than those in their host countries, a consistent finding suggesting that poverty is often associated with negative mental health outcomes. Impoverished settings have been linked to maladaptive mental health effects, as well as single-parent households (26). Previous studies have highlighted that family structures containing both biological parents serve as a protective factor for mental health outcomes when compared to individuals in single parent households or in nontraditional arrangements (27, 28). These factors can act independently or cumulatively to confer mental health risk among children and adolescents. Further, the aforementioned risk factors may also interact with a number of other determinants of health (e.g., family history, chronic physical health conditions) that are associated with internalizing disorders (29).

In recent years, there has been a shift from a sole focus on risk factors that increase the likelihood of negative mental health outcomes, to include the investigation of variables that promote resiliency in children (11, 14, 30). These variables known as protective or resilience factors, often pertain to the child or adolescent's traits and environmental

characteristics (11). Research on these factors has underscored the role a child or adolescent's social environment, including their family, peers and social contexts play on the development of a variety of mental health concerns (31, 32). For example, stable and positive relationships with at least one parent, supportive relationships with teachers (33) and good peer relationships (17) are considered protective towards the onset of childhood depression (4, 33) and anxiety disorders (4). For children and adolescents who experience internalizing problems, feeling supported in the school environment is critical for their engagement and also their overall well-being, considering they may need greater supports in the classroom and in the larger school context (12). Given that the development and maintenance of internalizing problems is influenced by biological characteristics (e.g., age, sex) and social factors (e.g., immigrant/refugee status, acceptance by peers, school engagement), it is important to conduct multi-level investigations on both risk and resilience factors related to internalizing problems (32). Understanding both risk and resilience factors is important, as this information serves to inform evidence-based interventions aimed at treating internalizing problems experienced by children and adolescents.

Studies exploring the differential correlations of interpersonal relationships, age, sex, legal guardianship, immigrant status and household poverty on internalizing problems have been subject to methodological limitations such as small sample sizes (33), limited age groups (10), few reporting methods (7), and an absence of concurrent perceptions of relationships with parents and peers (31). Moreover, as mentioned above, most of research has focused on externalizing symptoms in samples rather than internalizing symptoms (25). Thus, research examining internalizing problems across different age groups is necessary to improve our understanding of internalizing problems (10). The objective of the current study was to expand on the mental health literature as it relates to resilience surrounding internalizing symptoms in a large clinically-referred sample of children and adolescents. More specifically, this study examined the relationships between sex, age, legal guardianship, immigrant status, household poverty and relationship strengths as a correlate of internalizing symptoms. For the purposes of this study, internalizing symptoms refers to symptoms of depression, anxiety and anhedonia. Relationship strengths are conceptualized as associations with family, friends and school engagement. Based on the extant literature, it was hypothesized that:

1. Older age would be related to greater internalizing symptoms.

2. The relationship of older age to greater internalizing symptoms would be more pronounced in females (versus males).
3. Sex would moderate the relationship between relationship strengths and internalizing symptoms.

Therefore, our study aims to contribute to the growing literature on correlates of internalizing symptoms in treatment-seeking children and adolescents who have completed a standardized, multi-informant tool spanning several service sectors, addressing the aforementioned methodological limitations.

## Methods

### *Participants*

The present study utilized archival data from 18,701 children and adolescents from 58 mental health care facilities in Ontario, Canada as part of standard of care.

### *Procedure*

Data were collected from November 2012 to February 2020 by trained assessors (e.g., nurses, social workers, psychologists, child and youth workers) at intake into mental health services. Assessors received a two-day training program, which included competency training in the administration of the instrument. The assessment consisted of a semi-structured interview which involved the child/adolescent, guardians, family members as well as teachers, therapists or other professionals. In addition, the assessment included a review of medical records, report cards, academic assessments, and clinical documentation. Assessors entered the data into a de-identified web-based software system that securely stores the data on the interRAI Canada server. The system randomly generates a unique de-identified participant number for each child. Research Ethics Board approval was granted for the secondary analysis of data collected throughout the Province of Ontario.

### *Measures*

#### *interRAI Child and Youth Mental Health Assessment (ChYMH)*

The interRAI ChYMH (34) is a needs-based assessment that contains over 400 clinical items focusing on various domains in child and adolescent mental health (e.g., medical, environmental, social, psychiatric) with diverse backgrounds (35). Taking approximately 45-90 minutes to administer depending on case complexity, the information from this clinician-administered assessment system can be utilized by multiple stakeholders for several purposes including individualized assessments, outcome measurement,

quality indicators and resource allocation. Numerous scales and algorithms that measure symptom frequency and severity are embedded within the ChYMH to indicate level of risk and support care planning through case finding methodologies. Care planning protocols, called Collaborative Action Plans (36, 37), highlight areas of imminent risk and provide best practice initiatives to support clinical decision-making and provide evidence-informed intervention planning based on the needs of the child, adolescent, or family (38, 39). The instruments contained within the interRAI Child and Youth suite have been developed to provide an integrated health information assessment system with multiple applications (34, 40, 41). These applications have also been designed for children, adolescents, and adults who are medically fragile (e.g., 42), as well as those with mental health and developmental disabilities (37, 43-48). ChYMH scales and algorithms have demonstrated strong reliability and validity in children across multiple contexts (34, 40, 46, 49-62).

## Items and Scales

The *Internalizing Scale* measures the frequency and severity of internalizing symptoms. It consists of 11 items which load onto three factors: anhedonia, anxiety, depression. *Withdrawal from activities of interest* is an example for anhedonia, *repetitive anxious complaints/concerns* is an example of an anxiety item, and *expressions of hopelessness* is an example of a depression item. All items ranged from 0 (not present), 1 (present but not exhibited in last 3 days), 2 (exhibited on 1-2 of last 3 days), 3 (exhibited daily in last 3 days, 1-2 episodes), 4 (exhibited daily in last 3 days, 3 or more episodes or continuously). Item responses were summed, with a total score ranging from 0 to 44, where higher scores indicated higher levels of internalizing symptoms (Cronbach's  $\alpha = .84$ ). In previous studies, the test-retest reliability of the internalizing symptom scale has been investigated (50, 54) alongside other psychometric properties. Stewart and Babcock (54) found moderate to high inter-item correlations with Cronbach's alpha at .82. The internalizing symptom scale demonstrated acceptable levels of internal consistency and construct validity. The internalizing symptom scale also correlated strongly with the Child Behaviour Checklist internalizing subscale (Pearson's  $r = .62$ ), Social Skills Improvement System internalizing scale (Pearson's  $r = .61$ ), and the Brief Child and Family Phone Interview internalizing scale (Pearson's  $r = .49$ ) (50). Items within this scale had moderate to strong convergent validity (52, 55). Additionally, numerous studies with adults have found satisfactory inter-rater reliability on several of these items (e.g., 40).

Six items assessed *relationship strengths* (RS) to measure the strength factors related to how well the child/adolescent relates to others. The items included: (i) the child reports having a confidant; (ii) school engagement; (iii) strong and supportive relationship with family; (iv) strong and supportive relationship with friends/peers; (v) child/adolescent has at least one friend with whom visits/plays regularly and (vi) social inclusion by peers. The answer options included no (0), or yes (1). A total score was calculated, ranging from 0 to 6. Higher scores indicated higher degree of relational strengths.

## Analytic Strategy

The results were analyzed using SAS 9.4 software package. Preliminary analyses examined multiple linear regression assumptions. The assumptions of normality and linearity were violated. To address these violated assumptions, a polynomial model with Tweedie compound distribution with log link was chosen to fit the data. To run these models, continuous predictors (age and relationship strengths) were mean-centered and then squared. After that, quadratic effects of predictors were included in the models, along with their interactions with sex. Interaction graphs were developed using Matlab software package, version 2019B.

In the models, male sex, both parents as legal guardians, no immigrant/refugee history, and no financial difficulties served as reference categories. All statistical tests were two-tailed. The significance level was set at alpha .05, which corresponded to 95% confidence intervals in regression analyses.

## Results

### Preliminary analyses

Table 1 provides descriptive statistics for demographic variables, relationship strengths and internalizing symptoms. Just over half of the children were males, with the majority being adolescents or pre-adolescents. The preponderance of children had both or one parent(s) as legal guardians, were non-immigrants, and were not experiencing financial distress at the time of the assessment.

### Main analyses

Spearman's rank-order correlation was utilized to test the first hypothesis regarding the relationship between age and internalizing symptoms. In line with the hypothesis, older age was associated with greater internalizing symptoms,  $r_s(18,701) = .232, p < .0001$ . A similar pattern was observed in a multivariate analysis described below (please see Table 2).

**Table 1. Descriptive statistics for demographics, relationship strengths and internalizing symptoms**

Variable	N (%)	M (SD)	Minimum, Maximum
<b>Sex</b>			
Male	10,330 (55.24%)		
Female	8,371 (44.76%)		
<b>Legal guardianship</b>			
Both parents	10,862 (58.08%)		
One parent (mother or father only)	6,011 (32.14%)		
Neither parent but other relative(s) or non-relative(s)	963 (5.15%)		
Child protection agency or public guardian	757 (4.05%)		
Youth responsible for self	108 (0.58%)		
<b>Finances (economic trade-offs<sup>a</sup>)</b>			
No	17,876 (95.59%)		
Yes	825 (4.41%)		
<b>Immigrant/refugee</b>			
No	17,968 (96.08%)		
Yes	733 (3.92%)		
<b>Age</b>			
Age		12.33 (3.53)	4, 18
Relationship strengths		4.01 (1.61)	0, 6
Internalizing symptoms		9.91 (8.40)	0, 44

N = 18,701. M = Mean, SD = Standard Deviation.  
<sup>a</sup>Economic trade-offs refer to trade-offs in the last 30 days that were made to obtain necessities (e.g., adequate food, shelter, clothing).

Controlling for other predictors in the model, the interaction between sex and quadratic effect of age was not significant, Wald  $\chi^2(1) = 1.85, p = .174$ . Similarly, there was no interaction between sex and quadratic effect of relationship strengths, Wald  $\chi^2(1) = 0.35, p = .554$ . These two interaction effects were removed from the final model. Table 2 provides estimates, standard errors, and Wald 95% confidence intervals for internalizing symptoms as a function of predictor variables. All predictor variables except for legal guardianship of one parent were significantly associated with the outcome variable. First, we examined the relationship between age and internalizing symptoms, and the moderating role of sex. Next, we describe internalizing symptoms as a function of relationship strengths and sex.

#### ***Internalizing Symptoms as a Function of Age and Sex.***

To test the second hypothesis, the relationship between sex, age and internalizing symptoms was examined as part of the polynomial multivariate model. As seen in Table 2, the interaction between age and sex was significant, as well as the quadratic effect of age; these effects are described below.

In Table 2, the sex\*age interaction term reflects the difference in slopes between males and females, where internalizing symptoms increased in females at a greater rate with age. This finding was in line with the second hypothesis. Indeed, the relationship of older age to greater internalizing symptoms was more pronounced in females than males, based on the greater estimate (beta coefficient) in females compared to males, after controlling for other predictors in the model. Figure 1 depicts the intercept (age 4 years) and the difference in the rate of change in internalizing symptoms depending on age for males and females. As seen in Figure 1, in younger children, the difference in slopes by sex is minimal, and males score slightly higher than females in symptoms. This pattern reversed at around age 6 years, after which with each additional year, internalizing symptoms increased at a greater rate in females (vs. males) until about 15 years of age. The quadratic pattern was less evident in females than males: older females reported a slower increase in symptoms, whereas in males internalizing symptoms declined. The greatest difference in internalizing

**Table 2. Polynomial regression models of predictor variables associated with internalizing symptoms**

Predictor	B (SE)	Wald 95% CI		Wald $\chi^2$	p
		Lower	Upper		
Intercept	2.269 (0.013)	2.244	2.294	32235.5	<.0001
Sex (female)	0.216 (0.012)	0.192	0.239	310.69	<.0001
Sex (male) <sup>a</sup>	-	-	-	-	-
Legal guardianship					
Both parents <sup>a</sup>	-	-	-	-	-
One parent	-0.023 (0.013)	-0.047	0.002	3.23	.0725
Neither parent but other relative(s) or non-relative(s)	-0.060 (0.027)	-0.113	-0.007	4.88	.0271
CPA/PG	-0.309 (0.031)	-0.370	-0.247	97.26	<.0001
Youth responsible for self	-0.152 (0.072)	-0.2934	-0.011	4.44	.0351
Immigrant/refugee (yes)	-0.091 (0.030)	-0.149	-0.032	9.23	.0024
Immigrant/refugee (no) <sup>a</sup>	-	-	-	-	-
Financial difficulties (yes)	0.178 (0.026)	0.127	0.230	45.72	<.0001
Financial difficulties (no) <sup>a</sup>	-	-	-	-	-
Age	0.035 (0.002)	0.030	0.039	200.35	<.0001
Age <sup>b</sup>	-0.006 (0.001)	-0.007	-0.005	127.63	<.0001
Age*Sex (female)	0.037 (0.004)	0.030	0.044	105.31	<.0001
Age*Sex (male) <sup>a</sup>	-	-	-	-	-
RS	-0.124 (0.006)	-0.133	-0.113	490.46	<.0001
RS <sup>b</sup>	-0.017 (0.002)	-0.021	-0.013	60.89	<.0001
RS*Sex (female)	0.019 (0.007)	0.005	0.033	7.26	.0071
RS*Sex (male) <sup>a</sup>	-	-	-	-	-
Model fit					
Scaled Pearson $\chi^2$ /DF	1.05 <sup>b</sup>				
AIC	121852.55				

<sup>a</sup>Represents reference category for each categorical predictor variable.

SE = Standard Error; CI = Confidence interval; AIC = Akaike Information Criterion.

Financial difficulties refer to trade-offs in the last 30 days that were made to obtain necessities (e.g., adequate food, shelter, clothing).

One parent refers to mother or father only as legal guardians. CPA refers to child protection agency; PG refers to public guardian.

Immigrant/refugee refers to a history of immigration, including refugee status.

Age = age centered. RS = relationship strengths centered. Internalizing symptoms range: 0-44. Relationship strengths range: 0-6.

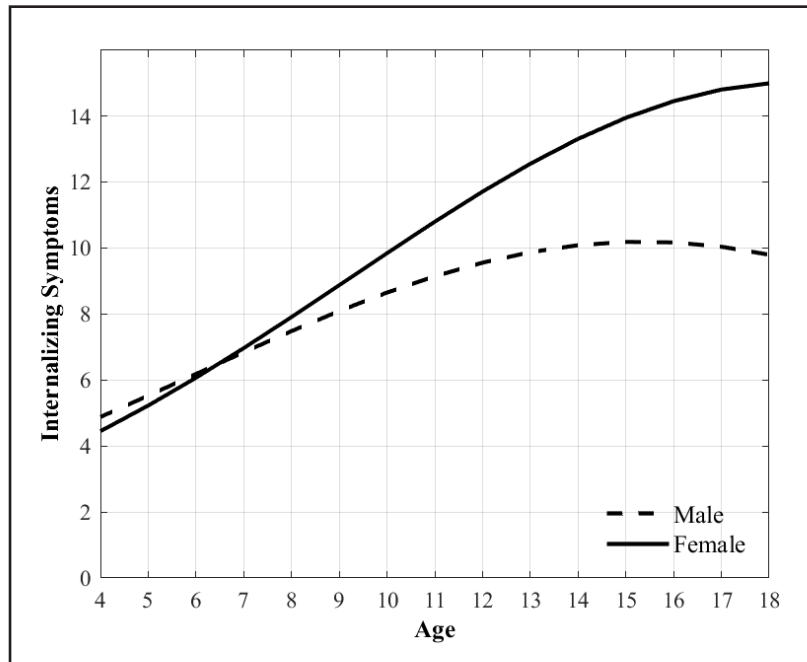
<sup>b</sup>Value/DF = the ratio of Scaled Pearson Chi-square to degrees of freedom (DF); values closer to 1 indicate better the model fit.

symptoms was observed in 18-year-old adolescents, which was the cut-off age in our sample.

**Internalizing Symptoms as a Function of Sex and Relationship Strengths.** To test the third hypothesis, we utilized the same model described above, with a focus on sex\*relationship strengths and the quadratic effect of relationship strengths.

Similar to age, the sex\*RS interaction term reflects the difference in slopes between males and females. In particular, starting from RS = 0 (no relationship strengths), and with

every additional RS, females experienced higher internalizing symptoms compared to males. Figure 2 depicts the intercept (RS = 0) and the difference in the rate of change in internalizing symptoms depending on RS for males and females. As seen in Figure 2, females reported almost the same internalizing symptoms at RS=0, RS=1, and RS=2; after that, the symptoms declined with each additional RS. On the other hand, males with RS=0 experienced the maximum symptoms; males with a greater number of RS reported lower symptoms. Based on the estimate (beta coefficient), after RS=2 in females and RS=0 in males, the

**Figure 1. Internalizing symptoms as a function of sex and age**

decline in symptoms was similar in both sexes. Therefore, the third hypothesis was supported, as the relationship between RS and internalizing symptoms depended on sex.

**Auxiliary analyses.** In addition to sex, age, and relationship strengths, the model also included legal guardianship, financial difficulties, and immigrant/refugee history. As seen in Table 2, controlling for other variables in the model, compared to children with both parents, internalizing symptoms did not differ in children with one parent (mother or father only). Interestingly, children with other legal guardian arrangements (other relatives/non-relatives, child protection agency/public guardian, or youth responsible for self) reported lower internalizing symptoms than children with both parents as legal guardians. In addition, children with history of immigration/refugee reported lower internalizing symptoms than those with immigrant/refugee history. Finally, internalizing symptoms were higher in children who experienced financial difficulties compared to those who did not.

## Discussion

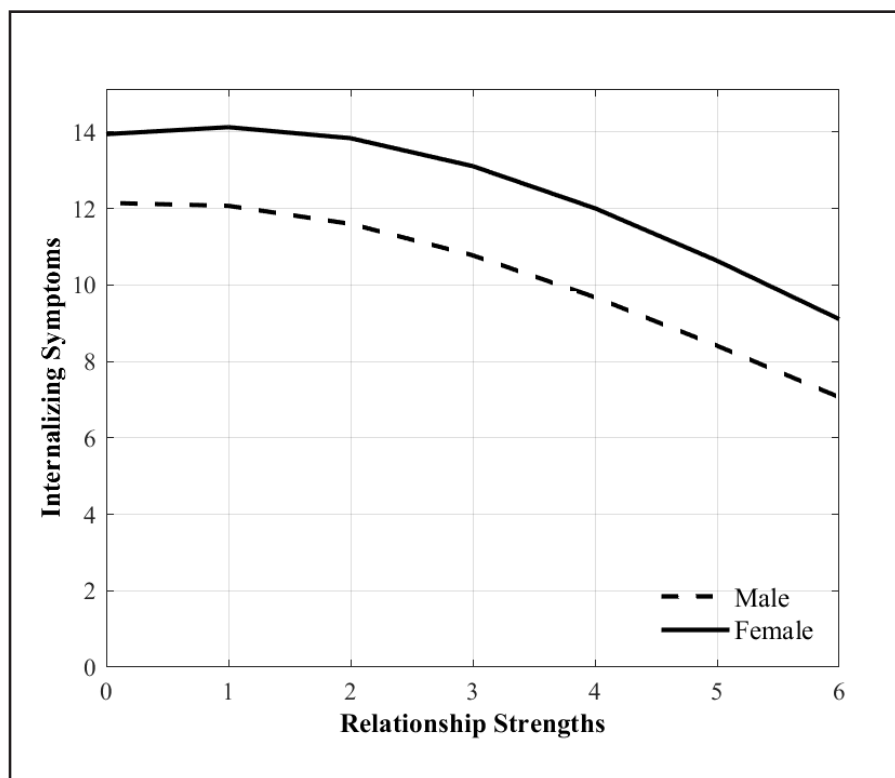
In the past, several studies have used small sample sizes (33), have only tracked internalizing symptoms from late childhood or early adolescence onwards (63), and have produced conflictual findings (2), impeding our understanding about internalizing symptoms. These issues inspired the

present study. A better understanding of internalizing problems has implications on the prevention and intervention strategies utilized in practice. Using evidence from a clinical sample of 18,701 children and adolescents, the current study examined the relationships between sex, age, internalizing symptoms, and further explored the role of relationship strengths. Overall, all of our study hypotheses were supported.

### Age and Sex Differences

As expected, internalizing symptoms increased with age and differed by sex. Our findings corroborate previous longitudinal studies that have highlighted similar rates of internalizing symptoms between the sexes during childhood, and an increase in internalizing symptoms as children age (7, 12, 64-66). In our study, older age was associated with an increase in reported internalizing problems and higher internalizing symptoms in females, compared to males, became apparent after six years of age. This finding supports the assertion that higher levels of symptoms emerge for females before 14 years of age (7, 67). Additionally, a novel finding highlighted by our study was the quadratic effect of age on internalizing symptoms, which suggests that there is a point where a decline in internalizing symptoms may occur and it is much earlier for males than females. This finding is consistent with research suggesting

**Figure 2. Internalizing symptoms as a function of sex and relationship strengths**



the greatest discrepancy between sex differences for internalizing symptoms occurs between 15 and 18 years of age (7), peak between 17 and 18 years of age and subsequently decline (68).

It is believed that the difference in internalizing symptoms becomes more discrepant at six years of age due to emerging pressures in young childhood. This developmental stage coincides with the transition to full-time schooling; a time characterized by lengthy periods away from caregivers in a foreign environment, increasing pressure to obtain approval from peers and to excel academically, and where children may be regularly compared to classmates (14). These complications continue into adolescence, a time marked by an uptake in the intensity and duration of internalizing symptoms (32) and puberty, thought to make females more vulnerable to internalizing disorders such as depression (68). Like several other studies, our findings indicate that females consistently report higher internalizing symptoms when compared to male counterparts (10, 12, 13, 23), especially after formal schooling begins (69).

### ***Relationship Strengths Relative to Internalizing Symptoms***

As children age, one of the greatest differences discriminating females from their male peers is the status of their interpersonal relationships (70), not just with family members but peers as well. The association between interpersonal relationships and childhood psychopathology has been documented in previous studies (2, 31, 33), with positive and supportive relationships with peers and caregivers associated with psychological well-being throughout childhood and adolescence (31). In the current study, the association between relationship strengths and internalizing symptoms was expected to be moderated by sex. It was anticipated that social inclusion with strong, supportive family members and peers would be associated with lower internalizing symptoms, especially for females, who are more likely to experience these symptoms. Results showed that, as predicted, a greater number of relationship strengths were related to fewer internalizing symptoms, but this relationship depended on the sex of the child.



Greater internalizing symptoms in females could be attributed to the content and type of interpersonal relationships, especially those with peers, and their coping styles in response to disagreements. Female children are thought to participate in dyadic friendships more so than their male peers (71). Additionally, they are thought to be more emotionally involved (33) because they are driven by connections between individuals. As a result of being entrenched in their social networks, studies have revealed that females tend to be more sensitive to interpersonal issues because of their empathy (71-73). Moreover, females are more likely to worry about abandonment, loneliness and loss of interpersonal relationships than male counterparts (71). To foster strong connections between peers, females tend to disclose personal details about their lives more frequently, including dialogue surrounding stressful events in one's life than males (73).

Studies have reported that females tend to report more stressful events in their lives as a result of the conflict occurring in their social networks, with the effect of this vicarious stress heightening as the child reaches adolescence. Additionally, the self-disclosure of their own internalizing issues to peers may exacerbate their existing internalizing symptoms (71). This is in contrast to the status-oriented relationships boys tend to form that are characterized by the promotion of their self-interests and maintenance of their privacy, fostering greater positive affect in their relationships contributing to enhanced satisfaction in their interpersonal relationships (71). Females also rely on the support of their social networks more than males, as Kendler and colleagues (33) found that levels of social support for adults were significantly associated with levels of depression but when compared to men, the relationship between the two variables held no significance. Our study's findings are in contrast to Kendler and colleagues (33), as males in our study sample reported a decrease in internalizing symptoms with at least one relationship strength. This is important because when problems arise within interpersonal relationships, the ways in which females and males approach conflict differs, increasing the vulnerability for females to feel symptoms of anxiety and depression. Females are more prone to ruminate about problems that have occurred (70, 71), whereas males are more likely to make light of the conflict and avoid dwelling on the issues that have arose (71). In summary, the nature of female relationships, their quality, and the child or adolescent's coping styles could contribute to the finding in this research study suggesting an increased number of relationship strengths are required to see an improvement to internalizing symptoms for females when compared to males.

### **Other Key Variables Implicit in Internalizing Symptoms**

Although not a main focus of the present study, legal guardianship, immigrant/refugee status and financial hardships were given consideration as they have implications on mental health (26-28, 74). Further exploration of interpersonal relationships with family members was conducted through review of legal guardianship arrangements and their association with internalizing symptoms. For our study sample, controlling for other variables, children and adolescents residing with neither parent but other relative(s) or non-relative(s); child protection agencies or public guardianship or those youth responsible for themselves reported lower internalizing symptoms compared to counterparts where both parents held guardianship. This finding can partially be attributed to the caregiver's knowledge of internalizing symptoms in the presence of other potential stressors. In general, non-traditional family types are met with fewer resources than two-parent household counterparts (28). Thus, the compounded levels of stress felt by caregivers may have resulted in an under-reporting of internalizing symptoms, given that disruptive behaviours are overt and more likely to facilitate mental health supports.

In the current study, after accounting for other variables, immigrant/refugee status was associated with lower internalizing symptoms compared to non-immigrants/refugees. Canada's immigration policy could provide a partial explanation for this finding, considering acceptance into Canada is selective, often resulting in the admittance of individuals who are educated and well adjusted (26). Additionally, the healthy immigrant effect could render an explanation as to why immigrant/refugee status was associated with lower internalizing symptoms in the current study. The phenomenon supports immigrants to a host country have initial advantages to their health and well-being (75). Alternatively, it may be that some immigrants are adjusting to a new country, resulting in increased stress, which may reduce the chance of these parents identifying more covert signs and symptoms associated with internalizing problems. Regardless of immigrant/refugee status, in a multivariate model, financial hardships were associated with greater reports of internalizing symptoms. This finding is aligned with research in the field supporting frequent associations between economic disadvantage and internalizing symptoms. (76). Children and adolescents from a lower socioeconomic status are thought to be at an increased risk for internalizing disorders due to the lack of resources that support overall development, greater exposure to adverse childhood events and differences in family functioning (77). Taken together, investigating family context, immigrant/refugee status

and financial hardships are instrumental when addressing a child or adolescent's mental health concerns.

### Limitations

The present study focused on a sample of children and adolescents who received mental health services in the province of Ontario, Canada. Therefore, the findings of this study cannot be generalized to non-clinical populations, other age groups, or even other geographical areas. Next, due to the cross-sectional nature of the study, causality between the predictor and outcome variables cannot be established. For example, it cannot be claimed that weaker relationships result in an increase in internalizing symptoms; it might be the case that children with greater symptoms are less inclined or less capable of developing stronger relationships at home or with their peers (78). Likewise, other factors may contribute to both relationship strengths and internalizing symptoms, such as abusive or restrictive parenting (79). Future research should aim to conduct longitudinal studies that capture the developmental trajectories of internalizing symptoms in a similar population. Lastly, the age range for this study ended at the age of 18 years, precluding our ability to comment on the association between internalizing symptoms and relationship strengths beyond this point. Consequently, research examining internalizing disorders across the lifespan while examining relationship strengths over time is needed.

### Clinical Implications

Our study's results can be useful for transition and planning for both males and females who seek treatment for internalizing symptoms and, in turn, strengthen existing services being implemented. In our study, females required three diverse relationships before a reduction in reported internalizing symptoms was observed compared to male counterparts that required only one relationship strength to see a similar association. This result has direct implications on the angle in which clinicians can approach the child or adolescent's internalizing symptoms and related impairments. Prevention and intervention programs that aim to reduce internalizing symptoms in patients could potentially be enhanced by including strategies to aid children and adolescents in creating and maintaining healthy relationships with caregivers, peers and teachers. Based on our results, the development of healthy relationships in multiple domains (having a confidant; school engagement; family; friends/peers) may be especially important in females with internalizing symptoms. Therefore, clinicians may consider devoting part of their assessment to questions about various relationship domains, and build their intervention around the development of skills to build and maintain healthy relationships.

Similarly, to Eugene and colleagues (80), this study highlighted that each additional type of relationship (e.g., with family member, peer, school personnel) is associated with changes to internalizing symptoms. Interventions for children or adolescents with internalizing symptoms who may experience negativity in one setting may focus on fostering positive experiences in another setting to build resiliency.

### Conclusions

Despite the important initiatives to support improved identification, prioritization and triaging (e.g., 54, 81), access to treatment for children who are experiencing mental health disorders has been described as poor (81). Inadequate access to mental health treatment may exacerbate existing internalizing issues (82). A stronger understanding of internalizing issues and their related factors will enable clinicians to create treatment plans and propose interventions that could reduce internalizing symptoms in children and adolescents. Collectively, sex, age and relationship strengths, alongside legal guardianship, immigrant/refugee status and financial difficulties need to be considered when providing preventative or intervention measures for internalizing symptoms to support the needs of children and adolescents.

### Conflicts of Interest

The authors have no financial relationships or other ties to disclose.

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