

EMOTION REGULATION AS A MODERATOR FOR ACADEMIC ANXIETY IN  
CHILDREN OF EMERGENCY SERVICES PERSONNEL

by

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## List of Abbreviations and Symbols Used

ADHD:	Attention-Deficit/Hyperactivity Disorder
AGO:	achievement goal orientations
ASD:	Acute Stress Disorder
BEAM:	Building Emotional Awareness and Mental Health Program
BT:	behaviour therapy
CAIS-P:	Child Anxiety Impact Scale—Parent
CBCL:	Child Behaviour Checklist
CEN:	childhood emotional neglect
CM:	childhood maltreatment
DSM-IV:	Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition
EES:	Emotional Expressivity Scale
EMDR:	eye movement desensitization reprocessing therapy
FFMQ:	Five Facet Mindfulness Questionnaire
GAD:	generalized anxiety disorder
HRV:	heart rate variability
MASC:	Multidimensional <i>Anxiety</i> Scale for Children
MDD:	major depressive disorder
MTC:	Make the Connection Program
ODD:	oppositional defiant disorder
PARS:	Pediatric Anxiety Rating Scale
PCP:	primary care providers
PD:	panic disorder
PPQ:	Parenting Practices Questionnaire
PPTEs:	potentially psychologically traumatic events
PSDQ:	Parenting Styles and Dimensions Questionnaire
PSP:	public safety personnel
PTCI:	Post-Traumatic Cognitions Inventory
PTSD:	Post-Traumatic Stress Disorder
PTSI:	post-traumatic stress injury
RCMP:	Royal Canadian Mounted Police
RSA:	respiratory sinus arrhythmia
rsq:	R squared
SCARED:	Screen for Child Anxiety Related Disorders
SEL:	social-emotional learning
SNRIs:	serotonin-norepinephrine reuptake inhibitors
SSRIs:	selective serotonin reuptake inhibitors
TF-CBT:	trauma-focused cognitive-behaviour therapy
TIC:	trauma-informed care
TICC:	Trauma Informed Care Conference
TPOL:	Triple P online program
Triple P:	Positive Parenting Program
WSIB:	Workplace Safety and Insurance Board

## **Abstract**

Academic anxiety significantly influences children's functioning at school. This study investigated how parental factors—post-traumatic stress, emotional expressivity, and parenting style—influence academic anxiety in children of Canadian emergency services personnel, and the moderating role of children's emotion regulation. Data were collected from 70 parents through online surveys consisting of the CAIS-P, PTCI, EES, PSDQ, and CBCL. High levels of parental post-traumatic stress, authoritarian parenting, and permissive parenting were correlated with high levels of academic anxiety in children. Emotion regulation was shown to significantly moderate the relations between all predictor variables and academic anxiety. Low versus high levels of emotion regulation were also considered in post-hoc analyses. Findings highlight the intergenerational effects of parental trauma and parenting styles, along with the protective role of emotion regulation. Implications for school psychologists include advocating for struggling students and providing family support. Future research should focus on more diverse samples and children's perspectives.

## **CHAPTER ONE**

### **Literature Review**

Academic anxiety can be limiting for students who have difficulty coping with negative feelings that overwhelm them when they come to school. Some factors to consider when thinking about how academic anxiety can be lessened might include parental support and the ability to regulate emotions. For children of parents working in emergency services, these factors may look a little different. This research considers two vulnerable populations, individuals who are at risk for career-related post-traumatic stress disorder (PTSD)—and their children. By focusing on this population of parents, which includes first responders and others directly tied to emergency services, a light may be shone on how working in these fields influences their children’s educational experiences; it also creates an opportunity to investigate how these parents can be best supported. For example, it might be useful to look at programs that work to reduce the symptoms of PTSD, improve emotional expressivity, or reframe parenting style. If these factors influence children’s abilities to function at school, it is worth investigating the source of the problem while also providing support directly to students that helps with feelings of anxiety emotional dysregulation.

### **Trauma Exposure and Interventions**

First responders are at risk for developing mental health disorders due to the trauma they endure because of their profession. Royal Canadian Mounted Police (RCMP) are among those in emergency service positions reporting the highest exposures to potentially psychologically traumatic events (PPTs), which increases their likelihood of developing mental health disorders (Andrews et al., 2024). Researchers updated prevalence estimates of lifetime PPT exposure due

to the significant increase in prevalence of mental health disorders in this population, and nearly all participants (99.8%) reported exposure to at least one PPTE, which is significantly higher than the general population (~70%) (Andrews et al., 2024). Emergency services workers, including but not limited to paramedics, firefighters (career and volunteer), and police officers, may also be referred to as public safety personnel (PSP). Andrews et al. (2024) revealed that current PSP reported statistically significantly more PPTE exposures and types of exposure (e.g., sudden violent death, physical assault, serious transport accident, sudden accidental death, and assault with a weapon) than those in previous PSP samples. Participants were found to consider these PPTE exposures as simply part of their job (Andrews et al., 2024), again highlighting the prevalence of these exposures for this population and across all areas of public safety work.

Along with these traumatic exposures come mental health concerns. It is the accumulation of PPTE exposures for RCMP officers in both frequency and variety that increases the likelihood of developing a post-traumatic stress injury (PTSI), including PTSD (Andrews et al., 2024). Results backed previous research suggesting an association between PPTE exposures and various mental health disorders, most often including PTSD, major depressive disorder (MDD), generalized anxiety disorder (GAD), and panic disorder (PD); therefore, it might be important to focus on PTSI broadly, as PTSD is not the only mental disorder linked to PPTE exposure (Andrews et al., 2024). Overall, the results of this study indicated the importance of supporting the mental health of RCMP officers (Andrews et al., 2024), as well as individuals in other public safety professionals who experience mental health issues because of their history with traumatic events.

Canadians working in the field of public safety have unique workplace environments, where exposure to traumatic events is more the rule than the exception—provided that these

individuals remain in this career, their responsibility for the safety of others is constant and never-ending (Carleton, 2021). Emergency services culture wrongly suggests that individuals working in first responder roles are stronger and more resilient than those in other fields of work; as a result, first responders have difficulty acknowledging psychological problems or reaching out for help (Alden et. al, 2021). A systematic literature review by Alden et al. (2021) investigated the effectiveness of psychological interventions targeting post-traumatic symptomatology within the first responder population. Specifically, researchers looked at police, fire, and paramedic personnel and the literature regarding interventions designed to treat Post-Traumatic Stress Disorder (PTSD), Acute Stress Disorder (ASD), Major Depressive Disorder (MDD), and anxiety disorders (Alden et al., 2021). While a variety of interventions have been identified to treat these disorders in military and civilian populations, such as brief dynamic psychotherapy, interpersonal therapy, eye movement desensitisation reprocessing therapy (EMDR), behaviour therapy (BT), trauma-focused cognitive-behaviour therapy (TF-CBT), and pharmacological regimens of serotonin inhibitors (SSRIs, SNRIs), there is a lack of evidence to suggest their effectiveness within the first responder population (Alden et al., 2021).

Due to the high frequency of traumatic events this population experiences, any disorders related to trauma are likely to be more complex than those that develop because of a single traumatic incident; first responders are also at a high risk for encountering critical events after finishing treatment, which may negatively influence the treatment's effectiveness (Alden et al., 2021). In many cases, PSP who are diagnosed with PTSD require time off from work to recover from their work-related psychological injury; for individuals in Ontario, this can involve submitting a claim to the Workplace Safety and Insurance Board (WSIB) of Ontario, as PTSD in PSP is considered work-related—as of 2016 (Edgelow et al., 2023). In only four years since

WSIB made this change, they approved 5691 mental stress injury claims from PSP across the province, and the increase in these claims are not fully representative of the prevalence of these cases (Edgelow et al., 2023).

When considering this population, overall work factors should be addressed along with the existing concerns about trauma exposure. First responders often experience problems that go well beyond handling critical incidents, including low support from management, lack of control over workload, and interpersonal conflict—all of which lead to an increased risk for post-traumatic symptomatology (Alden et al., 2021). Edgelow et al. (2023) reported similar challenges for PSP returning to work following psychological injury, including poor workplace culture, lack of employer support, and difficulty navigating the WSIB claim process. Something for future researchers to consider is how lowering organizational stress may help to reduce the onset of PTSD, help in the maintenance of treatment, and prevent relapse (Alden et al. 2021). It would certainly be beneficial to perform larger and more rigorous intervention studies in this population, given the high prevalence of PTSD and associated difficulties; also, it is important to consider whether the benefits of treatment can withstand the effects of additional trauma exposure (Alden et al., 2021). While it is difficult to draw conclusions about the effectiveness of psychological treatments for first responders because of research limitations, research in this area is expanding (Alden et al., 2021). It is important to acknowledge that the interventions investigated in this research were not only targeting symptoms of PTSD, but other mental health disorders as well, highlighting the complexity of trauma exposure and treatment.

Distressing events can happen to anyone at any point in their life. Trauma exposure around the world is strikingly high, and over 75% of Canadians have experienced at least one traumatic event across their lifetime (Dennis et al., 2023). Unfortunately, a high number of

Canadian primary care providers (PCP) feel they are underprepared for discussing trauma with their patients, and the teaching of trauma informed care (TIC) principles within Canadian medical schools is inconsistent (Dennis et al., 2023). Considering a high number of medical students end up working in primary care, it is important they be taught how to effectively care for patients who have experienced trauma (Dennis et al., 2023). Researchers (Dennis et al., 2023) promoted improved teaching practices of TIC in medical students through a virtual Trauma Informed Care Conference (TICC) run by experts in many aspects of trauma, including trauma during pregnancy, cultural trauma, and the impact of systems of oppression. Trauma-informed care is best taught early on in medical training and to apply TIC to all patients, not only those who speak openly about trauma, because not everyone is open about their traumatic experiences immediately—or at all (Dennis et al., 2023). Researchers hope their research will inspire other institutions to incorporate this type of trauma-informed training into their medical programs to help prevent patients from re-experiencing trauma through the healthcare system and improve overall patient outcomes across settings (Dennis et al., 2023). Professionals working in emergency health care should also be well-prepared to treat patients with trauma histories, as those without primary care providers may seek mental health care through emergency departments.

Research on mental health challenges experienced by Canadians working in public safety roles has received more attention in the last decade, and in 2018, the Government of Canada provided funding to create evidence-based solutions through the national action plan to address post-traumatic stress (Carleton, 2021). This funding also served to inform policies, programs, and practice through a network of researchers and clinicians, along with PSP leaders; there is a

need for increased solutions such as evidence-based internet-delivered cognitive therapy designed for public safety personnel and available to individuals across the country (Carleton, 2021). There is hope for mental health improvement in this population, as rapid progress has been made and will continue to grow in the coming years (Carleton, 2021). A report entitled *Healthy Minds, Safe Communities: Supporting Our Public Safety Officers Through a National Strategy for Operational Stress Injuries* (Oliphant, 2016) was written regarding a national strategy for supporting PSP workers through operational stress injuries with various recommendations for next steps for health care providers, researchers, and policy makers (Carleton, 2021). The report suggested several important directions, including increasing research capacity to support PSP mental health using current evidence and best practice, considering PSP perspectives when identifying research priorities, conducting regular evidence-based assessments of PSP mental health based on random selection, providing access (i.e., through internet-delivered, in-person, or inpatient) to responsive mental health assessments and treatments for workers upon request, using evidence-based crisis intervention management strategies, focusing on organization-level solutions and individual-level opportunities for improving mental health, organizing research efforts to save time for frontline PSP, and supporting knowledge development for everyone working closely with PSP to facilitate and sustain any gains in mental health (Carleton, 2021). Continued research in this area should help Canadians who experience post-traumatic stress because of their profession gain better access to relevant supports.

Accessing health care, especially mental health care, continues to be a challenge for individuals across the country. Many Canadians deal with barriers when looking for trauma treatment, including stigma, cost, and long wait times; therefore, many individuals turn to the

internet for information, and more than half of Canadians search health- and mental health-related topics online (Schaffer et al., 2023). These resources can provide psychoeducation, diagnostic tools, and self-help options, which help to empower individuals and provide more equitable access to care—however, finding reliable information on the internet can be difficult and somewhat overwhelming, given that high-quality websites are limited (Schaffer et al., 2023). Schaffer et al. (2023) examined the content and quality of 964 Canadian websites offering information about trauma and PTSD. Less than half of these websites offered fundamental information, such as signs, symptoms, and coping strategies, and even fewer within Atlantic Canada and the Territories offered this important content (Schaffer et al., 2023). Federal websites tended to offer more general diagnostic information but lacked details about treatment options, and researchers found that, overall, the Canadian trauma-related websites in this study were of low quality (Schaffer et al., 2023). Findings from Schaffer et al. (2023) highlight the importance of having high-quality and accurate information online for health professionals' clients who are struggling. Most importantly, these websites should include fundamental psychoeducational components of trauma and related disorders, along with the risks and benefits associated with treatment options (Schaffer et al., 2023). The use of reliable online sources for mental health information can help reduce many of the barriers associated with accessing treatment for trauma exposure.

Telehealth is another form of online mental health services in Canada that many psychologists provide as an alternative to traditional treatment. Of all healthcare use in Canada, mental health concerns make up a significant part, and mood and anxiety disorders account for approximately 10% of health service from 2019 to 2020, affecting over four million individuals (Perle et al., 2024). Despite the high level of demand, accessing mental health care is limited

because of barriers such as transportation, finances, disabilities, time constraints, and caregiving responsibilities; even for those who are highly determined to find care can experience challenges with consistent access (Perle et al., 2024). Telehealth effectively uses technologies like messaging, phone, and video to broaden access to general and specialized mental health services, which is especially valuable for rural or underserved Canadians (Perle et al., 2024). Along with the benefits, telehealth also has challenges, including the time and financial costs that go into training and technology, as well as barriers to internet access for many, especially those living in remote areas (Perle et al., 2024). Overall, Canadian psychologists can successfully provide mental health services through telehealth, so long as they have guidance in developing such a practice; to deliver legal, ethical, and effective care requires appropriate adaptation of in-person methods, learning telehealth-specific information, and remaining up to date on evolving research, legislation, and psychological standards (Perle et al., 2024). As access to mental health services expands, more Canadians may be willing and able to participate in treatment that they otherwise would have avoided.

One specific area of treatment that may be beneficial to the mental health of first responders is mindfulness. Mindfulness can be defined as the practice of attending to present experiences with openness, curiosity, and an accepting attitude; trait mindfulness can be measured through the Five Facet Mindfulness Questionnaire (FFMQ), which includes five dimensions, including observing, describing, acting with awareness, non-judging, and non-reactivity (Fleischmann et al., 2022). It has been found that higher levels of certain mindfulness traits are connected to lower stress, anxiety, and depression—and while mindfulness has been studied plenty in veteran populations, its benefits for police officers have not yet been fully explored (Fleischmann et al., 2022). Fleischmann et al. (2022) investigated whether mindfulness

traits and self-compassion moderate the effects of operational and organizational stressors on mental health symptoms in a sample of 138 Canadian police officers. While non-reactivity and self-compassion did not moderate the relation between workplace stressors and anxiety symptoms, non-judging was a potential protective factor (Fleischmann et al., 2022). Future research should consider interventions aimed at enhancing non-judging, as it could support the mental health of Canadian police officers and other first responders through targeted support programs (Fleischmann et al., 2022). While mindfulness research is relatively new, its reported effectiveness in reducing stress and other mental health issues suggests it could serve as a positive practice for first responders who are struggling. Improved mental health is especially important for emergency service workers who are raising children, as the demands of parenting require them to be fully present—both physically and mentally.

### **Supporting Families Through Evidence-Based Parenting**

Parenting is the process of raising children and helping them thrive. Providing basic needs to children is important, but parents should also be supporting social and emotional growth. Positive and responsive parenting behaviours have been found to be important factors of children's development, and during times of adversity, a positive parent-child relationship can act as a protective factor (Kempe et al., 2024). The opposite has also been found to be true: The absence or limited amount of responsive parenting can place children at risk for emotional, cognitive, and behavioural challenges in the short term and a higher chance of mental health difficulties in the long term (Kempe et al., 2024). Unfortunately, most parents lack basic parenting knowledge and are given almost no guidance on how to bond securely and lovingly with their infants; to make up for this knowledge gap, many caregivers are turning to social media as a way of connecting with others and receiving parenting advice (Kempe et al., 2024).

While there are many benefits to social media, misinformation may be even more widespread than evidence-based information (Kempe et al., 2024). Fortunately, there are evidence-based parenting programs available to Canadians that educate parents on positive parenting practices, divided into two categories; targeted programs focus on prevention strategies for caregivers or children who are experiencing clinical-level challenges, and universal programs focus on the most common parenting challenges—both categories educate caregivers on positive parenting practices that promote optimal child development (Kempe et al., 2024). Online interventions have several advantages over in-person programs due to the variety of barriers they eliminate; in-person programs require work schedule accommodations, childcare, and transportation, and these supports can be less accessible for marginalized and rural communities. Online programs, on the other hand, tend to cost less to operate and are therefore relatively inexpensive to participate in—provided families have the technology and internet access necessary to participate (Kempe et al., 2024). Much of parenting may come naturally, but obtaining basic parenting knowledge should be a goal for all caregivers. Having access to this information online makes it convenient for parents who otherwise would not have the opportunity to learn.

To better understand the usefulness of online parenting programs, Kempe et al. (2024) conducted a meta-analysis to compare current online programs to those facilitated in person. Several online parenting programs have proven to be as effective as in-person programs, demonstrating increased parent confidence, parent satisfaction, and positive behaviours in children (Kempe et al., 2024). These online interventions were also shown to significantly reduce negative disciplining, parental conflict, anger, and depression, child anxiety, and negative parent-child interactions (Kempe et al., 2024). The specific online parenting programs that Kempe et al. (2024) researched included the Triple P online (TPOL) intervention—adapted from the in-person

Positive Parenting Program (Triple P), Building Emotional Awareness and Mental Health (BEAM), and the Make the Connection (MTC) Program. The TPOL program was designed to increase parent knowledge, skills, and confidence to prevent behavioural and emotional issues in children aged 0-12 using social learning theory and cognitive-behavioural principles (Kempe et al., 2024). The program consists of eight 30–60-minute interactive modules with unlimited access to videos, activities, workbooks, and other downloadable resources for \$90 a year (Kempe et al., 2024). Research shows TPOL is accessible, professional, and helpful for parents who may be hesitant to receive in-person help. It is also considered effective for reducing dysfunctional parenting and increasing parental confidence, which contributes to improved child behaviour (Kempe et al., 2024). The BEAM program was developed in response to the COVID-19 pandemic to support mothers of children aged 1-3 with maternal depression; it is a free, mobile-based mental health initiative that offers a 10-week guide that combines mental health and parenting strategies and serves as a form of psychoeducation (Kempe et al., 2024). Individuals who have used the program described the app as easy to use and reported general satisfaction with it, and researchers found the program to be effective at reducing maternal mental health issues (Kempe et al., 2024). Finally, Kempe et al. (2024) investigated the MTC online program, which is an adaptation of the long-standing in-person parenting initiative in Canada for caregivers of children under age three. The goal of the program is to strengthen child-caregiver attachment by educating parents on infant cues and promoting positive parenting attitudes (Kempe et al., 2024). The in-person program, which has shown improved maternal attitudes and increased attachment, was adapted into an 8-week online format due to COVID-19 restrictions; an evaluation of the online version suggested positive outcomes and many caregivers reported finding the content of the program to be reassuring (Kempe et al., 2024). These online

alternatives are arguably just as effective as in-person parenting programs, and parents who complete them are more likely to have improved parenting attitudes, stronger parent-child attachment, reduced mental health concerns, improved child behaviour, and more overall confidence in their parenting abilities.

Children's mental health is equally as important as that of adults. Recognizing mental health issues early in life and putting appropriate interventions in place may help prevent symptoms from worsening over time. Adolescence is a particularly vulnerable period for the development of mental health problems, especially anxiety and depression, and these issues were heightened during the COVID-19 pandemic due to the novel stressors experienced (Peplak, et al., 2025). One convenient and potentially beneficial source of support for adolescents is conversations with their parents, as they can help to process and cope with difficult experiences; however, depending on the nature of these conversations, they may do more harm than good (Peplak et al., 2025). Peplak et al. (2025) examined how two features of parent-adolescent conversations might have influenced the mental health of adolescents during the pandemic. The features included thematic content (i.e., how much the conversations focused on mental health) and affective climate (i.e., positive and negative talk used by parents) (Peplak et al., 2025). The mental health of adolescents improved when they were able to lead parent-adolescent conversations, and there were more detrimental outcomes for adolescents when parents held more control (Peplak et al., 2025). It was also found that parents dominating parent-adolescent conversations about mental health and using a lot of negative emotional talk is related to increased mental health issues for adolescents (Peplak et al., 2025). Conversely, a positive and supportive environment where conversations with parents are being led by adolescents and focused on mental health and well-being will likely promote improved adolescent mental health

(Peplak et al., 2025). Parents who are good listeners and who choose to be a source of encouragement and positivity for their children are helping them process their emotions in a healthy and open manner.

Different parenting styles can lead to various outcomes for children. Warm and affectionate parenting is connected to adolescent prosocial behaviour across many cultures, and it has also been found to promote autonomy and intrinsic motivation—controlling parenting, on the other hand, is known to do the opposite (Kil et al., 2023). Level of parental involvement also influences children’s social environments; the more involved the parents, the stronger and more positive their children’s peer and teacher interactions will be because of improved emotion management and prosocial behaviour (Kil et al., 2023). Therefore, warmth and involvement together are important parental traits for the development of prosocial values in children, especially for mothers who also exhibit high moral identity (Kil et al., 2023). Kil et al. (2023) investigated how implicit versus explicit moral identity in mothers are related to prosocial behaviour and values in adolescents. It was hypothesized that implicit moral identity would be related to their children’s prosocial behaviour and explicit moral identity would be related to their children’s self-reported prosocial values, as different socialization processes might control how children understand their moral values (Kil et al., 2023). Implicit moral identity in mothers predicted the generous behaviour of adolescents, but only for warm and involved mothers, which may indicate a relation between parenting style and the transmission of moral behaviour under the conditions of warmth and involvement (Kil et al., 2023). As for explicit moral identity, researchers (Kil et al., 2023) found it to be linked to self-reported prosocial values in adolescents, regardless of parenting style, which may indicate such values as being more directly transmitted and influenced by public social factors. In either case, findings from this research help to explain

how moral identities pass from parent to child, highlighting the importance of practicing warm and involved parenting in promoting positive social outcomes for children (Kil et al., 2023). Parenting programs, both in-person and online, may be helpful for developing the nurturing, involved parenting most often associated with prosocial behaviour in youth.

Family distress can hinder parent-child relationships and prove detrimental to overall home life. Thomson et al. (2023) investigated psychological distress in Canadian parents two years into the COVID-19 pandemic, identifying possible causes and protective factors for distress and how they influenced family life—including parent-child interactions and perception of children’s anxiety. Fifty-seven percent of parents were experiencing moderate to severe levels of psychological distress, nearly twice as many as before the pandemic, highlighting the need for long-term mental health support for families (Thomson et al., 2023). Higher distress levels were reported in several groups, including parents with pre-existing mental health issues, disabilities, poor socioeconomic status, and young children; these groups experienced financial strain, relationship challenges, social isolation, and concerns about their children, all of which increased the likelihood of distress by 1.5 to 3 times (Thomson et al., 2023). Distress was also related to negative parent-child interactions, such as increased conflict, raised voices, and harsh language, especially earlier in the pandemic; however, positive parent-child interactions, such as quality time and affection, also increased, but were not found to be related to distress levels (Thomson et al., 2023). There were also protective factors for families, including coping strategies, like walking outside, which were related to lower distress levels and indicative of the importance of supportive environments (Thomson et al., 2023). Finally, parents with higher levels of distress were more likely to perceive their children as having increased anxiety—potentially due to shared family stressors (Thomson et al., 2023). Pandemic-related distress among parents

remained following the decline in immediate health risks, and inequities in socioeconomic background and family structure influenced mental health outcomes; to address these continuing challenges, families require long-term supports for reducing overall levels of distress (Thomson et al., 2023). Accessing appropriate family supports may lessen the chances for increased distress, as getting help could reduce some of the overall concerns parents have for their children.

### **The Role of Emotional Expressiveness in Child Development**

Understanding factors that influence young children's emotional and behavioural development is important for preventing early behavioural issues and later mental health challenges; children with limited emotional regulation skills are more likely to experience externalizing problems, most commonly aggression, defiance, and hyperactivity (Liu et al., 2024). Liu et al. (2024) investigated how emotion dysregulation in Chinese parents is related to externalizing behaviour problems in their young children, with a focus on emotional expressiveness and familism (i.e., value of prioritizing family). In a group of 161 parents of children aged 3-5, parental emotion dysregulation had an indirect influence on children's externalizing behaviours through family negative expressiveness, but this was only true for parents with low or average levels of familism; for those with high levels of familism, negative emotional expressiveness did not act as strongly as a mediator, suggesting that familism may act as a protective factor against parental emotional difficulties on the overall emotional state of the family (Liu et al., 2024). However, familism was not found to moderate the direct relation between emotion dysregulation in parents and behavioural challenges in their children, likely due to young children not yet having the opportunity to internalize such cultural values (Liu et al., 2024). Overall, results from Liu et al. (2024) highlight the importance of cultural considerations

in parenting research, as they found that fostering familism and emotional regulation skills may help reduce children's behavioural challenges in Chinese culture. It is important to consider how these values may or may not translate to those in Canadian culture; however, fostering emotional regulation abilities in children should be considered a necessary component of reduced problem behaviours across cultures.

There are many factors that contribute to the healthy development of children, and parents are a major component of this process. Childhood maltreatment (CM), which includes physical and emotional abuse and neglect, negatively influences children's physical and mental health, often leading to challenges such as anxiety, depression, and behavioural problems (Yu et al., 2023). There is evidence to suggest that CM has intergenerational effects that influence parenting factors and affect their children's mental health (Yu et al., 2023). Yu et al. (2023) investigated how emotional neglect experienced by parents throughout their own childhood influences the behaviour of their children, and researchers focused mainly on the role of parental emotional expressiveness. In a sample of 397 pairs of Chinese parents with children ages 6 to 9, maternal, but not paternal, childhood emotional neglect (CEN) was related to increased problem behaviours in children (Yu et al., 2023). This connection was mediated by mother's negative emotional expressiveness, but not by positive emotional expressiveness (Yu et al., 2023). This finding may be explained by several factors. The effects of intergenerational CM tend to be more pronounced for mothers, as their adverse experiences have a stronger relation with children's problem behaviours, and they are more vulnerable to parenting stress (Yu et al., 2023). Also, women are still viewed as the primary caregivers for their children, and the conventional division of labour leads to mothers being more involved in childrearing, allowing more opportunity for the effects of CEN to present in their parent-child interactions (Yu et al., 2023). Results highlight

the significant impact of early emotional neglect in mothers and how these negative experiences may be transmitted through emotional expressiveness and overall parenting style (Yu et al., 2023). Parents who have experienced maltreatment or neglect are faced with the difficult task of breaking destructive cycles of abuse, but in doing so, they can make significant positive differences in their children's well-being.

### **How Student Anxiety Influences Achievement**

Academic achievement can be influenced by many factors, including feelings of anxiety about going to school and performing academic tasks such as assignments and assessments. Fréchette-Simard et al. (2022) investigated whether test anxiety mediated the relation between motivation and academic achievement in students moving from elementary school to secondary school, specifically looking at gender differences and subject (i.e., mathematics vs. language arts). Participants included 478 students in Quebec who completed measures of academic self-concept, achievement motivation, test anxiety, and achievement (Fréchette-Simard et al., 2022). Test anxiety mediated the decline in academic self-concept across genders, and students who experienced lower levels of motivation and achievement in elementary school were more vulnerable during their transition (Fréchette-Simard et al., 2022). Interestingly, when it came to mathematics, girls were especially affected, as they reported higher levels of test anxiety and were more sensitive to academic pressures; it was also found that test anxiety mediated declines in girls' expectations of success and academic achievement (Fréchette-Simard et al., 2022). Students with low academic self-concept were more likely to experience increased test anxiety when starting secondary school, and test anxiety undermined confidence across subject areas (Fréchette-Simard et al., 2022). Findings highlight the need for interventions to support students with test anxiety, especially girls taking mathematics; this research also suggests that many

students may benefit from support from their schools both before and during transitions from elementary to secondary grades (Fréchette-Simard et al., 2022). Transitioning to a new school can be daunting for all students, but even more so for those who experience school-related anxiety and struggle academically.

Parenting plays an important role in the well-being of children, and having the right amount of parental support during transitional periods can make all the difference in a student's adjustment. Maltais et al. (2015) examined how perceived academic competence and symptoms of anxiety mediate the relation between maternal attachment security at the end of elementary school and achievement goal orientations (AGO) in early middle school. When parents are responsive to their children and open to communication, their children are better able to manage stress, build problem-solving skills, and develop a positive self-image—all of which are important during school transitions, where this support from parents can help lessen anxiety and keep children motivated to learn (Maltais et al., 2015). Many decades of research have shown that attachment style is related to a variation of child outcomes across long periods of time, including academic success; generally, secure children have the most promising academic achievement outcomes (Bergin & Bergin, 2009). Maltais et al. (2015) found perceived academic competence to mediate the connection between attachment security and mastery goals, and attachment security resulted in fewer anxiety symptoms—positively influencing the adoption of performance-related goals (Maltais et al., 2015). This suggests that secure maternal attachment promotes positive mental schemas in adolescents that lead to improved self-perceptions and active learning behaviours, including exploration, effective problem-solving, emotional expression, attention, and concentration; such behaviours can lead to positive academic outcomes, such as sense of autonomy, pride, and achievement, which ultimately improve

students' belief in their academic competence (Maltais et al., 2015). Findings highlight the importance of secure parental attachment, especially in mothers, in how adolescents approach learning during elementary to middle school transition (Maltais et al., 2015). The secure attachment that comes from responsive parenting is incredibly helpful for students struggling academically, so it is important for parents to consider how their level of support will influence their children's success in school.

Academic anxiety can look different for everyone, but what seems to be a very common form of academic anxiety—based on the literature—is test anxiety. Test anxiety includes experiencing negative thoughts, emotions, and behaviours brought on by the fear of failure, and it can hinder a student's ability to gather their thoughts and concentrate enough to perform well on a test—leading to a cycle of poor performance and increased test anxiety (McLeod & Boyes, 2021). Test anxiety can result in physical symptoms (e.g., tension and nausea), mental distractions (e.g., worry and rumination), and specific behaviours (e.g., procrastination and avoidance), and even students with high motivation who over-prepare for assessments can struggle due to anxiety (McLeod & Boyes, 2021). Test anxiety is also defined as the fear and discomfort connected to performance reviews, and it is considered an important area of research globally (Kaynakçı et al., 2025). It has a significant effect not only on academic performance, but also on psychological well-being, and test anxiety is made up of a combination of cognitive, emotional, and physiological variables (Kaynakçı et al., 2025). High levels of test anxiety have been linked with reduced academic achievement for both in-person and online learning, but level of student engagement can help to reduce the negative effects of test anxiety in both scenarios (Taşkın & Kokoç, 2025). Using strategies such as relaxation, mindfulness, breathing exercises, and improved study skills can also be helpful in reducing test anxiety and improving academic

performance (McLeod & Boyes, 2021).

Social-emotional learning (SEL) programs were designed to teach students the skills for managing emotions, setting goals, making good decisions, and building healthy relationships, resulting in improved self-confidence, emotional awareness, and social skills (McLeod & Boyes, 2021). A review of over 600 studies suggested that SEL programs can positively influence the performance of students in subjects such as reading and math, but further research is necessary to determine long-term outcomes; while schools have started to include these programs in their curriculum, they may not be implementing them effectively (McLeod & Boyes, 2021). McLeod and Boyes (2021) investigated how a classroom-based SEL program that combines social-emotional learning, study skills, and heart-focused breathing (a mindfulness breathing technique) might reduce test anxiety and improve academic performance in adolescents. Through a mixed methods approach using test scores, surveys, student interviews, and focus groups, researchers (McLeod & Boyes, 2021) demonstrated that this intervention was beneficial for reducing test anxiety, building self-confidence, and improving thought processes and test preparation strategies in participants. These results recommend the use of evidence-based SEL programs in the education system for reduced test anxiety and improved academic outcomes through the development of social-emotional skills (McLeod & Boyes, 2021). This research also points to the direct relation between emotion regulation and academic anxiety, as having the skills for managing emotions has been shown to improve academic performance overall.

While some forms of academic anxiety are task-specific, such as test anxiety, others are subject-specific (i.e., math or literacy). Math anxiety causes students to feel fearful or tense in situations involving math and interferes with math learning and performance (O'Hara et al., 2022). A scoping review by O'Hara et al. (2022) included 28 research studies published across

17 countries and identified how classroom factors are related to math anxiety. Math anxiety was related to more than 30 unique factors of learning environments, some of which include teacher quality and technique, classroom climate, teaching practices, and feedback and evaluation practices (O'Hara et al., 2022). Math anxiety was reduced by factors such as appropriate instructional pace and clarity, supportive and positive classroom environments, student-centered teaching approaches, and lessened emphasis on testing performance (O'Hara et al., 2022). Information from this review may benefit math educators as they develop classroom environments that reduce math anxiety, improve feelings of self-efficacy, and promote learning for their students (O'Hara et al., 2022). For students who have difficulty with specific subjects due to anxiety, resource support can be an important tool in helping them implement useful strategies and improve their academic confidence.

Feelings of anxiety can often be combined with other symptoms that may influence academic achievement. Many students struggle with attention, time management, and procrastination, all of which may be considered symptoms of anxiety and Attention-Deficit/Hyperactivity Disorder (ADHD), with or without official diagnoses (Di Lonardo Burr & LeFevre, 2021). Di Lonardo Burr and LeFevre (2021) investigated how self-reported symptoms of anxiety and ADHD might be related to academic performance in post-secondary students, expanding on previous research that highlighted the important role that subject-specific anxiety plays in the prediction of academic outcomes. Data from 515 undergraduate students revealed that while ADHD symptoms and all forms of anxiety were related, it was only subject-specific anxieties that had a direct link to performance in those subject areas (Di Lonardo Burr & LeFevre, 2021). ADHD symptoms and general feelings of anxiety did not have a direct relation to academic outcomes, and students with increased math or literacy anxiety were more likely to

experience higher situational anxiety during related academic tasks (Di Lonardo Burr & LeFevre, 2021). This research emphasizes the need for mental health interventions in educational settings that focus on subject-specific anxieties, as they are most closely related to academic success (Di Lonardo Burr & LeFevre, 2021). It is important to consider the type of academic anxiety (i.e., subject- or task-specific) being experienced by students when deciding on the more appropriate intervention methods.

### **Emotion Regulation in the School Setting**

The ability to regulate emotions is an important skill for students to have that can help them manage difficult experiences and become successful in school and beyond. Researchers (Bearden et al., 2023) investigated the emotion regulation of students in Alberta to determine how brief, daily emotion regulation practices would influence their physiological and emotional well-being. The Heart Lock-In technique, which involves five minutes of heart-centered breathing and positive emotions daily, was practiced in 24 Grade 5 students over four weeks (Bearden et al., 2023). Heart rate variability (HRV), which measures the changes in the intervals of time between heartbeats, was used as a physiological indicator of emotion regulation before and after the intervention and compared to the relaxation control condition (Bearden et al., 2023). The resting HRV of students was greatly improved from the Heart Lock-In intervention but not for those in the control group, suggesting that the technique positively affected physiological regulation (Bearden et al., 2023). It was also reported by students who received the intervention that they experienced improvements in the areas of emotion regulation, positive emotions, interpersonal relationships, and academic focus; these reports highlight evidence that short and simple emotion regulation practices can lead to increased emotional and physiological resilience, and integrating these practices into the Canadian curriculum would likely support

overall social-emotional development in students (Bearden et al., 2023). Emotion regulation abilities are important for all areas of school, and these skills are also necessary for living and working independently in adulthood.

Emotion regulation skills are important to have even before children begin formal schooling. The transition to primary school is an important period that influences children's future success in school and is especially challenging for those experiencing adversity, which highlights the need for early supports (Michaud Dumont et al., 2019). Importantly, parental attachment can act as a foundation for emotion regulation; securely attached children learn from their parents that when they are feeling overwhelmed, others will be there to support them (Bergin & Bergin, 2009). They are also better equipped to learn coping strategies, remain open about their emotions, and take on emotionally challenging situations (Bergin & Bergin, 2009). Emotion regulation skills are important and necessary for school adaptation, and Michaud Dumont et al. (2019) investigated how these skills contribute to academic functioning. Researchers assessed 48 children ages 5 and 6 who were separated into low-risk and adversity-risk groups, using specific psychophysical tasks, near-infrared spectroscopy to monitor brain activity, as well as reports on school functioning from parents and teachers (Michaud Dumont et al., 2019). There were differences in brain activation patterns across groups, with adversity-risk children demonstrating altered prefrontal activation during inhibitory control tasks; in particular, activated brain regions related to executive functioning were associated with less behavioural problems and higher academic performance—especially in teacher reports (Michaud Dumont et al., 2019). These findings highlight the importance of early intervention to support at-risk children before starting school to ensure they are ready, despite how their adversity may have altered their neurodevelopment (Michaud Dumont et al., 2019). It is important to monitor

students who are more at-risk for emotion regulation difficulties, as they will likely need a higher level of support than those who are at a lower risk.

Emotion dysregulation is characterized by high emotional reactivity, poor regulation, difficulties in peer relationships, and challenging behaviours overall, and it can be influenced by parental factors (Hipson et al., 2017). Hipson et al. (2017) investigated whether maternal agreeableness moderated the relation between children's emotion dysregulation and their social-emotional outcomes in school. The study included 146 children in Kindergarten and Grade 1 in Ontario; mothers were asked to rate their own agreeableness along with their child's emotional tendencies, and teachers were asked to assess the children's behaviours in the school setting (Hipson et al., 2017). Emotion dysregulation tended to be related to higher levels of anxiety, aggression, peer exclusion, and lower levels of prosocial behaviour; however, maternal agreeableness moderated some of these relations (Hipson et al., 2017). Specifically, in highly agreeable mothers, the relation between children's dysregulation and both their anxiety and reduced prosocial behaviour was weakened—suggesting that agreeableness in mothers may act as a protective factor (Hipson et al., 2017). This was not true for aggression or peer exclusion, potentially because of the need for additional parenting traits, such as discipline, to reduce those behaviours (Hipson et al., 2017). Overall, this research determined that maternal agreeableness could act as an important protective factor for the emotional and social development of children with regulation issues, and it highlights the value in considering parental personality when performing child-focused interventions (Hipson et al., 2017). Even for children who are emotionally dysregulated, there is hope that positive parenting practices can help build prosocial skills and reduce feelings of school-related anxiety.

Emotion regulation plays an important role in shaping psychosocial outcomes, as it

involves monitoring and maintaining emotional experiences and expressions; the ability to regulate emotions develops over time, and difficulties doing so can be related to challenges with social functioning and mental health—making early emotional development important for future success (Cabecinha-Alati et al., 2020). Cabecinha-Alati et al. (2020) investigated how emotion regulation skills, coping strategies, and trait anxiety in adulthood are influenced by emotional socialization practices in childhood. A sample of 202 Canadian university students reported their perceptions of how supportive or unsupportive their parents were in response to negative childhood emotions (Cabecinha-Alati et al., 2020). Those with supportive parental emotion socialization were more likely to exhibit higher emotion regulation skills and adaptive strategies for expressing emotions; conversely, those whose parents used unsupportive practices were more likely to exhibit lower emotion regulation skills and maladaptive emotional strategies (Cabecinha-Alati et al., 2020). Unsupportive socialization was also found to be related to higher trait anxiety and mediated by lower emotion regulation skills and maladaptive strategies (Cabecinha-Alati et al., 2020). Early parental emotional support is important for psychological well-being, and emotional difficulties in adults may be prevented by early parental emotion coaching interventions (Cabecinha-Alati et al., 2020). While parents have a big influence on how their children develop emotion regulation skills, children of emotionally unsupportive parents are still capable of developing these skills with appropriate intervention; it is these students who may benefit most from curriculum-based social-emotional learning that targets emotional and physiological resilience.

Executive functioning and self-regulation are not typically researched in combination, but they are closely connected and use overlapping cognitive processes to support behaviour and emotions (Franklin et al., 2018). Disruptions to these systems are related to various mental health

disorders, such as ADHD, anxiety, and depression (Franklin et al, 2018). Franklin et al. (2018) examined how self-regulatory executive functions, including time management, emotional control, organization, self-motivation, and self-restraint, vary among post-secondary students and are influenced by trait anxiety. Time management and self-motivation were most difficult for men, and emotional control was most difficult for women (Franklin et al., 2018). For both men and women, self-regulatory executive functions were negatively influenced by trait anxiety; in particular, women who experienced higher levels of trait anxiety reported poorer emotion regulation than men, suggesting that anxiety heightens differences between how men and women manage emotions (Franklin et al., 2018). This research highlights the importance of having specialized supports in academic settings, especially for women or those with anxiety; also, programs that incorporate emotion regulation coping strategies may be useful for promoting resilience in students and improved academic performance (Franklin et al., 2018). This research adds to the argument for curriculum-based social-emotional learning to help students in different areas of regulation and behaviour.

When assessing a student's social adjustment and overall well-being in school, prosocial behaviours are often one of the first things considered. Prosocial behaviours are considered voluntary actions that benefit others, including things like helping and demonstrating empathy, and they are influenced in part by parental warmth and children's emotion regulation (Yavuz et al., 2022). Yavuz et al. (2022) examined how these factors, separately and together, predict prosocial behaviours over time, using parent reports and physiological measures of emotion regulation. Canadian children between 6 and 10 were included in the study, and parent-reported data were collected for parental warmth, as well as children's emotion regulation and prosocial behaviours; respiratory sinus arrhythmia (RSA) was also used to measure children's emotion

regulation physiologically (Yavuz et al., 2022). Parental warmth was positively associated with increased prosocial behaviour, especially for children with high emotion regulation—based on either parent reports or higher RSA; children with low emotion regulation benefitted from warm parenting, but the relation was stronger for those who had higher regulation abilities (Yavuz et al., 2022). This suggests that emotionally well-regulated children are more likely to reap the benefits of parental warmth, highlighting the importance of internal characteristics in children and supportive parenting in the development of social-emotional skills throughout childhood (Yavuz et al., 2022). There is a need for interventions that direct both children’s self-regulation skills and parental warmth to encourage prosocial behaviour (Yavuz et al., 2022). It is through this combination of self-regulation and warm parenting that prosocial behaviours are most likely to present, and through which school adjustment will come most easily.

In contrast to prosocial behaviour, antisocial behaviour is what characterizes students who lack many of the skills necessary to regulate their behaviours and emotions. Oppositional defiant disorder (ODD), a prevalent childhood disorder, is characterized by hostile and defiant behaviours and is related to long-term risks, including antisocial behaviour and emotional disorders (Yu et al., 2022). The three interrelated features of ODD are considered anger, defiance, and spitefulness, all of which have distinct developmental outcomes and should be studied separately to determine associated risk factors and appropriate targeted interventions (Yu et al., 2022). Yu et al. (2022) investigated how parental warmth and harsh discipline influence the development of ODD in children and whether emotion regulation acts as a mediator between the two. In a diverse sample of 753 children, longitudinal data were used to measure parenting behaviours from kindergarten to Grade 2, children’s emotion regulation level in Grade 2, and ODD symptoms in Grade 3—both as a whole and across specific areas of anger, defiance, and

spitefulness (Yu et al., 2022). There were no indirect effects of parenting on ODD through emotion regulation, but they did show stronger emotion regulation to be associated with lower overall ODD symptoms, especially anger and defiance (Yu et al., 2022). Parental warmth and harsh discipline did not directly predict emotion regulation or ODD outcomes, suggesting that while emotion regulation plays an important role in some ODD dimensions, it does not do this for all of them, and ODD should be considered a multi-dimensional construct in future research (Yu et al., 2022). The primary takeaway from this research is the idea that while emotion regulation plays a part in how children's behaviours present at school, every situation is unique, and some students may require more social-emotional learning intervention than others.

### **Conclusion**

Canadian emergency services workers experience high exposure to traumatic events, which places them at risk for developing mental health issues such as PTSD, depression, and anxiety. While there are treatments available, they may not always be effective for this population because of the complexity and frequency of their trauma exposure. Also, workplace stress and stigma tend to prevent this group from seeking professional help. While trauma-informed supports are improving, and telehealth services are especially convenient, accessibility remains a challenge for those without appropriate technology. Government funding has helped to broaden research and mental health services for this population, which is promising.

Positive and responsive parenting is ideal for supporting children's emotional, social, and behavioural development—but this does not always come naturally. Many parents turn to social media for parenting advice, often leading them to misinformation, as a lack of accessibility exists when it comes to evidence-based tools. While in-person parenting programs are ideal, online programs (e.g., TPOL, BEAM, and MTC) have demonstrated similar levels of effectiveness, as

they have been shown to improve parenting confidence, reduce mental health concerns, and promote stronger parent-child relationships. During stressful times, like those of the COVID-19 pandemic, adolescents benefit from leading supportive conversations with their parents. Having warm and involved parents is also helpful for the development of prosocial values and behaviours; however, many families are still facing distress from socioeconomic challenges associated with the pandemic, and there is an ongoing need for accessible, lasting support for these families. Another factor influencing children's behavioural development is parental emotion regulation and expressiveness. Prioritizing family has been found to protect against the negative effects of poor parental emotion regulation on children's externalizing behaviours. In mothers, specifically, childhood emotional neglect has been associated with increased problem behaviours in children because of mother's negative emotional expressiveness; this demonstrates the strong influence of early adverse experiences on future parenting and child outcomes.

Anxiety can have a significant influence on academic achievement and can be particularly challenging during school transitions, highlighting the importance of early support and intervention for those who are struggling. Another factor playing a role in reducing student anxiety is secure maternal attachment and overall parental support, as it encourages confidence and resilience in children. Academic anxiety can be separated into task-specific and subject-specific categories, such as test anxiety and math anxiety, respectively. For students who experience subject-specific anxieties, in math or literacy for example, evidence-based supportive classroom environments and interventions such as social-emotional learning programs have been found to reduce anxiety and improve academic performance. It is important to consider the type of anxiety students are exhibiting to implement interventions that target those areas specifically.

Emotion regulation is an essential skill that supports emotional well-being, academic success, and social development from early childhood through adulthood. Building emotion regulation skills early can be beneficial for children beginning formal schooling, especially those facing adversity at home. To improve emotion regulation, daily heart-centered breathing can be helpful, as it improves physiological regulation and emotional outcomes. For children with regulation challenges, positive parenting (i.e., parenting that is supportive, warm, and agreeable) can be especially helpful for protecting against behavioural difficulties. Curriculum-based social-emotional learning and targeted interventions for emotion regulation strategies can lead to improved academic and prosocial outcomes for students.

Taken together, these findings support the notion that significant relations exist between parenting factors, such as stress levels, emotional expressivity, and parenting style, and student anxiety; it also suggests that emotion regulation plays an important role in protecting children against school-related anxiety, despite challenges experienced by parents.

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## CHAPTER TWO

### **Emotion Regulation as a Moderator for Academic Anxiety in Children of Emergency**

#### **Services Personnel**

Children struggle to function in the school environment for many reasons. Feelings of anxiety that surround school activities like classwork, testing, and social engagement may negatively interfere with academic performance and the overall schooling experience. The current study aims to identify how parenting factors, such as parenting style, emotional expressivity, and traumatic experiences, may be associated with anxious feelings about school and subsequent academic functioning difficulties. Specifically, this research looks to better understand how the unique experience of parents working in emergency services and experiencing trauma might interfere with various parenting factors and, in turn, with children's abilities to function academically. Emotion regulation in children will also be examined for its potential to reduce academic anxiety.

#### **Academic Anxiety**

Academic anxiety can be described as feelings of worry, tension, or dread that exist in academic settings or during academic tasks, such as exams, assignments, specific subjects, social pressures relating to school, or while completing groupwork. Feeling nervous about school-related tasks is common for most learners, and a low degree of anxiousness is considered a helpful motivator—this is known as facilitative anxiety. When more serious feelings of anxiety become overwhelming for students and start to hinder their academic success, academic anxiety is likely to blame (*About Academic Anxiety - Academic Anxiety Resource Center, 2023*).

#### **Parenting Style**

For the purpose of this study, the three parenting styles proposed by Baumrind (1971)—authoritarian, authoritative, and permissive—will be considered as predictors of school anxiety. They are defined as follows: Authoritarian parents tend to establish strict rules with little explanation or negotiation. Mistakes on behalf of the children typically lead to punishment, as these parents have high expectations and standards. Authoritarian parents are known to be less nurturing and have limited flexibility. As a result, children with these parents are considered well-behaved, as they work to avoid the consequences of misbehaviour. Additionally, this parenting style may lead to children who are more aggressive, but shy, socially inept, and incapable of decision-making for themselves; they tend to have poor self-esteem, difficulty managing anger, and a rebellious nature against authority figures (Sanvictores & Mendez, 2022).

Authoritative parents typically have close and nurturing relationships with their children; their expectations are clear, and they provide explanations for any disciplinary action. Children of these parents are allowed input in goals and expectations with an appropriate level of communication. Authoritative parenting usually leads to the most promising outcomes for children, but requires effort from both parents and children to maintain a healthy parent-child relationship. These children generally have high levels of confidence, responsibility, and self-regulation, leading to positive social and emotional outcomes. The independence that this parenting style encourages results in children who have high self-esteem, as well as high academic achievement and school performance (Sanvictores & Mendez, 2022).

Permissive parents are generally warm and nurturing with minimal expectations for their children. There is open communication, but children are encouraged to figure things out themselves with limited rules, resulting in a lack of discipline and a relationship more like friendship than parenting. The freedom that these parents allow their children to have—like

choosing their bedtime or when to do homework—typically leads to negative traits, such as being impulsive, demanding, selfish, and having poor self-regulation skills (Sanvictores & Mendez, 2022).

### **Emotional Expressivity**

Emotional expressivity is the quality or state of being expressive, and emotional expressiveness is the individual ability to communicate feelings through nonverbal movements and gestures (Riggio, 2017). As a construct, emotional expressiveness acknowledges differences in the way individuals show their emotions externally, including positive or negative feelings and facial, vocal, or gestural displays (Kring et al., 1994).

### **Post-Traumatic Stress**

Post-traumatic stress disorder (PTSD) is a disorder some individuals develop after experiencing shocking or dangerous events. While most people recover from the initial range of reactions after trauma, those who continue to experience these problems might be diagnosed with PTSD. Anyone can develop PTSD after a traumatic event, but it is especially prevalent among those who have experienced accidents, disasters, or other serious events as a result of their profession (*Post-Traumatic Stress Disorder*, 2024). Psychological difficulties, such as PTSD, may lead to impaired parenting capabilities. Due to negative behaviour alterations, such as increased anger, reactivity, and social withdrawal, the consequences of trauma have the potential to influence subsequent generations in the form of psychological, social, and emotional difficulties (Christie et al., 2019).

### **Emotion Regulation**

Emotion regulation refers to the ability of individuals to manage their emotional experiences in both personal and social settings. Developmentally, it is a complex process

important for social competence, psychological well-being, and reduced affective psychopathology. Developing appropriate emotion regulation depends on early neurobiological growth based on the understanding of how emotions work, as well as individual temperament. It is also dependent on social influences, such as parenting and the parent-child relationship, modelling, intervention, conversation, and relationships with peers and siblings (Thompson et al., 2008). More broadly speaking, emotion regulation is defined as a person's ability to manage their emotional state to meet the demands of their environment; this process involves many functions (e.g., attentional, cognitive, behavioral, social, biological), and emotions can be positive or negative and vary in intensity (Doré & Ochsner, 2015).

## **Literature Review**

### **Anxiety and Academic Performance**

It has been found that child-based anxiety is associated with poor academic experiences (Albulescu et al., 2023; Ramirez et al., 2019; Yaffe, 2023; Yousaf & Khurshid, 2020). In 2023, Albulescu et al. investigated the influence of anxious thoughts on academic performance and wanted to determine whether parenting style was connected to the anxiety or overall academic performance. Through self-assessed questionnaires, it was determined that test anxiety and academic performance were negatively correlated, poor parental supervision and student performance were negatively correlated, and test anxiety was only partially responsible for the negative relation between poor supervision and performance (Albulescu et al., 2023). Positive parental involvement is necessary, as it contributes to lower test anxiety—leading to an increase in student academic performance (Albulescu et al., 2023).

Academic achievement relies on many factors of the home environment. Yousaf and Khurshid (2020) intended to analyze the effects of six psychosocial elements on academic

achievement in Grade 9 students through a mixed-methods design. To gather data, researchers used a self-developed psychosocial elements questionnaire based on six of the major psychosocial elements, including students' life skills development, health risk behaviours, drug abuse, self-esteem, family adjustment, and academic anxiety (Yousaf & Khurshid, 2020). Student data suggested that psychosocial elements influenced the academic achievement of Grade 9 students, with elements such as academic anxiety, drug abuse, and health risk behaviour having a negative effect, and self-esteem, life skills development, and family adjustment (i.e., parental encouragement and help with learning) having a positive effect (Yousaf & Khurshid, 2020). Parent data suggested that Grade 9 students whose parents were illiterate, had low socioeconomic status, no time for their children, etc. struggled with educational attainment (Yousaf & Khurshid, 2020).

Young children who are anxious about reading are more likely to struggle with reading achievement, according to a study by Ramirez et al. (2019). Researchers expected reading anxiety to be linked with reading achievement across the school year, but that boys and girls may demonstrate this relation differently because of the stereotypical notion that boys underperform in reading (Ramirez et al., 2019). In the fall and spring, students in grades one and two completed measures of reading anxiety, positive reading affect, math achievement, and reading achievement, and reading anxiety and reading achievement had a bi-directional relation where reading anxiety in the fall predicted reading achievement in the spring and vice versa (Ramirez et al., 2019). As predicted, there was a difference in how boys and girls experience reading anxiety and achievement, with boys being more vulnerable to the negative effects of reading anxiety on reading achievement across the school year (Ramirez et al., 2019). It should also be noted that reading achievement had a stronger relation with reading anxiety than positive reading affect,

likely due to the idea that negative versus positive experiences have more of an effect psychologically (Ramirez et al., 2019).

Feelings associated with the imposter phenomenon may explain test anxiety resulting in poor academic achievement. A study by Yaffe (2023) investigated possible associations between the imposter phenomenon, test anxiety, and self-efficacy in post-secondary students. Imposter phenomenon referred to individuals regularly doubting their competencies despite their accomplishments, and self-efficacy referred to the beliefs regarding one's ability to reach specific goals (Yaffe, 2023). Yaffe (2023) aimed to understand the relation between low self-efficacy and the imposter phenomenon, and how they can together predict test anxiety. Variables were also linked with maternal psychological control as a predictor variable and academic achievement as an outcome variable (Yaffe, 2023). Test anxiety and self-efficacy were inversely correlated with academic achievement, and students with high imposter feelings were more likely to experience test anxiety and, as a result, weakened academic performance—suggesting that test anxiety may act as a mediator that explains how imposter feelings and academic achievement are related (Yaffe, 2023). Maternal psychological control (as perceived by students) was negatively associated with student self-efficacy and positively associated with imposter feelings, and the positive association with imposter feelings mediated the maternal effect on test anxiety significantly, as expected (Yaffe, 2023).

### **Societal Considerations**

Given the prevalence of income inequality, it is not surprising that students of lower socioeconomic status often struggle with heightened test anxiety and lower academic achievement. A study by King et al. (2023) investigated psycho-educational programs that aim to reduce feelings of test anxiety, and they suggested these programs are even more necessary in

unequal societies. Researchers suggested that taking broad socio-ecological context into account may lead to more understanding of what sorts of experiences weaken achievement in academic settings (King et al., 2023). Test anxiety has been documented all over the world, and test anxiety interventions hold promise to benefit much of this population (King et al., 2023).

Another study that researched the link between unequal societies and academic worry (Gibbs & Kenealey, 2022) highlighted how disadvantaged youth experience little support for their anxiety surrounding school. While it is often the case that advantaged parents can provide socioemotional support to their children—leading to effective help seeking behaviour—disadvantaged children tend to internalize their failure because they are not equipped with the appropriate skills to overcome setbacks (Gibbs & Kenealey, 2022). Researchers argue that early and effective assessments and interventions could provide more positive academic outcomes for those at a disadvantage (Gibbs & Kenealey, 2022).

### **The Role of Parental Involvement in Student Success**

Parental investment is thought to be necessary for healthy emotional development and is especially important during adolescent years. A study by Jiang and Shi (2024) considered how adolescent development benefits from parental investment and investigated how it also influences behavioural problems and their underlying mechanisms. Researchers looked at two types of parental investment, material and time, and determined how they influence adolescent behavioural problems; they also considered how these forms of parental investment explain the effects of both emotional and cognitive engagement (Jiang & Shi, 2024). Parental investment for both material and time is linked to a reduction in adolescent behavioural problems; it was also found that levels of emotional and cognitive engagement determined how parental investment was associated with behavioural problems; finally, researchers noted time investment as being

more impactful on behavioural problem reduction than material investment (Jiang & Shi, 2024). Altogether, these results provide a better understanding of how adolescent behavioural problems are influenced by parental investment and suggests practical aspects to consider from these findings that may shape how intervention strategies are designed to promote positive adolescent development. Some suggestions by researchers included the following: (1) Financial support from the government for disadvantaged families that will help with financial stress and provide more opportunity for material investment in children, (2) promotion from social workers and practitioners for positive family interactions and supportive parent-child relationships (e.g., shared reading programs and joint sports), (3) school engagement prioritized by school social workers that promotes active engagement and a sense of connection to school (e.g., school-based physical education activities and tutoring programs), and finally, (4) effective communication channels between school and home that will help build stronger cooperation and reduce behavioural problems (Jiang & Shi, 2024).

Academic performance, especially among those who worry about school, is influenced by the level of parental involvement in a child's education (Cai & Tu, 2021; Mullins & Panlilio, 2023; Turner et al., 2009). A study by Cai and Tu (2021) used a multi-informant, longitudinal design to determine the relation between youth academic worries and parental involvement (i.e., parent-teacher relationship quality, academic socialization, schoolwork assistance) before transitioning to middle school as predictors of youth engagement and academic performance after transitioning (Cai & Tu, 2021). Maternal academic socialization moderated the relation between youth academic worries and academic adjustment; those who had more academic worries and higher maternal academic socialization experienced higher academic performance and engagement, but there was no relation evident for lower maternal academic socialization

(Cai & Tu, 2021). It was also reported by researchers that maternal assistance with schoolwork before middle school directly translated to better academic performance during middle school (Cai & Tu, 2021). This study demonstrated how parental, specifically maternal, involvement with schoolwork is encouraging to academic performance; it also suggested the importance of maternal academic socialization in bringing academic performance and engagement up for those who worry more about schoolwork (Cai & Tu, 2021).

A study by Turner et al. (2009) added to the research on parenting styles and its various outcomes, including academic performance. Authoritative parenting predicted academic performance in post-secondary students, suggesting that parental influence and previous parental experiences are important for the successful transition to life outside the family home (Turner et al., 2009). Those who reported their parents as encouraging of communication skill development and autonomy, but still setting boundaries, had higher grade point averages and higher academic self-efficacy (Turner et al., 2009).

Parenting and parent-child relationships are as complex as they are individualistic. Experiences are associated with children's functioning abilities in different capacities and the way parents react to those experiences. Robinson et al. (1995) worked to develop an empirical method for determining parenting typologies consistent with those developed by Baumrind in 1971 (i.e., authoritative, authoritarian, and permissive), as well as identify specific parenting practices within the context of each. Researchers used a 133-item questionnaire to determine parenting typologies of participants, and the parenting questions used could accurately categorize Baumrind's typologies (Robinson et al., 1995). Also, several factors associated with each parenting style could be useful for predicting developmental outcomes for both mothers and fathers of pre-school and/or school-age children (Robinson et al., 1995). Along with parent-child

relationships, emotion regulation abilities should also be considered for their relation to developmental outcomes.

### **Emotion Regulation and School Functioning**

Appropriate emotion regulation skills and parent-child relationships are beneficial to the development of academic abilities (Mullins & Panlilio, 2023; Wong et al., 2023). Mullins and Panlilio (2023) researched how academic engagement develops in cases of adversity with consideration of emotion regulation skills and parent-child relationships. Those who had appropriate emotion regulation skills were able to remain engaged in school, despite their traumatic experiences, and those with positive parent-child relationships were also engaged in school, regardless of their emotion regulation abilities or trauma history (Mullins & Panlilio 2023). For those who have experienced adversity, it may be beneficial to target interventions in a way that focuses on emotion regulation skills and parent-child relationship quality (Mullins & Panlilio 2023).

Emotion regulation is thought to underlie academic achievement in several ways, including positive feelings toward school and schoolwork, and positive mental health; in the past, there has been little research done to investigate how these mechanisms work over time to determine academic success. A study by Wong et al. (2023) examined how children's emotion regulation capacities were linked with academic achievement later on through school-related (i.e., school bonding and academic motivation) and mental health mediators (i.e., internalizing and externalizing symptoms). This research involved 300 Canadian children, ages four and eight, and their caregivers, measured over four years (Wong et al., 2023). Through path analyses, higher emotion regulation was associated with better academic achievement after three years of stronger school bonding and lower internalizing symptoms (Wong et al., 2023). These results

help to explain the interaction between social-emotional, academic, and mental health development across childhood and highlight the potential gains of bringing social-emotional and mental health domains into academic interventions (Wong et al., 2023).

### **The Influence of Parental Post-Traumatic Stress**

Careers in emergency services result in repeated exposure to psychologically traumatic events, and individuals in these careers report PTSD difficulties more frequently than the general population (Boehme et al., 2023). May et al. (2023) investigated PTSD in Australia and reported rates to be significantly higher among current emergency first responders (10%) and former emergency first responders (25%) compared to the general community (7.3%).

Parents who experience PTSD often require more support in building healthy relationships with their children. A systematic review by Christie et al. (2019) covered 27 studies involving parents with PTSD whose parenting capabilities may be impaired by the disorder; PTSD can be linked to increased parenting stress, lower parenting satisfaction, less optimal parent-child relationships, and more frequent negative parenting practices. Awareness of these impairments could lead to more opportunities for family support (Christie et al., 2019). A study by Li et al. (2002) explored the risk of chronic pain conditions and depression in children whose parents have been diagnosed with PTSD. One result of interest was the association found between parents with PTSD and depressive disorder in their children, highlighting the importance of early PTSD assessment and intervention for these parents and their children (Li et al., 2002). In a study of the military family stress model by Cheng et al. (2024), for both mothers and fathers, greater PTSD symptoms were linked to poorer marital quality, which was associated with more impairments in parenting—leading to poorer child adjustment.

May et al. (2023) were the first researchers to investigate the experiences of children (aged 9-17) with military or first responder parents with PTSD. They wanted to better understand their experiences as they relate to the intergenerational trauma theory, considering the high PTSD rates in these populations (May et al., 2023). Through 17 in-depth interviews, researchers found four main themes in the data, including (1) parental emotional extremes, volatility, and unpredictability, (2) changes in home and family relations, (3) impacts on child wellbeing, and (4) PTSD awareness and help-seeking (May et al., 2023). Each theme is briefly discussed below.

Regarding the first theme, researchers identified that a lack of emotional stability for children was a key issue for all participants; intense emotions, most commonly anger, created a sense of unpredictability and left children wondering which mood to expect from their parent at any given time (May et al., 2023). It was also reported that in some cases, parents with PTSD were upset by their child's emotional distress and were unable to respond to their child's needs (May et al., 2023). In instances like these, some children reported feeling that they could not get an appropriate emotional response from their parent, such as attention, closeness, affection, or calming (May et al., 2023).

Regarding the second theme, researchers highlighted how children's roles in their families changed when a parent with PTSD was unable to perform domestic tasks (May et al., 2023). In several cases, children felt they could not bother their parent with any of their own needs, but they instead acted as the caregiver themselves as they took on roles typical of a parent (May et al., 2023), a parent-child relationship known as parentification (Van Loon et al., 2017). Children also reported feeling a lot of worry surrounding the well-being of their parent and any siblings (May et al., 2023).

Regarding the third theme, researchers found examples in their interviews of vicarious and secondary trauma, some of which included general anxiety, separation anxiety and loss, a mirroring of parental emotion and behaviour, and adoption of the parent's worldview and attitudes (May et al., 2023). By far, the most common feeling reported for children was anxiety or worry, and children's mental health issues were described as emotional and behavioural issues that often led to social problems, especially in school settings (May et al., 2023). All children experienced mental health problems, including emotional dysregulation, anxiety, and PTSD—to name a few (May et al., 2023).

Regarding the fourth and final theme, researchers noted how school environments highlight mental health issues; schools were reported by child participants as the first place they either tried to get help or received help (May et al., 2023). Some problematic behaviours, emotional issues, social issues, or inconsistent performance of schoolwork were raised by teachers or school counsellors to parents; specific issues included late arrival, lack of concentration, being disruptive, outbursts of anger, being overly emotional, and having social issues (May et al., 2023). Children and parents both suggested that with a better understanding of children experiencing parental PTSD, schools could be more helpful in meeting their needs through support or referrals (May et al., 2023).

There is promising research on how to support parents with PTSD. A study by Sullivan et al. (2023) was the first to look at the Parenting-STAIR intervention (an intervention designed to address maternal mental health, parenting skills, and child well-being) regarding feasibility and preliminary impact on mothers with PTSD. It is known that trauma exposure and PTSD influence emotional and physical well-being, social functioning, and parent-child relationship quality; researchers wanted to investigate something that is often overlooked by child welfare

services, the effect of parental trauma on parenting and child maltreatment (Sullivan et al., 2023). After intervention completion, 78% of mothers no longer met PTSD criteria, and 39% experienced full remission, suggesting the program is an acceptable option for reducing maternal PTSD symptoms and improving overall parenting (Sullivan et al., 2023).

### **Objectives**

Research supports the notion that anxiety and poor self-regulation can lead to challenging academic experiences. It also suggests that feelings of anxiety and difficulty with emotional intelligence are more prominent in children with authoritarian parents and parents who struggle with emotional expressivity. If post-traumatic stress can lead to poor parenting practices, it is worth investigating how post-traumatic stress in emergency personnel, specifically, is associated with anxiety and self-regulation issues leading to functional impairment in school. The current research study aims to determine how children function in the school environment in relation to parental post-traumatic stress, emotional expressivity, and parenting style, while also considering children's emotion regulation abilities.

It was hypothesized that child academic anxiety would be positively correlated with parental post-traumatic stress (i.e., as parental post-traumatic stress increases, academic anxiety will increase) and negatively correlated with parental emotional expressivity (i.e., as parental emotional expressivity increases, child academic anxiety will decrease). It was expected that authoritarian and permissive parenting styles would be associated with higher child academic anxiety, and authoritative parenting style would be associated with lower child academic anxiety. Finally, it was expected that high levels of emotion regulation would moderate the relations between the predictor variables (post-traumatic stress, emotional expressivity, and parenting style) and the outcome variable, academic anxiety. That is, increased levels of emotion regulation

were expected to be associated with decreased academic anxiety, regardless of parental post-traumatic stress, emotional expressivity, or parenting style.

## **Methods**

The current study followed a quantitative correlational design through an online survey to determine significant associations between emergency personnel and academic functioning in their children. A multiple regression analysis was performed to assess the relations between the predictor variables and outcome variable, and post-hoc testing was completed to analyze high and low emotion regulation scores separately using a median split.

### **Participants**

Seventy eligible participants completed the online questionnaires used for the multiple regression analyses. To determine sample size necessary to avoid Type II errors, it was determined through G-Power (2 predictors and 1 interaction term) that a sample size of 55 participants was necessary for a power of .80 (meaning 80% chance of detecting the effect). Therefore, this study had sufficient power for the multiple regressions that were conducted. There was a response rate of 100, and 30 respondents were deemed ineligible based on the following exclusion criteria: Emergency services career or volunteer position (current/former), parental status of children aged 7 to 17, and Canadian residency. Emergency personnel can be defined as any person whose professional duties involve emergency health and safety services, including police officers, firefighters (paid/volunteer), paramedics, other medical professionals, emergency dispatchers, and anyone else directly involved in emergency response. The sample consisted of 46 paramedics, 9 firefighters, 7 police officers, 3 nurses, and 5 unspecified emergency services workers. It should be noted that there were several participants who had identified themselves as either working or volunteering in a second profession, and the first

profession listed was the one used for statistics; the most frequent combination noted was paramedic and firefighter. Participant's length of service ranged from 1 to 33 years, and the average length of service was 15 years. It was reported that 74.3% of participants were living in Nova Scotia, 14.3% in Ontario, 4.3% in Alberta, and the remaining 7% split between British Columbia, Manitoba, Quebec, New Brunswick, and Newfoundland and Labrador. Participants ranged in age from 30 to 56, with an average age of 42, and their children ranged in age from 7 to 17, with an average age of 12. The sample was made up of 52.9% men and 47.1% women, and the sample of children being reported on was made up of 50% boys and 50% girls.

### **Procedure**

The study population was recruited primarily through social media and word of mouth. Informed consent was obtained at the beginning of the survey, and participants were advised of their right to withdraw from the study at any time in the participation process. Resources were provided for those who may have needed support following their participation. LimeSurvey was used for data collection, and Microsoft Excel was used to store the raw data before it was transferred to SPSS for analysis. Raw data were reverse scored as necessary and summed to obtain total scores for each scale, which were then averaged before further analysis was conducted. Statistical analysis was performed using IBM Statistical Package for the Social Sciences (SPSS) Statistics software for Mac, Version 29.0 (IBM Corp., 2022).

### **Analysis of Assumptions**

To test assumptions (e.g., linearity, normality, homogeneity of variance, outliers, homoscedasticity, and multicollinearity) before the correlational analyses and multiple regressions were performed, many plots and tests were examined. For example, descriptive statistics, along with normal probability plots, scatterplots, histograms, and Levene's test (where

$p > .05$  indicated homogeneity) were examined. To test for multicollinearity of predictor variables, correlations were examined between all variables that would be used in any given multiple regression, and none were of concern (all correlations were less than .70). Therefore, all variables were within the expected normal range for a naturally occurring data set.

## **Measures**

### ***Anxiety***

To measure anxiety in children, the Child Anxiety Impact Scale—Parent (CAIS-P) was completed by parents. This measure includes 28 items rated on a scale from 0 (*not at all*) to 3 (*very much*). Participants were asked to rate how much their child’s anxiety symptoms have caused them problems in certain areas, such as “completing assignments in class,” and “making new friends.” Findings from Langley et al. (2014) suggested the scale has good construct validity, and a confirmatory factor analysis supported a three-factor solution representing school, social, and home/family. Subscales demonstrated strong internal consistency and corresponded with existing measures of anxiety symptoms, reflecting total scores from several widely used measures of global anxiety; these include the Screen for Child Anxiety Related Disorders (SCARED), the Multidimensional *Anxiety* Scale for Children (MASC), and the Pediatric Anxiety Rating Scale (PARS). To further support construct validity of the CAIS-P, an analysis of its subscales demonstrated the school factor was positively associated with the School Phobia scale of the SCARED and negatively with the School Competence subscale of the Child Behaviour Checklist (CBCL). Also, the social factor of the CAIS-P was positively associated with the Social Anxiety scale of the MASC and the Social Phobia scale of the SCARED. Overall, CAIS-P is able to capture different anxiety-related functional impairment (Langley et al., 2014).

### ***Parenting Style***

Parenting style was assessed with the Parenting Styles and Dimensions Questionnaire – Short Version (PSDQ – Short Version) (Robinson et al., 2001), formerly known as the Parenting Practices Questionnaire (PPQ) (Robinson et al., 1995). This test was developed for both mothers and fathers of preschool and school-age children, and it assesses authoritative, authoritarian, and permissive parental typologies consistent with those of Baumrind (1971) and identifies parenting practices that typically occur within each typology. This measure includes 32 items rated on a scale from 1 (*never*) to 5 (*always*). Participants were asked to rate statements such as, “I am responsive to my child’s feelings and needs,” and “I give comfort and understanding when my child is upset” (Robinson et al., 2001). According to Oliveira et al. (2018), the PSDQ – Short Version is an effective and reliable psychometric instrument for determining Baumrind’s parenting styles. Confirmatory factor analysis supported the three-factor, second-order solution (i.e., three styles made up of seven dimensions). This scale has shown evidence of internal validity, with its dimensions demonstrating strong correlations with their higher-order parenting styles. Convergent validity for the Brazilian version of the Parenting Styles Inventory was evident, and external validity was also reported for its association with instruments measuring sociodemographic and behavioural/emotional-problem variables (Oliveira et al., 2018).

### ***Emotional Expressivity***

Parental emotional expressivity was measured using the Emotional Expressivity Scale (EES), a self-report measure used to identify general emotional expressiveness as a construct. Kring et al. (1994) noted that several studies have reported it as having high internal consistency and test-retest reliability. Convergent and discriminant validity examination determined EES to be related to measures of affect intensity, specific aspects of expressivity, two broad factors of personality (neuroticism and extraversion), and self-monitoring. This measure includes 17 items

rated on a scale from 1 (*never true*) to 6 (*always true*). Participants are asked to rate statements such as, “I keep my feelings to myself,” and “I don't like to let other people see how I am feeling.” When examining the relation between the EES and facial expressiveness, researchers found a moderate congruence between self-reports of expressivity and expressions elicited in a laboratory, suggesting that the outward expression of participants matched their internal emotions (Kring et al., 1994).

### ***Post-Traumatic Stress***

To measure levels of parental post-traumatic stress, the Post-Traumatic Cognitions Inventory (PTCI) was used (Foa et al., 1999). This inventory presents three factors showing strong internal consistency and good test-retest reliability: Negative Cognitions About Self, Negative Cognitions About the World, and Self-Blame. They demonstrated moderate to strong correlations with measures of PTSD severity, depression, and general anxiety. This measure includes 33 items rated on a scale from 1 (*totally disagree*) to 7 (*totally agree*). Participants are asked to rate statements such as, “my reactions since the event show that I am a lousy copier,” and “I can't stop bad things from happening to me.” When compared with other measures of trauma-related cognitions, the PTCI is considered favourable, especially in its ability to discriminate well between those who are traumatized with and without PTSD.

### ***Emotion Regulation***

Finally, to evaluate emotional, behavioural, and social problems in children and adolescents, the Child Behaviour Checklist (CBCL) was completed by parents. This measure includes 113 items rated on a scale from 0 (*not true—as far as you know*) to 2 (*very true or often true*). Participants are asked to rate items based on their child at the moment or within the past 6 months, such as “impulsive or acts without thinking,” “disobedient at school,” and “self-

conscious or easily embarrassed.” Nakamura et al. (2009) examined its basic psychometric properties for each of its six scales (Affective, Anxiety, Somatic, Attention-Deficit/Hyperactivity, Oppositional, and Conduct scales); such scales have been constructed to match selected categories within the DSM-IV for behavioural and emotional problems. Findings presented strong evidence for reliability, convergent and discriminative validity of these scales.

## **Results**

Participant responses were used to determine how levels of post-traumatic stress, emotional expressivity, and parenting style are related to levels of academic anxiety in school-aged children—taking into consideration children’s levels of emotion regulation. Results were based on a set of five online questionnaires, including the PTCI, EES, PSQ, CAIS-P, and CBCL. In SPSS, all major variables were examined for normality using histograms (showing the normal curve) and all variables were found to be within normality expectations for the data set. Furthermore, skewness and kurtosis were also analysed to further test for normality, and both were found to be within the expected ranges (all values were between -1 and 1 with a range from -.819 to .989 for all variables - which are considered normal for distributions). Descriptive statistics for each variable in terms of mean and standard deviation are outlined in Table 1.

## **Correlations**

Pearson correlations were conducted between the outcome variable, academic anxiety, and each predictor, parental post-traumatic stress, emotional expressivity, and parenting style. It was determined using Pearson correlations that, as hypothesized, high levels of post-traumatic stress in parents were related to high levels of academic anxiety ( $r(70) = .34, p < .01$ ), authoritarian parenting style was related to high levels of academic anxiety ( $r(70) = .50, p < .01$ ), and permissive parenting style was also related to high levels of academic anxiety ( $r(70) =$

.43  $p < .01$ ). No significant correlations were found between parental emotional expressivity ( $r(70) = .002, p < .01$ ) or authoritative parenting style ( $r(70) = .08, p < .01$ ) and academic anxiety without emotion regulation acting as a moderating variable. Correlation results are also reported in Table 2.

### **Regression Analyses**

In the final hypothesis, it was stated that emotion regulation will moderate the relations between the predictor variables (parental post-traumatic stress, emotional expressivity, and parenting style) and the outcome variable, academic anxiety. To test whether there was a significant interaction between emotion regulation and post-traumatic stress, emotional expressivity, and each parenting style in the prediction of academic anxiety, a series of multiple regression analyses (enter method) were used. In each multiple regression analysis, emotion regulation was placed in the equation first (block 1), and the second variable (block 2) and multiplicative term (block 3) differed for each multiple regression depending on which predictor was the focus (i.e., all possible combinations separately, totaling five multiple regressions). Of the multiple regressions tested, all were significant. The interaction between emotion regulation and post-traumatic stress was significant in the prediction of academic anxiety ( $F(3,70) = 10.54, p < .001, \text{rsq cha} = 0.03$ ); the interaction between emotion regulation and emotional expressivity was significant in the prediction of academic anxiety ( $F(3,70) = 11.78, p < .001, \text{rsq cha} = 0.04$ ); the interaction between emotion regulation and authoritarian parenting was significant in the prediction of academic anxiety ( $F(3,70) = 20.43, p < .01, \text{rsq cha} = 0.08$ ); the interaction between emotion regulation and authoritative parenting was significant in the prediction of academic anxiety ( $F(3,70) = 16.78, p < .001, \text{rsq cha} = 0.06$ ); finally, the

interaction between emotion regulation and permissive parenting was significant in the prediction of academic anxiety ( $F(3,70) = 21.31, p < .001, \eta^2 = 0.04$ ).

### **Post-Hoc Analyses**

Due to the significant interactions between emotion regulation and post-traumatic stress, emotional expressivity, and the three parenting styles in the prediction of academic anxiety, five post-hoc tests were performed. A median split was used to divide emotion regulation scores into low and high groups for each post-hoc analysis. Descriptive statistics showing low and high emotion regulation at each of the predictor variables can be found in Table 3. Correlations were run using the low and high emotion regulation scores (separately) on post-traumatic stress, emotional expressivity, and the three parenting styles. The post-hoc analysis examining the relation between post-traumatic stress and academic anxiety was significant in the low emotion regulation group ( $r = .33, p = .04$ ), but not in the high emotion regulation group ( $r = .09, p = .41$ ); the post-hoc analysis examining the relation between emotional expressivity and academic anxiety was significant in the low emotion regulation group ( $r = .50, p = .01$ ) but not in the high emotion regulation group ( $r = .18, p = .45$ ); the post-hoc analysis examining the relation between authoritarian parenting and academic anxiety was significant in the low emotion regulation group ( $r = .39, p = .03$ ) but not in the high emotion regulation group ( $r = .10, p = .52$ ); the post-hoc analysis examining the relation between authoritative parenting and academic anxiety was not significant in the low emotion regulation group ( $r = .34, p = .09$ ) but was significant in the high emotion regulation group ( $r = .68, p = .001$ ); finally, the post-hoc analysis examining the relation between permissive parenting and academic anxiety was not significant in the low emotion regulation group ( $r = .11, p = .71$ ) but was significant in the high emotion regulation group ( $r = .79, p = .001$ ). Results are also shown in Table 4.

## Discussion

The current study investigated how the experiences of parents working in emergency services may interfere with their children's well-being. Specifically, this research was looking at how parental trauma and other parenting factors may influence how children function in academic settings. It also considered how the ability to self-regulate may reduce the risk for academic anxiety and overall functioning in the school setting. As hypothesized, child academic anxiety was positively correlated with parental post-traumatic stress (i.e., as parental post-traumatic stress increases, academic anxiety will increase). This is in line with previous research, which found that children who were exposed to vicarious and secondary trauma commonly experienced symptoms of anxiety, emotional dysregulation, and PTSD; they were also found to mirror parental behaviors and face emotional and behavioral challenges leading to social difficulties, especially in school (May et al., 2023). Additional research by Thomson et al. (2023) found that parental psychological distress during the COVID-19 pandemic was linked to increased family conflict, negative parent-child interactions, and harsher communication. Parents experiencing higher distress were also more likely to perceive their children as anxious, likely due to shared stress within the household (Thomson et al., 2023). To help reduce negative symptoms in their children, parents might consider attending trauma-informed support groups or workshops designed specifically for parents working in emergency service careers. For example, the Parenting-STAIR intervention was created to reduce PTSD symptoms in mothers while also addressing parenting skills and the well-being of children (Sullivan et al., 2023). Researchers suggested it as an acceptable option for improving overall parenting, so it is worth considering how other interventions that reduce post-traumatic stress symptoms might lead to stronger parenting skills in this population. Other programs developed for parenting in general may also

serve as effective tools for emergency services parents. The TPOL program, for example, aims to increase parent knowledge, skills, and confidence to prevent behavioural and emotional issues in their children; this program focuses on social learning theory and cognitive-behavioural principles to guide parents (Kempe et al., 2024). Participating in groups such as this one may help parents in emergency services understand how their own trauma comes up in their parenting, as well as provide them with strategies to handle stress when it arises (e.g., mindfulness techniques). Another option for families who are struggling might be accessing trauma-informed family therapy services through employee benefits, as it can provide the opportunity to address individual and familial stressors contributing to children's emotional and behavioural challenges. In any case, it is important for this population of parents to understand that it is okay to ask for help in these situations for the benefit of their own mental health as well as the mental health of their children.

As hypothesized, authoritarian and permissive parenting styles were associated with higher child academic anxiety. Similar findings exist in previous research, which has suggested that children of authoritarian parents who are dominating and use negative emotional language are more likely to experience mental health challenges (Peplak et al., 2025). However, when children of permissive parents are allowed too much freedom, it can lead to them becoming demanding or impulsive and having poor self-regulation skills (Sanvictores & Mendez, 2022). Ideally, when authoritative parents allow their children to lead conversations while providing support and encouragement, it promotes improved emotional processing and mental well-being (Peplak et al., 2025). Additional research has found that warm and affectionate parenting fosters prosocial behavior, autonomy, and intrinsic motivation, whereas controlling parenting undermines these outcomes (Kil et al., 2023). However, there was no significant correlation

between authoritative parenting style and academic anxiety in the current study. Still, it is important to consider the benefits of authoritative parenting, as having parents with this parenting style can encourage positive social and emotional outcomes. Parents can be authoritative by providing their children with clear expectations about their behaviour, including their input on family matters, communicating warmly and openly with them, and creating close and nurturing relationships with them. Parents who do these things are more likely to have children with high levels of self-regulation and academic achievement (Sanvictores & Mendez, 2022). To start, parents might consider how a supportive home environment can lead to positive outcomes for children. For example, by spending quality time together or participating in activities of mutual interest.

It was hypothesized that as parental emotional expressivity increases, child academic anxiety would decrease. However, no significant correlation was found. Previous research has found that maternal—but not paternal—childhood emotional neglect was linked to increased behavioral problems in children, highlighting the influence of parental emotional expressiveness (Yu et al., 2023). Additional research suggested that parental emotion dysregulation influenced young children’s externalizing behaviors indirectly through negative emotional expressiveness, but only among parents with low to average levels of familism (Liu et al., 2024). For parents with high familism, this negative expressiveness had a weaker impact, suggesting familism may buffer against harmful emotional dynamics in the family (Liu et al., 2024).

As hypothesized, emotion regulation acted as a moderator between the predictor variables and the outcome variable. That is, high levels of emotion regulation were found to moderate the relations between post-traumatic stress, emotional expressivity, and parenting style and the outcome variable, academic anxiety. For children with low emotion regulation, there was a

significant positive correlation between parental post-traumatic stress and academic anxiety. That is, when emotion regulation in children was low, high levels of parental post-traumatic stress were related to high levels of academic anxiety. This suggests that children with poor regulation abilities are at risk for experiencing school-related anxiety when their parents are experiencing high symptoms of stress. These children may struggle in a stressful environment because of their inability to regulate their own emotions, which could make it more difficult to manage their school-related challenges. For children with low emotion regulation, there was a significant positive correlation between parental emotional expressivity and academic anxiety. That is, when emotion regulation in children was low, high levels of emotional expressivity were related to high levels of academic anxiety. This might suggest that emotion regulation skills in children are a more important contributor to their well-being at school than their parent's level of emotional expression. Even though their parents are emotionally expressive, it is possible that their own difficulties with regulation overpower this, and feelings of anxiety remain overwhelming for them. Finally, for children with low emotion regulation, there was a significant positive correlation between authoritarian parenting and academic anxiety. That is, when emotion regulation in children was low, high levels of authoritarian parenting were related to high levels of academic anxiety. This suggests that children with poor self-regulation abilities whose parents are strict and demanding are more likely to be anxious about their performance at school. This could be due to an inability to manage the pressure from their parent's high standards.

In contrast, for children with high emotion regulation, there was a significant positive correlation between authoritative parenting and academic anxiety. That is, when emotion regulation in children was high, high levels of authoritative parenting were related to high levels of academic anxiety. This suggests that emotion regulation abilities and strong parenting were

not enough for these children in reducing their levels of school-related anxiety. Perhaps there were extraneous factors influencing their anxiety at school, such as a diagnosed learning disability or other mental health issues, and the negative effects could not be lessened by self-regulation skills or encouraging parenting alone. These children may benefit from intensive academic or mental health interventions to improve their well-being at school. For children with high emotion regulation, there was a significant positive correlation between permissive parenting and academic anxiety. That is, when emotion regulation in children was high, high levels of permissive parenting were related to high levels of academic anxiety. This suggests that even with emotion regulation skills, having parents who are permissive is unhelpful when dealing with school-related anxiety. As permissive parents are known for lacking in rules or structure and having limited expectations, children with these parents might be anxious about school because they are feeling directionless or unsupported.

### **Implications for School Psychologists**

School psychologists are often the professionals in a school environment with the most mental health training, and it is important that they use their positions to advocate for evidence-based social-emotional learning interventions useful for developing emotion regulation skills. It is through these types of programs that students are given opportunities to build the skills necessary for their well-being—especially students who are at-risk for dysregulation due to their home environment. As the current research suggests, emotion regulation skills can be extremely important for children of emergency services workers, as they can help reduce the negative effects of several parenting factors. School psychologists can often help students struggling with anxiety through counselling or, if unable to do so themselves, recommending students spend time with the designated school counsellor. In either case, it is important to recognize the value in

having a supportive adult to converse with about mental health, especially one who works in education and is familiar with school-related challenges. School psychologists can also recommend that families connect with the school social worker if they would benefit from support in the home setting as well. While school psychologists cannot formally recommend therapists working in the private sector, they are able to share their knowledge on how to search for a mental health professional who suits the specific needs of children and parents who are struggling. It is important that school psychologists are familiar with the complex dynamics of emergency service families, as they may be asked to consult on cases in which these children's school-related anxiety is hindering their chances for academic success and other positive developmental outcomes.

### **Limitations and Future Directions**

One limitation of the current research was the homogeneity of the sample; that is, the vast majority of participants were currently or formerly paramedics mainly working in Nova Scotia. In future research, it will be beneficial to look at a more varied sample of the emergency service population across Canada. Another important limitation to note is the current study only being able to account for parental perceptions of anxiety, self-regulation, and academic functioning, as data were collected from parents only. There is likely value in seeking information directly from children of emergency service workers—especially in considering how best to support these individuals. The current study has investigated how parental post-traumatic stress, emotional expressivity, and parenting styles of Canadian emergency services personnel influence children's well-being and academic functioning. Findings suggest that children with this population of parents may be at a higher risk for school-related anxiety and emotion regulation difficulties. However, these effects can be reduced with protective factors such as warm, responsive

parenting and strong emotion regulation skills. Programs designed to target social-emotional learning in children, along with reduced stress symptoms and positive parenting strategies in adults, are important tools for breaking intergenerational cycles of distress. It will be important for future work to support caregivers and children through accessible, trauma-informed, and evidence-based programming, directed specifically for families working in public safety professions. This research helps with understanding how to create supportive environments for students struggling with academic anxiety and promote healthier developmental and academic outcomes.

### **Conclusion**

The current study adds to the existing research on the intergenerational effects of trauma by investigating the unique experiences of emergency services personnel and their children. Parental post-traumatic stress and less adaptive parenting styles (i.e., authoritarian and permissive) are related to increased academic anxiety in children, especially in children with low emotion regulation skills. While there was no direct relation found between parental emotional expressivity and academic anxiety, emotion regulation came to be an important moderating factor that either protected against or amplified the effects of parenting influences. Findings highlight the importance of child- and parent-focused interventions. For children, social-emotional learning programs can help to improve self-regulation skills and reduce feelings of anxiety. For parents working in emergency services, there is a need for accessible, trauma-informed supports such as therapy, parenting programs, and psychoeducation programs, all focusing on personal growth and productive parenting strategies. School psychologists are an important school-based resource for students struggling with emotion regulation and academic anxiety, especially those who experience a lot of stress in their home environment. School

psychologists can offer direct or indirect support, guide families toward appropriate resources, and advocate for the academic and emotional success of students whose parents work in emergency services roles. While the current research was limited by its homogenous sample and parent-report data, it brings attention to the need for future research in this area, including the importance of gaining the perspectives of children and more diverse emergency service populations. Overall, this study highlights the interrelatedness of family dynamics and child well-being, and it suggests the need for multi-level support systems to help build resilience and academic success in children living in stressful home environments.

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**Table 1**

*Summary of Descriptives for CAIS-P, PTCI, EES, PSQ, and CBCL variables (N = 70)*

Variable	Min.	Max.	<i>M</i>	<i>SD</i>	95% CI
Academic Anxiety (CAIS-P)	.00	2.67	.81	.66	[.66, .98]
Post-Traumatic Stress (PTCI)	1.18	6.42	3.32	1.20	[3.02, 3.62]
Emotional Expressivity (EES)	1.71	5.47	3.30	.89	[3.09, 3.50]
Authoritarian Parenting (PSQ-AN)	1.00	4.83	1.70	.55	[1.56, 1.85]
Permissive Parenting (PSQ-P)	1.2	4.6	2.23	.64	[2.06, 2.41]
Authoritative Parenting (PSQ-AV)	2.33	4.93	3.98	.71	[3.84, 4.10]
Emotion Regulation (CBCL)	.00	.89	.29	.22	[.23, .34]

*Note.* The CAIS-P scale ranges from 0 to 3; the PTCI scale ranges from 1 to 7; the EES scale ranges from 1 to 6; the PSQ scales range from 1 to 5; the CBCL ranges from 0 to 2.

**Table 2***Pearson Correlations Between Variable Outcomes (N = 70)*

Variable	CAIS-P	PTCI	EES	PSQ-AN	PSQ-P	PSQ-AV
CAIS-P						
PTCI	.34**					
EES	.002	-.06				
PSQ-AN	.50**	.46**	.02			
PSQ-P	.43**	.38**	.05	.64**		
PSQ-AV	.08	-.10	.03	-.17	-.24*	

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 3***Summary of Descriptives for Low and High Emotion Regulation Groups*

Predictor Variable	Low				High			
	<i>n</i>	<i>M</i>	<i>SD</i>	95% CI	<i>n</i>	<i>M</i>	<i>SD</i>	95% CI
Post-Traumatic Stress	35	2.94	1.23	[2.52, 3.36]	35	3.71	1.06	[3.34, 4.07]
Emotional Expressivity	35	3.22	.84	[2.93, 3.51]	35	3.39	.94	[3.06, 3.71]
Authoritarian	35	1.60	.53	[1.42, 1.78]	35	1.79	.72	[1.54, 2.04]
Permissive	35	2.15	.61	[1.95, 2.36]	35	2.30	.80	[2.03, 2.58]
Authoritative	35	3.90	.64	[3.68, 4.12]	35	4.06	.44	[3.90, 4.21]

**Table 4***Summary of Post-Hoc Correlation Analyses Predicting Academic Anxiety*

Predictor Variable	<i>n</i>	Emotion Regulation	<i>r</i>	<i>p</i>
Post-Traumatic Stress	35	Low	.33	.04
	35	High	.09	.41
Emotional Expressivity	35	Low	.50	.01
	35	High	.18	.45
Authoritarian Parenting	35	Low	.39	.03
	35	High	.10	.52
Authoritative Parenting	35	Low	.34	.09
	35	High	.68	.001
Permissive Parenting	35	Low	.11	.71
	35	High	.79	.001