A Critical Evaluation of Risk and Protective Factors Influencing the Development and Maintenance of Internalizing Disorders in Adolescents

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ABSTRACT
Internalizing disorders such as anxiety and depression constitute the most common psychopathological conditions experienced by adolescents. Given the profound effect these disorders exert on the cognitive, emotional, interpersonal, and physiological functioning of youth, it is imperative to ascertain the mechanisms whereby they are developed, maintained, ameliorated, and prevented. In this vein, research has generated a large repository of empirical findings concerning risk factors that increase vulnerability to internalizing symptomatology and protective factors that render adolescents more resilient in the face of risk. The primary purpose of this paper is therefore to offer a critical evaluation of the recent literature on risk and protective factors that contribute to the emergence of internalizing disorders in adolescents. The first half of this paper concentrates on individual-level risk factors in the distinct yet interrelated domains of cognition, emotion, temperament, interpersonal conduct, and neurobiology. The various links between family-related and environmental risk factors and adolescent psychopathology are also articulated. The literature on individual-level protective factors in the aforementioned domains is analyzed in the second part of the paper, and this is followed by further evaluation of family and environmental variables believed to confer protective benefits against the onset of anxiety and depression. All individual-level, family, and environmental risk and protective factors henceforth discussed are illustrated in Tables 1 to 6 and Figure 1 of this article. Implications of these findings for the development of effective prevention interventions by, for instance, testing of theoretical models of risk, resiliency, and the mediating and moderating processes underlying the links between risk factors and psychopathology, are also discussed.

Keywords
Youth, Internalizing disorders, Risk factors, Protective factors, Resilience.

Individual-Level Risk Factors
Personality and temperamental factors
The personality trait of neuroticism, which can be defined as a relatively stable tendency to experience negative emotionality and to respond to threat, stress, or loss with negative affect, has been consistently shown in the empirical literature to function as a vulnerability factor for the development of internalizing psychopathology [1]. This inclination to perceive and experience one's surrounding environment as threatening or distressing can increase the generation of negative life events and automatic maladaptive cognitions, thereby providing a developmental pathway from neuroticism to depression through a complex interaction between cognitive and stress-generation factors [2]. Indeed, adolescents with high levels neuroticism are more likely to experience adverse life events (e.g., failing an exam) that are at least partly dependent on their behaviour, as well as negative automatic thoughts surrounding failure, loss, and hopelessness that subsequently lead to depressive symptoms [3].

Attempts to discover how neuroticism may interact with other internalizing vulnerabilities and stressors to precipitate depression were carried out with a large sample of adolescents from Grades six to ten [4]. The initial levels of neuroticism strongly predicted the occurrence of additional stressors at four follow-up time points, while the stressors explained the association between baseline levels of negative emotionality and progressive elevations in depressive symptomatology over time. These findings offer further evidence for a cognitive vulnerability-transactional stress

model whereby neuroticism confers vulnerability to develop internalizing disorders through stress generation. Neuroticism may also be a core characteristic of internalizing psychopathology, as indicated by the extremely strong correlation (r = .98) between neuroticism and anxiety and depression [5]. In their examination of the discriminant validity and specificity of negative emotionality to mood and anxiety disorders in a sample of eleventh Grade students, Griffith and colleagues also explored the relationship between neuroticism and substance use disorders, which proved to be weakly correlated (r =.29). The authors thus contended that neuroticism may be necessary to distinguish the structure and phenomenology of mood and anxiety disorders from other forms of psychopathology, although it is not sufficient to explain all the common variance across different populations of adolescents with internalizing problems. Despite the salient link that has been established between neuroticism, depression, and anxiety, research must nonetheless ascertain how the mechanisms underlying neuroticism interact with other personality constructs, genetic vulnerabilities, developmental factors, and negative life events to engender or maintain internalizing symptoms.

A second temperamental style recognized as a possible risk factor for mood and anxiety disorders is behavioural inhibition (BI), which is characterized by a propensity to exhibit signs of fear restraint, or wariness in response to novel or unfamiliar stimuli, and to withdraw from unfamiliar peers [6]. Etiological research into internalizing disorders has identified this trait as one of the most genetically stable and one of the earliest detectable risk factors for future symptomatology among children and adolescents [7]. For instance, using a sample of 124 adolescents aged 14 to 16 years who were followed across childhood and into adolescence, Chronis-Tuscano and colleagues found that stable, maternal-reported behavioural inhibition predicted a significant fourfold increased risk of obtaining a lifetime diagnosis of social anxiety disorder (SAD) [6]. In an investigation of the relationship between behavioral inhibition, attachment, and both maternal and adolescent anxiety, it was discovered that behavioral inhibition was the sole factor that remained predictive of childhood and adolescent anxiety after controlling for the effects of attachment and maternal anxious symptomology [8]. The relevant implication of this finding is that the contribution of BI to childhood and adolescent anxiety extends beyond familial predisposition to anxiety disorders. Consistent with the view that behavioral inhibition places adolescents at risk for internalizing problems, further research revealed that BI predicted general internalizing symptoms and specific symptoms of social anxiety and obsessive compulsive disorder (OCD) at a two year follow-up assessment [9]. Moreover, behavioural inhibition in conjunction with two additional temperamental factors (attentional control and fight-flight-freeze-system) demonstrated cumulative predictive value for future levels of anxious and depressive symptomology, which highlights a previous point about the importance of exploring how BI interacts with other personality constructs to explain heightened risk for psychopathology.

An important caveat to the aforementioned findings, however, is that the samples comprised almost exclusively of White, middle-class families whose perceptions of and responses to inhibited behavior likely differ in substantive ways from those of parents and adolescents belonging to other cultural groups. These differences may mitigate or exacerbate the influence of early temperamental profiles on the development of future pathology and, as such, should be taken into account and evaluated in future studies by incorporating samples that are more diverse in terms of race, ethnicity and socioeconomic status.

Cognitive risk factors

Cognitive theories of anxiety and depression have aided in the elucidation of a number of cognitive vulnerability factors that have proven critical to the unfolding of pathological behaviour in adolescents [10]. Within the context of anxiety disorders, one such risk factor is the existence of intolerance of uncertainty, which entails a lower threshold of tolerance for uncertain or ambiguous situations that leads adolescents to appraise such situations as threatening, stressful, or unacceptable regardless of the probability of their occurrence and associated consequences [11]. Intolerance of uncertainty (IU) is believed to exacerbate initial "What if…?" questions (e.g., "What if my mom is involved in a traffic accident?") and even generate them chronically in the absence of an immediate stimulus or trigger. Similar to metacognitive models of anxiety, the intolerance of uncertainty theory states that generalized anxiety disorder and social anxiety involves the activation of positive beliefs about worry, such as "Worrying helps me cope," "Worrying keeps me safe," "Worrying can stop bad things from happening" or "If I worry, I'll be prepared" [12]. The various types of worries fall under one of five categories of positive beliefs, namely the notions that worry facilitates more effective problem solving, increases one's motivation to effectuate results, dampens emotional reactions to future deleterious outcomes, alters the course of events, and reflects positive personality traits by showing that an adolescent is concerned and well-intentioned [13]. These worries and their accompanying anxiety lead to compromised awareness and appraisal of everyday problems and one's problem-solving abilities. More specifically, adolescents who experience negative problem orientation lack confidence in their problem solving abilities, tend to define problems, events, and social situations as threats, become easily distressed during problem solving attempts, and are pessimistic about the outcome of their problem-solving efforts [14]. In addition to negative problem orientation, they tend to implement negative cognitive strategies such as thought replacement, distraction, and suppression to avoid the invocation of threatening mental imagery and somatic arousal, thereby impeding emotional processing and negatively reinforcing worry and anxiety via short-term relief from aversive somatic arousal.

Despite the theoretical soundness of the intolerance of uncertainty model, only one study to date has examined the relationship of IU with worry, social anxiety, and depression [11]. Using data from a community sample of 191 adolescents aged 14 to 18 who completed the Intolerance of Uncertainty Scale (IU-12) and other measures of internalizing psychopathology, the authors found that high levels of intolerance of uncertainty were specifically

related with worry and social anxiety but not with depression [15]. Intolerance of uncertainty moreover mediated the linkages of negative affect with worry and social anxiety, while failing to exert the same mediating effect on the association between negative affectivity and depression. Although promising in terms of enhancing our understanding of the cognitive risk variables that may contribute to anxious symptomology, additional research is needed to render intolerance of uncertainty a well-established risk factor in the adolescent literature on cognitive vulnerability to pathological anxiety.

With respect to depressive psychopathology, a depressogenic attributional style marked by a tendency to attribute negative events to internal, stable, and global causes contributes to a higher risk of onset, although it seldom appears to work in isolation [16]. Adolescents ascribing to this cognitive style are inclined to perceive negative events as having significant negative consequences that will affect many areas of their life, and to generate negative inferences about the self-following negative events. Yet, the relationship depicted in the literature between depressogenic attribution and depressive symptomology is a multifaceted one, as this attributional style may exert both mediating and moderating influences while it interacts with various factors such as low self-esteem, low self-efficacy, negative life events, genetic influences, and a punitive parenting style to determine the risk of developing depression [17]. A 14-week prospective study with 115 adolescents aged 14 to 19 years in fact tested such an integrated model of attributional style, self-esteem, and life stress in risk to the onset of depressive symptoms [18]. It was found that the three-way interaction between depressogenic attributional style, self-esteem, and life stress significantly predicted residual increases in depressive symptoms over the fourteen week prospective interval. Importantly, the two-way interactions (attributional style × life stress and self-esteem × life stress) failed to significantly predict residual changes in depressive symptomology, which entails that the risk of developing depressive symptoms following life stressors is influenced by a combination of both a depressogenic attributional style and low self-esteem rather than a cognitive diathesis alone. Calvete and colleagues similarly found that, over a 6-month period, depressogenic attributions moderated the impact of negative life events on the elevation of depressive symptoms in 856 adolescents between the ages of 14 and 17 years [16]. Genes involved in the regulation of parental behaviours and attributional style have also been shown to contribute to an interaction between punitive parenting and a depressogenic attributional style, which can in turn interact with life stressors to predict an increased risk for depressive symptomatology [19].

Interpersonal and emotional factors
Much of the research examining the relationship between interpersonal risk factors and internalizing problems has been guided by Coyne's interactional theory of depression [20] and has focused on excessive reassurance seeking, which can be defined as a stable propensity to excessively and persistently seek assurances from others that one is loveable and worthy irrespective of whether such affirmation has already been provided [21]. According to this

model, individuals attempt to ameliorate feelings of guilt and low self-worth by seeking reassurance from others, who initially offer support and make attempts to provide the sought-after reassurance. The individuals doubt the authenticity of the received support and continue to seek reassurance until others become exasperated and reject them. This rejection initially generates mild depression that gradually exacerbates in severity as the cycle persists [21].

Excessive reassurance seeking (ERS) has been implicated as a risk factor for the development, maintenance, and worsening of depressive symptoms [22]. Cross-sectional research has indicated that high levels of reassurance seeking in children and adolescents is strongly associated with depressive symptomology [22]. Using a sample of 140 children and adolescents aged 6 to 14, Abela and colleagues moreover found that high levels of reassurance seeking predicted a past history of clinically significant depressive episodes in children and adolescents who exhibited an insecure attachment style—a finding that highlights the cumulative influence of multiple risk factors on the development and severity of internalizing symptomology. In comparison to participants presenting with high levels of reassurance seeking and low levels of insecure attachment, the children and adolescents who displayed high levels of both reassurance seeking and insecure attachment reported the highest level of depressive symptoms.

Results from a subsequent multiwave longitudinal study assessing ERS, depressive symptoms, and the occurrence of life hassles further refined these findings by suggesting that ERS may commence to function as a risk factor for depression in early adolescence [22]. While contemporaneous analyses revealed that high levels of reassurance seeking in 6- to 14-year-olds predicted greater elevations in depressive symptomology following increases in hassles than did low levels of reassurance seeking, time-lagged analyses indicated that the strength of this predictive association was moderated by age. That is, the relationship between ERS and greater elevations in depressive symptoms following increase hassles remained significant in youth between the ages of 11 and 14 but not in younger children. These findings harmonize with a diathesis-stress model and Joiner's hypothesis that ERS confers vulnerability to the development of depression following the occurrence of adverse events [23]. They furthermore raise the possibility that excessive reassurance tendencies may be normative and adaptive behaviours in young children, but may emerge as a risk factor for depression in early adolescence because it is a period of increasing independence during which lower levels of reassurance seeking presumably become normative.

The role of emotion dysregulation in the emergence and maintenance of anxiety has received considerable attention in recent years. The risk for internalizing symptoms is purportedly engendered by the convergence of four emotion dysregulation components, namely a heightened intensity of emotion, dysfunctional meta-emotion, negative reactivity to emotions, and the application of maladaptive strategies for managing aversively perceived emotional experiences [24]. Adolescents at risk for anxiety are believed to have a lower threshold for the experience of

emotions, which manifests itself as frequently experiencing strong negative affect and having emotional reactions that occur more intensely, easily, and rapidly than those of most other persons. This hyperarousal is accompanied by a poor understanding of one's emotions that involves difficulties with describing and labeling emotions, as well as deficits in retrieving and applying the important information that emotions convey [25]. Therefore, rather than processing emotional content and utilizing its informational value, youth become anxious, overwhelmed, and markedly uncomfortable when emotions occur, thereby precipitating the activation of strong cognitive reactions and negative beliefs that the emotional responses are dangerous, threatening, or harmful [24]. In order to manage aversive emotional states and regain a sense of emotional homeostasis, they engage in excessive worry and make unsuccessful attempts to either diminish or over-control emotional experiences, which in turn interrupts emotional processing, amplifies emotional dysregulation, and generates a pathological feedback loop [25].

Results from two recent studies indeed suggest that emotion dysregulation may serve as a risk factor for anxiety in adolescence. The first of these studies assessed the longitudinal and reciprocal relationships between anxiety, depression, and aggressive behaviour and three distinct affective processes (emotional understanding, dysregulated expression of sadness and anger, and ruminative responses to distress) constituting the unitary construct of emotion dysregulation [26]. It was conducted at two time points with 1,065 students aged 11 to 14, who were recruited from two middle schools located in a community with a relatively low socioeconomic status (SES; per capita income of $18,404). After controlling for baseline symptomatology, emotion dysregulation predicted increases in anxiety and aggressive behaviour during the 6-month follow-up interval but did not predict changes in depressive symptoms. In contrast, none of the three types of psychopathology predicted increases in emotion dysregulation after controlling for baseline levels of emotion dysregulation. These findings are consistent with the emotion dysregulation model, which proposes that poor emotional understanding, maladaptive expression of negative affect, and ineffective emotion management strategies leads to symptoms of anxiety. Yet, they should be interpreted in light of the possibility that confounding factors potentially associated with the lower SES of the participants, such as limited access to preventive care, may have also mediated the increase in anxiety symptoms.

Physical and biological risk factors

One of the most important considerations in the literature concerning physical illness in adolescents centers on whether chronic physical illness is risk factor for elevated levels of internalizing disorders, and whether the severity of internalizing symptomology differs between illnesses [27]. Whereas some authors argue that the nature of the illness is not relevant in determining its psychological sequelae because the generic dimensions of various conditions lead to common life challenges in all adolescents, others contend that certain illness characteristics may be more closely related to depressive symptoms. In addition to corroborating the fact those adolescents with chronic physical illnesses have higher levels of

depression than their healthy peers; the vast majority of research has indicated that this difference does vary by gender and type of illness [27]. The increase in rates of internalizing disorders among girls in early adolescence to at least two times those for boys might result from physical and hormonal changes precipitated by early maturation. The endocrine system's premature initiation of gonadarche produces sharp elevations in gonadotropin-releasing hormone (GnRH), which subsequently stimulates the pituitary gland to increase secretion of luteinizing hormone (LH) and follicle-stimulating hormone (FSH; [28]). The increases in these hormones in conjunction with higher levels of serum estradiol are believed to amplify adolescent girls' sensitivity to environmental conditions, thereby generating disproportionate increases in negative affectivity and depressive symptoms following the occurrence of discouraging or adverse events (e.g., exchanges with friends or family members). Depressive and anxiogenic symptoms also appear to be highest among adolescents with chronic fatigue syndrome, cleft lip and palate, diseases characterized by chronic pain like fibromyalgia and migraine/tension-type headaches, and neurologically related illnesses such as various forms of epilepsy [29]. Interestingly, adolescents with arthritis, cancer, cystic fibrosis, diabetes, HIV infection, and sickle cell disease generally do not exhibit higher levels of depressive symptomology than their typically developing peers [27].

It is likely that a medical condition's visibility, social consequences, specific symptoms (e.g., pain), and degree of physical and cognitive impairment have the greatest impact on psychological health. For instance, adolescents with fibromyalgia experience chronic widespread pain, significantly restricted opportunities for pleasurable activities, neurophysiological disturbance, comorbid sleep disorders, and cognitive dysfunction ranging from decreased comprehension to memory deficits [30]. Similarly, the occurrence of migraine and tension-type headaches, epileptic seizures, and chronic fatigue can serve as major detriments to daily functioning, productivity, and overall quality of life. Visibility may be the dominant explanation for the elevated levels of depression displayed by adolescents with cleft lip and palate, as their depressive symptoms might be induced by concerns about their appearance and the stigmatizing social consequences of their condition, such as being teased or rejected by peers due to their visible facial malformations and speech abnormalities.

Yet, what might explain the lack of elevated levels of internalizing symptoms in adolescents with arthritis, cancer, cystic fibrosis, diabetes, HIV infection, and sickle cell disease? It may be sensible to postulate that the absence of internalizing problems reflects the fact that these adolescents experience minimal or no illness-related symptoms for prolonged periods during the course of their illness or disease. For instance, numerous participants from studies on HIV infection and AIDS have been HIV positive without experiencing symptoms of AIDS, whereas adolescents with juvenile arthritis have experienced long intervals devoid of pain and even complete remission in view of the development of novel pharmacologic and nonpharmacologic therapies [31]. The lack of elevated symptoms in adolescents with cancer, however, might

be a result of methodological differences in measurement, as a larger number of studies have examined adolescent cancer patients after the completion of their therapy when elevated internalizing symptoms may have subsided. Nevertheless, it has been well established that chronic fatigue syndrome, fibromyalgia, migraine/tension-type headache, cleft lip and palate, and epilepsy pose the highest risk in adolescents for the development of internalizing psychopathology, particularly depressive symptoms [27].

Investigations of neurobiological risk factors for anxiety and depression in adolescents have primarily occurred in the context of neurotransmitter and neuroendocrine dysregulation, as well as abnormal activation of a putative brain circuit consisting of the amygdala, mesolimbic dopamine system, and prefrontal cortex [10]. It has been ascertained that the perception or experience of distress prompts the hypothalamus to release peptides that stimulate the pituitary gland to secrete growth hormone (GH) and other hormones that, in turn, stimulate the adrenal glands to release the stress hormone cortisol—a hormone which enables the body to effectively manage stress in the short term [32]. Dysregulated cortisol or GH levels indicate a dysfunction in the activation of the hypothalamic-pituitary-adrenal (HPA) axis that may index a biological risk for depression in youth. Although cross-sectional comparisons of typically developing adolescents, adolescents with subsyndromal depression, and adolescents with clinical depression revealed no differences in baseline levels of cortisol, studies with young adolescents found decreased GH production in response to biological challenges [10]. Children and adolescents aged 9 to 14 with at least one depressed parent have been shown to exhibit significantly reduced secretion of GH following the administration of growth hormone-releasing hormone (GHRH) in comparison to control participants who did not have at least one parent with a history of recurrent, bipolar, or psychotic depression [33,34].

Furthermore, internalizing symptoms might arise from a disturbance in the neural circuit encompassing the amygdala, the prefrontal cortex responsible for affective flexibility, and the mesolimbic dopamine system involved in reward and pleasure [32]. Relative left-frontal electrophysiological underactivity compared with right-frontal activity has been consistently associated with depression in adults and may reflect a stable neurobiological risk for its development. Still, despite these substantive theoretical postulations and the incipient findings obtained with children and youth, it must be noted that the preponderance of research to date has concentrated on adult populations and employed cross-sectional study designs. Developmental changes in the neural circuit and in functioning of the HPA axis during adolescence may correct or exacerbate asymmetry in frontal activity and blunted GH secretion, while such alterations may be moderated by additional factors like the existence of internalizing pathology in parents, stressful life events, and many of the aforementioned cognitive, temperamental, emotional, and physical variables. Therefore, the extent to which HPA axis dysregulation and left-frontal underactivity increases risk for depression in youth must be determined through developmentally sensitive prospective research.

Family Risk Factors
Genetic risk factors
One of the most potent risk factors for the onset and maintenance of internalizing disorders is having at least one parent with a history of anxiety or depression, with the moderate heritability of mood and anxiety disorders translating into a two- to fourfold risk of developing internalizing psychopathology [35]. At the genetic level, offspring of affectively ill parents have been found more likely to possess one or two short (S) alleles in the serotonin transporter promoter gene polymorphism (5HTTLPR; [10]). Over time, possession of one or two copies of the short allele form of 5-HTT interacts with stressors in adulthood to predict the onset of depression. The only gene-environment study to date with a sample of 377 adolescents aged 12 to 17 years has indeed indicated that the short form 5-HTTLPR interacted with family stressors to predict depressive symptomology cross-sectionally [19]. Therefore, the potential for this gene to be phenotypically expressed in adolescents in the form of internalizing pathology and the degree of this phenotypic expression appears to depend on its interaction with the occurrence of stressors such as enduring exposure to the depressed parent's negative and maladaptive cognitions, behaviour, and affect. That is, the higher levels of hostile and coercive behaviour, disaffection, irritability, and disengagement displayed by depressed parents may precipitate the abovementioned gene-environment interaction responsible for adolescent depression.

Attachment insecurity
Unlike the protective advantages of secure attachment with a highly responsive, available and sensitive caregiver, an insecure attachment style in the form of ambivalent or avoidant relationships can render adolescents vulnerable to psychopathology [36]. Whereas ambivalently attached children and adolescents exhibit fearful comportment, heightened negative affect, and increased parental dependence reflecting attempts to garner the attention of their erratically available caregiver, avoidantly attached adolescents tend to employ self-reliance strategies characterized by suppression of negative affect, engagement in affectively neutral interactions with caregivers, and minimization of their caregiver's importance as a source of comfort and safety [37]. Although temperament and genetic variables can have a moderating role in the onset and magnitude of attachment insecurity, children's experiential history with their attachment figure nonetheless teaches them to forecast their caregiver's availability and to respond with fear and anxiety when their predictions fail and result in perceived or actual loss [36]. Loss that is uncontrollable or prolonged, such as that produced by physical separation, death, divorce, disengagement, and a wide range of other situations precluding caregiver availability, ultimately leads to systematic unavailability and unresponsiveness of the attachment figure. As children progress through adolescence, the lack of availability underlying insecure attachment contributes to the development of cognitive working models of the self-defined by abandonment, excessive dependency, and self-criticism, which can generate stable negative cognitions about the self and others and elevate adolescents' risk for depression. In fact, in comparison to their

securely attached peers, adolescents with ambivalent attachment styles manifest significantly heightened social anxiety, school phobia, and depression, with these associations being markedly stronger in adolescence than in childhood [36-38]. Given that adolescence can be an especially vulnerable time for youth as they make the transition to high school and undergo dramatic physical, emotional, and cognitive changes, it is very likely that insecure attachment co-occurs with additional variables like inadequate social supports, low self-esteem, socioeconomic status, family members with affective illness, and numerous other risk factors to explain the greater linkage between attachment insecurity and internalizing pathology during this period.

Childhood trauma, maltreatment, and exposure to domestic violence

Numerous studies have firmly established that the experience of child abuse, maltreatment, and exposure to domestic violence place adolescents at elevated risk for internalizing problems [39]. Whereas child abuse and maltreatment broadly encompass physical injuries, excessive corporate punishment, and sexual, emotional, and verbal abuse, exposure to domestic violence occurs when adolescents see, hear, attempt to intervene, or experience the aftermath of physical or sexual assaults that transpire between their caregivers [40]. Recent data from a meta-analysis of 60 studies revealed a weighted effect size estimate of 0.48 for the relationship between domestic violence exposure and internalizing symptomology, indicating that a substantial amount of the variability in symptoms is due to this detrimental exposure [40]. In terms of child maltreatment, results from 16 epidemiological studies indicated that children subjected to abuse were twice as likely as their non-abused counterparts to develop both recurrent and persistent depression in adolescence, while findings from 10 clinical trials were consistent with these observations [41]. Yet, none of the investigations considered the possibility of proximal mechanisms through which a distal history of childhood abuse and domestic violence exposure might contribute to the development of depressive and anxiety symptoms in adolescence.

For instance, it is conceivable that the maltreatment-psychopathology link may be influenced by potential mediating mechanisms such as insecure attachment, a negative cognitive style, intolerance of uncertainty, and negative life events, as well as by moderating factors like dual exposure in the form of exposure to both child abuse and domestic violence. The insensitive and unresponsive parenting of abusive caretakers may engender in children a cognitive working model of the self as worthless and the world as threatening that persists into adolescence and may lead to internalizing symptoms. The frequent employment of internal, stable, and global attributions to explain the causes of abusive events may result in the formation of a depressogenic cognitive style that adolescents utilize to explain most or all undesirable or adverse life events, which increases the likelihood of depression. During the development of this negative cognitive style, repeated failed attempts to understand the cause of the abusive events, predict their environment, and gain a greater sense of control may be met with an increased intolerance of uncertainty about anticipated future abusive events, which could in turn beget comorbid symptoms of anxiety. Consistent with Coyne's [20] interactional theory of depression and with stress-sensitization models of affective illness, the dysphoric adolescent who has undergone significant childhood maltreatment may experience additional negative stressors as their reassurance seeking attempts are rejected and as they become increasingly reactive and responsive to stressors (Figure 1).

Although intolerance of uncertainty has thus far not been explored as a putative mediator of child abuse or domestic violence exposure, research has in fact demonstrated that participants aged 17 to 21 with a childhood history of maltreatment reported prospective elevations of depressive symptoms, while the increase was mediated by a negative cognitive style, an increase in negative life events, and attachment insecurity [10]. An exploration of the dual exposure hypothesis with 457 youth moreover revealed that, in comparison to youth who experienced only one form of violence exposure, adolescents who had both witnessed domestic violence and had been direct victims of child abuse were more consistently at risk for a wide range of internalizing problems including withdrawnness, somatic complaints, anxiety, and depression [39]. Therefore, it appears that the incipient literature provides some support for the notion that correlated risks involving several mediating and moderating factors partially account for the effects of child abuse and domestic violence exposure on the development and severity of adolescent internalizing psychopathology.

Overprotective parenting

A relationship between internalizing disorders and a parenting style marked by high, intrusive control and low warmth and affection has been extensively demonstrated in both clinical and developmental research, thereby identifying overprotective parenting as a risk factor for these conditions [1,42]. A controlling environment can reduce or deny adolescents opportunities to develop self-efficacy, self-initiative, problem solving skills, and a sense of control over the environment, while the lack of warmth, nurturance, and affection diminishes their perceived control over parental reinforcement. This could furthermore contribute to the development of a cognitive style defined by interpretations of an external locus of control, which then engenders vulnerability for the emergence of anxiety or depression.

However, it appears that this potential pathway to the development of psychopathology is considerably mediated by temperament, emotion regulation, and perceived control [43]. For example, an investigation of overprotective parenting style in a sample of 144 adolescents aged 12 to 16 revealed that the association between affectionless overprotection and depressive symptomatology was partially mediated by emotion regulation strategies involving high expressive suppression and low cognitive reappraisal, and by low levels of temperamentally based positive affect, flexibility, and approach behaviours [1]. This mediation effect was replicated within the realm of anxiety by Spokas and Heimberg [42], who demonstrated that elevated levels of social anxiety in a sample of 923 adolescents with overprotective parents were partially mediated by a cognitive style wherein the youth expected their

behavioural outcomes to be determined by chance or contingent upon the external control of others. Therefore, overprotective parenting alone likely does not invariably contribute to anxiety and depressive disorders, as the risk it poses for psychopathology is considerably mediated by temperament, emotion regulation, and locus of control, and may be mitigated through engagement in extracurricular activities and affiliations with prosocial peers and adults who can provide compensatory opportunities for achievement and mastery, the development of autonomous decision-making skills, and positive emotional responding.

Socioeconomic Disadvantage as a Multidimensional Environmental Risk Factor

Socioeconomic disadvantage can be conceptualized multidimensionally as a combination of low socioeconomic status (SES), neighborhood disadvantage, and their constituent correlates of low income, low levels of education, high unemployment rates, and elevated levels of poverty [44]. The constraints on environmental resources and psychological influences associated with socioeconomic disadvantage are the primary mechanisms whereby risk for the onset of internalizing disorders is intensified. Firstly, an inability to purchase goods and services essential to health due to low income can lead to inadequate dietary intake in the form of deficient nutrient absorption and utilization. The depleted energy resources resulting from chronic undernutrition can render adolescents more lethargic and less capable of eliciting attention, sensitivity, and responsiveness from their parents, thereby increasing the risk of insecure attachment, negative affectivity, impairment in mastery motivation, and depressive symptomatology [45]. Secondly, the distress youth experience as a result of living in dilapidated, crowded, and impoverished homes and the associated illnesses and injuries arising from these conditions increase their vulnerability to cognitive and emotional dysfunction [44]. Thirdly, adolescents from low SES backgrounds and disadvantaged neighbourhoods have limited access to cognitively stimulating learning materials and experiences that afford opportunities for positive social exchange and the establishment of a meaningful, pro-social peer support network [46]. The likely boredom and frustration emanating from an absence of such opportunities may prompt youth to engage in behaviour that elicits negative response patterns from parents, such as the coercive, overprotective parenting style that has been shown to contribute to anxious and depressive psychopathology [1,42]. Finally, teacher attitudes and expectations may interact with learning experiences within the school environment to increase risk of internalizing pathology [44]. Since teachers tend to perceive the academic and self-regulation skills of low-SES students less favorably and to provide less positive attention and reinforcement for good performance, these youth are more likely to fulfill the negative stereotypes, engage in negative interactions with teachers, form adverse perceptions about their school climate, and develop depressive symptomology.

While these explanations of mediating risk factors provide some insight into the possible mechanisms linking socioeconomic disadvantage to internalizing problems, the exact processes through which low SES increases the risk for psychopathology is complicated by the fact that it frequently co-occurs with other conditions that purportedly affect adolescents, including minority and immigrant status, high residential mobility, having a family member with a disability or internalizing disorder, or single parenthood. In light of this classic "third variable" problem, it appears virtually impossible to disentangle socioeconomic status from such cofactors when there is accruing evidence that they may exacerbate the consequences of SES on account of their function as moderators [44-46]. Thus, for every adolescent from a low SES family, the mechanism leading to higher risk for psychopathological outcomes may be one that is directly connected to family socioeconomic status, a specific cofactor of SES such as maternal depression, or even a third risk variable associated with both (e.g., domestic violence). Further complicating this complex interaction is the possibility that depressive symptomology may begin to occur even in the absence of these factors by way of a kindling-sensitization effect. In view of the neurobiological encoding of memory-based functions, stressors related to socioeconomic disadvantage that are associated with the onset of depressive episodes may provide a long-term risk for subsequent recurrences triggered by lesser degrees of environmental stress or by no apparent stressor. This is because repeated occurrence of the specific neurobiological processes underlying depressive episodes in response to socioeconomic and poverty-related stress can ultimately result in the spontaneous manifestation of such neurobiological responses at the biochemical and micro-anatomical levels in the absence of the original stressors. Given sufficient repetitions of episodes of depression in the lives of adolescents, it is conceivable that even if all the risk factors associated with socioeconomic disadvantage were removed, a full-blown endogenous depression syndrome could still occur because the specific environmental triggers may no longer be required.

Protective Factors
Individual-Level Protective Factors

Emotional and cognitive protective factors: One of the most fundamental protective factors against the development of internalizing psychopathology is the ability to modulate positive and negative emotionality, as well as emotion-expressive behavior [47]. Effective cognitive emotion regulation thus involves internal and external processes responsible for the initiation, maintenance, and modification of the quality and intensity of emotional responses in a wide variety of contexts. Given the centrality of subjective appraisals in the generation of emotional responses to specific events, emotion regulation strategies characterized by attentional control and cognitive reappraisal may be particularly effective in contributing to resilience in adolescents by helping to decrease negative emotional reactivity. Adolescents who are capable of changing attention to or appraisals of a situation in order to modify the duration and intensity of an undesirable or aversive emotion are significantly more likely to elicit positive attention from parents and peers, to have healthy social relationships, and to be independent, thereby reducing the risk of depression and anxiety [48]. The moderating effect of positive affectivity and emotion regulation on social contextual risk has been demonstrated in a study of young

adolescents with mothers with childhood onset of depression [49]. During a delay of gratification task wherein the participants' affective displays and emotion regulation strategies were recorded, it was discovered that the relation between parental depression and internalizing symptoms was attenuated among adolescents who exhibited positive emotionality and enthusiasm about receiving the reward. This finding suggests that the capacity to up-regulate positive affect in a negative emotion-inducing context may protect youth from experiencing internalizing problems.

It is also widely acknowledged that possessing a favorable self-concept, an enhancing attributional style, high self-esteem, an internal locus of control, and active coping and problem solving skills is protective against anxious and depressive symptomatology [10,50]. That is, adolescents are considerably less likely to experience internalizing problems when they display positive, well-articulated views of the self; stable and global attributions for positive rather than negative life events; and positive beliefs about their capabilities to produce desirable levels of performance that will maximize rewards, exert influence over relevant outcomes, and control life events. Nonetheless, much more equivocal and not frequently addressed in the literature is the question of what particularly advantageous combinations of protective factors confer especially strong protection or resilience, and how different cognitive factors interact with each other to achieve this protective effect. For instance, a large-scale longitudinal study of protective and vulnerability factors predicting new-onset depressive episodes aptly demonstrated that active coping strategies, problem solving, better academic performance, and a positive self-concept were strongly protective even after adjustment for baseline depressed mood and elevations in risk resulting from parental conflict [48]. However, the mechanisms whereby these factors interacted to influence the multiple dimensions of adolescent experience and engagement under investigation were not elucidated. This kind of research and knowledge about specific combinations of cognitive protective factors is a prerequisite for the development of cognitive-behavioral intervention schemes aimed at preventing or correcting the maladaptive processes whereby internalizing disorders unfold and are maintained.

Biological protective factors: Neurobiological processes play an increasingly important role in protecting adolescents from internalizing disorders, particularly in the areas of genetics and neural systems of positive affect and reward [32]. As mentioned previously in this paper, a neural circuit implicated in depression and reward processing consists of the amygdala, striatum, orbitofrontal cortex, and the mesolimbic dopamine system. Although primarily conducted with adults, research on frontal electroencephalogram (EEG) asymmetry indicates that greater relative left-frontal activity compared with right-frontal activity in the prefrontal cortex may serve as a neurobiological marker of approach behaviour, positive affect, and affective flexibility that confers protection against depressive symptomology. Similarly, the finding that children and infants of depressed mothers display decreased left-frontal resting EEG activity provides support for the hypothesis that greater approach-related behavior and reward-

related positive affect (as reflected in greater left-frontal activity) may be a protective factor in depression [10]. While investigations with clinical and non-clinical samples of adolescents are evidently required to further test this speculation, incipient research using neurobiological indices of reward-related processing and behaviour in depressed adolescents has engendered some support [51]. For instance, although healthy adolescents demonstrated an ability to modulate performance on an antisaccade task as a function of monetary incentives, the performance of adolescents with depression was not influenced by manipulations of reward incentives and was reflected in decreased activation of neural circuits associated with positive affect and reward processing [52].

Research on gene-environment interactions has also offered accruing evidence for the contribution of specific candidate genes to resiliency in the face of risk for developing depression [32]. One such gene variant is the serotonin transporter length polymorphism repeat (5-HTTLPR). Adolescents homozygous for the 5-HTTLPR short allele or who possess two copies of the short allele have an elevated risk of developing 5-HT mediated depressive psychopathology but only in the context of environmental risk. This is indeed consistent with research findings indicating that environmental factors can modulate gene expression and moderate the effects of genetic risk factors on the development and course of depression [53]. The most compelling evidence for a reciprocal moderating effect of 5-HTTLPR on the influence of stressful life events in the emergence of depression was provided by Caspi and colleagues [54], who found that individuals with one or two copies of the short allele of the 5-HTT promoter polymorphism displayed more depressive symptomology and depressive disorders vis-a-vis stressful life events than individuals homozygous for the long allele. Correspondingly, adverse life events had minimal impact on depression risk in adolescent girls possessing the LL (long-long) genotype variant of the 5-HTTLPR [32]. Thus, possession of the 5-HTTLPR long allele might function as a protective factor against internalizing psychopathology by reducing the reactivity of neurobiological systems to emotionally-laden and threatening environmental stimuli. Given that possession of the long allele has the potential to at least partially compensate for risks existent in the social environment, it may play a critical role in resilience among adolescents exposed to abuse, domestic violence, poverty-related distress, neighborhood disadvantage, and a deleterious school environment.

Family Protective Factors
Secure attachment: The quality and quantity of early attachment between parents and their children can have tremendous impact on both typical and atypical developmental trajectories [10]. Infants and children who feel secure in their relationships with parental figures share a strong, positive emotional bond with these individuals that is nurtured by the parents' consistent availability, sensitivity, and responsivity to their needs. The capacity of parents to accurately interpret and appropriately respond to their child's emotions in a timely fashion can enhance the child's security and promote the acquisition of strategies to regulate and cope with negative affect like fear, anxiety, and depression [36]. Attachment security

facilitates open expression of emotion and imbues in children and adolescents a sense of confidence in overcoming difficulties within their environments over time [55]. Given the ongoing provision of parental responsiveness and sensitive care, secure parent-child relationships can serve as protective factors through the transition to and duration of adolescence by fostering open communication about stressors, which in turn allows adolescents to garner support and assistance from parents and other prosocial adults rather than minimize or conceal their emotions. Moreover, secure attachment reinforces active coping strategies characterized by problem solving and social support seeking, which have been shown to persist from adolescence to early adulthood [38]. Indeed, a 7-year longitudinal study of 112 participants assessed at ages 14, 15, 16, 17, and 21 indicated that adolescents classified as having secure working models of attachment experienced low stress in relationships with parents, peers, and romantic partners, and managed relationship stressors more actively by utilizing their social network during adolescence and at the age of 21 years [38]. They also exhibited low internalizing symptomatology at 21 years and significantly lower symptomology than adolescents with a preoccupied working model, which was defined by avoidance strategies and withdrawal.

Authoritative parenting and positive parent-child relationships: Adolescents with at least one warm, supportive, and loving parent who experience family connectedness and are exposed to an authoritative parenting style have a significantly lower likelihood of internalizing problem behaviors [47]. Authoritative parents display high levels of both demandingness and responsiveness that facilitate a multitude of positive adolescent outcomes such as competence, self-esteem, autonomy, internalization of parental values, advanced moral development, and pro-social behaviour [48]. Demandingness entails a willingness by the parent to set high behavioural expectations, exert authority without being overbearing, establish firm rules, and act consistently [56]. Responsiveness involves expressing warmth and support, listening to the adolescent's perspective, engaging in mutual concessions and compromises, and providing a cognitively stimulating environment [47]. Parental closeness and authoritative parenting foster psychological well-being and positive outcomes in a number of ways. Firstly, authoritative parents enable adolescents to become self-reliant by providing the reasonable controls that a developing adolescent requires, while granting appropriate amount of autonomy. The instilled self-reliance and competencies related to environmental demands in turn render them better equipped to cope with life stressors [56]. Secondly, the reciprocal give-and-take dialogue between adolescents and authoritative parents promotes intellectual development, social and cognitive skills, moral judgment, and empathy, all of which are integral to adaptive functioning in environments external to the home. Thirdly, sharing a warm and close mutually respectful relationship with their parents encourages adolescents to espouse values and attitudes that are similar to their parents, which has a positive influence on the formation of their social networks [48]. That is, these adolescents are more likely to seek positive connections with peers and prosocial adults who also endorse their values and attitudes,

while these connections can further foster their emotional, social, and educational adjustment. Authoritative parenting and positive parent-child relationship qualities thus function as critical resources that protect adolescents from internalizing psychopathology and compensate for the effects of emotional distress by promoting adaptive functioning and giving adolescents a strong sense that, despite stressors and hardship, their emotional needs will continue to be met by important figures in their family and other proximal environments. Additional studies have provided further evidence for the protective and robust relationship between authoritative parenting and social competence, adjustment, adolescent academic achievement, and psychological resilience under challenging situations [57,58].

Socioeconomic advantage: Perhaps intuitively, higher socioeconomic status (SES) as a composite of parents' occupation, education, and income provides a buffer against internalizing distress in adolescents [59]. Broadly speaking, there are two general mechanisms whereby higher placement in the socioeconomic status hierarchy confers this protective advantage [45]. The first is a diminished probability that adolescents will be subjected to negative life events, whereas the second is the availability of a greater armamentarium of social and psychological resources to manage stressful life events. Parents with a higher SES have access to broadly serviceable resources such as knowledge, money, and beneficial social connections that enable them to avoid the risks of developing internalizing problems that are faced by adolescents from lower SES backgrounds, to adopt protective strategies, and to minimize the consequences of internalizing symptomology when it does occur in the lives of their children. The higher levels of education typically possessed by these parents may be associated with a better understanding of the phenomenology of internalizing disorders and may enhance their awareness of their children's health, thereby providing opportunities for the accurate detection and appropriate treatment of their children's psychopathology. High-SES adolescents are also more likely to have greater access to physical, nutritional, and educational resources like enriching after school activities, which considerably reduce levels of stress exposure and render them less susceptible to anxious or depressive disorders. Finally, parents with higher SES may have more available time and relatively greater competence in implementing the aforementioned authoritative parenting style that aids adolescents to develop a high sense of mastery over their surroundings and the psychological resources required to cope with adverse life events [59].

Environmental Protective Factors

Positive school environment: The social, physical, and academic dimensions constituting school climate and adolescents' perceptions of these domains can positively influence their social-emotional and behavioural outcomes [60]. Whereas the social dimension refers to the quality of interpersonal relationships between and among students, teachers, and staff, the academic dimension involves support for academic and social-civic learning, quality of pedagogy, teacher expectations, and monitoring of student progress and achievement [61]. Finally, the physical

domain pertains to availability of resources, order and organization of classrooms, and the physical safety, security, and comfort of students. School climates that excel in these domains have consistently demonstrated links to reduced levels of anxious and depressive symptomatology [60]. In contrast, poor relationships with peers and teachers, peer victimization, inadequate institutional support, and higher safety concerns have been associated with elevated symptoms of depression and anxiety, as well as declines in school-adjustment variables such as motivational orientation and psychological adjustment factors like self-esteem [62]. A sustained positive school climate thus appears to be imperative in the promotion of resilience against internalizing symptoms and adjustment difficulties.

This hypothesis was tested in a study examining whether social relationships, a sense of safety, and school connectedness can predict psychological well-being among 1,800 students aged 11 to 14 years as they transitioned from primary to secondary school [60]. While feeling safe at school, connectedness to school, and peer support were all significant predictors of mental and emotional well-being at the end of primary school, during the first year of secondary school, and at the end of the second year of secondary school, peer support emerged as the most significant protective factor against depression and anxiety during the high school years. This result accentuates the importance of the social dimension of school climate to the transitional period to secondary school, which is a period dominated by social relationships as youth attempt to cultivate new friendships and determine their place in a novel social hierarchy while becoming increasingly reliant on peer support. The protective role of school climate was further investigated in a large-scale longitudinal study of 274 girls and 236 boys aged 10 to 15 years who attended school in rural communities61. From grades 5 to 9, youth provided detailed ratings of teacher supportiveness, the degree to which they felt their classmates were supportive, helpful, and mutually concerned, opportunities to participate in classroom planning and decision-making, autonomy and influence at school, and a sense of school community defined by the extent to which they felt their school was supportive, welcoming, and safe. Unsurprisingly, in comparison to students holding more negative perceptions of these school environment domains, students with more positive school climate perceptions exhibited significantly fewer symptoms of anxiety and depression, as well as better personal adjustment in the form of improved self-esteem, self-reliance, and interpersonal relations [61].

Extracurricular activities: Beyond the immediate classroom environment, adolescents can also derive protection against anxiety and depression from involvement in a wide range of extracurricular activities, including organized team sports, recreational clubs such as theater, drama, debate, foreign language, and music, involvement in the student or local government, yearbook development, and newspaper or other creative writing [56]. According to social cognitive theory, extracurricular activities serve as a pathway for adaptive social development by furnishing opportunities for group collaboration and identification, supportive guidance from relevant and competent adults, the development of interpersonal skills, and contribution to social capital [63]. Extracurricular activities can also deflect negative peer pressures and influences, divert adolescents away from high-risk behaviors and peer groups, teach positive core values, skills and competencies, and build social networks with prosocial peers through affiliation, behavior management, and structured engagement, thereby protecting against psychopathology and promoting positive future outlooks [56]. It may also be the case that engagement in extracurricular activities might confer stronger protective effects for adolescents who are at higher risk for the development of internalizing problems, such as those with overprotective parents, inadequate social supports, economic disadvantage, and a history of child abuse. Whereas youth who are already socially and academically connected to the school in positive ways may derive less protective benefit from participation in such activities, at-risk adolescents who are less connected to the school and their parents might be induced to interact positively with conventional, pro-social adolescents and adults, develop supportive social networks and a sense of belonging to a valued community, and decrease or entirely avoid involvement in delinquent activities with deviant peers. This could consequently diminish the risks for internalizing psychopathology and promote improved outcomes and psychological well-being.

Religiosity and Spirituality: In the face of the developmental changes and challenges occurring during adolescence, spirituality and religiosity have emerged as a potential protective factors against the emergence and persistence of internalizing psychopathology among youth [55]. The extant empirical literature offers a broadly encompassing conceptualization of spirituality and religion as "an active personal devotion and passionate quest largely within the self-acknowledged framework of a sacred theological community [64]." The primary factors relevant to psychological outcomes in adolescents are the frequency of church or religious service attendance and the salience of beliefs, which is the degree to which religious faith or spirituality matters in one's life and influences decision-making. In general, research findings indicate that increased levels of spirituality and religiosity are associated with reduced levels of anxiety and depression, while belief salience most strongly moderates declines in depressive symptomatology [65]. In one of the only studies utilizing a population of Canadian adolescents to examine the relationship between religion and risk of depression, it was found that adolescent girls aged 15 to 19 who reported religion as fairly or very important in their lives were significantly less likely to be at risk of depression than girls who reported religion as not at all or not very important [66]. These findings suggest that salience of beliefs may protect against depressed mood by evoking and maintaining in adolescents an interest in something personally meaningful, as youth with elevated levels of depression tend to lose interest in things previously important to them. It is also quite conceivable that the internalization of religious and spiritual values positions youth within a group with similar values and norms, while this enhances dimensions of cognitive social capital such as trust, solidarity, and reciprocity. In turn, cognitive social capital may serve as a mediator in the association between higher religious importance

Factor	Description
Gender	Adolescent girls are more likely to experience internalizing disorders
Early pubertal timing	Hormonal shifts precipitated by early maturation in adolescent girls may result in excessive emotionality and negative affect
Metacognitive beliefs/Type II worry	Negative appraisals of one's own cognitive processes. "Worry about worry."
Intolerance of uncertainty	A cognitive bias towards interpreting and responding to ambiguous events with negative cognitions, emotions, and behavior
Depressogenic negative cognitions and attributional style	Negative views of the self, world, and future. Attributions are viewed as personally internal, stable, and global, while external environmental causes and rationales are discounted
Negative emotionality/neuroticism	A tendency to perceive and experience the world as threatening or distressing
Low self-esteem and self-efficacy	Expectations about uncontrollability over future events and outcomes leads to feelings of powerlessness and hopelessness, thereby engendering depressive symptoms
Excessive reassurance seeking	Tendency to excessively and persistently seek assurances from others that one is loveable and worthy
Poor coping skills	Poor ability to endure and manage stress, trauma, and/or hardship. Passive and avoidant coping
Emotion dysregulation	Heightened levels of emotional intensity, dysfunctional meta-emotion, negative reactivity to emotions, and maladaptive emotion management
Physical illness	Chronic medical conditions (e.g., chronic fatigue syndrome, fibromyalgia, epilepsy)
Neurotransmitter and neuroendocrine dysregulation	Dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis in the central nervous system in response to stressors
Brain circuit dysregulation	Abnormal activation of the amygdala, mesolimbic dopamine system, and prefrontal cortex

Table 1: Individual Risk Factors for the Development of Internalizing Disorders in Adolescents.
Note: The list encompasses cognitive, emotional, psychosocial, personality, and physio-biological characteristics of adolescents that have been identified as risk factors for the development of internalizing psychopathology.

Factor	Description
Child abuse or maltreatment	Inflicting physical injuries; excessive corporate punishment; close confinement; emotional abuse; and any childhood sexual experience that interferes with a child's health development
Exposure to domestic violence	Occurs when children see, hear, attempt to intervene, or experience the aftermath of physical or sexual assaults that occur between their caregivers
Attachment insecurity	Perceived or actual loss that is experienced as uncontrollable. I.e., parental death, loss of attachment relationships, and unavailability of the caregiver
Family members with a history of internalizing disorders	Having a parent with a history of major depression is one of the strongest predictors of depression in adolescence
Low socioeconomic status (SES)	Low socioeconomic status and socioeconomic disadvantages
Overprotective parenting	Intense worrying, protectiveness, and affectionless control whereby the parent seeks to shelter their child from all potential sources of harm, threat, or distress

Table 2: Family Risk Factors for the Development of Internalizing Disorders in Adolescents.

Factor	Description
Inadequate social supports	Low social support from peers; a lack of pro-social peers; decreased peer acceptance; and/or the absence of a network of pro-social adults
Poverty-related stress	Stress related to economic strain, family transitions/changes, discrimination, victimization, and exposure to violence
Neighborhood disadvantage	Lower levels of educational attainment and higher levels of poverty, unemployment, and residential mobility increase the likelihood of developing anxiety and depression
Negative school environment	Poor teacher-student relationships, lack of school connectedness, inadequate academic support, inadequate order and discipline, perceived or actual lack of school safety, poor social relationships, bullying, peer victimization, and perceived exclusion/privilege

Table 3: Environmental Risk Factors for the Development of Internalizing Disorders in Adolescents.
Note: The list encompasses environmental factors characterized by varying levels of proximity, with societal support systems representing the less proximal, while school, neighborhood, community organizations, and social networks constitute the more proximal levels.

Factor	Description
Favorable self-concept	Positive appraisals of the self and perceptions of competence in areas such as physical appearance, behavioral conduct, peer likability, athletic competence, scholastic competence, and social competence
High self-esteem	Positive, well-articulated views of the self
High self-efficacy	Positive beliefs about one's capabilities to produce desirable levels of performance that exert influence over events and outcomes that affect their lives
Enhancing attributional style	Stable and global attributions for positive life events
Good coping skills	Effective short- and long-term responses to challenging events, stressors, and trauma; active versus passive and avoidant coping

Internal locus of control	Conviction in one's ability to affect the environment to maximize rewards and control life events
Average or high intellectual capacities	Strong cognitive skills and average or superior intellectual development
Better academic performance	Higher grades in several subject areas, such as English and History, have been shown to predict three- to fourfold lower risk for the development of depressive episodes
Easy temperament	Reliably positive approach responses to new experiences, high flexibility and adaptability to change, and a typically positive affective disposition of mild to moderate intensity
Effective affect regulation	Ability to modulate positive and negative emotionality, as well as emotion-expressive behavior
Physical health	Absence of physical illness and higher levels of fitness
Enhanced activation of neural systems of positive affect and reward	Greater relative left frontal activation of the cerebral cortex contributes to resilience in the context of depression risk
5-HTTLPR long allele (gene variant)	Possession of the 5-HTTLPR long allele might function as a protective factor by reducing the reactivity of neurobiological systems to emotionally-laden and threatening environmental stimuli

Table 4: Individual Protective Factors against the Development of Internalizing Disorders in Adolescents.
Note: The list encompasses cognitive, emotional, psychosocial, personality, and physio-biological characteristics of adolescents that have been identified as protective factors against the development of internalizing psychopathology.

Factor	Description
Authoritative parenting	A combination of both high nurturance and high discipline characterized by parental warmth and support, firm limit setting, and open communication
Positive parent-child relations	A sense of closeness to either parent, family connectedness and cohesion, supportive parents, and parental warmth and involvement
Secure attachment	A sense of security about the availability, sensitivity, and responsiveness of relevant attachment figures
High socioeconomic status	Parents with high education and socioeconomic advantages

Table 5: Family Protective Factors against the Development of Internalizing Disorders in Adolescents.

Factor	Description
Network of pro-social peers	Friendships that foster prosocial and positive behaviors, enhanced positive emotional responding, and psychosocial and educational adjustment
Network of positive role models and pro-social adults	Supportive relationships outside of the family with teachers, school counsellors, coaches, mentors, scout leaders, and workers in community organizations
Religious/spiritual convictions and activities	Constructive community involvement through religious activities and belief in a religion or spiritual system; weekly prayer; attendance at religious youth groups
Positive school environment	Feelings of connection to school and peers, school safety, order, discipline, social and civic learning, positive student-teacher relationships
Extracurricular activities	Organized team sports; recreational clubs such as theater/drama, debate, foreign language, computing, and music; involvement in student or local government; yearbook development; and newspaper or other writing

Table 6: Environmental Protective Factors against the Development of Internalizing Disorders in Adolescents.
Note: The list encompasses environmental factors characterized by varying levels of proximity, with societal support systems representing the less proximal, while school, neighborhood, community organizations, and social networks constitute the more proximal levels.

and lower prevalence of depression [64]. This potential explanation was indeed reflected in the investigation conducted by Pearce and colleagues [65], who found that higher levels of attendance, self-ranked religiosity, and positive interpersonal religious experience among adolescents aged 12 to 14 years predicted lower levels of depressive symptomatology.

Conclusion and Future Avenues of Research

The reviewed literature draws a complex portrait of the relationship between risk factors, protective factors, and internalizing symptomology, while highlighting the differential interactions and cumulative influence of both mediating variables occurring on the causal pathway between risk and outcome, and moderating factors influencing the magnitude and valence of this relationship. A number of individual-level cognitive, emotional, temperamental, interpersonal, and neurobiological characteristics of adolescents have been identified as risk factors for the emergence of internalizing disorders, and these factors can clearly interact with variables within the family and environment to precipitate psychopathology. The most salient of these risk factors that have been the focus of this paper include personality traits of neuroticism and behavioral inhibition; cognitive factors like intolerance of uncertainty, depressogenic attributional styles, poor coping and problem-solving skills, low self-efficacy, and negative self-schemas; interpersonal and emotional variables such as insecure attachment, excessive reassurance seeking, and emotion dysregulation; early pubertal maturation, physical illness, and dysregulation of neurotransmitter and neuroendocrine systems; a parental history of internalizing disorders; overprotective parenting, childhood abuse, and exposure to domestic violence; as well as various aspects of socioeconomic disadvantage. Numerous individual-level, family, and environmental protective

factors have also been identified, and they can similarly interact to confer cumulative protective benefits against the onset of anxiety and depression. Of particular importance to the development of resilience in adolescence are the following factors: optimism, high self-esteem, an internal locus of control, enhancing attributional styles, and high or average intellectual abilities; effective emotion regulation; possession of the 5-HTTLPR long allele and enhanced activation of neural systems of positive affect and reward; secure attachment, authoritative parenting, and positive parent-child relationships; a positive school climate, pro-social peers, and engagement in extracurricular activities; socioeconomic advantage; and religiosity and spirituality. Evidently, the list of risk and protective factors is considerably extensive.

Nevertheless, the paramount limitation of the current literature on adolescent internalizing problems lies in the fact that it typically provides long lists of risk and protective factors that are associated with negative or positive psychological outcomes without explaining why and how these factors mediate or moderate risk and resiliency. Indeed, there is a paucity of research that has integrated risk and protective factors into more cohesive conceptual models of internalizing psychopathology, as well as a lack of knowledge about combinations of factors and the mechanisms through which they interact with each other to generate specific risk or protective effects. The formulation and testing of theoretical models of risk, resiliency, and the mediating and moderating processes underlying the links between risk factors and psychopathology is necessary to translate the large repository of empirical findings into effective prevention interventions that can be implemented in real-world settings. Another worthwhile area for future research is to explore whether there are protective factors that can also serve as risk factors, under what circumstances this might occur, and how these variables might be identified and managed in practice.

Future research may also wish to address methodological issues surrounding sampling and design that have hitherto characterized studies on protective and risk factors. Given that much of the research to date has been conducted with White, middle-class families whose experience and perceptions of risk and resilience may substantively differ from those of other cultural groups, greater efforts should be made to include samples that are more representative and diverse in terms of race, ethnicity, and socioeconomic status. The retrospective, cross-sectional designs that have been commonly employed moreover cannot firmly establish whether specific variables function as primary causal factors, mediators, or moderators, nor can they determine whether putative biological indices like HPA axis dysregulation constitute relatively stable risk factors for the onset of internalizing disorders. This entails that developmentally sensitive, prospective longitudinal studies will be increasingly required. In sum, the relationship between risk factors, protective factors, and internalizing disorders in adolescents is far more complicated than the literature suggests and, as such, there is an imperative to disentangle and elucidate the unique and combined effects of these frequently interacting factors—in a methodologically optimal way—in order to better inform clinical practice and enhance positive psychological outcomes in this population.
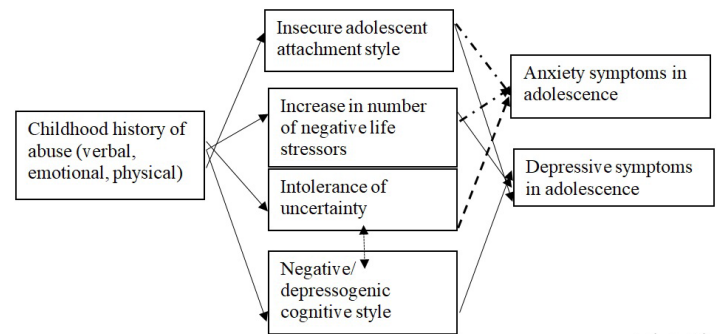

Figure 1: Theoretical model of the mediating processes that may partially account for the elevated risk of internalizing psychopathology in adolescents with a childhood history of abuse and maltreatment.

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