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Relationships Between Family Connectedness and Stress-Triggering Problems Among Adolescents: Potential Mediating Role of Coping Strategies

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Abstract
The aim of this study was to provide a better understanding of the mechanisms underlying the relationships between family connectedness, coping strategies, and stress-triggering problems in adolescents. To this end, it longitudinally examined the relationships between these three phenomena in a sample of New Zealand adolescents. Data were the three waves of the Youth Connectedness Project, in which 1,774 adolescents aged 10–17 completed a self-report survey three times at one-year intervals. Using random intercept longitudinal mediation path models, we tested whether and to what extent different coping strategies at T2 functioned as mediators between family connectedness at T1 and stress-triggering problems at T3. As predicted, statistical analyses indicated that family connectedness negatively predicted stress-triggering problems over time, and we found that maladaptive coping, but not adaptive coping, significantly mediated this relationship. This result suggests that family connectedness predicted a reduction in maladaptive coping one year later, and this lower level of maladaptation predicted a reduction in stress-triggering problems a subsequent year later. These and other related findings are important as they highlight several mechanisms shaping unfolding problematic situations experienced by adolescents. Contributions of the results to the existing body of knowledge about adolescents' stress and coping strategies are discussed, as well as their clinical implications for the prevention or reduction of stress experienced by adolescents.

Keywords Stress · Problems · Adolescence · Coping · Family connectedness · Longitudinal · Mediation

Introduction

Stress is a common but impactful experience for adolescents. A recent report indicated that approximately 14.5% of adolescents in Canada aged 12 to 17 reported significant daily stress (Statistics Canada, 2023), while another report suggested that 20.1% of adolescents aged between 15 and 19 experienced high levels of stress (Institut de la statistique du Québec, 2020). An older survey indicated that 91% of Gen Z adolescents in the United States reported having experienced physical or emotional symptoms due to stress in the past month (American Psychological Association, 2018). A number of situations emerge during adolescence that are known triggers for stress in this population, such as new social roles, academic pressure, greater responsibilities, and an increased awareness of and responsiveness to world events (American Psychological Association, 2020; Forns et al., 2010; Grant et al., 2006; Vrshek-Schallhorn et al., 2015).

Stress can be defined as physiological and psychological responses of the organism to a situation that is perceived as uncontrollable, unpredictable, new, and threatening (Centre for Studies on Human Stress, 2019). While stress is inevitable and can trigger adaptive responses in many situations, it can be harmful when it occurs chronically or at a very high intensity (Vrshek-Schallhorn et al., 2015), and can precipitate mental health problems in adolescents (Li et al., 2021). It is therefore important to identify predictors of adolescent stress to improve the efficacy of upstream efforts to prevent or reduce it. One factor that has been proposed in the

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literature as potentially influential in protecting adolescents from potentially deleterious effects of stressors is family connectedness. Family connectedness, conceptualised as the degree to which there is cohesion in the family, how much the family participates in mutual activities, and a clear and positive family identity (Resnick et al., 1993), is proposed to be an influential factor in protecting adolescents from stress-triggering negative events. Furthermore, adolescents' use of specific coping strategies is proposed to mediate this relationship between family connectedness and adolescent stress. Because few longitudinal studies have explored the interplay among these constructs, the present study used a longitudinal design with a large sample of adolescents aged between 10 and 17 years followed over three years.

Adolescents' Coping Strategies

Coping is at the heart of the processes individuals engage in response to stress, and coping effectively is essential for the psychological adjustment of children and adolescents exposed to stressors (Clarke, 2006; Compas et al., 2001). Grounded in a control-based model of coping (Rudolph et al., 1995), Compas et al. (2001, p. 89), defined coping as an individual's "conscious volitional efforts to regulate emotion, cognition, behavior, physiology, and the environment in response to stressful events or circumstances." It is well recognized that coping competence develops over time and that this skill is an essential part of human development.

Different categorizations of coping strategies are used by theorists and researchers, and the field lacks a clear consensus regarding the specific definition of each category (Skinner et al., 2003). Moreover, it is recognized that the impact of a coping strategy is largely dependent on the context in which it is used and the specific stressor with which one is trying to cope (Williams & McGilicuddy-De Lisi, 1999). It is, however, increasingly accepted that coping strategies such as reflection, reappraisal, problem solving, or guidance-seeking are adaptive and generally effective and helpful in various stress situations. Conversely, coping strategies such as rumination, aggression, and avoidance are considered maladaptive and generally ineffective or harmful, and are associated with negative outcomes (Skinner et al., 2003). These broader categories of coping strategies have been identified as domains of coping by Compas and colleagues (2017), and, although imperfect and somewhat heterogeneous, they will guide the following conceptualization of the coping used here.

The effectiveness of the coping process engaged in response to stress varies depending on the adolescent's choice of coping strategy. Maladaptive coping strategies are generally ineffective in reducing the consequences of a negative or stressful situation and have been positively associated with mental health symptoms, anger control problems, emotional distress, and a negative self-image (Compas et al., 2017; Hampel & Petermann, 2006). For example, greater use of emotional suppression, denial, and avoidance has been associated with higher levels of internalized symptoms in children aged 5 to 19 in both cross-sectional and longitudinal studies (Compas et al., 2017). Moreover, although maladaptive strategies focused on avoidance can relieve stress-related distress in the short term, such avoidance strategies have been associated with increased intensity and frequency of distress in the long term, leading to behavioural problems (Lynch et al., 2001).

In contrast, adaptive coping strategies seem to yield positive effects on the mental and physical health of adolescents and have been shown in various cross-sectional studies to be associated with diminished internalized and externalized symptoms (Compas et al., 2017; Connor-Smith et al., 2000; Hampel & Petermann, 2006). For instance, Seiffge-Krenke and colleagues (2009) found that engagement/approach coping strategies, generally considered adaptive coping strategies, were associated with better problem solving and stress reduction in late adolescence when these skills were acquired earlier in early adolescence. In the same vein, Francisco and colleagues (2016) found that adolescent utilization of an adaptive support-seeking strategy was negatively associated with internalized behaviours and symptoms.

However, the efficacy of coping strategies is a nuanced matter, as it appears that some data-derived categories of coping strategies, such as active and approach strategies, can have both positive and negative effects on psychological symptoms depending on the type of stressor experienced. For instance, when a stressor is intrapersonal (e.g., negative self-thoughts), an increase in approach coping is associated with an increase in general distress, while when the stressor is inter- or impersonal, an increase in approach coping has no significant impact (Forns et al., 2010). Similarly, Herres (2015) reported that adolescents who more frequently use approach coping strategies have the highest levels of anxiety. Compas et al.'s (2017) meta-analysis noted that while engagement/approach coping strategies are not associated with internalized and externalized symptoms in longitudinal studies, they are negatively associated with internalized symptoms in cross-sectional studies. In sum, it would seem that some types of coping strategies are more suitable for particular stressful situations, and some critical aspects of their effectiveness are only apparent in longitudinal designs.

Despite the importance of coping strategies for adolescents' well-being and mental health, few studies have sought to identify the factors contributing to the acquisition and use of coping strategies during this period.

Adolescents' Family Environment

Another factor that has a significant effect on adolescents' coping strategies and their experience of stress is their family environment. There is ample evidence that a number of family functioning variables (e.g., quality of family relationship, sense of family cohesion, parenting practice, family structure, etc.), stress, and pathological symptomatology are related (Francisco et al., 2016; Ren et al., 2018; Rodriguez et al., 2014). Furthermore, family variables have been shown to be an important mediator in the relationship between stressors and adolescents' psychological symptoms (Grant et al., 2006; Sheidow et al., 2014).

However, studies have identified family as both a risk factor and a protective factor in the stress experienced by adolescents. Indeed, family appears for some to be a significant source of stress (Persike & Seiffge-Krenke, 2016). This is particularly the case, when it comes, for instance, to issues related to family reconfiguration (divorce or new family) (Low et al., 2012), autonomy (Anniko et al., 2019), and communication and parental pressure (Seiffge-Krenke et al., 2009). Similarly, family conflicts (Roubinov & Luecken, 2013) and low levels of family cohesion (i.e., low levels of emotional closeness, dependability, support, and communication) (Decarlo Santiago & Wadsworth, 2009; Holmes et al., 1999), have been associated with depressive and internalized symptoms in adolescence.

On the other hand, the family unit can also be a protective factor against the negative effects of stress. A high level of family cohesion has been associated with lower levels of stress for all family members as well as higher levels of resilience (Hjemdal et al., 2011). Moreover, the relationship between stress and adolescents' psychopathologies is moderated by the family environment (Grant et al., 2006): families marked by higher cohesion and connectedness report fewer psychological (Malaquias et al., 2015; Wilhsson et al., 2017) and physical (Swanson et al., 2011) symptoms in adolescents. It thus appears that the family environment and the stress of adolescents are interrelated. However, the mechanisms by which they influence each other over time is not well understood.

Adolescents' Family Environment, Coping Strategies, and Stress

One proposed mechanism by which the family can influence the stress experienced by adolescents is by shaping and molding the adolescent choice of coping strategies. The existing literature provides evidence of the influence that the family environment and its functioning has on how adolescents cope with stress. Kliewer et al. (1996), for instance, illustrated the key role parental socialization plays in adolescent development and choice of coping strategies. Adolescents reporting a stronger sense of attachment to their parents and perceptions of better family functioning were more likely to report using problem-solving and support-seeking coping strategies more frequently, and using maladaptive coping strategies less frequently (Blomgren et al., 2016; Francisco et al., 2016; Hickey et al., 2017). Moreover, a study by Swanson et al. (2011) surveying adolescents and their parents showed that adolescents with supportive parents were more likely to use engagement coping strategies (Swanson et al., 2011). Similarly, adolescents with a positive perception of their family environment were shown in a study by Zimmer-Gembeck et al. (2017) to be more likely to report using active coping more frequently and avoidant coping and wishful thinking less frequently. Conversely, adolescents who report inadequate family functioning (marked by, e.g., few strengths, low adaptability, disrupted communication, and being overwhelmed by difficulties) have been shown to report greater use of maladaptive coping strategies, less frequent use of adaptive coping strategies, and higher levels of psychological maladjustment (Francisco et al., 2016). Finally, in a study by Rodriguez et al. (2014), adolescents who perceived their family environment as one involving high levels of conflict, low levels of support, low levels of communication, and affective under- or over-involvement were more likely to report less frequent use of engagement coping strategies (Rodriguez et al., 2014) and more frequent use of disengagement coping strategies (Roubinov & Luecken, 2013).

The existing literature indicates quite clearly that family and the family environment have a significant bearing on relationship with adolescents' experience of stress and the coping strategies they adopt. However, research on the nature of the associations among perceived stress, coping strategies, and family functioning are mainly based on cross-sectional studies and have yielded inconsistent results. Researchers have pointed out the need for more longitudinal studies to determine temporal relationships among these three variables, as well as the need to identify developmental changes in coping strategies and their efficacy in limiting the deleterious effects of stressful situations (Compas et al., 2017; Persike & Seiffge-Krenke, 2012, 2016; Rodriguez et al., 2014; Roubinov & Luecken, 2013; Swanson et al., 2011).

The Present Study

This study proceeds on the premise that positive family functioning can be a protective factor for adolescents against the stress they experience. We longitudinally examined the nature of the relationship between family connectedness and adolescent stress-triggering problems, and we tested the extent to which coping strategies play a mediating role

in this relationship. Past research has identified a number of stress triggers commonly faced by adolescents, including, notably, academic stress, social stress, family-related and peer-related stress, world events, and life changes (American Psychological Association, 2020; Li et al., 2017). Increased exposure to daily stressors such as these has been shown to be associated with reduced affective and physiological functioning among adolescents (Lippold et al., 2016). To assess the stress experienced by adolescents, the present study asked young participants to report how many ("none" to "a lot") problems they experience in four different domains of life: friends, family, school, and their bodies. Thus, instead of asking adolescents to report their overall level of perceived stress, which is a difficult concept for some adolescents to comprehend and estimate, the present study assessed the amounts of problems they experience in four critical domains of life that have been shown to be common triggers of stress.

To explore our proposed longitudinal mediational model, four hypotheses were generated. First (Hypothesis 1), we predicted that high family connectedness would predict a reduction of stress-triggering problems over time (T1 to T2 and T2 to T3). Second, (Hypothesis 2), we expected that high family connectedness would predict an increased use of adaptive coping strategies and a decreased use of maladaptive coping strategies over time (T1 to T2 and T2 to T3). Third (Hypothesis 3), we hypothesized that high levels of adaptive coping strategies and low levels of maladaptive coping strategies would predict lower levels of stress-triggering problems over time (T1 to T2 and T2 to T3). Finally (Hypothesis 4), we tested whether coping strategies would longitudinally mediate the relationship between family connectedness and stress-triggering problems. More specifically, we hypothesized that high family connectedness at T1 would predict higher levels of adaptive coping strategies and lower levels of maladaptive coping strategies at T2, and these, in turn, would predict lower levels of stress-triggering problems at T3.

Considering that previous work has suggested that gender (Cicognani, 2011; Hickey et al., 2017; Houltberg et al., 2011; Tamres et al., 2002; Undheim & Sund, 2017) and age (Crespo et al., 2010, 2013; Eschenbeck et al., 2018) play a role in family connectedness and the use of coping strategies, we covaried out these demographic attributes in all analyses.

Additionally, and based on the available cross-sectional literature which has so far produced mixed findings on these issues, the present study explored two complementary research questions. First, we sought to explore whether the proposed variables would show evidence of temporal prediction in the opposite direction. In particular, this study investigated whether stress-triggering problems at T1 would predict poorer coping strategies at T2, which, in turn, would predict poorer family connectedness at T3. Second, we sought to explore whether gender, age, and ethnicity would moderate the proposed relationships, as previous research has shown significant associations between gender, age, and ethnicity and family connectedness and stress (e.g., American Psychological Association, 2014).

Method

Data for the present study were derived from the Youth Connectedness Project (YCP) (Jose et al., 2012), a large-sample longitudinal study conducted between 2006 and 2008 in New Zealand. The YCP focused on the development of social connectedness during adolescence.

Participants

Sample Recruitment

One hundred and two schools in the North Island of New Zealand were approached for the study. Particular care was taken to include a variety of school types (i.e., state and religious schools, middle schools and high schools, co-ed and single-sex schools), the full range of socioeconomic statuses, and diverse geographic locations (urban, suburban, and rural). Adolescents were recruited from the 78 schools that agreed to participate in the study. Most (61%) of the schools were located in urban areas, 33% in suburban areas, and 6% in rural areas.

Once the schools agreed to participate, a research assistant explained the project to the adolescents. A recruitment letter detailing the goals of the project was then sent home along with the consent forms. The informed consent of participants older than 16 was obtained from those participants themselves. For adolescents younger than 16, their assent, as well parental consent, was obtained, as stipulated by New Zealand law and ethics guidelines.

Study Sample

Three cohorts of adolescents of different ages participated in the study: Cohort 1, ages 10–11 at T1; Cohort 2, ages 12–13 at T1; and Cohort 3, ages 14–15 at T1. Of the 2,174 students who completed the first measurement, 1,774 (82%) completed the YCP Survey at all three time points. Attrition was due mainly to family moves, school changes, and absences from school during data collection. An attrition analysis yielded a significant multivariate main effect for attrition, $F(4, 1904) = 3.51$, $p = 0.007$, but univariate differences were only noted for stress-triggering problems (retained = 2.28, SE = 0.02 vs. attrited = 2.47, SE = 0.07) and maladaptive coping strategies (retained = 2.29, SE = 0.02 vs. attrited = 2.48, SE = 0.05). Although we identified

differential attrition for these two variables, the partial eta squared estimates for both, – 0.004 and 0.007, respectively – indicate that their effect sizes were very small.

The final sample was composed of a slight majority of females (51.4%). The age range was 10 to 15 at T1 (M = 12.3; SD = 1.73), 11 to 16 at T2 (M = 13.4; SD = 1.72), and 12 to 17 at T3 (M = 14.3; SD = 1.72). The majority of participants (61.9%) were New Zealand European, 23.2% were Māori, and 14.8% reported another ethnic background (i.e., Asian and Pacific Island New Zealanders). The majority of participants were living with their nuclear family (69%), while 17% were living in a single-parent family, 10% in a reconstituted family, and 1% in extended family households (3% missing data).

Procedures

The Victoria University of Wellington Ethics Committee provided ethical approval for the study. The survey was administered in classrooms, computer labs, or via personal computers in three annual waves. Queries about how to navigate the digital survey and the meanings of words and questions were answered by a research assistant and a teacher who were present at all times. The full survey comprised 350 questions. However, due to skips and branches in the survey, most respondents answered about 300 questions. Questions centred around aspects of youth health and well-being, as well as various dimensions of youth social connectedness. At T1, completion time was about one hour, though subsequent data collections were completed more rapidly. Token rewards were given to participants upon their completion of each wave of the survey.

Measures

Family Connectedness

To measure family connectedness, an 11-item self-report scale assessing respondents' perceptions of their family cohesion, family mutual activities, and family identity was used. Items were answered on a 5-point Likert scale ranging from "*Never/almost never*" to "*Always/almost always*." Items pertaining to family cohesion and family mutual activities were inspired by the Family Adaptability and Cohesion Evaluation Scales (FACES II) (Olson et al., 1982). Items for family activities and identity were developed specifically for the present study, following focus groups with adolescents and consultations with local experts to ensure their relevance to the New Zealand context. Sample items included: "My family likes to spend free time together" (family cohesion); "Do you and your family have holidays together?" (family mutual activities); and "We are proud to be members of our family" (family identity). An overall score of perceived family connectedness was computed from the sum of the 11 items, with higher scores representing higher connectedness (αs = 0.90 to 0.92 over the three times of measurement). Previous published studies featuring this measure have demonstrated superior reliability and validity (Gervais & Jose, 2020).

Stress-Triggering Problems

Four items were used to assess adolescents' self-reported levels of 'problems' in four domains of their life. Once again, these items were specifically generated for this study, based on past research identifying key triggers of stress in adolescents. Participants were asked to indicate how many problems they faced during the last 12 months in four domains: namely, in relation to their friends, their family, their school, and their body. All items used a 5-point Likert scale ranging from "*None*" to "*A lot*." The four items were averaged to obtain an overall stress-triggering problem score, with higher scores reflecting higher stress. Although no previous published study has reported on the psychometric adequacy of this new assessment, internal reliability proved satisfactory (αs = 0.76 to 0.79 over the three times of measurement)

Coping Strategies

Immediately after the above-mentioned questions concerning stressor domains and frequencies, respondents were asked to think about the actions they took in the face of those stressors, and how often they adopted particular coping strategies to do so. All items were assessed on a 5-point Likert scale ranging from "*Never/almost never*" to "*Always/almost always*." Five coping strategies were presented: two are considered to be adaptive coping strategies, and three are considered to be maladaptive coping strategies.

Adaptive Coping

Adaptive coping strategies included social support and problem solving. Both were measured with three items adapted from an existing coping scale (Jose et al., 1998). Sample items included: "I find someone to talk about my problem" (social support) and "I work on the problem in order to fix it" (problem solving). The six items were combined to compute a single adaptive coping score, which yielded very good internal reliability estimates (αs = 0.82 to 0.88 over the three times of measurement).

Maladaptive Coping

The three remaining coping strategies – rumination, externalizing, and avoidance – are considered maladaptive. Four items from an existing rumination scale (Nolen-Hoeksema et al., 1993) were adapted to assess rumination (sample item: "I think, 'why can't I handle things better?'"). For the externalizing strategy, three items from an existing scale (Jose et al., 1998) were used (sample item: "I yell and scream"). Finally, three items

were adapted from an existing coping scale (Jose et al., 1994) to assess avoidance (sample item: "I avoid my problems"). All 10 items were combined into a single score, which, as was the case for adaptive coping, yielded very good internal reliability estimates (αs = 0.80 to 0.87 over the three measurement times).

The use of these two broad groupings of adaptive and maladaptive coping strategies has been shown in a previous study (Chua et al., 2014) to be psychometrically reliable and valid in a longitudinal assessment of associations between adolescents' coping strategies and associated well-being outcomes. Given the infeasibility of including a large number of strategies within these two large categories (due to time and space limitations in the survey), the researchers opted to measure two commonly assessed coping strategies that have been empirically demonstrated to have a beneficial (i.e., adaptive) effect – namely, problem solving and emotional social support. As regards unhelpful or counterproductive strategies, three strategies were chosen to capture a range of maladaptive approaches, namely unwillingness to engage with the problem (i.e., avoidance), conflictual interpersonal relationships (i.e., externalizing), and fixation on past mistakes and misfortunes (i.e., rumination). It is acknowledged that the particular strategies chosen, whether adaptive or maladaptive, do not encompass the entire breadth of possible coping strategies, but it is argued that they are important exemplars and sufficiently representative of the strategies found within these two broad categories.

Demographic Characteristics

Socio-demographic data such as ethnic group membership, age, and gender were also collected. Gender was reported as male or female, and age was indicated using whole years.

Data Analysis

Descriptive statistics were conducted with IBM SPSS Statistics for Windows version 26.0. Inferential statistical analyses were performed using the software package Mplus (Muthén & Muthén, 1998–2011). A random intercept cross-lag path model (RI-CLPM) was created through latent variable path modelling to test the hypotheses. Hamaker et al. (2015) and Anderson (2022) have recommended the use of RI-CLPM over traditional longitudinal cross-lag panel models because RI-CLPM separates between-person and within-person variance. This method allows for temporal relationships to be based on within-person change over time uncontaminated by between-person stabilities. Mediation analyses with a bootstrap resampling of 5,000 iterations and 95% bias-corrected confidence intervals were performed using gender, ethnicity, and age at T1 as covariates.

Analyses were conducted in four steps with a series of random intercepts cross-lag panel models. First, we sought to determine if family connectedness (IV) predicted decreases in stress-triggering problems (DV) over time. Second, we tested whether family connectedness (IV) predicted increases in adaptive coping and decreases in maladaptive coping (mediators) over time. Third, we tested whether adaptive and maladaptive coping (mediators) predicted stress-triggering problems (DV) over time. And fourth, we examined the hypothesized longitudinal mediation, namely that adaptive and maladaptive coping would mediate between family connectedness and stress-triggering problems. Two exploratory statistical tests finished the analyses: a) we examined the model generated in the fourth step to see whether the reverse longitudinal mediation pattern was supported; and b) we tested for moderations by gender, age, and ethnicity group.

Missing data constituted about 15% of the dataset, and analysis indicated that these values were missing completely at random (MCAR test yielded $p > 0.10$). Expectation–Maximization imputation was used to estimate and impute missing data in order to maximize the statistical power of the analyses.

Results

Descriptive Statistics

Table 1 reports the zero-order correlations among the key study variables in addition to means and standard deviations. Correlations showed that all variables were significantly related to each other in predictable ways at both concurrent and longitudinal time points. Family connectedness was negatively associated with stress-triggering problems both concurrently ($r = -0.22$, $p < 0.01$) and longitudinally (T1 to T2: $r = -0.24$, $p < 0.01$; T1 to T3 $r = -0.20$, $p < 0.01$), which provided evidence for a significant basic relationship between the variables. As expected, family connectedness was positively related to adaptive coping (correlation coefficients between 0.28 and 0.43, $ps < 0.01$) and negatively related to maladaptive coping (correlation coefficients between -0.13 and -0.28, $ps < 0.01$). Notably, adaptive coping was negatively associated with stress-triggering problems (correlation coefficients between -0.07 and -0.16, $ps < 0.01$), while maladaptive coping was positively associated with stress-triggering problems (correlation coefficients between 0.30 and 0.55, $ps < 0.01$). We noted that the correlation between maladaptive coping and stress-triggering problems was stronger than that between adaptive coping and stress-triggering problems. Thus, zero-order correlation provided initial evidence that the constituent pathways (IV to mediators and mediators to DV) underlying the proposed indirect effects existed in the dataset.

Furthermore, age was found to be negatively correlated with family connectedness (correlation coefficients

Table 1 Means, standard deviations, and zero-order correlations between variables

Zero-Order Correlations														
		Family Connectedness			Adaptive Coping			Maladaptive Coping			Stress-triggering problems			Age
		Y1	Y2	Y3	Y1	Y2	Y3	Y1	Y2	Y3	Y1	Y2	Y3	Y1
Family Connectedness	Y1													
	Y2	0.66**												
	Y3	0.59**	0.70**											
Adaptive coping	Y1	0.41**	0.28**	0.24**										
	Y2	0.29**	0.43**	0.32**	0.44**									
	Y3	0.29**	0.32**	0.42**	0.39**	0.49**								
Maladaptive coping	Y1	-0.16**	-0.18**	-0.13**	-0.02	-0.13**	-0.12**							
	Y2	-0.18**	-0.27**	-0.22**	-0.09**	-0.11**	-0.15**	0.53**						
	Y3	-0.17**	-0.28**	-0.28**	-0.10**	-0.19**	-0.17**	0.48**	0.55**					
Stress-triggering problems	Y1	-0.22**	-0.21**	-0.17**	-0.09**	-0.10**	-0.11**	0.48**	0.33**	0.36**				
	Y2	-0.24**	-0.33**	-0.27**	-0.11**	-0.16**	-0.15**	0.36**	0.53**	0.42**	0.46**			
	Y3	-0.20**	-0.28**	-0.30**	-0.07**	-0.09**	-0.15**	0.30**	0.40**	0.55**	0.40**	0.53**		
Age	Y1	-0.19**	-0.23**	-0.22**	-0.04	-0.02	-0.00	-0.01	0.06**	0.12**	0.03	0.09**	0.13**	
Gender		-0.02	-0.06**	-0.08**	0.09**	0.07**	0.08**	0.04	0.10**	0.11**	0.08**	0.07**	0.10**	0.04
Mean		3.90	3.76	3.68	3.20	3.15	3.21	2.30	2.23	2.17	2.29	2.16	2.13	12.12
SD		0.73	0.78	0.78	0.76	0.83	0.80	0.66	0.68	0.66	0.91	0.89	0.87	1.73

N = 1774, **$p < .001$, Y = Year

between -0.19 and -0.23, $ps < 0.01$), and positively related to maladaptive coping (T2: $r = 0.09$; T3: $r = 0.13$, $ps < 0.01$) and stress-triggering problems (T2: $r = 0.06$; T3: $r = 0.12$, $ps < 0.01$). This pattern of associations suggests that older adolescents reported less family connectedness, used more maladaptive coping strategies, and reported more stress-triggering problems than younger adolescents. A multivariate analysis of variance (MANOVA) was conducted to determine if the study variables varied by gender, predefined age groups (9–11, 12–13, 14–19), and ethnicity (New Zealand European vs. Māori). A significant MANOVA main effect for gender (Wilk's $\Lambda = 0.95$, $F(12, 1761) = 7.166$, $p < 0.001$, $\eta^2 = 0.047$) was found. Examination of univariate results between the genders revealed significant differences for family connectedness at T3, maladaptive coping at T2 and T3, adaptive coping at T1 and T3, and stress-triggering problems at T1 and T3. Overall, males reported greater family connectedness, less frequent usage of adaptative and maladaptive coping strategies, and fewer stress-triggering problems than females. A significant MANOVA main effect for age groups (Wilk's $\Lambda = 0.90$, $F(24, 3520) = 8.353$, $p < 0.001$, $\eta^2 = 0.054$) was also found. Examination of univariate results revealed significant differences for family connectedness at all three time points, maladaptive coping at T3, and stress-triggering problems at T2 and T3. Overall, family connectedness was higher for younger participants. On the other hand, the use of maladaptive coping strategies and stress-triggering problem levels were the lowest in the youngest group, but did not differ between the 12–13- and the 14–16-year-old age groups. Finally, a significant MANOVA main effect for ethnicity (Wilk's $\Lambda = 0.96$, $F(12, 1487) = 5.829$, $p < 0.001$, $\eta^2 = 0.045$) was detected. The Māori group reported higher scores of maladaptive coping strategies, as well as higher levels of stress-triggering problems, than New Zealand Europeans.

Random Intercepts-Longitudinal Cross-Lag Path Model: Test of the Hypothesised Associations Among Coping Strategies, Family Connectedness, and Stress-Triggering Problems Over Time

Associations Among Predictors, Outcomes, and Mediators

To systematically test our proposed mediation hypothesis deductively, we created a series of three focused RI-CLPM models to test the constituent pathways laid out in Hypotheses 1–3 (IV to DV; IV to mediators; and mediators to DV). We then examined the viability of the proposed mediation hypothesis (Hypothesis 4) with a fourth model that incorporated all variables simultaneously (IV to mediators to DV, for greater detail, see Jose, 2013, 2016).

Hypothesis 1: We first examined whether family connectedness significantly predicted adolescents' stress-triggering problems. This model analyzed family connectedness and stress-triggering problems over three waves of data, included the covariates of age, gender, and ethnicity, and employed

equality constraints on identical cross-lags over time points to simplify the model and obtain general findings. Consistent with our hypothesis, family connectedness significantly predicted a decrease in levels of stress-triggering problems one year later (B = -0.25, SE = 0.05, $p < 0.001$), confirming the protective function of family connectedness on problem-based stressful events. The model achieved satisfactory indices of fit: $\chi^2(26) = 214.93$, $p < 0.001$, CFI = 0.95, TLI = 0.93, SRMR = 0.07, RMSEA = 0.064, 95%CI = (0.056, 0.072).

Hypothesis 2: Second, we examined whether family connectedness predicted both of the coping variables in the predicted ways using a model analyzing only these variables over time (with the same covariates and constraints as described in the model above). We found that family connectedness insignificantly predicted an increased use of adaptive coping strategies (B = 0.08, SE = 0.04, $p = 0.079$) and significantly (and strongly) predicted a decreased use of maladaptive coping strategies (B = -0.20, SE = 0.04, $p < 0.001$) one year later. The model achieved satisfactory indices of fit: $\chi^2(42) = 331.19$, $p < 0.001$, CFI = 0.95, TLI = 0.91, SRMR = 0.06, RMSEA = 0.062, 95%CI = (0.056, 0.069).

Hypothesis 3: Third, we tested the associations between the two coping variables and the level of stress-triggering problems reported by adolescents (with the same covariates and similar constraints). As hypothesized, maladaptive coping strategies (B = 0.14, SE = 0.05, $p = 0.004$) was positively predictive of stress-triggering problems one year later. However, the relationship between adaptive coping strategies and stress-triggering problems failed to reach the determined level of significance (B = -0.04, SE = 0.03, $p = 0.24$). These results suggest that maladaptive coping strategies significantly predicted an increase in levels of stress-triggering problems reported by adolescents, but adaptive coping strategies did not significantly predict a diminishment of stress-triggering problems over time. The model achieved satisfactory indices of fit: $\chi^2(42) = 216.92$, $p < 0.001$, CFI = 0.96, TLI = 0.94, SRMR = 0.05, RMSEA = 0.048, 95%CI = (0.042, 0.055).

Hypothesis 4: Mediating Role of Coping Strategies. Finally, we knitted together the constituent direct pathways identified above into a single path model that included all four variables tested with the RI-CLPM approach (with the same covariates and similar constraints as above). Specifically, we tested the hypothesis that both adaptive and maladaptive coping at T2 would mediate the relationship between family connectedness at T1 and stress-triggering problems at T3. Figure 1 depicts the longitudinal mediation analyses performed. Following the suggestions of Jose (2016) and MacKinnon (2008), we conducted a complete longitudinal mediation analysis, in which all variables are measured at all time points, and both direct and indirect effects are estimated. The model achieved satisfactory indices of fit: $\chi^2(61) = 357.61$, $p < 0.001$, CFI = 0.96, TLI = 0.93, SRMR = 0.05, RMSEA = 0.052, 95%CI = (0.047, 0.058).

As hypothesized, the relationship between family connectedness and levels of stress-triggering problem was found to be significantly mediated by maladaptive coping strategies (*indirect effect* = -0.014, SE = 0.007, $p = 0.044$). However, consistent with the failure to identify a significant *b* path for adaptive coping to stress, the indirect effect for this possible mediator failed to yield significance (*indirect effect* = 0.002, SE = 0.002, $p = 0.453$). In addition, it was noted that the direct cross-lag between family connectedness at T1 and stress-triggering problems at T3 was nonsignificant, $p = 0.76$, in this full model. These mediation pathways provide evidence that a reduction in maladaptive coping strategies mediated the temporal influence of family connectedness on lower levels of stress-triggering problems over time, but that the corresponding indirect effect involving adaptive coping strategies did not play a significant mediating role.

Exploratory Research Question 1: Did Stress-Triggering Problems Exert a Deleterious Influence on Coping Strategies and Subsequent Family Connectedness?

We examined, in an exploratory fashion, the opposite direction of influence from problem-based stress to the other variables in the above-described RI-CLPM used to test the hypothesized mediation. Importantly, we found that levels of stress-triggering problems failed to significantly predict either the subsequent use of maladaptive coping strategies ($\beta = 0.03$, $p = 0.34$) or the use of adaptive coping strategies ($\beta = -0.01$, $p = 0.91$). Further, while we found a non-significant relationship between adaptive coping and family connectedness ($\beta = 0.03$, $p = 0.24$), we also found, interestingly, that maladaptive coping did predict a reduction in family connectedness one year later ($\beta = -0.13$, $p < 0.001$). So, although the reverse order of the initial mediation analysis failed to find a significant indirect effect, and the direct effect from problems at T1 to family connectedness at T3 was also non-significant ($p = 0.78$), we did find evidence that maladaptive coping exerted a deleterious influence on subsequent reports of family connectedness.

Moreover, the complete mediation model tested all 12 possible (i.e., unique) longitudinal mediations, so we examined the remaining 8 possibilities in an exploratory fashion. Consistent with the paths depicted in Fig. 1, we found two additional significant mediations: stress-triggering problems to family connectedness to maladaptive coping (*indirect effect* = 0.016, SE = 0.007, $p = 0.034$); and maladaptive coping to family connectedness to stress-triggering

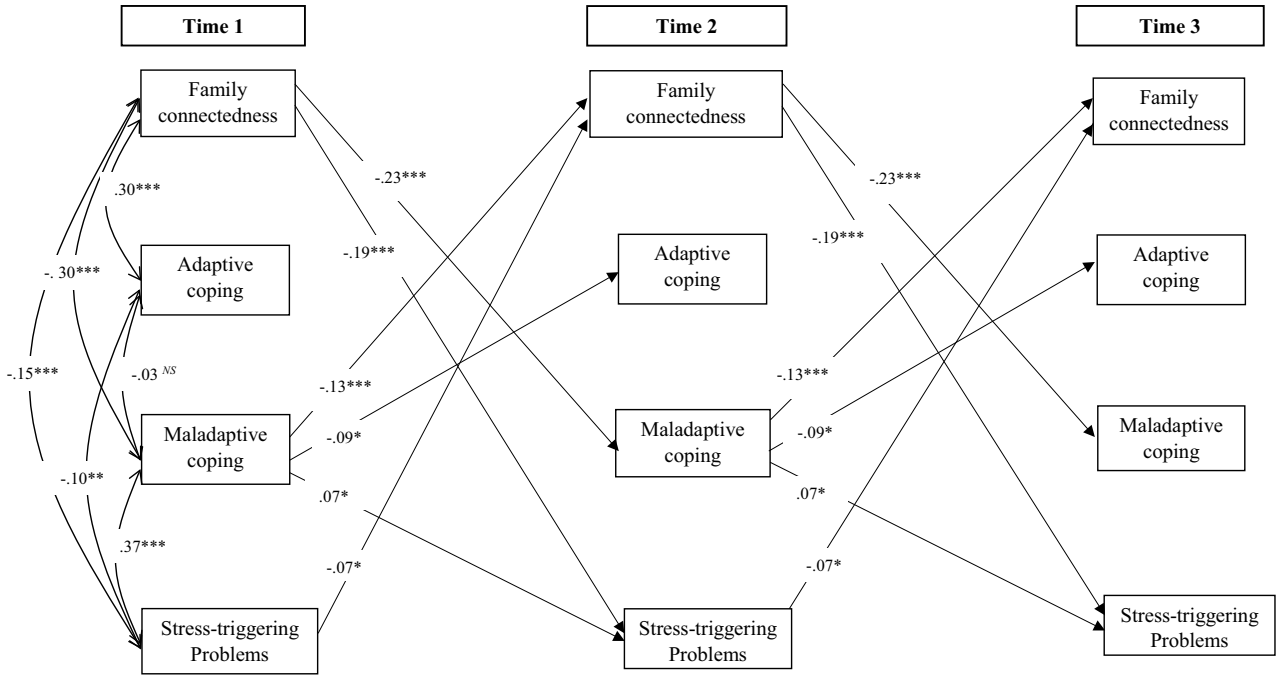

Fig.1 Longitudinal random intercepts cross-lag path model of family connectedness, adaptive and maladaptive coping, and stress-triggering problems over three years. *Note.* Only significant paths are depicted. Numerical values are standardized regression coefficients. For sake of clarity, the covariates, namely gender, ethnicity, and age, and stability coefficients are not shown. Stability coefficients, averaged over the two gaps in time were: family connectedness = 0.31, adaptive coping = 0.18, maladaptive coping = 0.14, and stress-triggering problems = 0.14. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

problems (*indirect effect* = 0.026, SE = 0.002, $p < 0.001$). Neither of these indirect effects were hypothesized, but they further illuminate the role of maladaptive coping vis-à-vis the relationship between family connectedness and stress-triggering problems. Levels of stress-triggering problems were increased by previous maladaptive coping and were diminished by previous experiences of family connectedness through both direct and indirect pathways.

Exploratory Research Question 2: Did Gender, Age, or Ethnic Group Moderate the Basic Findings?

In an exploratory fashion, we examined whether the main predicted indirect effect obtained for the whole sample significantly varied by gender, age, or ethnic group (using a series of equality constraints one at a time). First, regarding gender, the relationship between family connectedness and stress-triggering problems was significantly mediated by maladaptive coping strategies for boys ($p < 0.05$), but not for girls ($p = 0.61$). Second, regarding age groups, the only significant mediation between family connectedness and stress-triggering problems was by maladaptive coping strategies for two age cohort groups; namely, the two older cohorts (12-to-13- and 14-to-16-year-olds). Finally, regarding ethnicity, maladaptive coping strategies were found to be a significant mediator between family connectedness at T1 and stress-triggering problems at T3 for New Zealand European adolescents only; Māori and youth of other ethnicities did not evidence a significant relationship. The pattern of moderations suggests that the key mediation finding obtained within the whole sample generalizes to males, older adolescents, and New Zealand Europeans more so than to females, younger adolescents, and non-majority youth.

Discussion

The aim of the present study was to gain a better understanding of the mechanisms underlying adolescent stress that are relevant to adolescent stress prevention. The majority of studies with adolescents in this field examine the effect of stress on different variables of mental health and functioning (e.g., Branson et al., 2019; Sigfusdottir et al., 2017), but more attention needs to be given to antecedent influences on stress. In conceptualizing stress as dependent on certain individual and family characteristics, this study allows for the better identification of the particular protective factors that could mitigate against the stress experienced downstream by adolescents. In particular, the present research sought to demonstrate that the level of perceived family connectedness longitudinally predict lower levels of stress-triggering problems in adolescents aged 9 to 19 years old, and that this

stress-reducing effect of family connectedness is partially mediated by the coping strategies engaged by adolescents. Several important findings emerged from this study that appear useful for youth stress prevention.

First, the results of the present research demonstrate that family connectedness is an important direct predictor of lower levels of self-perceived stress-triggering problems in adolescents over time, confirming that although adolescents are detaching from their parents and seeking affiliation with their peer group at this developmental stage, the quality of their relationship with their family remains vital to their well-being (Fosco et al., 2020; McMahon et al., 2020). This result is consistent with a number of studies highlighting the importance of family functioning or family cohesion for youth psychological adjustment (Boutelle et al., 2009; Houltberg et al., 2011; Law et al., 2013) and confirms the beneficial effects of a positive family environment on youth well-being. Moreover, the present longitudinal analysis confirms the results of previously established cross-sectional associations between family belonging and the stress experienced by adolescents (Hjemdal et al., 2011; McGraw et al., 2008). Adolescents who feel connected to and have a sense of belonging within their family may have learned to display more positivity and adopt more positive interpersonal behaviours (Hershenberg et al., 2011), which may in turn explain why they experience fewer stress-triggering events, especially in interpersonal contexts.

Second, our results confirm that the nature of the family environment may contribute to the development of coping strategies, and that the feelings of closeness and belonging to family may suppress the use of maladaptive coping strategies by adolescents. However, and contrary to some studies, our results did not support the hypothesis that a supportive family context contributes to the development of adaptive coping strategies through the promotion and modelling of such strategies by parents (Kliewer et al., 1996; Ziemmer-Gembeck & Locke, 2007).

Third, our results shed light on the mechanism underpinning the effect of family connectedness on stress experienced by adolescents by confirming the mediating role of maladaptive coping strategies. Specifically, higher levels of family connectedness (T1) were found to be predictive of the later use of fewer maladaptive coping strategies (T2). Less frequent use of maladaptive coping strategies was then found to predict lower levels of stress-triggering problems one year later (T3), suggesting that, longitudinally, better family functioning leads to less frequent use of ineffective coping strategies, which in turn reduces the number of problems such adolescents face over time. These are consistent with studies showing that coping strategies mediate the relationship between family functioning and youth psychological maladjustement (Cong et al., 2020; Francisco et al., 2016; Ren et al., 2018). It thus seems that a caring family environment reduces the number of stress-triggering problems faced by adolescents directly, through the love and support given to adolescents, and indirectly, through the suppression of maladaptive coping strategies such as rumination and avoidance, which are associated with higher levels of perceived problems. This result is important as it allows for the identification of some antecedent influences on stress experienced by adolescents, as well as the mechanisms underpinning the protective function of family connectedness: namely, the reduction of the maladaptive coping strategies used to face common problems. However, as only the indirect effect of maladaptive coping strategies was found to be significant and only for the two oldest age groups, other mechanisms might be at play in younger adolescents that explain the impact of family connectedness on stress-triggering problems. Interestingly, the mean scores of family connectedness are the lowest, and the use of maladaptive coping strategies and stress-triggering problems are the highest, in the older adolescent age groups. Past research has highlighted that the type and number of coping strategies used change from early to late adolescence. Older adolescents have been found to report using a greater diversity of coping strategies than younger adolescents (Williams & McGilicuddy-De Lisi, 1999) and adolescents have been found to report using maladaptive coping strategies more frequently as they age (Hampel & Petermann, 2006). Future research will be needed to determine whether, to what extent and in which contexts, younger adolescents draw on protective resources other than family connectedness when responding to stressors.

Fourth, although the predicted temporal sequence was found to be empirically supported, examination of alternative pathways showed that stress-triggering problems negatively impact family connectedness in a reverse temporal order. This finding improves our understanding of the mechanisms underlying the development in adolescents of a sense of family connectedness. The majority of studies identify self-esteem and depressive symptoms (Boutelle et al., 2009), as well as youths' perceptions of family climate and parenting practices, as predictors of family connectedness. Our results did not identify any impact of precedent adaptive coping strategies on subsequent family connectedness, but maladaptive coping strategies were found to be negatively related to subsequent family connectedness. Our results thus suggest that adolescents' sense of connectedness to their family is affected by their use of maladaptive strategies (such as externalization and avoidance), which have been previously identified as a common source of parent–child conflicts during adolescence (LoBraico et al., 2020; Martin et al., 2019). Future research should seek to replicate this result and seek to identify other prior circumstances that boost and support family connectedness.

Fifth, our results identified two notable additional mediations (obtained with exploratory analyses) bearing

on stress-triggering events. First, we found that family connectedness played a significant mediating role between stress-triggering problems and maladaptive coping strategies. A higher frequency of stress-triggering problems predicted a reduction in family connectedness, which, in turn, predicted an increase in the use of maladaptive coping. Thus, stress seems to limit adolescents' availability and resources with which to share activities and feel belonging within their family, and it sets off a cascade of poorer adjustment through diminished family connectedness and greater use of maladaptive coping. These results added to the limited literature showing that adolescents report more negative affect and emotional problems when they face daily stress (Xu & Zheng, 2023). It is possible that high levels of stress-triggering problems contribute to adolescents' negative perceptions of themselves, including the ways they cope with their difficulties, and their surroundings, including family members. The second pattern identified suggested that family connectedness mediated the relationship between adolescents' use of maladaptive coping strategies and their levels of stress-triggering problems. Specifically, greater use of maladaptive coping strategies contributed to lower family connectedness, which in turn contributed to increased stress-triggering problems. Maladaptive coping strategies, such as externalization and avoidance, may contribute to family distance and conflicts, as suggested by the correlation between these two variables reported in many studies (Francisco, 2016; Roubinov, 2013), which in turn contribute to the stress-triggering problems perceived by adolescents.

Finally, it is worth highlighting that while our results illustrate how maladaptive coping longitudinally contributes to both stress-triggering problems and family coping, adaptive coping strategies did not predict any of the studied variables. This result is surprising, given that adaptive coping has been associated with better problem solving, stress reduction, and adaptation in adolescents (Amai, 2022; Seiffge-Krenke et al., 2009; Francisco, 2016). As we did not measure the severity or intensity of the stress generated by the problems faced by participants during the last 12 months, it is possible that while the use of problem solving and social support has no effects on the *number* of perceived stressful situation encounter, these strategies positively contribute to the alleviation of the stress generated by the situations. Future research should seek to better understand the adaptive coping strategies that could be strengthened to allow adolescent to reduce both the problems they face, and the stress generated by these problems.

Moderation of Sample-Wide Findings

Regarding gender differences, girls in the present study reported higher levels of stress-triggering problems than boys, which echoes past research (Hampel & Petermann, 2006; Persike & Seiffge-Krenke, 2016). However, while past research has shown that girls tend to use more frequently active coping strategies and boys more withdrawal coping strategies (Persike & Seiffge-Krenke, 2016; Seiffge-Krenke et al., 2009), the present study found that, overall, boys were less likely to use both adaptive and maladaptive coping strategies than girls. Interestingly, the present research suggests that maladaptive coping was a significant mediator for boys only, suggesting that family connectedness leads to lower stress-triggering problems through the use of less maladaptive coping strategies. It may be worthwhile for future research to investigate not just the level or amount of connectedness within families but also the nature of the connection family members have to each other and what impact this has on coping and stress in adolescents. A study has suggested that adolescent girls see their family as a resource for social support and relaxation while boys derive positive impacts from their family connectedness through shared physical activities (Wilhsson et al., 2017).

Persike and Seiffge-Krenke (2012, 2016) reported that parent-related stressors are among those most commonly experienced by adolescents in the majority of cultures, but that cultural differences exist in the specific coping strategies adolescents use in response to stressors of this kind. In the present study, the Māori group was found to report using maladaptive coping strategies more frequently and experiencing higher levels of stress-triggering problems than the New Zealand Europeans, but the indirect effect of maladaptive coping in the relationship between family connectedness and stress was not found to be significant in the Māori group. Cultural differences were therefore detected between the two ethnic groups in terms of their absolute levels of maladaptive coping strategies and stress-triggering problem. However, the particular mechanism by which family connectedness protected adolescents from stress in the Māori group remains to be uncovered.

Strengths and Limitations

The first strength of this study is its use of a preventive science lens to examine stress in adolescents. In fact, many researchers and theorists advocate for research oriented towards health promotion and prevention (Bernat & Resnick, 2006; Viner et al., 2012) and for studies that identify factors contributing to adolescent health and well-being by preventing dysfunctional states. Some studies have indicated that coping strategies can act as a buffer between stressful events and psychological symptoms in adolescents (Compas et al., 2017; Grant et al., 2006), while others have shown that family functioning can mediate the relationship between stress and psychological adjustment (Sheidow et al., 2014). However, very few studies have tried to determine how family

and coping strategies can both contribute to or alleviate stress in adolescents. In the real-world context, where almost half of adolescents experience difficulties in managing their stress (American Psychological Association, 2014), and where cultural differences in family dynamics and coping strategies exist, identifying protective factors against stress in adolescents is crucial.

Another major strength of the present study is its use of a longitudinal design. Many authors have previously highlighted the need for comprehensive longitudinal studies in order to shed light on the temporal relationships between stress and coping strategies (Compas et al., 2017; Francisco et al., 2016; Persike & Seiffge-Krenke, 2012). The present study also used a very large sample of adolescents distributed across various ages. However, a potential weakness of the study is that all variables were self-reported by adolescents. Future work may wish to obtain parent and peer ratings as well. In addition, the psychometric qualities of the stress-triggering problem measure have not been verified yet. It is also acknowledged that the groupings of adaptive and maladaptive coping strategies are, at present, new and relatively untested. Further demonstrations of the utility of this measure are needed to increase confidence in it. We also noted a small attrition effect for two of the four variables used in the present study, so our findings were based on slightly better-functioning adolescents than those who dropped out of the study over time. Future research should replicate the present findings in order to ascertain their validity and also use other-person reports (i.e., teachers and parents). Furthermore, only connectedness to the family was investigated in the present study. Future research should investigate the impact of other groups to which adolescents belong, such as their peer, school, community, or religious group (Jose et al., 2012). Finally, the conclusions drawn in the present study regarding cultural differences need to be interpreted with caution as only New Zealand data were used. Future research including adolescents from different countries and cultures will need to be conducted in order to determine whether and to what degree coping strategies explain the protective influence of family connectedness on the stress experienced by adolescents in other contexts as well.

Conclusions and Practical Implications

Given the importance and consequences of stress on adolescents' health and functioning, the results of this study may be useful for guiding clinicians' interventions and program development in promoting adolescent well-being. In light of our results, three areas of intervention seem particularly promising. First, it appears that strengthening adolescents' sense of social connectedness to their families is important if their health and well-being are to be enhanced (Gervais & Jose, 2020). Along this line, programs aiming to develop adolescents' abilities to manage their stress should include information and activities to sensitize adolescents to the importance of establishing and maintaining meaningful relationships with their family and peers, since adolescents' social connectedness and well-being bidirectionally influence each other over time (Jose et al., 2012). Sharing good times and activities with parents and families, taking time to communicate, cultivating and expressing affection within the family, and helping each other are all means by which adolescents can strengthen their connectedness with their family, and this approach should be integrated into stress-prevention interventions.

Moreover, given the bidirectional – and, therefore, potentially viciously cyclical-relationship between maladaptive coping strategies and stress-triggering problems highlighted in our results, special attention should be paid to children and adolescents who rely chiefly on maladaptive coping strategies. These youths should be taught how to better manage the difficulties they face and helped to develop more adaptive coping strategies such as emotional expression, help-seeking, and problem solving (Dolgin, 2014; Frank et al., 2014).

Finally, the importance of parents' modelling and coaching for their children's development of coping strategies is also an important finding of our study that should be incorporated into parenting interventions and programs. In particular, parents should be made more aware of the important role they have in shaping the coping strategies their children adopt. To help their children and adolescents adopt adaptive coping strategies and avoid maladaptive coping strategies, parents should be attentive to how they react to and cope with their own problems, as their behaviours are important models in the socialization of adolescent coping strategies (Undheim & Sund, 2017). Moreover, the contribution of family cohesion, family conflict, and family communication in the development of both adaptive and maladaptive coping strategies in adolescents should be explained (Francisco et al., 2016; Lohman et al., 2000; Zimmer-Gembeck & Locke, 2007), as well as the strategies' impact on adolescent stress, well-being, and mental health.

In conclusion, this study's results highlight the importance of the family environment, more specifically the sense of connectedness to the family, in protecting adolescents from stress-triggering problems. The results further demonstrate the indirect effect played by maladaptive coping strategies, in the relationship between family connectedness and stress-triggering problems. Our key finding was that family connectedness predicted the use of fewer maladaptive coping strategies, and, in turn, a lesser use of maladaptive coping strategies predicted lower levels of stress-triggering problem. Future research is needed in order to clarify what other elements of adolescents' social network can also protect them from stress.

Author Contribution CG performed the literature review, drafted the manuscript, and performed most of the statistical analyses; PJ created the research design, collected the data, and assisted in the data analysis. Both authors contributed to the writing of the final version, and read and approved the final manuscript.

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Data Availability The data that support the findings of this study are available from the second author, P.J, upon request.

Compliance with Ethical Standards

Conflict of Interest Authors declare no conflict of interest related to the work submitted for publication.

Ethical Approval Ethical approval was granted by the School of Psychology Human Ethics Committee of Victoria University of Wellington..

Informed Consent Informed consent was obtained from participants 16 years and older, and assent was obtained from participants younger than 16 years of age in addition to parental consent, according to ethical rules in place in New Zealand.

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