Adolescent Stress, Help-Seeking Intentions, Subjective Achievement, and Life Satisfaction in New Zealand: Tests of Mediation, Moderated Mediation and Moderation

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Abstract

We present the results of a study examining adolescent help-seeking intentions, stress, subjective school achievement, and life satisfaction. Using a cross-sectional design with a sample of New Zealand adolescents ($n = 1601$), we tested whether help-seeking intentions could mediate or moderate relations between stress and subjective achievement, and between stress and life satisfaction. We inspected these dynamics alongside different help sources (informal and formal) and domains where stress might be experienced (school and personal). Using mediation testing, findings suggest that informal help-seeking intentions have at least some influence on the relations between stress and well-being indicators, whereas formal help-seeking intentions did not. Conditional indirect effects for the mediation models (moderated mediation) revealed that gender and age did not moderate the relations between stress and informal help-seeking intentions, or between stress and well-being indicators with one exception: gender moderated the relation between personal stress and informal help-seeking intentions. In most models, tests of moderation lent support for a protective-reactive model in which help-seeking intentions reduce the adverse effects of stress on well-being indicators. Discussion focuses on modelling and promoting help-seeking activities across diverse support sources, and doing so earlier in life so that adolescents can benefit from well-honed coping strategies.

Keywords: *stress; coping; help-seeking; adolescence; achievement; life satisfaction*

Introduction

Adolescence typically involves rapid changes in physical, psychological, and social domains (APA, 2002; Dahl, 2004; Lesham, 2016). To manage these changes, individuals must acquire a set of effective coping strategies that support their health and well-being (Skinner & Zimmer-Gembeck, 2016). As young people shift their coping strategies to rely on a broader means of social supports, seeking help becomes an essential means of coping with stress (Frydenberg, 2008; Newman, 2000). However, the process of seeking help and its links to adolescent well-being is complex. For instance, a young person must be able to acknowledge *that* help is needed, understand *what kind* of help is needed, be aware of the *available* forms of support, determine *whether* that form of support will be useful, and *how* to approach that support source for assistance (e.g., Newman, 1994; Skinner & Zimmer-Gembeck, 2016). An important consideration is adolescents' willingness to seek help from informal, more immediate support sources (such as family and friends) as well as help from formal, more professional support sources (such as teachers and counsellors; Rickwood, Deane, & Wilson, 2007). Taking these factors into consideration, the purpose of the current research is twofold. First, we sought to understand New Zealand adolescents' help-seeking intentions according to different support sources (informal vs. formal) and the contexts where stress takes place (school vs. personal). Second, we explored whether these help-seeking intentions could mediate or moderate relations between stress and subjective achievement, and between stress and life satisfaction.

Help-Seeking Intentions in Adolescence

Help-seeking behaviours refer to actions where a person reaches out for assistance when it is needed (Frydenberg, 2008; Karabenick & Berger, 2013). These behaviours rely on social relationships and interpersonal skills by "communicating with other people to obtain help in terms of understanding, advice, information, treatment, and general support in

response to a problem or distressing experience" (Rickwood, Deane, Wilson, & Ciarrochi, 2005, p. 4). Seeking help is an important strategy that has the potential to help students succeed where barriers to success are presented (Karabenick & Berger, 2013). Coping through seeking help is positively associated with academic achievement (Ryan & Shim, 2012; Sakk, 2013), and a recent meta-analysis demonstrated the potential benefits of help-seeking and social support on adolescent mental health and wellbeing (Heerde & Hemphill, 2018). These characteristics highlight that relationships and help-seeking behaviours are critical in supporting adolescents' positive self-perceptions.

It is important to distinguish help-seeking intentions (HSI) from help-seeking behaviour. Researchers have viewed HSI as precursors of actions (Conner & Sparks, 2005; Newman, 2000; White, Clough, & Casey, 2018), and clarifying this distinction may be fundamental to the development of interventions that would promote HSI before assistance is urgently needed (White et al., 2018). To promote adaptive coping strategies, it would be useful to examine where adolescents would likely turn for help in different settings, the likelihood of seeking help from these support sources, and the extent to which this likelihood of seeking help might positively influence adolescent perceptions of achievement and satisfaction in life.

An adolescent's willingness to seek help could depend on a variety of characteristics. One factor may relate to stress and its influences on coping strategies. Based on the seminal transactional model by Folkman and colleagues (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984), it is generally believed that stress appraisals precede a particular means of coping. Coping represents action regulation under stress (Skinner & Zimmer-Gembeck, 2016), and includes a goal of reducing or eliminating the potential adverse effects of stress on an individual. According to the transitional model, an individual evaluates their thoughts, emotions, and actions related to the stressful experience to determine their ability to cope

adaptively with the situation. This evaluation can result in different mental and physical health outcomes. These outcomes, in turn, are expected to affect one's future experiences with stress. In relation to help-seeking intentions, for instance, a young person whose mental and emotional resources are taxed may adjust their intentions toward or against seeking help. As a result, help-seeking intentions may have the potential to increase or decrease how adolescents see themselves in terms of their achievement at school and their overall satisfaction in life.

Another factor may be one's attitudes toward different support sources. For example, some adolescents may prefer to discuss private matters with family members, whereas others may prefer to discuss such matters with individuals who are outside of their family unit. The latter preference could especially be the case if young people need guidance in situations where their family members could disapprove or struggle to offer adequate support. *Formal help-seeking* implies assistance from professional support sources (e.g., counsellors, youth workers, and teachers), whereas *informal help-seeking* implies assistance from familiar, immediate support sources (e.g. family and friends). Researchers have demonstrated that family, peers, and teachers are the primary sources of social support in students (Newman, Newman, Griffen, O'Connor, Spas, 2007), and these different sources play valuable roles in promoting help-seeking activities (e.g., Shin, 2018). Young people may have preferences to seek help from a licensed counsellor when facing personal difficulties (Timlin-Scalara, Ponterotto, Blumberg, & Jackson, 2003) but less willing when faced with learning challenges at school. Although adolescents may have a range of available support sources in their lives, not all of these sources may be viewed as equally beneficial. This area of research is limited, but initial studies signal this topic as warranting further consideration. For instance, O'Connor, Martin, Weeks, and Ong (2014) identified the perceived benefits of seeking help as one the predictors in adolescents' help-seeking behaviour; moreover, those who view help-

seeking positively and consider the help as beneficial are more likely to seek help. With regards to help-seeking intentions, we believe it may be useful to explore the extent to which adolescents would turn to formal and informal sources when confronting school and personal domains of stressors.

Promotive Factors from Compensatory and Protective Models

When support sources are well-established and constructive, they may serve as promotive factors that buffer against stress-related risks on adolescents. Promotive factors can be interpreted as resources (i.e., external, positive factors, such as social support) and assets (i.e., internal, positive factors, such as help-seeking as an established coping strategy; Fergus & Zimmerman, 2005). Promotive factors operate by interrupting the potential trajectory from risk to pathology from a strengths-based perspective; that is, rather than a deficit model or an attempt to reduce risk exposure, promotive factors are emphasized as the positive resources and assets an individual possesses (Zimmerman et al., 2013). Given the potential impact of stress and coping on well-being in young people (Zimmer-Gembeck & Skinner, 2011; Branson, Palmer Dry, & Turnbull, 2019), it is important to identify how promotive factors related to help-seeking intentions (HSI) might work in ways that lead to well-being indicators in school and personal life domains. In the current research, we focus on two well-being indicators that characterize self-evaluations that are typical of adolescents: subjective academic achievement and life satisfaction. How adolescents subjectively interpret their academic successes and broader quality of life may be sensitive to both stress appraisals as well as the means through which they cope.

It is likely that adolescents who are exposed to high levels of stress would be vulnerable to poorer well-being if stress is not mitigated; however, if high-stress adolescents are equipped with effective coping strategies, then it is plausible that the extent to which stress impairs well-being could be attenuated or avoided altogether. For the current research,

we consider risk in terms of two typical domains of adolescent life: (1) school life (e.g., school performance, school attendance, and teacher interactions), and (2) personal life (e.g., home life, romantic relationships, and future uncertainty). We examine how these domains of stress lead to well-being, namely adolescent perceptions of school-related achievement and general quality of life. We consider how HSI from informal (e.g., friends and family) and formal support sources (e.g., school counsellor and teacher) might serve as promotive factors when adolescents confront challenges in their school and personal lives.

To gain a better understanding of risk-outcome trajectories, we consider two models—compensatory and protective—as presented by Fergus and Zimmerman (2005). A compensatory model assumes that a promotive factor has a direct, opposite effect on an outcome and that this effect is independent of the effects of a risk factor on the same outcome (Zimmerman & Arunkumar, 1994). Typically, such models involve mediation testing in which direct linear effects of the risk and compensatory factors on the outcome variable are inspected in a regression equation (Zimmerman et al., 2013). One example of the compensatory model has been illustrated by research from Zimmerman and colleagues (2011). It was reported that adolescents whose friends engaged in fights (risk factor) were more likely to engage in violence (outcome); however, mothers' levels of support (compensatory factor) were found to compensate for the risk factor because they predicted less violence that was independent of friends' behavior. Within the scope of the current research, for example, we consider three variables: personal stress (risk factor), life satisfaction (outcome), and informal HSI (compensatory factor). From a compensatory model, it could be proposed that (a) adolescents with higher levels of personal stress may report lower life satisfaction than adolescents with lower levels of personal stress, and (b) a greater likelihood to consider seeking help from family and friends when needed may help neutralize personal stress (Garmey et al., 1984). The risk and compensatory factors would

contribute additively in the prediction of the outcome variable (Masten et al., 1988) and, in application, higher levels of informal HSI would presumably compensate for higher levels of personal stress. Adolescents with higher personal stress but also higher informal HSI would be projected to maintain a level of life satisfaction comparable to other adolescents with lower informal HSI but also less personal stress.

A protective model assumes that a promotive factor interacts with a risk factor in order to moderate or reduce the likelihood of an undesirable outcome (Fergus & Zimmerman, 2005). From this perspective, promotive factors are referred to as protective factors as a means of distinguishing them from promotive factors that only compensate for risk exposure (Zimmerman et al., 2013). For a protective model, a promotive factor may have a direct effect on an outcome, but its impact is stronger in the presence of risk exposure. Typically, protective models involve moderation testing in which main and interaction effects are inspected in a regression equation (see Anyan & Hjemdal, 2016). One example of the protective model has been illustrated by Schmeelk-Cone, Zimmerman, and Abelson (2003). It was reported that the association between socioeconomic status (SES; risk factor) and physiological stress (outcome) was reduced for adolescents who self-reported as deploying active coping strategies (protective factor). From this perspective, active coping appeared to serve as a protective factor for the stress that was linked to lower SES. In the current research, evidence for a protective model would be present if the strength of the association between personal stress (risk factor) and life satisfaction (outcome) is reduced for adolescents with higher informal HSI (protective factor).

Protective factors may differ in how they lead to various outcomes. Luthar, Cicchetti and Becker (2000) have distinguished protective-stabilising from protective-reactive models. A protective-stabilising model refers to situations where a protective factor helps to neutralise the effects of a risk factor on an outcome. Specifically, higher levels of risk are associated

with a greater likelihood for the negative outcome to take place when the protective factor is absent, but there is no association between the risk factor and outcome when the protective factor is present. For example, adolescents with high levels of stress in their personal lives (risk factor) who do not consider seeking informal help when needed (a protective factor) may experience poorer life satisfaction (outcome) whereas adolescents who do consider seeking informal help may not experience such effects on life satisfaction. In contrast, a protective-reactive model refers to situations where a protective factor reduces—but does not fully remove—the predicted association between a risk factor and outcome. Specifically, the effect of a risk factor on an outcome would be stronger when the protective factor is absent. For example, adolescents with high levels of stress in their personal lives (risk factor) may experience poorer life satisfaction (outcome); however, the strength of this risk-outcome association may be weaker for adolescents who consider seeking informal help (protective factor) than for adolescents who do not consider seeking informal help.

The Current Study

For the current study, we focus our attention to (a) describing informal and formal help-seeking intentions (HSI), (b) estimating whether HSI mediate the relations between types of stress and well-being indicators, and (c) estimating whether HSI operate as promotive factors moderating the relations between types of stress and well-being indicators. Such aims may help understand to what extent and under what circumstances might stress and HSI lead to individual differences in subjective achievement at school and life satisfaction. Our research questions were:

1. To what extent do adolescents consider seeking informal and formal help when they encounter school and personal challenges?

2. Do informal and formal help-seeking intentions operate as compensatory or protective factors influencing linear associations between stress (school and personal) and well-being indicators of subjective achievement and life satisfaction, respectively?

Method

Participants

Our sample included 1,601 adolescents attending high school in large metropolitan areas of New Zealand (Auckland and Christchurch). Self-identified gender was categorized as a trichotomous variable and included: Female (60.8%), Male (38.1%), and Gender Neutral (1.1%). Participant age ranged from 13 to 19 years ($M = 15.86$, $SD = 1.26$). Current year in school was as follows: Year 9 (3.6%), Year 10 (17.1%), Year 11 (16.9%), Year 12 (33.2%), and Year 13 (29.2%). Ethnic background was categorised according to the New Zealand census and included: New Zealand European (35.6%), Asian (24.9%), other (11.2%), Pacific (11.2%), multi-ethnic (10.6%), New Zealand Māori (3.3%), and Middle Eastern/Latin American/African (3.2%).

Procedure

The study received approval from the Human Participants Ethics Committee at the University of Auckland. We invited local schools to participate based on convenience and professional contacts. Based on the school's preference, we administered the self-report questionnaire either (a) through an online survey tool which would not take place during school hours or, (b) in person using a paper questionnaire which could be administered by our research team at a time that was convenient to the school. Based on independent-samples t-tests, we found no statistical differences in the results between the two forms of data collection. Each school was supplied with details about the research and requisite consent paperwork. For minors (i.e. under the age of 16), parental-guardian consent was required. Parents/Guardians received detailed information about the study and were required to

respond if they would permit their child to participate. Each participating student was also asked to give their informed consent, indicating their willingness to take part. The questionnaire was voluntary and anonymous to protect participant identity. Due to the nature of stress-related items and items about mental health, all participants were provided with information sheets including contact details for mental health services, both at school (counselling staff) and community-wide.

Initially, 1794 questionnaires were submitted. 193 (10.8%) cases had more than 10% of questionnaire items missing and were identified and deleted, as imputation with a small amount of missing values is deemed to be valid (Little & Rubin, 2002). Using a sample of n = 1601 participants, missing values were then imputed using the expectation maximisation procedure in SPSS version 26. Validity of imputation was checked by inspection of Little's (1988) MCAR test. Results of the MCAR test revealed non-significant p-values for the χ^2 test and therefore indicates no systematic cause of missingness could be identified. Because χ^2 tests are generally sensitive to a large sample size, the ratio of 2-to-df was calculated, and non-significant p-values were obtained (Wheaton, Muthen, Alwin, & Summers, 1977). Upon completing the Missing Value Analysis, descriptive statistics were checked to ensure the accuracy of imputation, with negligible differences reported.

Instruments

Adolescent Stress. We used the 56-item version of the Adolescent Stress Questionnaire (ASQ; Byrne et al., 2007). The instrument measures stress and is appropriate for adolescent samples using a 5-point Likert-style scale ranging from (1) not at all stressful (or is irrelevant to me) to (5) very stressful. The ASQ measures the extent to which participants have experienced stress over a period of 12 months with regards to ten stress-related domains. We sought to inspect adolescent stress based on domains which primarily involve school contexts (i.e., stressors involved in learning, interactions in the classroom, and

social interactions commonly taking place at school) and personal contexts (i.e., stressors involved in demands taking place outside of school, such as difficulties at home or in romantic relationships). To conceptualize these two contexts, we included the following subscales factors to represent School Stress: School Performance (e.g., "Having to study things you do not understand" and "Keeping up with schoolwork"), School Attendance (e.g., "Getting up early in the morning to go to school," and "Compulsory school attendance"), Peer Pressure (e.g., "Peers hassling you about the way you look" and "Pressure to fit in with peers"), Teacher Interactions (e.g., "Lack of respect from teachers" and "Not being listened to by teachers"), and School-Leisure Conflict (e.g., "Not getting enough time for leisure" and "Not enough time for activities outside of school hours")($\alpha = .86$). To represent Personal, we included the following subscales: Home-Life (e.g., "Disagreements between your parents" and "Abiding by petty rules at home"), Romantic Relationships (e.g., "Getting along with your partner" and "Being ignored or rejected by the person you want to go out with"), Future Uncertainty (e.g., "Concern about your future" and "Putting pressure on yourself to meet your future goals"), Financial Stress (e.g., "Not enough money to buy the things you need" and "Pressure to make more money"), and Emerging Adult Responsibility (e.g., "Having to take on new family responsibilities with growing older," and "Employers expecting too much of you"). Full details about measurement validation for the ASQ with a New Zealand population are reported elsewhere (Sotardi & Watson, 2019).

To support our theorized school-personal distinction, we performed confirmatory factor analysis (CFA) using in R using the lavaan package (Rosseel, 2012). A two-level factor structure was tested using the robust maximum likelihood (MLR) estimator[2]. Results

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[2] The ASQ was designed to make use of diagonally-weighted least-squares (DWLS) as the recommended estimator for CFA and structural equation modelling (Byrne et al., 2007). With our sample, a two-level CFA did not converge when using the DWLS estimator; therefore, we report our two-factor structure using the MLR estimator to add support for the school-personal distinction. We have chosen not to use latent variables due to concerns about estimator bias and misinterpretation.

showed acceptable fit to the data; χ^2 (1,456) = 5,526.14, p < .001, CFI = .92, TLI = .91, and RMSEA = .048, 90% CI [.046-.049]. To measure School Stress, we calculated the sum of each participant's averaged responses across the School Performance, School Attendance, Peer Pressure[3], Teacher Interactions, and School-Leisure Conflict subscales (α = .86). To measure Personal Stress, we calculated the sum of each participant's averaged responses across the Home-Life, Romantic Relationships, Future Uncertainty, Financial Stress, and Emerging Adult Responsibility subscales (α = .82).

Help-seeking Intentions (HSI). To measure the extent to which students would likely seek help from different sources, we used a modified version of the General Help-Seeking Questionnaire (GHSQ) from Wilson, Deane, Ciarrochi, and Rickwood (2005). Although there are various measures available to inspect constructs related to help-seeking activities, we selected the GHSQ for three reasons. First, the instrument aims to capture help-seeking intentions rather than help-seeking behaviours. Second, the GHSQ is designed in a way to measure how likely the participant would seek help from different sources of support (e.g., parents and friends/partners). Third, the GHSQ appears to have good reliability and validity (Wilson et al., 2005).

Modifications to the instrument were threefold. First, we retained the personal-emotional context as originally designed and added a learning problems context to evaluate help-seeking intentions within the education domain of adolescent life. We asked participants to report "If you were having academic or learning challenges, how likely it is that you would seek help from the following people?" (*school* context) and "If you were having personal or

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[3] We chose to include the "Stress of Peer Pressure" subscale as a factor relating to School Stress rather than Personal Stress. This decision was reached first according to theoretical grounds, and then, based on statistical support. Several items in the ASQ (Byrne et al., 2007) refer to pressures which imply that peers are those who are outside of one's in-group and friendships, and this may include other students at school (e.g., "Being hassled for not fitting in," and "Peers hassling you about the way you look"). However, peer pressure could also be argued as representing Personal Stress. Thus, we acknowledge the possibility that conceptual and statistical overlaps might exist, and that future research might use greater detail when referring to "peers" in the ASQ.

emotional difficulties, how likely is it that you would seek help from the following people?"

(*personal* context). Consistent with the original instrument, we used a 7-point, Likert-style

scale ranging from 1 (Extremely unlikely) to 7 (Extremely likely).

Second, we modified help support options to better capture the personal and school

contexts under examination in this study. The modifications were: (a) merging partner and

friend to estimate adolescents' intimate, non-family relationships; (b) adding "Classmate" to

better support the school context; (c) removing "Doctor/GP," as this option would not be

sensible for the school context; (d) replacing "Mental health" as an ambiguous term with

"School counsellor" to add specificity to the help source; (e) removing "Would not seek

help," as the option seemed problematic from a face validity perspective if other help source

options already asked students to rate their likelihood of seeking help; and (f) adding a help

source option ("*Whānau* /other family member") to be more culturally appropriate for a New

Zealand population. New Zealanders are widely familiar with the concept of *whānau*, which

represents one's extended family or community members who are important support sources

for an individual. Based on the original version, we included nine categories as support

sources: friend/partner, classmate, parent, *whānau*/other family member, teacher, school

counsellor, pastor/priest, youth worker, and phone help line.

Given the aforementioned modifications, we performed exploratory factor analysis in

SPSS version 25 to inspect the initial factor structure. We inspected the data for dimension

reduction based on participant responses to the personal context, as this context has been

validated in existing research (Wilson et al., 2005). We completed our analysis using

maximum likelihood (ML) estimation and oblique rotation. Results indicated that factor

analysis was appropriate and could be supported based on results of KMO (.83) and Bartlett's

Test; approximate $\chi^2 = 5{,}717.15$ (36), $p < .001$. Two factors emerged with eigenvalues greater

than one: Factor I (4.02, 44.64%) and Factor II (1.47, 16.33%). Total variance explained by

the two factors was 60.97%. Based on the pattern matrix, five items were associated with Factor I. Each item satisfied conventional factor loadings above the threshold of .40, with no items less than .48. These items were: Youth worker, Help line, School counsellor, and Teacher, therefore, representing formal support sources. Four items were associated with Factor II, with no items less than .41. These items were: Parent, *Whānau* /other family member, Friend/Partner, and Classmate. Factor II comprised four items with factor loadings greater than .41, representing informal support sources. There were no apparent issues with cross-loadings. We performed the same tests for the school context. We observed similar trends for factors identified in the personal context, although the loadings for *Whānau* /other family member (.38) and Parent (.29) were below the conventional threshold, and therefore resulted in low internal consistency (α = .64). We found no apparent issues with cross-loading, but these results indicate a need for further validation of the GHSQ for the school context.

Based on theoretical and factor structures, we created four factors: (a) four items for informal HSI in a school context (IHSI-S); α = .64, (b) five items for formal HSI in a school context (FHSI-S); α = .75, (c) four items for informal HSI in a personal context (IHSI-P); α = .72, and (d) five items for formal HSI in a personal context (FHSI-P); α = .85.

Subjective Achievement. We used a singular, self-report item to measure subjective achievement at school: "How well do you think you're doing academically as a whole? Please try to rate yourself objectively based on any marks, grades, or comments you have been given." Using a 9-point Likert-style scale, responses ranged from (1) rather badly to (9) very well. This construct measures adolescents' perceptions of how well they perform on school-related tasks rather than their actual performance. We followed this perspective to better understand how adolescents view themselves rather than how they performed on assessments according to external standards.

Life Satisfaction. We used the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), a short scale measuring one's perceived quality of life. Example items are "The conditions of my life are excellent" and "In most ways my life is close to my ideal." This 5-item instrument is rated on a 7-point Likert-style scale ranging from (1) strongly disagree to (5) strongly agree. The instrument is appropriate for adolescent samples (Moksnes & Espnes, 2013), and yielded good reliability for the current sample ($\alpha = .87$).

Statistical Analyses

We conducted our analyses in four steps. First, we analysed descriptive statistics for all variables of interest. Second, we conducted a series of separate simple mediation models in SPSS version 25 using the PROCESS software (version 3.4) as developed by Hayes (2018). Simple mediation was tested as an initial means of inspecting whether Stress (X) influences Subjective Achievement (Y) or Life Satisfaction (Y) through help-seeking intentions as a single intervening variable (M). Based on existing evidence suggesting that variables related to stress and well-being can differ as a function of gender and age (e.g., Sotardi & Watson, 2019), we draw on such premises to include Gender (C_1) and Age (C_2) as covariates as an initial strategy to remove their potential influences on the mediating effects under examination[4]. The statistical diagram for these models is shown in Figure 1.

As recommended in mediation analyses without a moderation component, a bootstrap confidence interval is preferred for inference (Hayes, 2018; Preacher, Rucker, & Hayes, 2007); thus, model testing was performed using 5,000 bootstrap samples. We would accept an indirect effect when zero is not within the upper and lower bounds of the 95% confidence interval.

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[4] For mediation and moderation testing, we used a dichotomous (male–female) categorisation of Gender as we had an insufficient subsample of gender-neutral participants to be included. Our sample for these analyses was, therefore, $n = 1,582$.

Third, we tested for moderated mediation in which the mediating process from X to Y might differ due to moderator variables Gender (W) and Age (Z). In the simple mediation models, gender and age were included as covariates to remove their potential influences; however, we agree with Hayes (2018) in that failing to incorporate potential contingencies and boundary conditions of an effect may result in greater over-simplification of complex processes. For instance, it is possible that having more school stress does not reduce help-seeking intentions if participants are earlier in their high school years. It is possible that male participants are likely to seek help regardless of stress levels, or that females may report lower life satisfaction than males irrespective of stress levels. Although there are likely to be many moderators at play, we focus on gender and age in this study based on theoretical assumptions and existing evidence (e.g., Moksnes, & Espnes, 2013; Sotardi & Watson, 2019). In this step, we perform these statistical tests to acknowledge that such conditional indirect effects (W and Z) could moderate the indirect effect (X to $M)$ and direct effect (X to Y). Prior to analyses, predictor variables were mean-centered to limit potential concerns with multicollinearity with interaction terms (Aiken & West, 1991). Mean-centred interaction terms were then automatically created according to the PROCESS syntax in which only continuous variables that define products were set. The statistical diagram for these models is shown in Figure 2.

Last, we conducted a series of moderation models in which Stress (X), Help-seeking intentions (M), Gender (W), and their respective interaction terms could predict well-being indicators (Y). For each model, we included Age a covariate as results from the moderated mediation models indicated that Gender emerged as having an indirect conditional effect but Age did not. Consistent with the moderated mediation tests, predictor variables were mean-centered, and the mean-centered interaction terms were automatically created in which only continuous variables that define products were set. Our model is presented in Figure 3. As

recommended by Hayes and Cai (2007), each model included the Davidson-MacKinnon heteroscedasticity-consistent standard error (HCSE) interference estimator to add support to the validity and power of such testing.

Results

Descriptive Statistics

Table 1 presents descriptive statistics and partial correlations while controlling for gender and age. In terms of means and standard deviations, we highlight that levels of School and Personal Stress were similar, and correlated strongly with one another. On average, these scores were both below the midpoint based on the ASQ's five-point scaling. Reports of Subjective Achievement and Life Satisfaction were also above their respective scaling. These scores suggest that our sample represents a cohort of adolescents who were currently enrolled in high school (by participating in the study), experience some degree of stress, and tend to view themselves as having moderately high well-being. It is important to keep in mind, therefore, that this sample may not represent the adolescent population.

Meanwhile, reports for help-seeking intentions (HSI) were, on average, below the midpoint based on the modified GHSQ's seven-point scaling. These scores reveal that participants were reluctant to seek help when faced with school and personal challenges. Importantly, this does not confirm that participants would not seek help at all; it simply indicates that they did not report a strong inclination to seek help from the sources listed. In both school and personal contexts, informal HSI were more frequently reported than formal HSI. Moreover, informal HSI were more frequently reported when facing stress related to school than in one's personal life.

Results in Table 1 show that IHSI-S and IHSI-P had moderate, positive correlations with both well-being indicators (Subjective Achievement and Life Satisfaction). FHSI-S and FHSI-P did not reveal clear trends. FHSI-S indicated a weak, positive correlation with Life

Satisfaction and a weak, negative correlation with Subjective Achievement. This would suggest that, when faced with school challenges, adolescents who consider formal help may report a higher quality of life but a lower perception of school achievement. Meanwhile, FHSI-P indicated a weak, positive correlation with Life Satisfaction and no correlation with Subjective Achievement.

It is also noteworthy that IHSI-S and IHSI-P had weak, negative correlations with School Stress and Personal Stress, whereas FHSI-S and FHSI-P had no correlations with School Stress and Personal Stress. We performed curve estimations to test for quadratic and cubic patterns; however, no trends were detected. These results have practical importance as they signal that intentions to seek help from formal support sources do not appear related to the nature of and amount of stress reported. These results also have statistical importance, as they restrict our subsequent mediation testing.

Mediation Testing

Simple mediation. Traditional mediation testing requires there to be statistically significant correlations among the predictor, mediator, and outcome variables (Baron & Kenny, 1986). Given the non-significant partial correlations we identified in the previous section, we proceeded with mediation testing for only the following four models: (1) School Stress (X), IHSI-S (M), and Subjective Achievement (Y), (2) School Stress (X), IHSI-S (M) and Life Satisfaction (Y), (3) Personal Stress (X), IHSI-P (M), and Subjective Achievement (Y), and (4) Personal Stress (X), IHSI-P (M), and Life Satisfaction (Y).

Prior to mediation testing, preliminary assumption testing was conducted to check for violations of normality using the Shapiro-Wilk statistic with Lilliefors Significance Correction. Values were associated with p-values less than .001, thus signalling potential non-normality. Initial results are not unexpected, however, as it is common to yield statistical significance from small deviations with large sample sizes (Field, Miles, & Field, 2012;

Ghasemi & Zahedias, 2012; Steinskog, Tjøstheim, & Kvamstø, 2007). Histograms, normal and de-trended normal Q-Q plots, and values of skew and kurtosis were examined, with no serious violations detected. Before interpreting results, potential outliers were examined using case-wise diagnostics of Cook's distance, leverage, and covariance ratio (CVR). Results in the subsequent sections indicated no apparent issues, suggesting that these were fairly reliable models that did not appear to be unduly influenced by any subset of cases. To inspect serial correlations between errors, Durbin-Watson tests were performed. To examine possible issues with multi-collinearity, all predictor variables were inspected using VIF and Tolerance and compared against conventional estimates of acceptability (see Field et al., 2012).

Results of the four mediation models are presented in Table 2. All coefficients included are unstandardized. In each model, we found X and M to be statistically significant predictors of Y at the $p < .001$ level. We inspected the indirect effects of X on Y and their respective bootstrapped confidence intervals. For all models, zero was not within the upper and lower bounds of the 95% confidence intervals, therefore lending support that informal help-seeking intentions had exerted at least some influence on the direct relations between stress and subjective achievement, and between stress and life satisfaction.

Moderated mediation. We used moderated mediation to determine whether the mediating process from X to Y differs due to moderator variables Gender (W) or Age (Z). In each of these models, the outcome variable (Y) was regressed onto (a) predictor variable (X), (b) Gender (W), (c) the interaction term $X \times W$, (d) Age (Z), (e) the interaction term $X \times Z$, and (f) mediating variable (M). As done with simple mediation, we tested only the four models in which correlations between X and M were statistically significant at the $p < .05$ level. We present the results in Table 3.

For the two models inspecting the school context, the interactions $X \times W$ and $X \times Z$ were not statistically significant predictors of either M or Y. When inspecting conditional

indirect effects of X on Y, zero fell within the lower and upper 95% confidence intervals for W and Z; therefore, it can be inferred that Gender and Age did not significantly moderate the indirect effect of School Stress on either Subjective Achievement or Life Satisfaction. Trends observed in the simple mediation models were supported and, therefore, imply that informal help-seeking tendencies—to a certain extent—mediated the relation between School Stress and Subjective Achievement, and on School Stress and Life Satisfaction. In sum, our findings add limited support for mediation, but not moderated mediation, for the school context.

For the model in which Personal Stress (X), IHSI-P (M), and Subjective Achievement (Y) were included, we found a statistically significant interaction for a_3. This result indicates that Gender ($B = .17$, $SE = .08$, $p = .04$) moderated the influence of Personal Stress on IHSI-P. This is depicted in Figure 4, where the mean and +1/-1 standard deviations are included to indicate low, medium (i.e., mean), and high estimates of Personal Stress. As presented, females with lower personal stress reported greater informal help-seeking intentions than females with higher personal stress. Irrespective of personal stress levels, females reported greater informal help-seeking intentions than males.

For this model, our findings show that the interaction term for path c_3' was not statistically significant, indicating that the direct effect of Personal Stress on Subjective Achievement was not moderated by Gender. With regards to mediation effects, the result reported in the simple mediation model was supported and, therefore, informal help-seeking tendencies somewhat mediated the relation between Personal Stress and Subjective Achievement. Based on the indices of partial moderated mediation, the upper and lower bounds of the 95% confidence intervals for W and Z included zero, suggesting that the indirect effect from X to Y was not conditional on Gender or Age.

The model in which variables included Personal Stress (X), IHSI-P (M), and Life Satisfaction (Y) yielded the same statistically significant interaction for path a_3. The

interaction term for path c_3' was also statistically significant ($B = -.17$, $SE = .08$, $p = .02$), indicating that the direct effect of Personal Stress on Life Satisfaction was moderated by Gender. The result reported in the simple mediation model was supported and, therefore, informal help-seeking tendencies somewhat mediated the relation between Personal Stress and Life Satisfaction. Based on the indices of partial moderated mediation, the upper and lower bounds of the 95% confidence intervals for W and Z included zero, suggesting that the indirect effect from X to Y was not conditional on Gender or Age.

Overall, results from mediation testing lend support that informal help-seeking intentions contribute, in part, to the direct relations from stress to well-being indicators. Gender appears to play a role in these effects, but our results do not support moderated mediation.

Moderation Testing

In contrast to mediation models, where predictor, mediating, and outcome variables must correlate with statistical significance, requirements for moderation models state there is no need for the predictor and moderating variables to be correlated (Baron & Kenny, 1986). Therefore, we tested for moderation effects involving eight models based on the following variants: (a) School or Personal Stress, (b) Informal or Formal Help-seeking intentions (HSI), and (c) Subjective Achievement or Life Satisfaction.

We present the unstandardized moderation results for the school context in Table 4. In Table 4a, we report main effects for School Stress (X) and informal help-seeking intentions (M) for Subjective Achievement (Y) and for Life Satisfaction (Y), respectively. For the model in which Life Satisfaction (Y) was the outcome variable, we identified an interaction for School Stress $\times$ IHSI-S (XM). In Table 4b, we report main effects for School Stress (X) and formal help-seeking intentions (M) for Subjective Achievement (Y) and for Life Satisfaction (Y), respectively. For the model in which Life Satisfaction (Y) was the outcome variable, we

identified an interaction for School Stress × FHSI-S (*XM*). Effect size estimates using R^2 varied from .06 to .24, with more variance predicted in Life Satisfaction than in Subjective Achievement. This may be due to several reasons. For instance, we used a single item used to represent Subjective Achievement while we used a multi-item scale used to represent Life Satisfaction. It is also plausible that Subjective Achievement is designed to estimate perceptions specific to school performance, whereas Life Satisfaction is designed to estimate perceptions encompassing broader domains of life.

We present the unstandardized moderation results for the personal context in Tables 4c-4d. In Table 4c, we report main effects for Personal Stress (*X*) and informal help-seeking intentions (*M*) for Subjective Achievement (*Y*) and for Life Satisfaction (*Y*), respectively. For both outcome variables, we identified meaningful interactions for Personal Stress × IHSI-P (*XM*). In Table 4d, we report main effects for Personal Stress (*X*) and formal help-seeking intentions (*M*) for Life Satisfaction (*Y*) but not for Subjective Achievement (*Y*). For both models, we identified interactions for Personal Stress × FHSI-P (*XM*). Effect size estimates using R^2 varied from .06 to .25, with more variance predicted in Life Satisfaction than in Subjective Achievement.

Overall, results demonstrate the conditional effects of help-seeking intentions on well-being indicators among adolescents who reported lower and higher levels of stress. We confirm main effects for stress and help-seeking intentions predicting subjective achievement and life satisfaction in most of the school and personal contexts. The signs are consistent across the models, meaning that adolescents who reported lower stress and greater help-seeking intentions had reported higher subjective achievement and better life satisfaction. With regards to interactions for the term Stress × Help-seeking intentions (*XM*), we confirm statistically significant effects for Life Satisfaction (*Y*) in the school context, and both Subjective Achievement (*Y*) and Life Satisfaction (*Y*) in the personal context. We highlight

that Gender (W) and Stress × Gender (XW) and Age (C_1) were not statistically significant (i.e., $p > .05$) for any of the eight tested models. The interaction terms (XM, path b_4) were consistently positive, meaning that the distance between stress and subjective achievement and between stress and life satisfaction is conditional on adolescents' help-seeking intentions. More specifically, as help-seeking intentions increase, there is greater distance between stress and well-being indicators.

For display purposes, we present moderation effects for the eight tested models. All results are plotted in which the mean and +1/-1 standard deviations are included to indicate low, medium (i.e., mean), and high estimates of stress. Figure 5 includes results for the four models predicting Subjective Achievement, and Figure 6 includes results for the four models predicting Life Satisfaction. Both figures illustrate trends with the 2 x 2 structure of school vs. personal contexts and informal vs. formal help-seeking intentions.

Displaying Moderation Effects for Subjective Achievement. We highlight several noteworthy results displayed in Figure 5. First, trends for informal HSI in School and Personal contexts (top left and bottom left) reveal that low-stress participants reported higher Subjective Achievement than high-stress participants. Participants more likely to seek help from informal support sources reported higher Subjective Achievement than those who were less likely to seek help from informal support sources. We detected a meaningful interaction only for the Personal context (bottom left), indicating that informal HSI did not differentiate levels of Subjective Achievement for low-stress participants; however, informal HSI differentiated levels of Subjective Achievement for high-stress participants.

Second, trends for formal HSI (top right and bottom right) differed from those for informal HSI. For instance, low-stress participants with less likelihood of seeking help from formal support sources reported higher Subjective Achievement than those with greater likelihood of seeking help from formal support sources. Moreover, findings for the Personal

context illustrated a statistical interaction in which low-stress, low-FHSI-P adolescents reported the highest levels of subjective achievement; however, high-stress, low-FHSI-P adolescents reported the lowest levels of subjective achievement.

Displaying Moderation Effects for Life Satisfaction. As shown in Figure 2, the results we found for Life Satisfaction resembled those for Subjective Achievement in terms of informal HSI (top left and bottom left). For both contexts, low-stress participants reported higher Life Satisfaction than high-stress participants. Participants more likely to seek help from informal support sources reported higher Life Satisfaction than those who were less likely to seek help from informal support sources. We detected statistical interactions for School and Personal contexts, suggesting that when faced with a challenge in their school or personal lives, the extent to which adolescents consider seeking help from informal support sources (e.g., friends and family) impacts on Life Satisfaction differently based on the existing stressors they experience. To a lesser degree, the interactions were similar for formal help-seeking intentions. Thus, our findings suggest that when facing challenges in school or personal areas of life, adolescents' intentions to seek help—from either informal or formal support sources—may buffer against the adverse effects of stress on perceived quality of life. Overall, the moderation results add support for a protective-reactive model.

Summary of Results

Broadly, our results provide initial evidence that informal and formal help-seeking intentions were not widely reported by participants in this sample. Findings suggest that informal help-seeking intentions have at least some influence on the relations between stress and well-being indicators, whereas formal help-seeking intentions did not appear to have an indirect effect for these respective relations. Conditional indirect effects for these mediation models (moderated mediation) revealed that gender and age did not moderate the relations between stress and informal help-seeking intentions or between stress and well-being

indicators with one exception: we found gender to moderate the relation between personal stress and informal help-seeking intentions. This finding appears to suggest that the influence of personal stress on informal help-seeking intentions differs between males and females. In most of the tested models, our moderation findings add support for a protective-reactive model in which help-seeking intentions reduce—but do not fully remove—the predicted association between types of stress and well-being indicators. That is, the effect of stress on well-being indicators appeared stronger when adolescents had fewer help-seeking intentions. We found negligible differences in the patterns between School and Personal contexts, but we found identifiable differences in the patterns between informal and formal HSI, suggesting that well-being indicators may be more strongly influenced by adolescents' perceptions of different support sources than the nature of the stress they encounter.

Discussion

The adverse impact of stress on elements of adolescent well-being is widely reported, and how individuals cope with their stressors is an important, contributing factor (Byrne et al., 2007, Grant, Compas, Thurm, McMahon, & Gipson, 2004). The current research builds on existing literature by examining adolescent stress, help-seeking intentions (HSI), and well-being indicators of subjective achievement at school and life satisfaction. Drawing on works from Byrne et al. (2007), Rickwood et al. (2007), and Fergus and Zimmerman (2005), we tested whether help-seeking intentions (HSI) have the potential to explain (1) how stress might be associated with well-being indicators (a mediation effect), (2) how and under what circumstances might stress be associated with well-being indicators (moderated mediation effect), and/or (3) when HSI might influence the strength of associations between stress and well-being indicators (a moderation effect). Broadly, we expected that when facing school and personal challenges, adolescents with a greater likelihood to seek help from others would reduce the adverse influences of stress on subjective achievement and life satisfaction.

Overall, our results demonstrate that, on average, adolescents in this sample reported moderate levels of stress, subjective achievement, and life satisfaction. Adolescents reported similar trends in personal and school stress, suggesting that neither stress domain was more heavily experienced. The strong correlation between personal and school stress may suggest that adolescents who face difficulties in their personal lives also tend to report stressors at school. This may suggest that individuals generalise, rather than compartmentalise stress-related experiences in school and personal stress domains, as is consistent with previous research (Sotardi, 2016).

Help-seeking intentions (HSI) differed depending on the nature of the stress (personal vs. school) and the type of support source (informal vs. formal). Adolescents in this sample did not consider help from formal sources (e.g., teachers and school counsellors) when compared to help from informal support sources (e.g., friends and family). This seems plausible, as it would be more likely for adolescents to consider reaching out for assistance from accessible, trusted individuals than those with potential barriers to access and uncomfortable self-disclosure (Gulliver et al., 2010). Our correlational analyses further demonstrate that seeking help from friends and family was negatively associated with stress whereas seeking formal sources of support was not. It is possible that seeking help from teachers, religious figures, mental health professionals, and other related services are linked to a fear of stigmatisation, embarrassment, or ingrained socio-cultural attitudes that individuals need to rely on themselves when faced with stress or negative experiences. In addition to such perceived risks, adolescents may also view formal support sources as less beneficial to their immediate needs. Researchers suggest that individuals are more likely to seek help if they have had positive help-seeking experiences in the past (Gulliver et al., 2010), so it could be more practically meaningful if young people are exposed to home and school environments in which seeking help is a norm and expectation. It could be useful to

model and actively promote the help-seeking process across a variety of support sources where adolescents are likely to consider. Further advancements in youth development programmes create wider opportunities for adolescents to learn and practice help-seeking intentions (Beals-Erikson & Roberts, 2016). Another possibility is to introduce help-seeking intentions earlier in life, such as in primary school, when older children learn to equip themselves with skills they might (unknowingly) need in adolescence.

Overall, our results demonstrate that help-seeking intentions (HSI) have the potential to serve as mediating and moderating influences. Findings suggest that seeking help from informal support sources exerts at least some influence on whether stress influences well-being indicators. For circumstances in which personal stress and informal help-seeking intentions are considered, gender may play an important role. These results offer partial support—albeit specific to the type of support sources—for a compensatory (mediation) model. This interpretation would be consistent with seminal theory in that the extent to which stress has adversely affected well-being depends on how adolescents cope (Folkman & Lazarus, 1984). In practical terms, it may be that those reactionary efforts to instil positive attitudes about formal support and seeking assistance from professionals may be less effective in achieving positive change in self-perceptions among already-distressed adolescents.

Meanwhile, our results support a protective-reactive model in which the likelihood to seek help might buffer against the adverse influences of stress on how adolescents see themselves. In this study, perceived achievement at school and quality of life among higher-stress adolescents may have benefited from a likelihood to seek help from others—especially when faced with challenges in their personal lives. Our results suggest that, when faced with difficulties in their personal lives, the extent to which adolescents consider seeking help from informal support sources (e.g., friends and family) impacts on subjective achievement

differently based on their existing levels of personal stress. Thus, having informal help-seeking intentions may buffer against the adverse effects of personal stress on how young people perceive their achievement at school. Our findings also revealed that lower-stress adolescents who were less likely to seek formal help with personal stress reported the highest levels of subjective achievement; meanwhile, higher-stress adolescents who were less likely to seek formal help with personal stress reported the lowest levels of subjective achievement. Although there could be multiple explanations, one possibility could be related to the degree of support needed. For example, if an adolescent feels life is going poorly (high personal stress), then considering help from formal sources might create a perception of support that gives rise to a poorer sense of school achievement. Similarly, if an adolescent feels life is going fairly well (low personal stress), then considering help from formal sources might be viewed as unnecessary. It is plausible that high stress and low perceptions of seeking help might permeate into other domains in life, such as their views on subjective achievement (Sotardi, 2016).

Although more research is needed to corroborate such findings, we believe that understanding adolescents' help-seeking intentions may offer insight into the development of coping strategies through help-seeking activities. There are several issues that should be examined in future studies. One consideration is the degree of (perceived) complexity that could be involved in formal-support channels. If adolescents have difficulty accessing such support—for instance, needing to obtain parental/guardian consent, disclosing sensitive topics, and navigating a mental health system—then it would be reasonable for formal help to be overlooked as a viable coping strategy. Another consideration is the complexity that is involved in coping strategies as a whole. Whereas it might be convenient to think of coping strategies as discrete and static, it is essential that forms of action regulation such as seeking help are acknowledged as (a) likely to correspond with multiple means of coping (e.g.,

problem solving, emotional support, seeking out advice, disengagement, and aggression), and (b) likely to be part of a complex, non-linear series of coping strategies. Help-seeking strategies might be at the beginning, middle, or end of a series of coping attempts, and this is likely to depend on the nature of the stress, available resources, and perceived effectiveness of different coping strategies along the way.

Our findings could indicate that HSI encourages a more proactive approach to coping with stress. Conversely, avoiding sources of support when faced with stress may lead to withdrawal, negative self-feelings, and heightened stress. In addition, adolescents with lower stress levels did not appear to benefit from such HSI, and this could be attributable to the limited need to manage relatively fewer reports of school and personal difficulties. Such findings make sense, intuitively, as adolescents who have fewer problems would be less likely to experience the effects of HSI on life satisfaction; however, we believe these findings are important given the potential instability of stress in adolescence. For example, as high school students in New Zealand progress from Year 10 to Year 11, the introduction of standardized assessments may create a new set of academic and personal stressors (Sotardi & Watson, 2019).

Our findings revealed that adolescents with more school stress reported lower subjective achievement and that those with higher informal and formal HSI reported higher subjective achievement. However, we found that neither type of HSI was able to moderate the relations between school stress and subjective achievement. This result could mean that irrespective of support sources, school stress contributes to adolescents' perceptions of academic achievement. Importantly, subjective achievement may be both a cause *and* effect of school stress. This adds to previous findings that consistently demonstrate strong associations between school stress and poorer academic outcomes (Windle & Windle, 1996). Our findings also reveal that HSI moderated the relation between stress and subjective

achievement when adolescents were reported having higher personal challenges. Although there might be multiple interpretations, it is plausible that distressed adolescents might hold more positive perceptions of school achievement when they are more willing to seek help during personal challenges. Further, seeking help from others during personal challenges may facilitate coping strategies (Cunningham, 2002; Richardson, 2004) and promote protective qualities such as open communication, reflection, and social support (Heerde & Hemphill, 2018). It could be useful, therefore, that help-seeking skills be promoted in ways that empower adolescents who are confronted with personal challenges. Such difficulties tend to transcend school boundaries and might have a more global influence on how adolescents view their school performance and quality of life.

With regards to adolescents' life satisfaction, our findings confirmed that both school and personal stress corresponded to lower quality of life, with similar trends. Our results revealed that HSI for formal and informal settings were associated with greater quality of life. Meaningful statistical interactions were found for all tested models, indicating that one's intentions to seek help may consistently moderate the relations between stress and life satisfaction across domains and types of support sources. This could suggest that adolescents with fewer stressors and greater HSI in their lives may withstand the effect of stress on life satisfaction more than others. It is also likely that adolescents who engage in help-seeking behaviours already have well-established supportive social environments and networks that buffer against future experiences of stress (Heerde & Hemphill, 2018).

Limitations

Our theoretical model was tested on a large, diverse sample of adolescents in New Zealand. Although this sample may add support to the generalizability of the findings, several limitations should be kept in mind and addressed in future research. For instance, our sample had disproportionally fewer adolescents attending school in Year 9. Although we made

efforts in our statistical testing to acknowledge the potential influence of age on reports of stress, help-seeking intentions, and well-being indicators, subsequent research with a larger sample of early adolescents would offer a deeper understanding of these dynamics. We focused our research on the existing help sources based on the existing instrument (GHSQ); however, there may be other help sources that were not included in this study (e.g., the online community). The current study relies on self-report measures to serve as a snapshot of the variables of interest. Self-report can be subject to response biases, and cross-sectional designs limit the ability to explain processes over time; thus, the integration of diverse measures and longitudinal studies are needed. Moreover, the ability of a one-item measure to capture subjective achievement is open to question, and future research might also benefit from academic performance measures. There also may be sample selection bias at play. Indeed, it is possible that the adolescents who completed the questionnaire represent those who currently attend school and are, therefore, perhaps the most likely to seek help, least stressed, or most have high perceptions of academic achievement and life satisfaction.

Lastly, reciprocal, or even reverse, effects are possible. Mediation is a causal phenomenon, and there are limitations in using mediation analysis based on data that are correlational and involve neither experimental nor longitudinal designs. The causal order in which stress serves as an antecedent to help-seeking intentions, for instance, could be put into question if an adolescent's socialised coping repertoire may influence what they view as stressful in the first place. It is also possible that well-being indicators could be positioned as antecedent to stress reports, as one's outlook on life might alter their views of stress. In the current study, we rely on established theory (Folkman & Lazarus, 1984) in order to test models that consider help-seeking intentions as a logical, indirect influence between stress and well-being indicators. Given this limitation, one suggestion is that researchers consider the postulation and testing of empirically valid models which could argue for or against the

order of effects. We also recommend that alternative models are thoroughly tested for greater understanding. There are ample opportunities for future work in this important area of research.

Given the limitations and observed results of this study, we agree that regardless of the challenges young people currently face, they should be supported in ways that promote effective coping mechanisms to serve as buffers against stressors, before these challenges take place and take hold. Such a view implies a preventative approach to stress, coping, and well-being among young people.

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Table 1

Partial Correlations for Types of Stress, Variants of Help-Seeking Intentions (HSI), Subjective Achievement and Life Satisfaction in a New Zealand Adolescent Sample while Controlling for Gender and Age (n = 1582)

	M (*SD*)	1. School Stress	2. Personal Stress	3. IHSI-S	4. FHSI-S	5. IHSI-P	6. FHSI-P	7. Subjective Achievement	8. Life Satisfaction
1. School Stress	2.40 (.87)	1	-	-	-	-	-	-	-
2. Personal Stress	2.43 (.88)	.83**	1	-	-	-	-	-	-
3. IHSI-S	4.50 (1.22)	-.09***	-0.07**	1	-	-	-	-	-
4. FHSI-S	2.10 (1.32)	.04	.04	.30***	1	-	-	-	-
5. IHSI-P	3.52 (1.41)	-.10***	-.08***	.57***	.37***	1	-	-	-
6. FHSI-P	2.09 (1.33)	.02	.03	.23***	.73***	.49***	1	-	-
7. Subjective Achievement	6.14 (1.77)	-.23***	-.23***	.24***	-.06*	.18***	.00	1	-
8. Life Satisfaction	4.49 (1.43)	-.37***	-.39***	.34***	.06*	.32***	.09***	.33***	1

Note. **$p < .01$. **$p < .001$.

IHSI-S = Informal help-seeking intentions for a school context; FHSI-S = Formal help-seeking intentions for a school context; IHSI-P = Informal help-seeking intentions for a personal context; and FHSI-P = Formal help-seeking intentions for a personal context.

Table 2

Results of unstandardized estimates for simple mediation models in which the direct path from X (stress) to Y (Subjective Achievement or Life Satisfaction) is mediated through M (help-seeking intentions), with covariates C_1 and C_2 are included to denote Gender and Age, respectively (n = 1,582)

Table 2a

			Consequent					
		M (IHSI-S)				Y (Subjective Achievement)		
Antecedent		B	SE	p		B	SE	p
X (School Stress)	a	-.13	.04	< .001	c'	.43	.05	< .001
M (IHSI-S)		-	-	-	b	.32	.04	< .001
C_1 (Gender)	f_1	-.26	.06	< .001	g_1	.002	.09	.99
C_2 (Age)	f_2	-.03	.02	< .001	g_2	-.01	.03	.89
Constant	i_M	5.42	.39	< .001	i_Y	5.84	.57	< .001
		$R^2 = .02$				$R^2 = .10$		
		$F(3, 1578) = 9.31, p < .001$				$F(4, 1577) = 44.17, p < .001$		

Total effect X on Y = -.48 (SE = .05), p < .001. Direct effect of X on Y = -.43, (SE = .05), p < .001. Indirect effect X on Y = -.04 (BootSE = .01) with BootLLCI = -.07 and BootULCI = -.01.

Table 2b

			Consequent					
		M (IHSI-S)				Y (Life Satisfaction)		
Antecedent		B	SE	p		B	SE	P
X (School Stress)	a	-0.13	0.036	0.000	c'	-.57	.04	< .0001
M (IHSI-S)		-	-	-	b	.36	.03	< .0001
C_1 (Gender)	f_1	-0.26	0.06	0.000	g_1	-.01	.07	.91
C_2 (Age)	f_2	-0.03	0.02	0.19	g_2	-.03	.03	.21
Constant	i_M	5.42	0.39	0.000	i_Y	4.73	.43	< .0001
		$R^2 = .02$				$R^2 = .24$		
		$F(3, 1578) = 9.31, p < .001$				$F(4, 1577) = 122.18, p < .001$		

Total effect X on Y = -.62 (SE = .04), p < .001. Direct effect of X on Y = -.57, (SE = .04), p < .001. Indirect effect X on Y = -.05 (BootSE = .02) with BootLLCI = -.08 and BootULCI = -.02.

Table 2c

			Consequent					
		M (IHSI-P)				Y (Subjective Achievement)		
Antecedent		B	SE	p		B	SE	p
X (Personal Stress)	a	-.14	.07	< .001	c'	-.46	.05	< .001
M (IHSI-P)		-	-	-	B	.20	.03	< .001
C_1 (Gender)	f_1	-.38	.07	< .001	g_1	-.001	.09	.99
C_2 (Age)	f_2	.02	.03	.55	g_2	.01	.04	.88
Constant	i_M	3.73	.45	< .001	i_Y	6.47	.55	< .001
		$R^2 = .02$				$R^2 = .08$		
		$F(3, 1578) = 10.69, p < .001$				$F(4, 1577) = 34.44, p < .001$		

Total effect X on Y = -.48 (SE = .05), p < .001. Direct effect of X on Y = -.46, (SE = .05), p < .001. Indirect effect X on Y = -.03 (BootSE = .01) with BootLLCI = -.05 and BootULCI = -.01.

Table 2d

		M (IHSI-P)				Y (Life Satisfaction)		
Antecedent		B	SE	p		B	SE	p
X (Personal Stress)	a	-.14	.07	< .001	c'	-.60	.04	< .001
M (IHSI-P)		-	-	-	B	.30	.02	< .001
C_1 (Gender)	f_1	-.38	.07	< .001	g_1	.01	.07	.86
C_2 (Age)	f_2	.02	.03	.55	g_2	-.02	.03	.52
Constant	i_M	3.73	.45	< .001	i_Y	5.16	.41	< .001
		$R^2 = .02$				$R^2 = .24$		
		$F(3, 1578) = 10.69, p < .001$				$F(4, 1577) = 123.03, p < .001$		

Total effect X on Y = -.64 (SE = .04), p < .001. Direct effect of X on Y = -.60, (SE = .04), p < .001.
Indirect effect X on Y = -.04 ($BootSE$ = .02) with $BootLLCI$ = -.07 and $BootULCI$ = -.02.

Table 3

Results of unstandardized estimates of conditional processing models (moderated mediation) predicting stress (X) on well-being indicators (Y) as mediated by help-seeking intentions (M) with conditional indirect effects of X on Y through M and conditional direct effects of X on Y (n = 1,582)

Table 3a

Antecedent		M (IHSI-S)				Y (Subjective Achievement)		
		B	SE	p		B	SE	p
X (School Stress)	a_1	-.14	.05	.003	c_1'	-.45	.06	< .001
M (IHSI-S)		-	-	-	b	.31	.04	< .001
W (Gender)	a_2	-.27	.07	< .001	c_2'	-.001	.09	.995
X × W	a_3	.01	.07	.93	c_3'	.03	.10	.81
Z (Age)	a_4	-.03	.03	.16	c_4'	-.01	.03	.87
X × Z	a_5	-.04	.03	.19	c_5'	-.02	.04	.62
Constant	i_M	4.61	.04	< .001	i_Y	4.72	.17	< .001
		$R^2 = .02$				$R^2 = .10$		
		$F(5, 1576) = 5.94, p < .001$				$F(6, 1575) = 29.46, p < .001$		

Indices of partial moderated mediation indicate index of Gender = .002 (BootSE = .03) with BootLLCI = -.05 and BootULCI = .06. Index for Age = -.012 (BootSE = .01) with BootLLCI = -.03 and BootULCI = .01.

Table 3b

Antecedent		M (IHSI-S)				Y (Life Satisfaction)		
		B	SE	p		B	SE	p
X (School Stress)	a_1	-.14	.05	.003	c_1'	-.55	.05	< .001
M (IHSI-S)		-	-	-	b	.36	.03	< .001
W (Gender)	a_2	-.27	.07	< .001	c_2'	-.02	.07	.79
X × W	a_3	.01	.07	.93	c_3'	-.06	.08	.46
Z (Age)	a_4	-.03	.03	.16	c_4'	-.04	.03	.17
X × Z	a_5	-.04	.03	.19	c_5'	-.03	.03	.40
Constant	i_M	4.61	.04	< .001	i_Y	2.87	.13	< .001
		$R^2 = .02$				$R^2 = .24$		
		$F(5, 1576) = 5.94, p < .001$				$F(6, 1575) = 81.64, p < .001$		

Indices of partial moderated mediation indicate index of Gender = .002 (BootSE = .03) with BootLLCI = -.06 and BootULCI = .07. Index for Age = -.012 (BootSE = .01) with BootLLCI = -.04 and BootULCI = .001.

Table 3c

		M (IHSI-P)				Y (Subjective Achievement)		
Antecedent		B	SE	p		B	SE	p
X (Personal Stress)	a_1	-.21	.05	< .001	c_1'	-.44	.07	< .001
M (IHSI-P)		-	-	-	b	.20	.03	< .001
W (Gender)	a_2	-.37	.07	< .001	c_2'	-.01	.09	.92
X × W	a_3	.17	.08	.04	c_3'	-.03	.10	.77
Z (Age)	a_4	.02	.03	.43	c_4'	.001	.04	.97
X × Z	a_5	-.01	.03	.81	c_5'	-.03	.04	.45
Constant	i_M	3.67	.05	< .001	i_Y	5.45	.13	< .001
		$R^2 = .02$				$R^2 = .08$		
		$F(5, 1576) = 7.24, p < .001$				$F(6, 1575) = 23.06, p < .001$		

Consequent

Indices of partial moderated mediation indicate index of Gender = .033 (BootSE = .02) with BootLLCI = -.002 and BootULCI = .07. Index for Age = -.002 (BootSE = .01) with BootLLCI = -.02 and BootULCI = .01.

Table 3d

		M (IHSI-P)				Y (Life Satisfaction)		
Antecedent		B	SE	p		B	SE	p
X (Personal Stress)	a_1	-.21	.05	< .001	c_1'	-.53	.05	< .001
M (IHSI-P)		-	-	-	b	.30	.02	< .001
W (Gender)	a_2	-.37	.07	< .001	c_2'	-.002	.07	.98
X × W	a_3	.17	.08	.04	c_3'	-.17	.08	.02
Z (Age)	a_4	.02	.03	.43	c_4'	-.02	.03	.35
X × Z	a_5	-.01	.03	.81	c_5'	-.01	.03	.70
Constant	i_M	3.67	.05	< .001	i_Y	3.43	.09	< .001
		$R^2 = .02$				$R^2 = .24$		
		$F(5, 1576) = 7.24, p < .001$				$F(6, 1575) = 83.14, p < .001$		

Consequent

Indices of partial moderated mediation indicate index of Gender = .05 (BootSE = .03) with BootLLCI = -.003 and BootULCI = .11. Index for Age = -.002 (BootSE = .01) with BootLLCI = -.02 and BootULCI = .02.

Table 4

Results of unstandardized estimates of moderation predicting stress (X), help-seeking intentions (M), and Gender (W) on either Subjective Achievement or Life Satisfaction (Y) with Age (C_1) as a covariate (n = 1,582)

Table 4a

		Consequent					
		Y (Subjective Achievement)			Y (Life Satisfaction)		
Antecedent		B	SE	P	B	SE	p
X (School Stress)	b_1	-.45	.07	< .001	-.55	.05	< .001
M (IHSI-S)	b_2	.31	.04	< .001	.36	.03	< .001
W (Gender)	b_3	.005	.10	.96	-.01	.07	.88
XM (School Stress × IHSI-S)	b_4	.04	.05	.38	.07	.03	.02
XW (School Stress × Gender)	b_5	.04	.12	.74	-.03	.08	.70
C_1 (Age)	f_1	-.003	.03	.92	-.03	.03	.20
Constant	i_M	6.20	.53	< .001	5.01	.39	< .001
		$R^2 = .10$			$R^2 = .24$		
		$F(6, 1575) = 25.05, p < .001$			$F(6, 1575) = 87.48, p < .001$		

Table 4b

		Consequent					
		Y (Subjective Achievement)			Y (Life Satisfaction)		
Antecedent		B	SE	P	B	SE	p
X (School Stress)	b_1	-.50	.07	< .001	-.61	.05	< .001
M (FHSI-S)	b_2	-.07	.03	.04	.08	.03	.003
W (Gender)	b_3	-.10	.10	.30	-.11	.07	.14
XM (School Stress × FHSI-S)	b_4	.07	.04	.09	.09	.03	.004
XW (School Stress × Gender)	b_5	.05	.12	.70	-.05	.08	.57
C_1 (Age)	f_1	-.02	.04	.60	-.04	.03	.13
Constant	i_M	6.46	.55	< .001	5.15	.41	< .001
		$R^2 = .06$			$R^2 = .15$		
		$F(6, 1575) = 13.36, p < .001$			$F(6, 1575) = 46.92, p < .001$		

Table 4c

		Consequent					
		Y (Subjective Achievement)			Y (Life Satisfaction)		
Antecedent		B	SE	p	B	SE	p
X (Personal Stress)	b_1	-.45	.07	< .001	-.54	.05	< .001
M (IHSI-P)	b_2	.20	.03	< .001	.30	.02	< .001
W (Gender)	b_3	-.01	.09	.93	-.004	.07	.95
XM (Personal Stress × IHSI-P)	b_4	.10	.04	.007	.08	.03	.002
XW (Personal Stress × Gender)	b_5	.01	.12	.95	-.14	.08	.07
C_1 (Age)	f_1	.003	.03	.92	-.02	.03	.35
Constant	i_M	6.09	.54	< .001	4.86	.39	< .001
		$R^2 = .09$			$R^2 = .25$		
		$F(6, 1575) = 19.98, p < .001$			$F(6, 1575) = 84.30, p < .001$		

Table 4d

Antecedent		Y (Subjective Achievement)			Y (Life Satisfaction)		
		B	SE	p	B	SE	p
X (Personal Stress)	b_1	-.49	.07	< .001	-.60	.05	< .001
M (FHSI-P)	b_2	.01	.03	.85	.11	.03	< .001
W (Gender)	b_3	-.08	.10	.40	-.10	.07	.16
XM (Personal Stress × FHSI-P)	b_4	.11	.03	.002	.08	.03	.005
XW (Personal Stress × Gender)	b_5	.03	.12	.88	-.11	.08	.16
C_1 (Age)	f_1	.01	.03	.79	-.01	.03	.75
Constant	i_M	6.02	.54	< .001	4.65	.41	< .001
		$R^2 = .06$			$R^2 = .17$		
		$F(6, 1575) = 13.95, p < .001$			$F(6, 1575) = 51.12, p < .001$		

The header row above the B/SE/p columns is labeled "Consequent".