EXPLORING PREDICTORS OF POSITIVE TRANSITION: A STUDY OF WELLBEING IN INTERMEDIATE AND SECONDARY SCHOOLS

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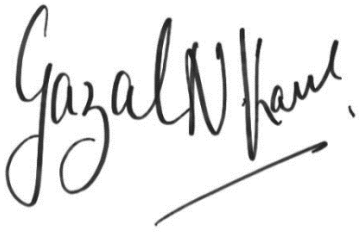
Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of a university or other institution of higher learning, except where due acknowledgment is made.

Gazal Nain Kaur Bharara



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Research Outputs

Peer-reviewed Journal Publications

Bharara, G. (2019). Factors facilitating a positive transition to secondary school: A systematic literature review. *International Journal of School & Educational Psychology*, *Advanced online publication*, 1–20. http://dx.doi.org/10.1080/21683603.2019.1572552

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Bharara, G., Duncan, S., & Jarden, A. (in submission). Exploring predictors of wellbeing in New Zealand adolescents: A cross-sectional study.

Presentations and Associated Publications

Presentations

Bharara, G. (2020). *Adolescents' conceptualizations of wellbeing: Are they different from those of adults and does socioeconomic status have an influence?* Paper accepted for presentation at the 10th European Conference on Positive Psychology at Reykjavik, Iceland. Part of a 60-minute symposium session with Jarden, A., Hone, L., Huang, L., & Jarden, R. Differences in conceptualizations of wellbeing across different populations: How teachers, lawyers, Chinese students, adolescents, and nurses conceptualize wellbeing differently to each other and academics.

Bharara, G. (2019). *Factors involved in the wellbeing of young people.* Invited presentation at the school "Group Scolaire Rugando," Kigali, Rwanda.

Bharara, G. (2019). *Improving wellbeing of young people: A holistic perspective*. Invited presentation at Vivek High School, Chandigarh, India.

Bharara, G. (2017). *Wellbeing to young Kiwis: Is it health, happiness, or security?* Presented at the Auckland University of Technology Postgraduate Symposium, Auckland, New Zealand.

Bharara, G. (2016). *Investigating the positive mental health of adolescents during school transitions*. Proposal presented at the 5th Doctoral Conference organized by the School of Public Health and Psychosocial Studies, Auckland University of Technology, Auckland, New Zealand.

Media output

Findings on adolescent conceptualizations of wellbeing were reported on Health Central NZ on 3 March 2020 with the heading, "*Tweens see family and friends as the surest way towards wellbeing.*"

Findings on adolescent conceptualizations of wellbeing were reported on the Auckland University of Technology News portal on March 3, 2020 with the heading, "*How adolescents define wellbeing.*"

Co-authored Works

Chapters 2 to 6 of this thesis represent five articles that either have been published in peer-reviewed journals or are in preparation for submission. All co-authors have approved the inclusion of the joint work in this doctoral thesis. The percentage contribution of each author is presented below:

Chapter 2: Factors facilitating a positive transition to secondary school: A systematic literature review

Gazal Bharara……100%

Chapter 3: A prototype analysis of New Zealand adolescents' conceptualizations of wellbeing

Gazal Bharara…….80%

Scott Duncan……8%

Aaron Jarden……8%

Erica Hinckson…….4%

Chapter 4: Initial development and validation of the Positive School Transition Readiness Survey (PSTRS)

Gazal Bharara……....90%

Scott Duncan…….10%

Chapter 5: Exploring predictors of wellbeing in New Zealand adolescents: A cross-sectional study

Gazal Bharara……80%

Scott Duncan…….15%

Aaron Jarden…… 5%

Chapter 6: A longitudinal study of factors predicting wellbeing during the transition between intermediate and secondary schools

Gazal Bharara……80%

Robert Borotkanics…… 9%

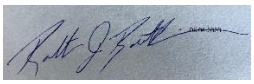
Erica Hinckson……2%

Scott Duncan……...9%

Scott Duncan

Aaron Jarden

Erica Hinckson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List of Abbreviations and Glossary of Symbols

Abbreviation	Definition
%	Percentage
%ile	Percentile
AUT	Auckland University of Technology
AUTEC	Auckland University of Technology Ethics Committee
AWE	Assessing Wellbeing in Education
CI	Confidence Interval
df	Degrees of freedom
GLMM	Generalized Linear Mixed Model
IBM	International Business Machines Corporation
ICC	Intraclass Correlation Coefficient
M	Mean
MCAR	Missing Completely at Random
Md	Median
N	Full sample
n	Subsample
NZ	New Zealand
OECD	Organization for Economic Co-operation and Development
p	Probability value or *p*-value, for checking the statistical significance
PC	Principal Component
PCA	Principal Component Analysis
phi	Phi coefficient, a measure of association or effect size
PSTRS	Positive School Transition Readiness Survey
r	Effect size; measure of the magnitude
$r_{s\ (rho)}$	Spearman's rank-order correlation coefficient
SD	Standard Deviation
SE	Standard Error
SES	Socioeconomic Status
SPSS	Statistical Package for the Social Sciences
t	*t*-test statistic; Coefficient divided by its standard error
UK	United Kingdom
US	United States of America
z	Z value; Difference between two scores
z	Z score; Standardized score
α	Cronbach's alpha
β	Beta coefficient (or regression coefficient); The degree of change in the outcome variable for every one unit change in the predictor variable
χ^2	Chi-square

Glossary of Terms

Term	Definition/Meaning
Affect equilibrium	The presence of positive affect in an individual does not mean the absence of negative affect; therefore, the balance between positive and negative affect is known as affect equilibrium or affect balance, which is a key aspect of subjective/emotional wellbeing (Keyes, 2013).
Being around positive people	In this thesis, this component is defined as the perceived sense of being surrounded by people who are respectful, encouraging, kind, and genuine (Bharara, Duncan, Jarden, & Hinckson, 2019).
Being kind and helpful	Here, this is defined as a perceived act of being understanding and caring toward other people and helping others when they are in difficulty or need (Nickell, 1998; Pommier, 2011).
Composite school	This includes all year levels from 1 to 13 (Ministry of Education, 2019).
Connection with nature/nature	Nisbet, Zelenski, and Murphy (2008) defined this as individual levels of relatedness with the natural world. The concept of nature relatedness "encompasses one's appreciation for and understanding of our interconnectedness with all other living things on the earth" (p. 718). Specifically, in this thesis this construct reflects "feelings and thoughts about one's personal connection to nature" (p. 723), and "a physical familiarity with the natural world, the level of comfort with and desire to be out in nature" (p. 725).
Enjoyment	Perceived enjoyment or having fun in this thesis is described as a general act of having fun in learning and leisure activities and enjoying being with friends and family (Bharara, Duncan, Jarden, et al., 2019; Endicott, Nee, Harrison, & Blumenthal, 1993).
Healthy diet/Diet	Adolescents' perceptions of the consumption of fruit and vegetables and of having breakfast during the last week.
Feeling safe	In this thesis, feeling safe is referred to as adolescents' perceptions of their sense of safety at school and while traveling to and from school (Bear, Gaskins, Blank, & Chen, 2011; Skiba, Simmons, Peterson, & Forde, 2006).
Flourishing	This denotes high or optimal levels of wellbeing, also known as optimum wellbeing. Flourishing has been described as the epitome of mental health (Huppert & So, 2013) and a "syndrome" of positive symptoms (Keyes, 2002).
Ill-being	Here, this is referred to as poor mental health comprising negative psychological states such as depression and anxiety.
Intermediate school	Intermediate school is a school between a contributing primary school and a secondary school. It comprises Years 7 and 8 (students normally aged 11–13 years) (Ministry of Education, 2019).
Involvement in organized activities	This means participation in extracurricular activities (e.g., sport and community activities) that are not part of the normal educational curriculum.
Mental health/positive mental health	The World Health Organization (2001) provided a positive conceptualization of mental health and defined it as "a state of wellbeing in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (p. 1).
Mindfulness	This means attending to and being aware of the present situation. For adolescents, mindfulness is explained as being attentive, focused, and present in the moment, as opposed to being unfocused and "preoccupied with thoughts about the past or future" (Norrish, 2015, p. 180).
Negative factor/Risk factor	Here, this is known as a factor that is associated with a negative outcome such as depression or anxiety.
Perceived teacher support	This is defined as "the degree to which teachers are perceived as helpful or accepting" (Torsheim, Wold, & Samdal, 2000, p. 197).
Physical activity	The perceptions of the frequency of body movement activities (e.g. walking) and participation in sport.
Positive factors	Positive factor is also known as a promotive factor and "refers to a factor or asset that is associated with a positive outcome" (Lippman et al., 2014, p. 2826).

Positive family relationships	Adolescents' perceptions of having a harmonious and friendly relationship with their family (Fok, Allen, Henry, & People Awakening Team, 2014) and receiving support and care from their family (Zimet, Dahlem, Zimet, & Farley, 1988).
Positive friendships	Adolescents' perceptions of the quality of their relationships with their best friends, based on the aspects of companionship, security, and closeness (Bukowski, Hoza, & Boivin, 1994), as well as the support and care they receive from their friends (Zimet et al., 1988).
Pre-post change/pretransition-post transition change	The way a predictor variable changes after the transition to secondary school relative to before the transition at intermediate school. In other words, this is the difference between a predictor variable's scores before and after the transition.
Primary school	There are two types of primary school in NZ. Full-primary schools cover levels 1 to 8 (students normally aged 5–12 years); contributing primary schools cover levels 1 to 6 (students normally aged 5–10 years). Adolescents in primary schools that are contributing usually attend intermediate schools (Ministry of Education, 2019).
Protective factors	This is described as a factor or asset "that is negatively associated with a negative outcome" such as depression (Lippman et al., 2014, p. 2826).
Purpose	The perceived presence and awareness of clear life goals and achievement of these life goals (Schulenberg, Schnetzer, & Buchanan, 2011).
Resilience	This is the ability to cope with a stressful situation, "the ability to persist in the face of challenges, and to bounce back" to a normal state of functioning and "grow from adversity" (Norrish, 2015, p. 151). Therefore, resilience "maintains a healthy and thriving life despite the natural and inevitable ups and downs that go with it" (p. 172).
School belonging	The "extent to which students feel personally accepted, respected, included, and supported by others in the school social environment" (Goodenow, 1993, p. 80). It means fitting in at school and the sense of psychological membership in the school.
School terms	There are four terms in a NZ school year and the start and finish dates of each term are flexible. Roughly, Term 1 starts in the last week of January and ends in early April (first or second week), and Term 2 extends from the last week of April to the first week of July. Term 3 usually extends from the third week of July to the last week of September. Term 4 begins from the second week of October and continues until 16 or 18 December, depending on the school type (Ministry of Education, 2016).
Secondary school (also called high school or college)	In NZ, secondary school follows intermediate school or full-primary schools and covers Years 9 to 13 (students are normally aged 13–18 years) (Ministry of Education, 2019).
Self-control	This (or trait self-control) is defined as the capacity to "change one's inner responses" (such as emotions) and inhibit "undesired behavioral tendencies (such as impulses) and refrain from acting on them" (Tangney, Baumeister, & Boone, 2004), p. 275).
Self-efficacy	This is a person's global belief in their ability to perform or behave in a way that allows them to achieve something. Schwarzer, Bäßler, Kwiatek, Schröder, and Zhang (1997) defined self-efficacy as a "global confidence in one's coping ability across a wide range of demanding or novel situations" (p. 71).
State-integrated schools	These schools receive funding from the government but have a special religious character (Ministry of Education, 2016).
State schools (or public schools)	These schools are owned and funded by the government and the education in state schools is free. These schools are more popular and have larger enrolments in NZ as compared to private schools, which charge fees per year/term (Ministry of Education, 2016).
Strength use and knowledge	It is the perceived understanding and usage of strengths. Strengths are "characteristics that allow a person to perform well or at their personal best" (Wood, Linley, Maltby, Kashdan, & Hurling, 2011, p. 16).
Unsuccessful school transitions	These are school transitions that are related with negative indicators (such as low academic performance and poor mental health).
Wellbeing	In this thesis, wellbeing is a multidimensional concept that integrates psychological, social, schooling, physical, spiritual, and demographic components (Bharara, Duncan, Jarden, et al., 2019).

Thesis Abstract

The transition from intermediate to secondary school is a defining period for many adolescents. This phase of life requires adolescents to adapt to an unfamiliar environment at the same time as dealing with the challenges entailed in the onset of puberty. Most research suggests that this transition has a negative effect on adolescent mental health, while wellbeing is associated with numerous academic, behavioral, and social benefits for adolescents. However, there is limited information on the way adolescents experience positive transitions and, specifically, on positive factors associated with wellbeing during the transition from intermediate to secondary school. The overall aim of this thesis was to explore the predictors of positive transitions from intermediate to secondary school in New Zealand (NZ) adolescents, using wellbeing as an indicator of transition success. Five studies were conducted to achieve this aim in two distinct but related phases: the preparatory phase and the exploratory phase. The preparatory phase comprised three studies that a) determined priority variables for predicting wellbeing (Studies 1 and 2) and b) developed a survey to assess the predictor variables (Study 3). The exploratory phase comprised a cross-sectional study (Study 4) and a longitudinal study (Study 5) that investigated the associations between the predictor variables and wellbeing.

Study 1, a systematic review, identified the empirical research on the facilitators of a positive transition to secondary school. Several distinct social, school, psychological, physical, spiritual, and demographic factors were found to be associated with academic or school-specific outcomes (e.g., academic achievement or school adjustment). The review revealed that no study examined predictors of wellbeing across the transition from intermediate to secondary school and that less than 10% of studies focused on wellbeing during other types of school transition. Study 2 addressed the lack of evidence in the transition literature concerning wellbeing and added greater precision to the conceptualization of wellbeing, utilizing a unique methodology of prototype analysis. The perspectives of adolescents in ethnically and socioeconomically diverse intermediate schools (N = 361) were obtained regarding the components of wellbeing and aspects that build wellbeing. The adolescents considered enjoyment/having fun, feeling safe, and being kind and helpful as central components of wellbeing. The centrality of components varied as a function of socioeconomic status (SES): adolescents from low SES regarded good physical health, comfort/being wealthy, being focused, good values, and success/achievements as being more important for wellbeing than adolescents from high SES. Positive family relationships, positive friendships, and physical activity/sport were perceived as the key pathways to wellbeing. The findings in the first two studies were combined to select the predictor variables. Study 3 developed and validated a novel survey with brief subscales to collectively and rapidly assess the predictor variables.

Informed by the findings of the preparatory phase, the exploratory phase examined the associations of predictor variables with adolescent wellbeing, using self-report surveys across two sub-studies. Study 4 explored the characteristics and determinants of global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing in an ethnically diverse sample of 471 Year 8 adolescents aged 11 to 14 years from eight NZ intermediate schools. Four schools were high SES, two schools were middle SES, and two schools were low SES. Most of the Year 8 adolescents evaluated their wellbeing positively; however, females reported lower satisfaction with their health and lifestyle behaviors than males. Being a Pacific Islander and female, and reporting higher feelings of safety, enjoyment, knowledge and usage of strengths, school belonging, physical activity, self-efficacy, positive family relationships, positive friendships, connection with nature, mindfulness, and being around positive people, were all significantly and independently associated with wellbeing (after adjustment for psycho-socio-spiritual, physical, demographic, and school factors).

Study 5 applied a two-wave longitudinal design to examine the associations of wide-ranging predictor variables with changes in global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing in NZ adolescents across the transition from intermediate to secondary school (n = 191). The results showed significant declines in global wellbeing and small improvements in school wellbeing and component wellbeing across the transition from intermediate to secondary school. There were small but significant improvements in adolescent perceptions of positive family relationships, positive friendships, teacher support, feelings of safety, self-efficacy, school belonging, being kind and helpful, and being surrounded by positive people after the transition to secondary school as compared to before the transition. Higher perceptions of feelings of safety, school belonging, self-control, purpose, strength use and knowledge, being around positive people, enjoyment, mindfulness, and physical activity in females before the transition were associated with improved wellbeing in distinct dimensions across the transition from intermediate to secondary school. In comparison, changes in self-efficacy predicted transition-related changes in all the dimensions of wellbeing.

These novel findings advance our understanding of the positive factors that predict wellbeing in the transition from intermediate to secondary school. Specifically, this thesis establishes the importance of several psychological, social, school, physical, and spiritual factors that are implicated in changes in multiple dimensions of wellbeing associated with this transition. It is hoped the findings in this thesis will stimulate further research and inform the development of holistic interventions and programs aimed at enhancing adolescent wellbeing and positive transitions.

CHAPTER 1: INTRODUCTION

Overview

This thesis explores factors that predict positive transitions between NZ intermediate and secondary schools, using wellbeing as an indicator of transition success. The overarching research question of this thesis is: Which factors predict wellbeing in NZ adolescents during the transition from Year 8 at intermediate school to Year 9 at secondary school? The thesis addresses this research question in two phases. The preparatory phase a) determines the predictor variables of this research (Chapters 2 and 3), and b) develops a novel survey to assess the predictor variables collectively (Chapter 4). Informed by the findings of the preparatory phase, the exploratory phase examines the cross-sectional and temporal associations of several psychological, social, school, physical, spiritual, and demographic predictor variables with varied dimensions of wellbeing before and across the transition from intermediate school to secondary school (Chapters 5 and 6).

This first chapter introduces the background of the study, reflecting on the concerns and experiences of adolescents who are involved with secondary school transition, and why the transition from intermediate to secondary school is especially difficult from a theoretical and research perspective. In addition, it discusses the negative effect of school transition on adolescents, particularly on their mental health; the need to focus on enhancing wellbeing during this stage; positive psychology and positive education approaches; and NZ and overseas policies with regard to wellbeing and positive school transition. The rationale of the thesis is explained and a statement of purpose is stated, followed by the significance and delimitations of this research. This chapter concludes with a synopsis of the thesis structure.

Background

School transitions have been a matter of considerable concern and interest in both international and national research and practice literature (McGee, Ward, Gibbons, & Harlow, 2004). The transition to secondary school has been described as "treacherous" (Mizelle & Irvin, 2000, p. 57), "traumatic and turbulent" (Hawk & Hill, 2004, p. 11), and "one of the most difficult" in the educational career of an adolescent (Zeedyk et al., 2003, p. 67). In particular, the transition from intermediate to secondary school is identified by many scholars as being disruptive because adolescents are required to make many simultaneous adjustments (Akos & Galassi, 2004b; Alspaugh, 1998; Blyth, Simmons, & Carlton-Ford, 1983; Hawk & Hill, 2004; McGee et al., 2004). The transition requires adolescents to adapt to an unfamiliar social and academic environment in the secondary school that is procedurally larger, more impersonal, and diverse than that of an intermediate school (Akos & Galassi, 2004b; Blyth et al., 1983). Further, Blyth et al. (1983) noted that the first school transition (e.g., from primary to intermediate school) leaves adolescents "vulnerable rather than strengthened for the second transition" (p. 16). There is evidence that negotiating several school transitions is predictive of greater risk of maladjustment and low scholastic achievement (Hawk & Hill, 2004; Schwerdt & West, 2013; Simmons, Burgeson, Carlton-Ford, & Blyth, 1987). Therefore, adolescents undergoing the transition from intermediate to secondary schools are prone to experiencing school adjustment and achievement issues because they make two school transitions (from primary to intermediate and from intermediate to secondary).

In NZ, more than 50,000 adolescents transition from primary school to intermediate school (Years 7 and 8) each year, and about half of that number move on to Year 9 at secondary school (Ministry of Education, 2018b).[1] Even with prospects of new friendships and freedom in the new setting, research suggests that NZ adolescents are often worried about transitioning to secondary school (Cox & Kennedy, 2008). Many of them experience declines in academic achievement, engagement, and self-esteem, and become negative toward school, learning, teachers, and subjects through the secondary school transition (Cox & Kennedy, 2008; Durling, Ng, & Bishop, 2010; Gibbs & Poskitt, 2010; Ministry of Education, 2010). A difficult transition to secondary school is associated with an increased school dropout rate (McGee et al., 2004), suspension (Durling et al., 2010), depression (Newman, Newman, Griffen, O'Connor, & Spas, 2007; West, Sweeting, & Young, 2010), and anxiety (Akos & Galassi, 2004b). The negative short-term and long-term influence of poor transitions includes flattening academic trajectories and mental health

[1] In NZ, there are two types of primary schools: contributing and full-primary. Contributing schools cover Years 1 to 6, and full-primary schools cover Years 1 to 8. Most adolescents from contributing primary schools attend intermediate schools that cover two levels, Year 7 and Year 8. Thus, intermediate schools can be differentiated from full-primary schools, which cover year levels 1 to 8. Intermediate school adolescents, who are normally aged 11 to 13 years, mostly attend secondary schools or colleges that cover levels 9 to 13. See the Glossary of Terms for more information on NZ school types and terms.

issues (Evans, Borriello, & Field, 2018). These concerns and negative outcomes are possibly a result of a mismatch between the social-organizational context of the new school and the developmental needs of adolescents (Eccles & Midgley, 1989).

The transition from intermediate to secondary school coincides with the average age for the onset of puberty, which could further exacerbate the turmoil and stress experienced during this critical life stage (Anderson, Jacobs, Schramm, & Splittgerber, 2000; Borman, Rozek, Pyne, & Hanselman, 2019). The developmental changes related to puberty—such as forming an identity and becoming more independent—present adolescents with significant mental health challenges (Kessler et al., 2005). According to Ministry of Health (2016a), mental disorders such as anxiety and depression are among the top 10 leading causes of health loss in five- to fourteen-year-olds. Relative to their international counterparts, NZ adolescents have the highest prevalence of teenage suicide (Organization for Economic Co-operation and Development, 2009). In 2014, the annual economic cost of the burden of serious mental illness (including addiction) in NZ was an estimated $17 billion, nearly 7% of Gross Domestic Product (Royal Australian and New Zealand College of Psychiatrists, 2016). The costs of the poor mental health of NZ adolescents are substantial, causing a considerable burden on families and the wider society (Malatest International, 2016). These facts paint a bleak picture for intermediate school adolescents undergoing difficult developmental and systematic transitions, and underscore the need for strengthening focus on adolescent wellbeing during the transition to secondary school. Research now shows that effective intervention at key points is a more cost-effective and promising means of altering the trajectories of adolescents than remedial and preventive programs (Fox et al., 2015).

Previous studies have identified the potential of the secondary school transition period for delivering interventions that improve the adaptation of adolescents to secondary school and subsequently, their mental health (Rice, Frederickson, Shelton, et al., 2011; Riglin, Frederickson, Shelton, & Rice, 2013). The successful navigation of this transition sets in motion a range of behavior patterns that are favorable for an adolescent's future (Rutter, 1989; Vitaro & Tremblay, 2008). Research has suggested that adolescent wellbeing should be a potential target for school transition interventions because of its link with a key indicator of positive school transition: academic achievement. The initial levels of adolescents' wellbeing in Years 6 to 8 is predictive of higher grades one year later (Riglin et al., 2013; Suldo, Thalji, & Ferron, 2011). In fact, wellbeing during adolescence is predictive of academic achievement, competence, civic engagement, and volunteering more than a decade later (O'Connor, Sanson, Toumbourou, Norrish, & Olsson, 2016). Thus, wellbeing is an essential indicator of positive school transition (Riglin et al., 2013).

While being in good wellbeing is critical for every adolescent, several strands of emerging evidence indicate that wellbeing is a multidimensional construct—more than simply the absence of disease—and comprises positive emotion, positive psychological functioning, and positive social functioning (Keyes, 2013). This conceptualization is akin to Mason Durie's (1985) comprehensive model of wellbeing, Te Whare Tapa Whā. Durie provided a Māori perspective of health and wellbeing and compared wellbeing or "hauora" (Māori perspective of health and wellbeing) with the four walls of house or "whare". He recognized four dimensions of wellbeing, as shown in Figure 2-1: taha tinana (physical wellbeing), taha hinengaro (psychological wellbeing), taha wairua (spiritual wellbeing) and taha whānau (social wellbeing) (Durie, 1985). The empirical research describes several facets of wellbeing, such as physical wellbeing, domain-specific wellbeing (e.g., family, education, and leisure), social wellbeing (Centers for Disease Control and Prevention, 2019), and a global or restrictive perspective of subjective or emotional wellbeing (e.g., happiness, life satisfaction, and affect balance) (Lampropoulou, 2018). Understanding wellbeing for adolescents is even more complex, as it needs to include school wellbeing, in addition to wellbeing in various life domains, such as education and family (Ben-Arieh, Casas, Frønes, & Korbin, 2014). Thus, any attempt to study the overall wellbeing of adolescents must consider its many dimensions.

Adolescents' competencies and strengths in overcoming transition-related stress are considered one way by which school transition may positively influence wellbeing and school transition adjustment (Shoshani & Slone, 2013). However, most research is still centered on studying the transition from a negative 'traditional' psychology perspective by understanding and evaluating psychopathology and deficits, or by focusing on the suffering end of the wellbeing continuum (see Figure 1-1 for a graphic representation of the wellbeing continuum, depicting the difference between traditional and positive psychology). While unsuccessful transitions and mental ill-being have been studied extensively, the assessment and examination of positive school transition and adolescent wellbeing has been minimal (Shoshani & Slone, 2013). Similarly, Lippman et al. (2014) emphasized that most research in psychology tends to focus on risk factors of ill-being, rather than on identifying factors that build adolescent wellbeing. Unsuccessful transitions to secondary school have been associated with numerous risk factors, such as lack of parent and peer support (Newman et al., 2007) and low self-esteem (McGee et al., 2004). While the factors that need to be avoided to allow a positive school transition (e.g., problem behavior) are clear (Darmody, 2008; Rice, Frederickson, Shelton, et al., 2011), without clarity around which positive factors matter, it is difficult for programs to encourage the positive goals of wellbeing promotion and transition success in the adolescent population.

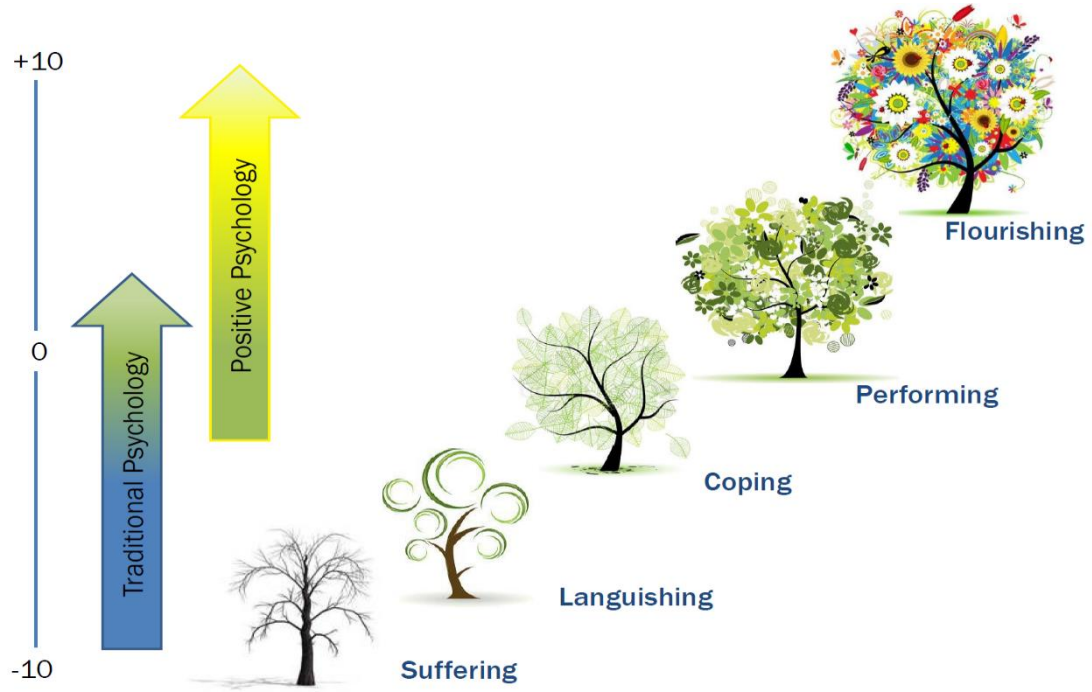


Figure 1-1. The Wellbeing Continuum; Source: Institute of Positive Education (2016)

Following the work of many psychologists (e.g., Carl Rogers, Abraham Maslow, Martin Seligman, Mihaly Czikszentmihalyi, and Christopher Peterson), positive psychology was founded as a new domain of psychology in 1998. It brought a shift in focus from pathology and deficit-oriented approach to understanding, identifying, and building skills and potentials that can help people to live more satisfying, fulfilling, and happier lives (Froh, 2004; Seligman & Csikszentmihalyi, 2000). This change in direction is in line with the school transition research that has identified, in recent years, the positive factors that facilitate transition experience. School environment and teacher support have both been implicated in promoting positive school transitions (Lester & Cross, 2015); thus, identifying the role of schools in enabling wellbeing (Waters, 2014). This prospect has led to many scholarly movements over the past few decades, such as positive education (Norrish, 2015). The paradigm of positive education, which means applying principles of positive psychology in education (Green, Oades, & Robinson, 2011), is particularly important for this research. From a positive education perspective, identifying ways to help adolescents to achieve high levels of overall wellbeing during the transition between intermediate and secondary school is necessary for helping them to cope well with the transition-related adversity.

Improving the transition to secondary school and adolescent wellbeing have become a focus of governments both in NZ and internationally (Department of Education and Training, 2016; Education Review Office, 2012a, 2015c, 2016a; McLellan & Galton, 2015; Ministry of Health, 2016b). For example, the Prime Minister's 2012 "Youth Mental Health Project" aimed to promote the resilience and psychosocial wellbeing of adolescents (12–19 years), among others (Ministry of Health, 2016b). Likewise, an Australian review identified the following priority interventions:

the transition to secondary school, school-based health and wellbeing, and mental health promotion (Fox et al., 2015). In addition, the educational curriculum in NZ has been refined to recognize wellbeing as a key learning outcome (Ministry of Education, 2007) and wellbeing has been recognized as being vital for positive transitions in NZ (Education Review Office, 2012a).

Both the Agenda for Children and the Youth Development Strategy Aotearoa recommend understanding wellbeing by utilizing a strengths-focused approach and focusing on the bigger picture, rather than on isolating factors (Ministry of Youth Development, 2004). It has been stressed that adolescents should be given opportunities to participate in conceptualizing their wellbeing and decision making around wellbeing (Education Review Office, 2013, 2015a, 2015c; Education Services Australia, n.d.), so that the components of interventions meant to promote wellbeing align with their views. However, the Science Advisory Committee (2011) noted that a strong evidence base is required for devising effective interventions that build adolescent wellbeing related to the transition process.

In sum, the literature indicates that the transition from intermediate to secondary school can be daunting for adolescents. Given that adolescence is also a period of opportunities, exploring the positive factors that allow adolescents to experience wellbeing in different dimensions through this period is critical for devising positive school transition interventions. According to the recommendations from the government and contemporary research, addressing this issue requires applying a comprehensive perspective and strengths-focused positive education approach, as well as incorporating views of adolescents about wellbeing.

Thesis Rationale

There were five main reasons for undertaking this research: (1) the significance of the transition between intermediate and secondary school in adolescent wellbeing; (2) gaps in the literature on positive school transitions; (3) the limited success of previous wellbeing interventions; (4) the important role of schools in building adolescent wellbeing; and (5) personal professional experiences. These are discussed further in the following paragraphs.

As noted earlier, the transition from intermediate to secondary school is a defining period for adolescents as they are required to make many simultaneous adjustments and are more susceptible to experiencing mental ill-being during this phase. While the literature has revealed poor behavioral and academic outcomes for adolescents who face difficulty during a transition period (Hawk & Hill, 2004; McGee et al., 2004), the overall levels of wellbeing in adolescents have shown promise in ameliorating their transition-related experiences (O'Connor et al., 2016; Suldo et al., 2011). It is surprising, given the well-documented short-term and long-term benefits of wellbeing for adolescents, that little research has investigated the factors that foster wellbeing in adolescents. Rather, most previous studies have focused on evaluating and remediating pathology

in this area. Although some literature examines the predictors of wellbeing, the review conducted for this thesis found there was no study focusing on the associations around the transition from intermediate to secondary school (Bharara, 2019).

Owing to the significant gaps in the existing knowledge regarding the influences on transition-related wellbeing, the Science Advisory Committee's report suggested that existing initiatives to ease the transition (e.g., life-skills development interventions) have had only limited success. The components of interventions for promoting positive outcomes (e.g., positive mental health and wellbeing) for children and adolescents were often based on minimal evidence and derived from narratives and unsubstantiated claims. As the prevention of ill-being is more effective than remediation in adolescence, it argued that a strong evidence base is required for encouraging effective transitions (2011). Identifying the factors associated with wellbeing during the secondary school transition is essential for designing evidence-informed practice.

The fourth reason for carrying out this research was based on the important role of schools in enabling wellbeing (Education Review Office, 2016a; Waters, 2014). Norrish (2015) reasoned that wellbeing needs to be embedded in the educational curriculum because it underpins successful learning, accomplishment, and relationships. The Education Review Office (2012a) suggested integrating learning and wellbeing approaches as a route to effective secondary school transitions; Bott et al. (2017) suggested that learning is closely intertwined with wellbeing. Nonetheless, most schools have not realized the importance of communicating the knowledge and skills required for adolescent wellbeing along with their academic learning. There is almost no overlap of what parents want for their children and what schools teach (Norrish, 2015). In two studies, the Education Review Office (2015a, 2015c) evaluated how well 68 secondary schools and 159 primary schools promoted wellbeing, based on discourse analysis, discussions (with school leaders, parents, adolescents, etc.), and analyses of curriculums. Eighteen of these secondary schools did not promote wellbeing adequately. Although nearly 48% of the primary schools (comprising 92 full-primary, 56 contributing, and 11 intermediate schools) had developed a positive culture and supported adolescents, they were not certain about the presence of a strong relationship between wellbeing and learning. Schools that had been effective in promoting wellbeing had focused on assimilating wellbeing throughout their actions and processes in their school culture and curriculum (including school values, vision, learning areas, and key competencies), and had sought the views and ideas of adolescents (Education Review Office, 2016b).

The adolescents in well-placed schools thought they were capable, had good relationships, and found school worthwhile (Education Review Office, 2015c). In contrast, the studies noted that adolescents in Years 7 and 8 did not achieve and experience wellbeing at the same level as adolescents in Years 1 to 6 because the schools had not balanced wellbeing and academics in

previous years (Education Review Office, 2015a). NZ schools face challenges in promoting adolescent wellbeing because of utilizing strategies of "fixing" and "blaming", rather than "restorative practices" (Education Review Office, 2015c, p. 26). Therefore, the current research was essential to generate the knowledge crucial for improving adolescent wellbeing and healthy transitions, with the intention that intermediate and secondary schools could utilize this knowledge.

Finally, this enquiry had its origin in my professional experience as a school counseling psychologist. While working with intermediate and secondary school adolescents, many adolescents (without special needs or problem behaviors) revealed during one-to-one counseling sessions that they were unhappy and dissatisfied with their lives, and had concerns about relationships. The teachers perceived the adolescents as being less engaged in academics and there were more discipline issues during Years 7 and 8 than at other year levels. Many adolescents in the intermediate school years tended to behave in ways that prevented them from realizing their full potential. Thus, my counseling experience with adolescents has been consistent with the findings of the existing wellbeing and transition research. In summary, there are many gaps in the positive school transition and wellbeing literature that represent a challenge for researchers, school practitioners, and policymakers in devising effective interventions and policies for successful transitions; this research intended to fill these gaps.

Originality and chapter-specific justifications

The present thesis, unlike the distress-centred studies, understands school transition from a positive education standpoint and aims to gain insight into positive factors that may predict a positive transition from intermediate to secondary school. While studying negative factors is important for avoiding negative outcomes in life, focusing on positive factors is crucial for improving positive development (Lippman et al., 2014). This thesis uses wellbeing as an indicator of positive transition from intermediate to secondary school, whereas previous researchers have utilized school-specific indicators of transition success, such as academic achievement (Maltais, Duchesne, Ratelle, & Feng, 2017). Understanding school transition from a positive education perspective means focusing on what ensures wellbeing (rather than on what impedes wellbeing or causes mental ill-being) during the arduous phase of moving from intermediate to secondary school.

The present thesis is original because to date, no national or international longitudinal evidence has focused on the predictors of wellbeing during the transition from intermediate to secondary school (Bharara, 2019). In the NZ context; much of the existing information has been anecdotal and has focused on the transition from primary to secondary school, with relatively small sample sizes (Cox & Kennedy, 2008; McGee et al., 2004). While a cross-sectional study has considered several social and school factors that predict comprehensive aspects of emotional wellbeing

(Lampropoulou, 2018), this thesis comprehensively examines a wide range of psychological, social, school, physical, spiritual, and demographic factors that may potentially be linked to varied dimensions of wellbeing during the transition from intermediate to secondary school, by incorporating a longitudinal design. Evans, Borriello, et al. (2018) recommended exploring a wide range of factors to examine the influence of secondary school transition on positive outcomes such as wellbeing, utilizing a longitudinal design. Comprehensive frameworks of wellbeing emphasize understanding wellbeing from a multidimensional viewpoint (Ben-Arieh et al., 2014; Keyes, 2013). However, the limited existing research has presented only a unidimensional perspective of wellbeing, excluding a more coherent model (Owen, Parker, Astell-Burt, & Lonsdale, 2018; Waters, Lester, & Cross, 2014). Predictors of wellbeing have been examined as individual units within a unique realm (e.g., social or psychological) during other types of transition (Lester & Cross, 2015; Shoshani & Slone, 2013).

The present thesis also makes unique contributions to knowledge in a series of studies. First, this thesis aligns the approach of positive psychology in positive school transition, presenting a working definition of positive school transition in Chapter 2. This definition helps to identify elements that can be fundamental in the successful navigation of school transition. Underpinned by Durie's model of wellbeing (Durie, 1985), this chapter also presents a new conceptual framework of positive school transition to organize and interpret the findings of this research into psychological, social, school, physical, spiritual, and demographic factors. Despite the substantial growth in the literature focusing on secondary school transition over the last two decades, there is less clarity with regard to the academic meaning of the construct of "transition success." While scholars have generally agreed that positive school transition is multidimensional (Rice, Frederickson, Shelton, et al., 2011), there has been little consensus on the assessment of positive school transition, which has been measured by different aspects such as academic performance (Ng-Knight, 2015). As a primary aim, Chapter 2 of this thesis offers a systematic review of the factors that facilitate a positive transition to secondary school and highlights the factors associated with academic indicators of positive school transition (e.g., academic achievement), in addition to wellbeing. This review is important because, to my knowledge, there has been no review of positive secondary school transition literature focusing on the keywords "factors" or "predictors" in its search strategy.

To address gaps in the transition literature regarding wellbeing and to add greater precision to the conceptualization of wellbeing, Chapter 3 outlines NZ adolescents' conceptualizations of wellbeing, using a unique strategy of prototype analysis. Although wellbeing is a nebulous concept and considering adolescents' conceptions is crucial for defining wellbeing; there has been no study to date that has examined the perspectives of adolescents in NZ intermediate schools as regards what defines and promotes wellbeing, per se. The evidence on the factors that improve wellbeing has rarely included adolescents' perspectives. There is also a dearth of information as

to whether socioeconomic status (SES) influences adolescent conceptualization of wellbeing. The national evidence suggests low SES tends to compound transition-related difficulties for adolescents (McGee et al., 2004). Thus, for the first time, Chapter 3 examines whether NZ adolescents' conceptions of components of wellbeing vary as a function of SES.

The predictor variables of this research are, in a substantial way, an integration of the factors that facilitate the academic indicators of positive transition and improve wellbeing as per adolescents' perspectives. Based on the recommendations of government and the extant research on unifying learning and wellbeing (Education Review Office, 2012a; Suldo et al., 2011), this integration is useful in answering the main research question.

In consideration of the participant burden, Chapter 4 of this thesis devises and validates a novel Positive School Transition Readiness Survey (PSTRS). This survey includes several brief subscales to tap predictor variables in a collective, efficient, and rapid manner in subsequent work. The validation process includes tests of alpha reliability ($N = 471$), test–retest reliability ($n = 121$), and a Principal Component Analysis (PCA).

Chapter 5 of this thesis is a cross-sectional study that characterizes the dimensions of wellbeing and demonstrates the factors associated with wellbeing in Year 8 intermediate school adolescents in NZ. While it is already known that secondary school adolescents in NZ evaluate their wellbeing positively (Clark et al., 2013), there is a relative dearth of literature regarding the presence and determinants of wellbeing in Year 8 intermediate school adolescents here. Similarly, little is known about changes that occur in wellbeing between different school settings in NZ.

Chapter 6 depicts the patterns of changes in various dimensions of wellbeing and shows the alterations in several psycho-socio-spiritual, school, physical, and demographic predictor variables during the secondary school transition. This chapter addresses the main research question of this thesis and makes an original contribution to knowledge by examining the temporal associations between several predictor variables and changes in the dimensions of wellbeing during the transition from intermediate to secondary school in NZ. As the transition to secondary school requires a period of adjustment over time (Anderson et al., 2000; McGee et al., 2004), Term 2 of Year 9 was chosen to assess positive school transition for several reasons. First, in the first year of secondary school, adolescents can be more susceptible to experiencing difficulties related to the transition than during other years. Second, while their transition concerns during Term 1 of Year 9 are likely to be reduced because of the additional support they receive from teachers and peers during this time, these anxieties can reappear and persist through the rest of Year 9 (Bagnall, Skipper, & Fox, 2019). Finally, their transition anxieties can be aggravated during Terms 3 and 4 of Year 9 because of academic assessment pressure. Research in the UK has shown that adolescents' perceived levels of anxiety at the beginning of secondary school is

similar to their perceptions of anxieties at the end of their first year (Riglin et al., 2013). The Glossary of Terms at the start of this thesis contains information about NZ school terms.

In summary, the present research was designed and undertaken because of gaps in the existing school transition and wellbeing literature, as well as the importance of wellbeing in adolescents, the role of schools in enabling their wellbeing, and my professional experiences. It was anticipated that the factors that predict the wellbeing of adolescents during the transition from intermediate to secondary school would determine the ease with which they moved from one school to another. This thesis views the transition process from a positive education and comprehensive perspective and makes many new contributions to knowledge. Each study conducted in this thesis was underpinned by logical justifications.

Statement of Purpose and Research Questions

Guided by the positive education approach, this thesis examines the predictors of positive transitions from intermediate to secondary school in a comprehensive manner, utilizing wellbeing as an indicator of transition success. The overarching research question of this thesis is: Which factors predict wellbeing in NZ adolescents during the transition from Year 8 at intermediate school to Year 9 at secondary school? To answer this question, five sub-questions span the preparatory phase (Chapters 2–4) and exploratory phase (Chapters 5 and 6). The phases of the research are shown in Figure 1-2.

The purpose of conducting the preparatory phase was twofold:

a) Selection of the predictor variables: These were selected from a systematic literature review of the factors facilitating a positive transition to secondary school (see Chapter 2) and an empirical investigation of adolescent conceptualizations of wellbeing (see Chapter 3).
b) Survey development: Informed by these predictor variables, a new survey was developed and validated to assess the putative predictors quickly and efficiently (see Chapter 4).

The exploratory phase of this research examined the associations of selected predictor variables with the wellbeing of adolescents in NZ intermediate schools (see Chapter 5); studied changes in wellbeing and potential predictors across the transition to secondary school; and tested and observed factors that improved wellbeing over the course of transition from intermediate to secondary school (see Chapter 6).

The key objectives of the series of studies in this research were as follows:
Preparatory phase:

1. To systematically review the positive school transition literature, with a focus on:
    - factors that facilitate a positive transition to secondary school.

2. To investigate conceptualizations of wellbeing in Year 7 and Year 8 NZ adolescents in state intermediate schools, by:
    - exploring the perceptions of NZ adolescents in state intermediate schools with regard to the components of wellbeing
    - identifying the aspects that build wellbeing, as per the NZ adolescent perceptions.
3. To develop and validate a survey with brief subscales for assessing the predictor variables.

Exploratory phase:

4. To examine the associations of the main demographic, psychological, school, social, physical, and spiritual factors with global, school, domain-specific and component wellbeing in Year 8 adolescents at NZ intermediate schools.
5. To examine the demographic, psychological, school, social, physical, and spiritual factors that predict global, school, domain-specific and component wellbeing during the transition from intermediate to secondary schools in NZ adolescents, by:
    - examining the temporal associations between the pretransition perceptions of Year 8 adolescents at NZ intermediate schools regarding the demographic, psychological, social, school, physical, and spiritual factors and changes in their global, school, component and domain-specific wellbeing during the secondary school transition
    - examining the temporal associations of the changes in several demographic, psychological, social, school, physical, and spiritual factors with changes in global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing during the secondary school transition.

Within the frameworks suggested by Creswell (2003), this research used a sequential mixed-methods approach. It has been underpinned by the philosophical notions of pragmatism but broadly, it reflects a post-positivist worldview. The quantitative method was the primary data obtainment approach and most data were numeric.

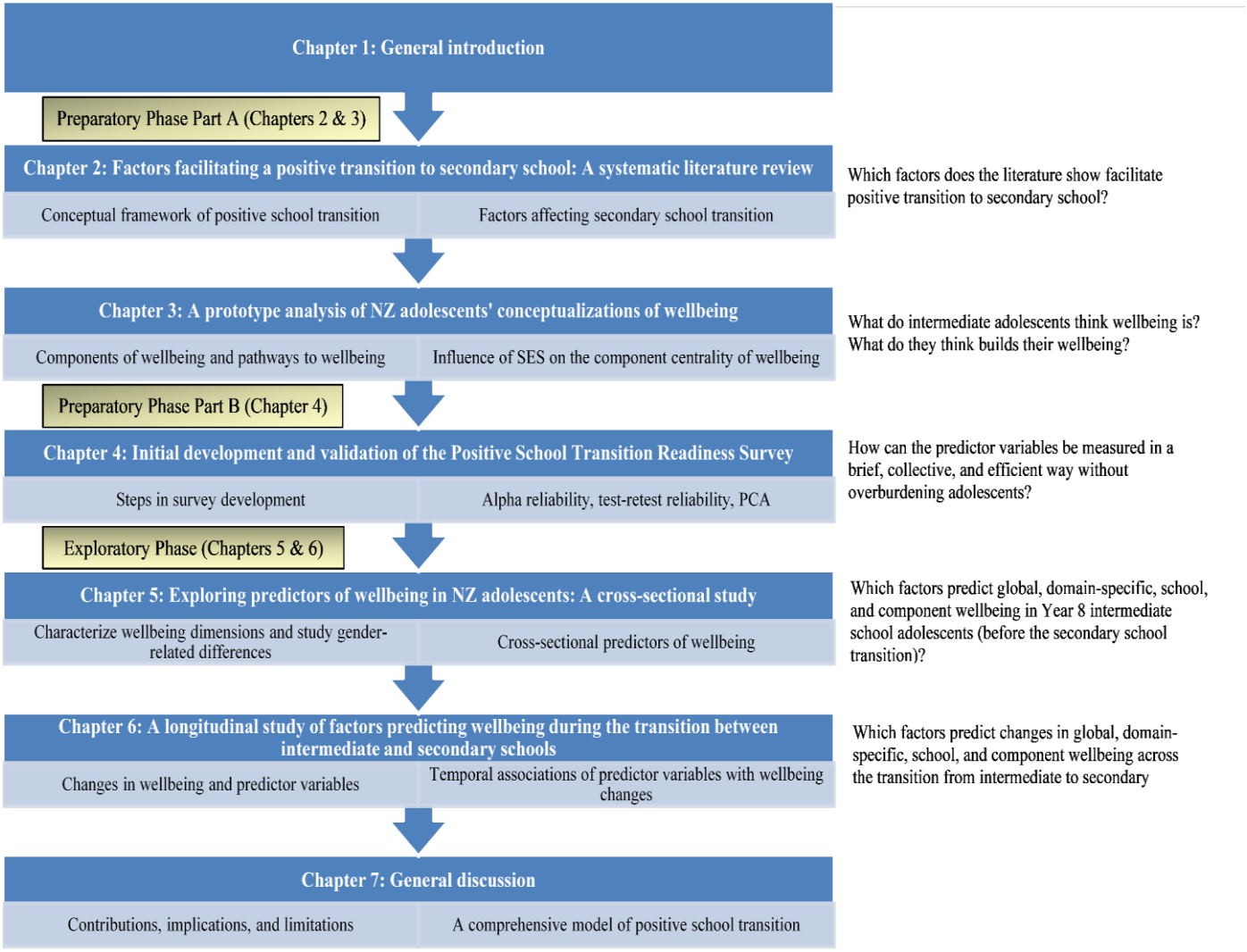


Figure 1-2. Overview of the thesis with key research questions and flow of studies

Significance of this Research

The primary contribution of this thesis is the development of a holistic model of factors that predict overall wellbeing of adolescents during the transition from intermediate to secondary school transition and, therefore, may improve their secondary school transition experience (see Figure 7-1). The evidence generated in each chapter addresses gaps in the positive school transition and wellbeing literature, particularly regarding conceptualization, measurement, temporal patterns, and associations. The epidemiological knowledge contained within this thesis may provide new directions for future research. In addition, this thesis presents a preliminary and general measure of positive school transition that may help in identifying vulnerable adolescents in a timely fashion and inform positive transition interventions. School leaders and practitioners can utilize the new evidence base in their profession for improving the wellbeing of adolescents and secondary school transitions. This knowledge will be particularly useful for the candidate in her future professional endeavors.

The predictors of wellbeing change during the transition from intermediate to secondary school (see Figure 7-1) can serve as the basis for intermediate and secondary school interventions and policies aimed at enhancing adolescent transition success and wellbeing (including positive education programs). Interventions utilizing these factors are likely to be well received by adolescents, as most of these factors align with adolescent views of wellbeing. Since the generated knowledge could result in the development of effective, evidence-informed transition and wellbeing programs, this research may contribute to the enhanced overall wellbeing of adolescents during the transition from intermediate to secondary school. This may eventually have other benefits for participants and the community as well, such as favorable educational and health outcomes and less cost to society (e.g., lower rates of behavioral disorders) (Busch & Barry, 2007). Study-specific contributions and the significance of this research are discussed within the respective chapters, as well as in Chapter 7.

Study Delimitations

- This investigation was carried out from a social science and psychological perspective; therefore, most of the information was collected using self-report measures. The use of objective measures was beyond the scope of this research; accordingly, the data resulting from this research is limited to subjective reports.
- The aim of this research was to understand the perceptions of adolescents; therefore, the data were not obtained from parents or teachers. While data from secondary informants could have verified the adolescents' responses, it was not practical to do this in the present research. In addition, it was assumed that adolescents are capable and honest when sharing their thoughts and the data from secondary informants could be less precise. Other

research has noted that the perspectives of adolescents are more valuable than those of parents or other adults when examining adolescent wellbeing (Lippman et al., 2014).

- Participants of this research were limited to adolescents in Years 7 and 8 in NZ state intermediate schools and Year 9 in secondary schools. The data from Year 7 adolescents were collected in Chapter 3 only to allow generalization of the findings from the conceptualizations of wellbeing to the entire intermediate school population. While this research planned to recruit participants from low-socioeconomic schools, the focus of this research was not on specific groups such as Māori or children with special needs. All adolescents who consented to participate from a certain year level were recruited, irrespective of their demographic characteristics or learning needs.
- As is common in most educational psychology research, the predictor variables (except demographics) in this research were considered continuous variables.
- While the term wellbeing is perceived in diverse ways in different areas of psychology and health, in this thesis, wellbeing is understood, from a positive psychology perspective, to comprise multiple positive components.
- Because positive mental health is a broad concept, this thesis limits itself to the understanding of wellbeing—a key aspect of positive mental health (World Health Organization, 2001).
- Owing to the constraints of time and research, this research demonstrates the short-term predictors of wellbeing change through the transition from intermediate to secondary school.
- This research is limited to presenting a broad view of the key predictors of positive school transition and does not intend to amplify the information on all these factors.

The exclusion criteria were as follows:

- Adolescents from Year 8 in full-primary, state-integrated, composite and private schools were excluded because fewer students continue Year 8 in these schools than in state intermediate schools (Ministry of Education, 2018b).
- The two schools that were part of the prototype analysis study (see Chapter 3) were not invited to participate in the remaining studies, as the participants from these schools were already primed to the aspects that define and promote wellbeing.

Thesis Structure

This thesis incorporates distinct chapters adapted from manuscripts for publications. Chapters 2 to 6 are a series of studies written as articles that are either already published or are under preparation for submission to journals. As noted earlier, the chapters span the preparatory (Chapters 2–4) and exploratory phases (Chapters 5–6). The preparatory phase is further divided into Parts A and B. Part A includes Chapter 2, which systematically reviews factors that facilitate a positive transition to secondary school and Chapter 3, which utilizes a prototype approach to

investigate adolescent conceptualizations of wellbeing in NZ. Part B of the preparatory phase includes Chapter 4, which develops and validates a survey to assess the predictor variables. Following the preparatory phase, the exploratory phase covers Chapters 5 and 6. Chapter 5 is a cross-sectional study that explores the predictors of wellbeing in Year 8 adolescents at NZ intermediate schools before the transition to secondary school. Chapter 6 uses a two-wave longitudinal design to examine the temporal associations between pretransition predictors and changes in these predictors with changes in wellbeing during the transition from intermediate to secondary school. In short, Chapters 2 to 6 present studies that inform, measure, and examine factors that predict adolescent wellbeing related to the transition. Chapter 7 discusses the contributions, general implications, limitations, and future directions for research of each of these studies and the whole thesis. Figure 1-2 (earlier section) shows the key research questions and the focus and flow of the studies.

As the chapters in this thesis are stand-alone manuscripts, some unavoidable duplication of information occurs (e.g., introduction, procedure, and participants). This research used an online assessment tool to collect wellbeing data. This assessment was devised by the candidate's mentor, Dr Aaron Jarden, Associate Professor in the Centre of Positive Psychology at the University of Melbourne. This survey has been provided as a supplement (see Appendix G) and is available on the following web link as well: https://www.awesomeschools.com/. While the survey used for measuring wellbeing in this thesis (Jarden, Walker, & Quinlan, 2015) and the assessment available on the Assessing Wellbeing in Education (AWE) link are identical, the term AWE may be absent in the measures sections of Chapters 4 to 6, as per the advice of the mentor because of his disaffiliation with the AWE company. While at the initial stages of this research it was intended for the data to be collected using AWE, it was not possible because of practical considerations. To present the thesis as a coherent whole, each manuscript is preceded by a preface that describes the linkages between the manuscripts and the motivation behind the study.

PREPARATORY PHASE: PART A

SELECTION OF PREDICTOR VARIABLES

CHAPTER 2: FACTORS FACILITATING A POSITIVE TRANSITION TO SECONDARY SCHOOL: A SYSTEMATIC LITERATURE REVIEW

Preface

This chapter was conceived by recognizing the lack of consensus regarding indicators of positive school transition and the scarcity of findings related to factors that may improve the transition experience. An initial glimpse of the positive school transition literature revealed that there is substantial variability in the way researchers define positive school transition. In addition, it indicated that most school transition research has focused on poor transitions, negative outcomes of transitions, and adolescent concerns about school transitions. Therefore, this chapter provides a working definition of positive school transition and systematically reviews the factors that facilitate a positive transition to secondary school. In addition, this chapter documents a conceptual framework of positive school transition to aid in organizing and interpreting the findings related to predictor variables in this research. Since secondary school transitions occur at different ages in different countries, this review selected studies based on a broad age range from 10 to 15 years, rather than the type of transition.

A preliminary systematic review was conducted in July 2016 and later updated in 2018. The prior search included "mental health" and "depression" as the related keywords for wellbeing in recognition that positive psychology is a relatively new discipline and the records related to wellbeing were limited. The prior search was relatively broad than the later search in an effort to expand the results for potential priority predictor variables related to positive school transition at an earlier stage of the research. The search strategy was later updated with the removal of the keywords, depression and mental health (see Table 2-2), to exclude records related to unsuccessful school transitions or/and illbeing. Although mental health is considered one of the key indicators of positive school transition, it was observed that many studies, in essence, focused on negative side of the mental health continuum and examined protective factors or/and anxiety or depression (rather than wellbeing or positive mental health) (Evans, Borriello, et al., 2018).

A considerable number of factors revealed in this chapter were associated with academic indicators of transition success. Therefore, this review in Part A of the preparatory phase offered an opportunity to integrate the factors that enhance academic success with the factors that build wellbeing (see Chapter 3), to help with selecting the predictor variables of this research. The full paper from this chapter has been published in the International Journal of School and Educational Psychology (see the permission in Appendix H). This chapter has been slightly adapted for the purpose of this thesis.

Abstract

A positive transition to secondary school is pivotal to adolescents' mental health and success. However, school transition research has mainly focused on transition-related adversities rather than adolescent wellbeing and adaptation. While the disturbing consequences of a difficult school transition are known, little attention has been paid to the key breadth factors that enable adolescents to thrive during the school move. A systematic review was undertaken to determine the factors that predict a positive transition to secondary school. A novel conceptual framework of positive school transition, based on a positive education paradigm, was proposed to group the findings. School ecology, organized activity involvement, spirituality, character strengths, self-efficacy, feeling safe, personality, physical fitness, and birth order are some of the relatively less-researched aspects in the transition literature that were found to be significantly associated with a positive transition to secondary school, besides other popular school and social support factors. The results from the present review can stimulate and inform future research investigating the correlates or causes of a successful transition to secondary school. Improved understanding of the facilitators of positive transition will inform the invention and application of school transition programs.

Introduction

The transition to secondary school is a significant and defining period for adolescents, as this stage coincides with the onset of puberty and requires them to adapt to an unfamiliar environment (Anderson et al., 2000; Education Review Office, 2012a; Killebrew, 2017; Rens, Haelermans, Groot, & Brink, 2017). Previous research has shown that the developmental changes associated with puberty are linked with many adverse academic, psychological, social, and behavioral outcomes, including school failure and mental illness (Brooks, Harris, Thrall, & Woods, 2002; Kelleher, McInerny, Gardner, Childs, & Wasserman, 2000; Kessler et al., 2005); ostensibly, adolescents aged 10 to 15 years are most likely to face these challenges (Education Review Office, 2012a). For example, Simons-Morton, Crump, Haynie, and Saylor (1999) indicated that mental disturbance and delinquent behaviors escalate as adolescents enter secondary school. Beyond the individual-level impacts, it is sensible to focus on 10- to 15-year-olds because mental ill-being poses a considerable burden on society (Rens et al., 2017). Issues associated with this stage of adolescence may also perpetuate the anxiety accompanying the change of school.

While most adolescents are excited about the new secondary school experience, with its increased freedom and friendships, they can be anxious about the academic burden involved, peer approval, bullying by seniors, and having multiple teachers and less teacher scaffolding (Department of Education, 2013; Hanewald, 2013; Hawk & Hill, 2004; Killebrew, 2017; Mizelle & Irvin, 2000; Rens et al., 2017). A large body of evidence has found that an adolescent's level of difficulty during the transition to secondary school is strongly linked with negative outcomes (Benner, 2011; Hanewald, 2013; Rens et al., 2017; Waters, Lester, Wenden, & Cross, 2012). These can include dropping out of school (McGee et al., 2004); experiencing discipline problems (Weldy, 1990), depression (Newman et al., 2007), or anxiety and loneliness (Benner & Graham, 2009); or declines in achievement and academic performance (Alspaugh, 1998; Barone, Aguirre-Deandreis, & Trickett, 1991; Rice, 2001), school attendance, self-image, future achievements (Ashton, 2008; Barone et al., 1991; Dinham & Rowe, 2009; West et al., 2010), and wellbeing (Benner, 2011). In fact, the highest frequencies of discipline referrals and school dropouts occur during this transition phase (Donegan, 2008). Following a sample of 100 adolescents transitioning from Year 8 at primary school into secondary school, a 2010 study by the Ministry of Education noted that NZ teachers had more concerns about deteriorations in adolescent's behavior and progress after the secondary school transition than when the same adolescents had been in primary school (Ministry of Education, 2010). Another study with a sample of over 2,000 Scottish adolescents demonstrated that difficult transitions at age 11 predicted psychological distress two and four years later (West et al., 2010). Even though some adolescents may feel well-adjusted in the early weeks at secondary school, transition problems can occur and recur throughout the first year of secondary school (Ministry of Education, 2010).

While the transition to secondary school occurs at different ages in different countries (and sometimes even within the same country), the same pattern of decline in achievement has been reported for any type of transition (McGee et al., 2004). Some countries have a three-tier school system (e.g., NZ and the US), where a majority of students attend intermediate schools between primary and secondary schools and make two transitions. In other countries, such as Australia, secondary schools follow full-primary schools (usually covering Years 1–6 or 7) (Corsi-Bunker, n.d.; Department of Foreign Affairs and Trade, n.d.; McGee et al., 2004; Ministry of Education, 2009). Grade organization (the number of school years accommodated by a school) within these schools also varies within and across countries (McGee et al., 2004). In the US, the transition to secondary school occurs at 13 or 14 years of age (Murdock, Anderman, & Hodge, 2000), while in the UK it happens at age 11 (Rice, Frederickson, Shelton, et al., 2011). In NZ, adolescents move to secondary school (which usually covers Years 9–13) at the age of 12 or 13 years, after spending Years 7 and 8 at an intermediate school (Ministry of Education, 2009). Regardless of the type of transition, the change of school invariably affects attainment (McGee et al., 2004). There is also some evidence that adolescents who make a transition twice (from primary to intermediate and intermediate to secondary, as in NZ) experience an achievement drop twice (Alspaugh, 1998). Therefore, transition appears to be a catalyst for lack of success and fulfilment in adolescents, particularly in NZ due to its three-tier system.

The reported declines in adolescents' academic performance and motivation are not solely a function of puberty but also the change of school (Eccles & Midgley, 1989), and the interaction between these periods can result in a high level of complexity for NZ adolescents. At least 20% of young New Zealanders have experiences that lead to long-lasting unfavorable consequences, particularly depression (Science Advisory Committee, 2011). A NZ Youth Health Survey reported that 38% and 28% of secondary school female and male adolescents, respectively, experienced a depressed mood most of the day and 21% and 10%, respectively, had thought about committing suicide in the previous year (Clark et al., 2013). Further, the Ministry of Education (2010) found that the transition from intermediate to secondary school was disconcerting for all adolescents and for 10% of them, this phase was academically and socially arduous. This finding is significant, as around 25,000 adolescents make this transition every year (Ministry of Education, 2018b).

Part of what makes school transition difficult are the striking organizational and social discontinuities between intermediate or primary school settings and secondary school (Anderson et al., 2000). Secondary schools are larger, less protective, more impersonal, and more academically demanding than primary schools (Ng-Knight, 2015). Since the systematic transition to secondary school occurs at the same time as the developmental transition resulting from puberty (Anderson et al., 2000), adolescents have to negotiate more transition events simultaneously, which raises the likelihood of negative consequences for them such as declines

in grade point average (GPA) and reduced extracurricular participation (Simmons et al., 1987). To avert these negative outcomes, focusing on enhancing positive outcomes for this age group becomes imperative.

Given the challenges and concerns associated with adolescence and school transition, the secondary school transition phase should be a leverage point for targeted programs that ensure a positive transition and strengthen adolescent wellbeing (Benner, 2011; McIntosh & White, 2006; Rice, Frederickson, Shelton, et al., 2011; Riglin et al., 2013). The evidence suggests that the successful navigation of the transition phase promotes adolescent wellbeing and success (Rutter, 1989; Vitaro & Tremblay, 2008). Thus, school transition is not only a period of abrupt change and vulnerability but also offers a window of opportunity to enable adaptation (Ng-Knight, 2015). An exploratory study of the perspectives of school leaders, educators, and adolescents in NZ revealed that the middle school years (Years 7–10) of schooling, in particular, are a significant point of intervention for later scholastic success (Durling et al., 2010). Transition researchers have argued that programs for supporting positive transition need to be grounded in a comprehensive, whole-school approach to be effective (Anderson et al., 2000; Rice, Frederickson, Shelton, et al., 2011). However, the question remains: what is needed to develop extensive programs that not only reduce harmful outcomes but also encourage achievement and wellbeing across transitions?

Generally, there are two elements of an effective transition program: support and preparedness (Anderson et al., 2000). Preparedness to transition is usually an outcome of competencies that are central to wellbeing, whereas support underpins wellbeing (Symonds, 2015). For example, McGee et al. (2004) showed that the secondary school transition is characterized by a period of adaptation that varies as per the needs and skills of adolescents. While ample literature exists on the significance of social, emotional, and informational support from parents, peers, and teachers in easing the transition experience, much less is known about the individual competencies or skills that boost positive transition (Anderson et al., 2000; Hanewald, 2013; Rens et al., 2017; Rice, Frederickson, Shelton, et al., 2011; Shoshani & Slone, 2013). For example, McGee et al. (2004) concluded that school transition programs in NZ manage the social aspects of transition well. Prior visits, orientation programs, and peer-support programs are common; however, these programs have shown little success (McGee et al., 2004; Science Advisory Committee, 2011), perhaps because of a lopsided focus on support. In their sample of adolescents from Christchurch schools, Hawk and Hill (2004) found that many adolescents lacked the competencies and skills that may be crucial for coping with the adversity related to the transition and the successful navigation of the secondary school transition. Further, there is a mismatch between the way positive transitions look and the aspects that are suggested to promote positive school transitions, with a key difference pertaining to the lack of focus on building competencies in the latter (Education Review Office, 2012a; Ministry of Education, 2010). There are barely any positive initiatives in place that also focus on “preparing” adolescents to cope with transition, since much

of the area-specific findings are scattered. Further, very few studies have examined the broad factors that promote a positive transition to secondary school and primarily, what is meant by "positive school transition" is also unclear.

Positive transition: Explaining school transition from a positive education perspective

Despite the extensive literature available on the transition from intermediate to secondary school, there is an absence of a uniform definition of positive transition. Although scholars agree that positive school transition is a multidimensional construct that measures how effectively adolescents adapt to another school, no consensus exists on the criteria of this assessment (Ng-Knight, 2015). For example, divergent criteria have been proposed for measures of unsuccessful transition, such as poor mental health (Chung, Elias, & Schneider, 1998), reduced school commitment (Hirsch & Rapkin, 1987), and declines in academic attainment (Chung et al., 1998; Rosenblatt & Elias, 2008). Indicators of positive school transition are reported as behavioral and academic adjustment, school bonding (Ng-Knight, 2015), academic achievement and engagement (Hanewald, 2013; Zendarski, Sciberras, Mensah, & Hiscock, 2016), mental health (Evans, Borriello, et al., 2018), and wellbeing (Riglin et al., 2013). While some of these indicators are usually based on a disease-based paradigm and, in part, focus on the vulnerabilities of adolescents (Chung et al., 1998; Ng-Knight, 2015), a small number of recent efforts have tried to understand transition from a strengths perspective. For example, Tuckwiller and Dardick (2015) examined transition in secondary school children with disabilities, utilizing a framework based on positive psychology. Similarly, Higgins (2015) utilized a strengths focus in an exploratory, mixed-method sequential study and determined four factors, common to the stakeholders, that assisted adolescents with learning support needs, as well as their parents and teachers, during the transition from primary to secondary schools. These were taking accountability for the process of transition, building meaningful relationships, strategic knowledge and practice, and provision of timely support. Even though these themes might not be designated targets for transition-related programs, the influence of positive psychology in understanding transition is evident.

Drawing on the strengths-focused literature, this review explains positive school transition from a positive education perspective. Green et al. (2011, para 2) defined positive education as "applied positive psychology in education." Positive psychology is the scientific study of factors that enable people and societies to live a productive, satisfying, and thriving life (Peterson, 2006; Seligman, 2011a; Seligman & Csikszentmihalyi, 2000). Seligman and Csikszentmihalyi (2000) asserted that while a great deal is known about pathology and remedying mental illness, major advances in the prevention of difficulties have mostly arisen from fostering strengths and systematically building competencies. There is evidence that individual resources act as a buffer against adversity and enable individuals (including adolescents) to flourish (Proctor et al., 2011; Seligman & Csikszentmihalyi, 2000; Seligman, Schulman, DeRubeis, & Hollon, 1999; Shoshani

& Slone, 2013; Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000); thus, understanding transition from a positive perspective is a promising approach.

Bott et al. (2017) defined positive education as the integration of academic learning with the education of strategies that promote wellbeing and prevent ill-being. By enhancing adolescent wellbeing along with best-practice learning and teaching, schools are believed to foster positive relationships in adolescents, improve academic engagement, and increase positive emotions (Norrish, 2015). Furthermore, equipping adolescents with the tools they need to flourish makes them resilient and prepares them to overcome challenging situations. This notion of resiliency can explain why some adolescents suffer and others remain immune to transition-related stress (Symonds, 2015). Unfortunately, however, attempts at recognizing the synergy between positive school transition and positive education are scarce. Only recently have positive psychology practitioners provided a workable definition of post-school positive transitioning as a collection of "strengths and virtues that enable individuals and communities to thrive when undertaking the process or period of change from one state or condition to another" (Brown, 2017, n.p.). Similarly, here, positive school transition is referred to as knowledge and factors that enable adolescents to thrive while making a move from one school to another. There are two notable features of this definition: a) a key criterion for measuring positive school transition is adolescent wellbeing, and b) certain factors facilitate adolescent wellbeing and success.

Meaning of wellbeing and a conceptual framework of positive school transition

A dominant feature of positive school transition is wellbeing, which is a key aspect of complete mental health. It is a well-known fact that complete mental health is more than the absence of pathology and it includes positive states of wellbeing in individuals (Keyes, 2005; Suldo & Shaffer, 2008). The concept of wellbeing is vague. There is no consensus around a single precise definition of wellbeing and hundreds of dimensions of wellbeing exist in the literature. For instance, a review identified 196 different dimensions of wellbeing with some of the themes as global wellbeing, psychological wellbeing, social wellbeing, and physical wellbeing (Linton, Dieppe, & Medina Lara, 2016). While there is substantial heterogeneity across the definitions and dimensions of wellbeing, there is general agreement in the majority of the present scholarly work that wellbeing is a multidimensional concept (Durie, 1985; Huppert, Baylis, & Keverne, 2005; Keyes, 2013) characterized by positive emotions toward one's life (i.e., happiness, life satisfaction, and affect equilibrium), positive psychological functioning, and positive social functioning. This definition encompasses the current understanding of wellbeing as comprising aspects of emotional wellbeing (or hedonic/subjective wellbeing) and psychological and social wellbeing, conjointly referred to as eudaimonic wellbeing (Huppert & So, 2013; Keyes, 2007, 2013; Norrish, Williams, O'Connor, & Robinson, 2013; Westerhof & Keyes, 2010). This explanation integrates the social, psychological, and emotional wellbeing components (Keyes, 2013). However, these components are not consistent in popular wellbeing models (Hone, Jarden,

Schofield, & Duncan, 2014) that have also not captured aspects that are central to lay individuals conceptualizations of wellbeing (Bharara, Duncan, Jarden, et al., 2019; Hone, Schofield, & Jarden, 2015). Besides, the current models of wellbeing are deficient because of the lack of focus on spiritual and physical dimensions. For example, while Keyes (2005) emphasized social, psychological and emotional aspects in his model, he did not stress the role of physical wellbeing.

In contrast, Mason Durie introduced a holistic model of wellbeing, Te Whare Tapa Whā, the Māori (indigenous people of New Zealand) perspective of wellbeing. Durie (1985) explained cogently that wellbeing or "hauora" (the Māori perspective of health and wellbeing in NZ) is a comprehensive concept that is composed of not only psychological and social dimensions but also physical and spiritual dimensions. He compared hauora with the four walls of a house (whare) and defined the four cornerstones of wellbeing as "taha tinana" (physical wellbeing), "taha hinengaro" (psychological wellbeing), "taha wairua" (spiritual wellbeing) and "taha whānau" (social wellbeing). He said that social wellbeing denotes close, harmonious relationships and physical wellbeing means looking after the body. While psychological wellbeing comprises both thoughts and feelings, spiritual wellbeing means spiritual awareness and "is not synonymous with regular church-going or strong adherence to a particular denomination" but "implies a communion with the environment; land, lakes, mountains, reefs [which] have a spiritual significance" (Durie, 1985, p. 483). Figure 2-1 illustrates Durie's model of wellbeing.

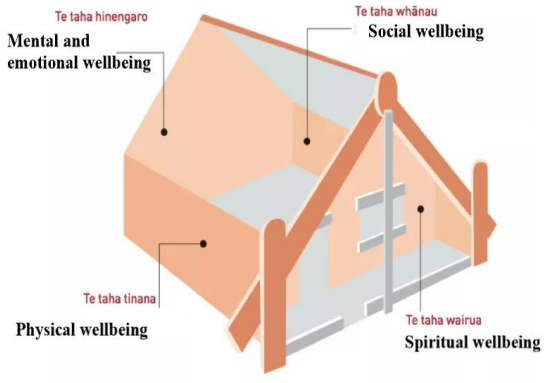


Figure 2-1. Te Whare Tapa Whā; adapted from the Ministry of Education (1999)

A model that is often used in school transition research is Bronfenbrenner's Development Ecological Model, which focuses primarily on the contexts in which adolescents operate, rather than on their strengths. This model suggests that the different environments surrounding an individual simultaneously act upon the person and interact to influence and shape their

development over time. These nested systems are presented in a hierarchical order based on importance and influence. Whilst the effects of the environmental context have been emphasized, this model has been criticized for ignoring the central role of individual competencies and skills that may allow people to cope effectively with an adverse situation and even thrive during critical times. Instead of empowering individuals by exploring what they can do to realize their optimum potential and deal effectively with difficult transitions in life, this model focuses on many external factors at several levels and therefore, is less feasible from an implementation perspective. For example, categorizing factors that facilitate positive transitions in hierarchical order is difficult and considering each environmental factor that may affect an individual's development may not be practical for devising interventions (Christensen, 2016). Similarly, Benner (2011) analyzed the phase of secondary school transition with the developmental lens of the life course paradigm, which also focuses on individuals' settings rather than their skills.

Since there was no suitable model for the relationship between school transition and wellbeing, and a host of factors can improve positive school transition (Rice, Frederickson, Shelton, et al., 2011), a comprehensive conceptual framework of positive school transition is presented in the current study. This framework is underpinned by Durie's model of wellbeing. Specifically, six factors—social, psychological, spiritual, school, physical, and demographic—are proposed to facilitate positive transition. Relative to Durie's model of wellbeing, the term *social* is used in place of family and the psychological factors encompass behavioral aspects as well as thoughts and feelings. School and demographic factors are included, in recognition of their potential impact on successful adaptation to a new school (Education Review Office, 2012a), as well as their relevance to adolescents.

A review reported that there is little differentiation between dimensions and predictors of wellbeing (Linton et al., 2016). For instance, some components of theoretical and conceptual models of wellbeing such as positive family relationships are also understood as aspects of fostering wellbeing. Having positive family relationships is a predictor of wellbeing (Lampropoulou, 2018), but popular academic models of wellbeing also list positive relationships as one of the key components (Hone et al., 2014). This overlap between factors that define versus promote wellbeing is in part due to the ambiguity prevailing in the concept of wellbeing. The likely causes of this ambiguity are the differing definitions of wellbeing and variability in the dimensions of wellbeing, as discussed earlier (Linton et al., 2016). Owing to the lack of agreement in the definition of wellbeing, there are no definite criteria, as yet, to disentangle predictors and dimensions of wellbeing. Therefore, the conceptual framework of this research is aligned with the conceptualization of wellbeing for organizing the predictors of positive school transition. Although Te Whare Tapa Whā is the model of four dimensions of wellbeing (Durie, 1985), it has also been equated with Five Ways to Wellbeing: Connect, Be Active, Take Notice, Keep Learning, and Give (See Mackay, Egli, Booker, & Prendergast, 2019). One way to separate

predictors and dimensions of wellbeing is to conduct research in a rational and objective manner and to ensure that the measure of wellbeing is independent of its expected predictors. For example, if a measure of physical activity is assessing an individual's perceptions of participation in sport, the wellbeing measure should assess one's satisfaction with general health.

Overall, this section has discussed the meaning and models of wellbeing and presented a conceptual framework of this thesis that can help in organizing and interpreting factors that predict positive school transitions. In the next section, the relevance of wellbeing as a criterion of positive transition is discussed.

Wellbeing as an indicator of positive school transition

There are three main arguments in favor of the pertinence of wellbeing as an indicator of positive school transition. A high level of wellbeing (or flourishing) in adolescents has both short-term and long-term positive behavioral and academic implications, such as better stress management, school satisfaction, school success, relationships, and educational attainment (Dix, Slee, Lawson, & Keeves, 2012; Forrest, Bevans, Riley, Crespo, & Louis, 2013; Norrish, 2015; O'Connor et al., 2016; Suldo et al., 2011; Suldo & Shaffer, 2008). Adolescents with high wellbeing are more engaged in schoolwork, earn higher grades, and are more connected with teachers than those who have less wellbeing (Forrest et al., 2013). In addition, wellbeing has positive associations with the school-specific indicators of positive transition, such as academic achievement (O'Connor et al., 2016). Capitalizing on this information, the conceptual framework of this study borrows considerably from wellbeing science, which forms the basis of positive education (Bott et al., 2017).

Using wellbeing as the indicator of positive transition is meaningful in the NZ context as well (Education Review Office, 2016a). A report by the Education Review Office (2015c) highlighted the importance of focusing on adolescent wellbeing in secondary school. The Education Review Office (2012a) affirmed that an adolescent's reaction to school transition depends on their personal resources and coping skills. It is clear that the Education Review Office (2012a) aspects of positive transition and their desired outcomes for wellbeing (2015c) share some similarities (see Table 2-1). For example, the desired outcomes for wellbeing, "feeling safe and secure" and "sense of belonging," are comparable to the aspects of positive transition, "physically and emotionally safe" and "feeling of belonging to the new school." Similarly, "connection to the school, family, friends, and the community" is similar to the aspect of positive transition, "positively connected to peers and teachers." The aspects of positive transitions outlined in the Education Review Office (2012a) report are not based on empirical research but rather, on the evaluation of previous reports. The scientific value of these transition aspects could be determined by empirical studies of factors that may improve positive school transitions.

Table 2-1. Aspects of positive transitions and outcomes for wellbeing

Aspects of positive transitions (Education Review Office, 2012a)	Desired outcomes for wellbeing (Education Review Office, 2015c)
• Feeling of belonging to a new school • Positively connected to peers and teachers • Physically and emotionally safe • Involvement of families • Teachers understand students' culture and identity • Teachers know students' strengths and show interest • Understanding and commitment • Making progress • Sense of purpose • Learning is interesting and fun • Opportunities to try new things • Responsive curriculum and challenging learning	• Sense of belonging • Connection to school, family, friends, and the community • Safe and secure at school • Nurtured and cared for by teachers at school • Achievement and success • Resilience • Social and emotional competence • Physically active • Included, involved, engaged and making positive contributions • Confident in their identity and optimistic about the future

Factors facilitating a positive transition to secondary school

The idea of positive school transition implies that some factors help adolescents to move through the period of transition with ease. However, much school transition research has focused on risk factors for maladjustment rather than on protective factors (Shoshani & Slone, 2013). Barriers to positive school transition, such as problem behavior, gender, pubertal status, and low academic achievement, have been identified (Darmody, 2008; Rice, Frederickson, Shelton, et al., 2011). A wealth of school transition literature has widely analyzed distress, difficulties and concerns related to transition (Akos & Galassi, 2004b; Forrest et al., 2013; Newman et al., 2007; Smith, 2013; Weiss, 2001) rather than wellbeing. Even though some studies have examined or discussed the facilitators of transition (Killebrew, 2017; Lester & Cross, 2015; Madjar & Chohat, 2017) and/or have taken a positive psychology perspective (Higgins, 2015; Tuckwiller & Dardick, 2015), they have either taken a piecemeal view of these factors (Lester & Cross, 2015; Madjar & Chohat, 2017; Ng-Knight, 2015; Ng-Knight et al., 2016; Serbin, Stack, & Kingdon, 2013; Waters, Cross, & Shaw, 2010; Xia, Fosco, & Feinberg, 2016) or studied transition in late adolescents or adults (Chen & Page, 2016; Martinez, Martin, Liem, & Colmar, 2012; O'Connor et al., 2016) or a disability population (Higgins, 2015; Tuckwiller & Dardick, 2015; Zendarski et al., 2016). While a recent study reviewed the features and interventions that contribute to a positive transition, its search strategy primarily focused on the participation of children in the transition process, rather than on the comprehensive factors that ensure positive school transition (Rens et al., 2017). Similarly, while Hanewald (2013) presented a creditable review of the difficulties related to transition from primary to secondary school, the emphasis of the search was not on factors that promote a positive transition to secondary school. In sum, there was a need to review the factors that enhance the school transition experience.

Hence, the aim of the present review was to identify empirical research on the facilitators of positive transition to secondary school systematically, with wellbeing as the key criterion of

evaluating positive transition. Six factors (social, psychological, spiritual, school, physical, and demographic) were utilized to interpret and organize the disparate findings. Taking a positive education perspective, only factors that promoted the school transition experience were reviewed.

Methods

The literature search was performed on the following electronic databases: PsycINFO, ERIC, CINAHL, MEDLINE (via EBSCO) and SCOPUS using a combination of keywords: "school transition", "wellbeing", "secondary school", "adolescent", and "factors". Since wellbeing is a relatively new concept, related keywords ("happiness" and "satisfaction") were used in the search, along with other measures of positive transition, namely "academic achievement" and "adjustment" (see Table 2-2). Search strategies were devised with the help of experts with database-searching skills and the searches were peer reviewed. The search results were not limited by any criteria.

The articles were eligible for evaluation if they examined predictors, determinants, factors, or facilitators of successful transition to secondary school. Other inclusion criteria were related to the publication date (2000–2018), sample age (10–15 years), country of origin (OECD member countries), study design (quantitative), and language (English). Further, only articles published in peer-reviewed journals were considered for evaluation. Studies that did not meet the inclusion criteria were excluded. For example, qualitative studies were excluded on the grounds of less generalizability, less objectivity, and small samples. In addition, the articles that examined mental ill-being or indicators of unsuccessful transition were not included. Studies regarding programs and interventions were excluded, as these were not relevant to the purpose of the current study. Studies involving gifted children, immigrants, or special-needs children were eliminated because of their focus on specialized groups. In recognition that different countries have different school systems (e.g., there is more school mobility in NZ than in other countries), greater emphasis was given to the age range, rather than the type of transition. In other words, all studies evaluating secondary school transition with the relevant sample age were included, to expand the search results. Citations in the identified literature were scanned to identify further potential studies.
A substantial part of the current study was conducted and reported as per the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement (Liberati et al., 2009).

Table 2-2. Literature search strategy

Main search item	Related keywords	Combination of search items
School transition	School change, school entry, high school entry	"school transition*" OR "school change" OR "school ent*" OR "highschool ent*" **AND**
Wellbeing	Well-being, flourish, happiness, satisfaction	Wellbeing OR flourish* OR "well-being" OR happiness OR satisfaction OR "academic achievement" OR "academic performance" OR bonding OR adjustment
Secondary school	Middle school, junior high school, high school, intermediate school	"Intermediate school" OR "middle school" OR "junio?r high school" OR "secondary school" **AND**
Adolescent	teenager, student, young person	Adolescent OR teen* OR student OR "young person" OR "young people" **AND**
Predictors	Factors, determinants, variable, role	Factor OR determinant OR variable OR role OR predict*

Analyses

The articles were evaluated in three stages, as per the eligibility criteria. In the first stage, each database was searched and 555 records were identified. To narrow these search results, duplicates were eliminated, followed by articles published before the year 2000 and/or in a language other than English. The second stage involved screening the titles and abstracts of the remaining records and excluding those that did not meet the inclusion criteria, such as studies focusing on disabilities, distress, interventions, adults, older adolescents, qualitative analysis, and early childhood transition. Following the second assessment, the full texts of the retained studies were assessed for eligibility in Stage 3 (N = 37). Due to ineligibility or disparity between the title and the text (e.g., studies that examined depression, rather than wellbeing as declared in the title), 15 more studies were excluded, leaving 22 articles in the final sample. Figure 2-2 illustrates the stages of analysis.

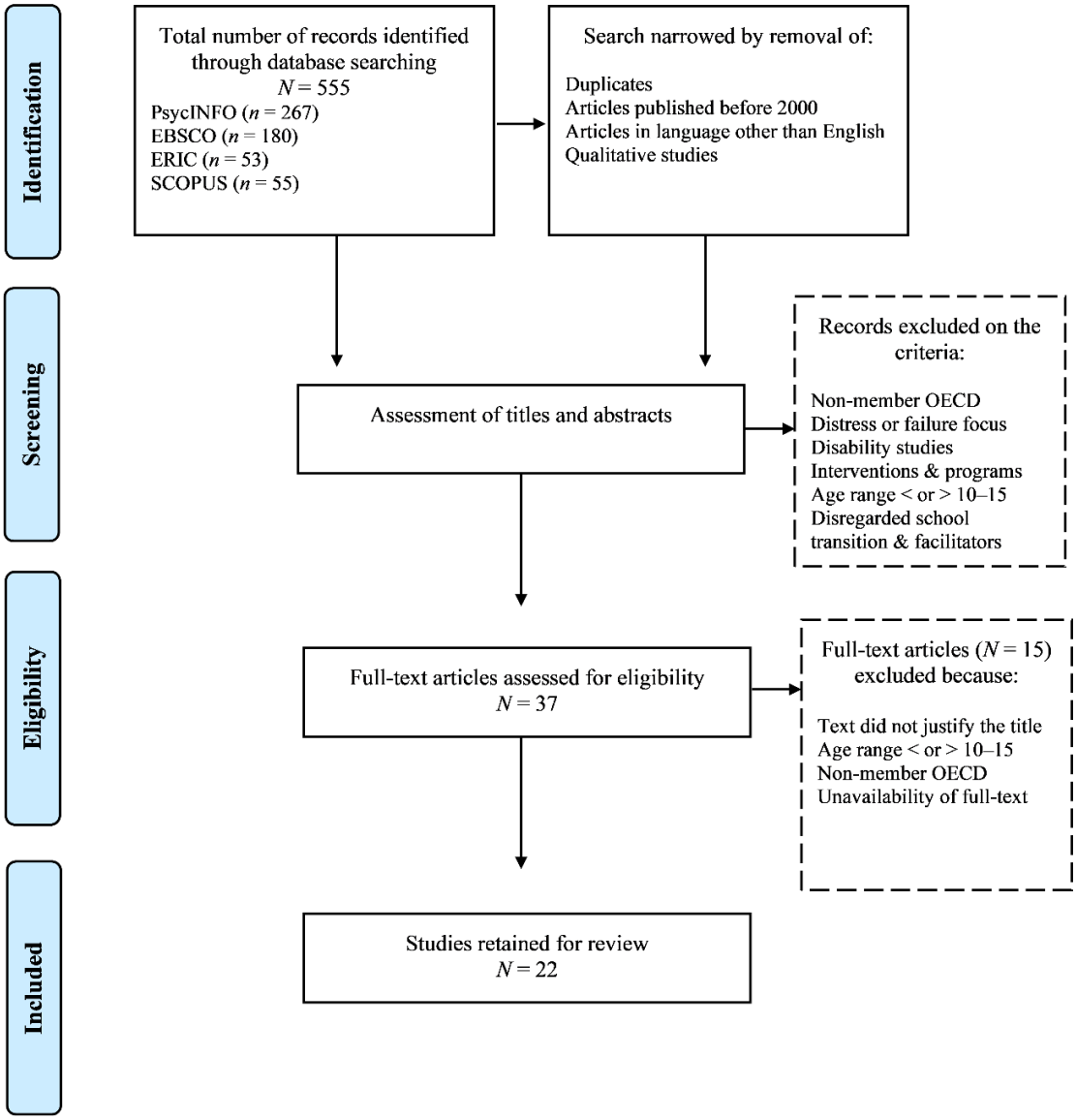


Figure 2-2. Stages of analysis

The characteristics of the studies were assessed systematically and deductively, and data regarding the study's focus, sample, design, measures, analysis, and findings were extracted and compiled into a table. The number of citations each article received, together with the quality of peer-reviewed journals in which they were published, was checked. A narrative approach was utilized to identify and aggregate the predictors of positive school transition under the conceptual framework.

Risk of bias in the studies was only assessed at outcome level, utilizing checklists from two tools: the Quality Assessment Tool for Observational Cohort and the Cross-Sectional Studies and Critical Appraisal Skills Programme Cohort Study (Critical Appraisal Skills Programme, 2018; National Heart Lung and Blood Institute, 2014). While the guidance from these assessment tools was combined for the purpose of evaluating bias in the sample, most of the criteria for quality rating were obtained from the tool for observational studies. In total, 12 criteria were deemed

integral (e.g., clearly defined research question, sample representativeness, sample size justification, repeated assessment, loss to follow-up, measures, and timeframe). Each of these criteria was assigned a response (yes/no/other) that depicted whether a study satisfied the requirements of quality. Numerical ratings were not assigned to responses for reasons of subjectivity; only an overall marker was assigned for quality. If a study met nine or more criteria, it received a good rating. A fair rating was assigned when five to eight criteria were fulfilled and studies that met only four or fewer criteria received a poor rating. A rating of "poor" generally indicated a considerable risk of bias in a study, whereas "fair" and "good" ratings indicated moderate and less risk of bias, respectively. The risk of bias was evaluated by the candidate only.

Results

The search yielded 555 results, of which 22 studies met the inclusion criteria and were reviewed. Table 2-3 displays the characteristics (authors, year, theme, sample, type of school transition, country, design, quality, measures, statistical analysis, and outcome facilitators) of these 22 studies. Only six longitudinal studies examined the transition from intermediate to secondary school and the remaining studied the transition from primary to secondary school or junior high school. The bulk of studies identified in the review came from the US (13) and the remaining were from Australia (2), Canada (2), Israel (2), Italy (2), and the UK (1). The design of most of the studies was longitudinal (18), with the data drawn from either field research or archives and large projects. While the sample sizes were diverse, surveys were utilized frequently to collect the data. With respect to the positive transition indicator, only two of them examined wellbeing (9.09%); the remainder studied either academic achievement, school adjustment, or school involvement. Within the 22 studies, there was substantial variation with respect to the facilitators of transition, some of which were related to peers (5), family (4), teachers (2), and extracurricular activities (2). Figure 2-3 illustrates the facilitators of positive school transition integrated within the conceptual framework of social, school, spiritual, psychological, physical, and demographic factors. The quality rating of the studies was as follows: good, 5; fair, 15; and poor, 2. Table 2-4 provides information regarding the procedure of bias assessment.

Table 2-3. Characteristics of the studies

Author and year	Theme	Sample size (*N*) final W	Age (years)	Transition & Year level	Design (quality)	Measure	Statistical analysis	Country	Outcome facilitators	Google scholar article citations (as of Dec 2018)
Aikins, Bierman, and Parker (2005)	Friendship characteristics, friendship quality, self-system characteristics, and adjustment	111	*M* 12.4	Elementary to junior high school; 6 to 7	Longitudinal (F)	Questionnaires	SEM	US	*Social skills and friendship quality* predicted transition adjustment.	135
Akos and Galassi (2004a)	Gender, race, and psychosocial adjustment (transition difficulty and school connectedness)	173, 320	NS	High school and middle school; 6 and 9	NS (P)	Questionnaire	ANOVA	US	*Gender* was significant for school connectedness in both transitions, but a significant difference for race was observed only in transition difficulty.	180
Benner, Boyle, and Bakhtiari (2017)	Personal characteristics (gender and parent education level), support from family, school, and friends, academic outcomes, and socioemotional adjustment	252	*M* 14.4–15.6	Middle to high school; 8 to 9	Longitudinal (F)	Surveys and school records	Repeated-measures ANOVA, ANCOVA, and path analyses SEM	US	*Friend support and school belonging* were positively associated with socioemotional functioning. School belonging increased school engagement.	6
Bohnert, Aikins, and Arola (2013)	Organized activity involvement, social adjustment, peer status, and depression	151	12–14	Middle to high school; 8 to 9	Longitudinal (F)	Questionnaires and sociometric procedures	Multiple regression and mediation models	US	*Organized activity involvement* was associated with less distress and having more friends.	27
Hair and Graziano (2003)	Big five personality traits, self-esteem, achievement, and adjustment	244	NS	Middle to high school; 5 to 8	Longitudinal (F)	Self-ratings, teacher ratings, and school records	Multivariate regression models and SEM	US	*Personality traits* were positively related to academic success and adjustment.	135
Kingery and Erdley (2007)	Peer acceptance, quality and quantity if friends, adjustment, and school involvement	146	*M* 11.1–11.7	Elementary to middle school; 5 to 6	NS (F)	Questionnaires, sociometric rating scale, and limited nomination procedures	Repeated-measures MANOVA and regression	US	*Peer acceptance, friendship quality and quantity* positively predicted school involvement.	128
Kingery, Erdley, and Marshall (2011)	Peer acceptance, friendship quantity, academic achievement, self-esteem, and adolescents' adjustment	365	*M* 11.2–11.8	Elementary to middle school; 5 to 6	Longitudinal (G)	Questionnaires, scales, and student files	Hierarchical regression analyses and repeated-measures MANOVA	US	*Peer acceptance* was positively related to academic achievement.	218

Author and year	Theme	Sample size (*N*) final W	Age (years)	Transition & Year level	Design (quality)	Measure	Statistical analysis	Country	Outcome facilitators	Google scholar article citations (as of Dec 2018)
Lester and Cross (2015)	Mental and emotional wellbeing, and school climate (safety, social relationships, and school connectedness)	1800	11–14	Primary to secondary school; NS	Longitudinal (F)	Questionnaires	Regression	Australia	*Peer support, feeling safe at school, and school connectedness* were protective of mental and emotional wellbeing. *Teacher connectedness* was protective of emotional wellbeing.	37
London and Castrechini (2011)	Physical fitness and academic achievement	1325, 1410	NS	NS; 4 to 7 and 6 to 9	Longitudinal (F)	Physical fitness test, and other standardized tests	HLM	US	*Physical fitness* was a predictor of academic achievement.	136
Longobardi, Prino, Marengo, and Settanni (2016)	Student–teacher relationships, school adjustment, and problem and prosocial behaviors	122	13–15	Middle to high school; 8 to 9	Longitudinal (F)	Questionnaires	Correlational and regression analyses	Italy	*Perceived teacher closeness* increased academic achievement, whereas perceived conflict with teachers significantly predicted conduct problems.	30
Madjar and Chohat (2017)	Self-efficacy, engagement, and mastery goal orientation	128	11–12	Elementary to middle school; 6 to 8	Longitudinal (P)	Surveys	SEM (path analysis)	Israel	*Self-efficacy* (social aspects) predicted behavioral and emotional engagement after the transition.	6
Maltais et al. (2017)	Learning climate, parental attachment, academic competence, gender differences, and anxiety	627	*M* 11.8	Elementary to middle school; 6 to 7	Correlational (F)	Surveys	Latent structural modeling	Canada	*Attachment security to the mother* predicted academic competence.	7
Riglin et al. (2013)	Psychological functioning, academic attainment, and school liking	202	*M* 11.3–11.8	Secondary school; 7	Longitudinal (F)	School records and questionnaires	Cross-lagged models	UK	*School liking* significantly predicted academic attainment.	44
Rogers, Guyer, Nishina, and Conger (2017)	Sibling support, birth order, sibling gender, and school commitment	444	*M* 12.6–15.6	Middle to high school; 7 to 10	Longitudinal (F)	Questionnaires	Confirmatory factor analyses, latent growth curve analyses, and SEM	US	*Sibling support* positively predicted school commitment. *Having an older brother* moderated this relationship.	1
Roosa et al. (2012)	Family and individual strengths, risk factors, and academic success	711	*M* 10.4	Elementary to junior high school; 5 to 7	Longitudinal (G)	Surveys	SEM	US	*Having positive family role models and a parent with a high school education* was associated positively with academic performance. *Gender* predicted academic success.	35

Author and year	Theme	Sample size (*N*) final W	Age (years)	Transition & Year level	Design (quality)	Measure	Statistical analysis	Country	Outcome facilitators	Google scholar article citations (as of Dec 2018)
Schneider, Tomada, Normand, Tonci, and Domini (2008)	Social support, school bonding, and academic motivation	434	*M* 9.9–11	Elementary to middle school; 5 to 6	Longitudinal (F)	Questionnaires	Repeated-measures ANOVA and multiple regression analyses	Italy	*Parental social support* enhanced academic motivation and school bonding.	45
Schwartz, Cappella, and Seidman (2015)	Extracurricular participation and school performance (or grades)	554	*M* 11.3	Elementary to middle school; 5 or 6–7 and 8	Longitudinal (F)	Survey	Exploratory factor analysis and mixed model (random plus fixed effects)	US	*Extracurricular participation* (specifically athletic and community participation) was positively associated with academic performance.	12
Sebanc, Guimond, and Lutgen (2014)	Friendship quality, academic achievement, mastery goal orientation, and bilingual status	114	*M* 11.2	Elementary to middle school; 5 to 6	Longitudinal (G)	Surveys	ANOVA and SEM	US	*Bilingual status* positively predicted academic achievement, while friendship quality did not predict achievement.	6
Serbin et al. (2013)	Family resources, gender, academic performance, supportive parenting, social skills, spelling ability, delinquency, and attention problems	127	*M* 10.9	Elementary to secondary school; 7 to 8	Longitudinal (G)	Standardized measures, questionnaires, and school records	Hierarchical regression	Canada	Low family resources influenced academic performance negatively. *Parental support* consistently predicted better post-transition academic performance.	45
Shoshani and Slone (2013)	Character strengths, wellbeing, school performance, school achievement, and social functioning	417	*M* 12.6	Elementary to middle school; 7 to 8	Longitudinal (F)	Questionnaires and teacher reports of GPAs	Bivariate correlations and multiple regression analyses	Israel	*Character strengths* were a strong predictor of academic attainment, performance, social functioning, and subjective wellbeing.	116
Waters et al. (2010)	School ecology and school connectedness	5159	12–14	Secondary school; 8 to 9	NS (G)	Survey	Multi-level regression analyses	Australia	*School ecology*, SES, and built-in environment were significantly associated with school connectedness.	39
Xia et al. (2016)	Family climate, school attachment, academic success, school adjustment, and academic self-regulation	979	*M* 11.3–14.9	Middle to high school (Year 6 through 9)	Longitudinal (F)	Questionnaires	Cross-lag SEM	US	*Academic self-regulation* strongly predicted academic success and *school attachment* was positively associated with school adjustment.	15

Abbreviations: W, Wave; ANCOVA, analysis of covariance; ANOVA, analysis of variance; HLM, hierarchical linear modeling; MANOVA, multivariate analysis of variance; SEM, structural equation modeling; NS, not specified; *M*, mean.
Study quality rating: (P), Poor; (F), Fair; (G), Good.

Table 2-4. Assessment of risk of bias in studies

	Criteria												
Author and year	Research question (clearly defined)	Sample (clearly defined)	Participation rate of at least 50%	Sample representativeness	Sample size justification	Exposure assessed prior to outcome	Exposure levels	Sufficient timeframe	Measures*	Repeated assessment	Loss to follow-up 20% or less	Controlled confounders	Quality rating*
Aikins et al. (2005)	Yes	Yes	Yes	NR	No	Yes	No	Yes	Yes	Yes	Yes	No	Fair
Akos and Galassi (2004a)	No	Yes	Yes	Yes	No	No	CD	NA	No	NA	NA	NR	Poor
Benner et al. (2017)	Yes	Yes	NR	No	No	Yes	Yes	No	Yes	Yes	No	Yes	Fair
Bohnert et al. (2013)	Yes	No	NR	No	No	Yes	No	Yes	Yes	Yes	No	No	Fair
Hair and Graziano (2003)	Yes	Yes	NR	Yes	No	Yes	NR	Yes	No	Yes	No	Yes	Fair
Kingery and Erdley (2007)	Yes	Yes	Yes	No	No	Yes	CD	Yes	No	Yes	Yes	NR	Fair
Kingery et al. (2011)	Yes	Yes	Yes	No	No	Yes	CD	Yes	Yes	Yes	Yes	Yes	Good
Lester and Cross (2015)	Yes	No	Yes	No	No	Yes	No	Yes	No	Yes	Yes	Yes	Fair
London and Castrechini (2011)	Yes	Yes	NR	Yes	No	CD	NR	Yes	Yes	Yes	NR	Yes	Fair
Longobardi et al. (2016)	Yes	No	NR	No	No	Yes	No	Yes	Yes	Yes	No	No	Fair
Madjar and Chohat (2017)	No	No	Yes	CD	No	Yes	No	Yes	No	Yes	No	No	Poor
Maltais et al. (2017)	No	Yes	NR	Yes	No	CD	No	No	Yes	Yes	NR	Yes	Fair
Riglin et al. (2013)	Yes	No	NR	No	No	Yes	No	No	Yes	Yes	No	Yes	Fair
Rogers et al. (2017)	Yes	Yes	Yes	No	No	CD	No	Yes	No	Yes	Yes	Yes	Fair
Roosa et al. (2012)	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Good
Schneider et al. (2008)	Yes	No	Yes	NR	No	Yes	No	Yes	No	Yes	Yes	Yes	Fair

	Criteria												
Author and year	Research question (clearly defined)	Sample (clearly defined)	Participation rate of at least 50%	Sample representativeness	Sample size justification	Exposure assessed prior to outcome	Exposure levels	Sufficient timeframe	Measures*	Repeated assessment	Loss to follow-up 20% or less	Controlled confounders	Quality rating*
Schwartz et al. (2015)	Yes	Yes	No	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Fair
Sebanc et al. (2014)	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Good
Serbin et al. (2013)	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Good
Shoshani and Slone (2013)	Yes	Yes	NR	CD	No	Yes	No	Yes	Yes	Yes	Yes	NR	Fair
Waters et al. (2010)	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Good
Xia et al. (2016)	Yes	Yes	No	No	No	CD	No	Yes	Yes	Yes	No	Yes	Fair

***** Measures rating based on four sub-criteria: clear description, reliability, validity, and objectivity.
CD, cannot determine; NR, not reported; NA, not applicable.
*Quality Rating: Poor (1–4 Yes); Fair (5−8 Yes); Good (9–12 Yes).

Discussion and Implications

Much of the school transition research has examined transition-related difficulties or factors that impede transition (Shoshani & Slone, 2013). Far less research has focused on factors that promote a positive school transition. Guided by a positive education perspective, this systematic review aimed to identify the facilitators of a positive transition to secondary school. This examination illuminated the overarching facilitators of school transition in addition to identifying the lack of intermediate school transition literature in relation to wellbeing. The findings were effectively categorized into a comprehensive conceptual framework for positive school transition (see Figure 2-3).

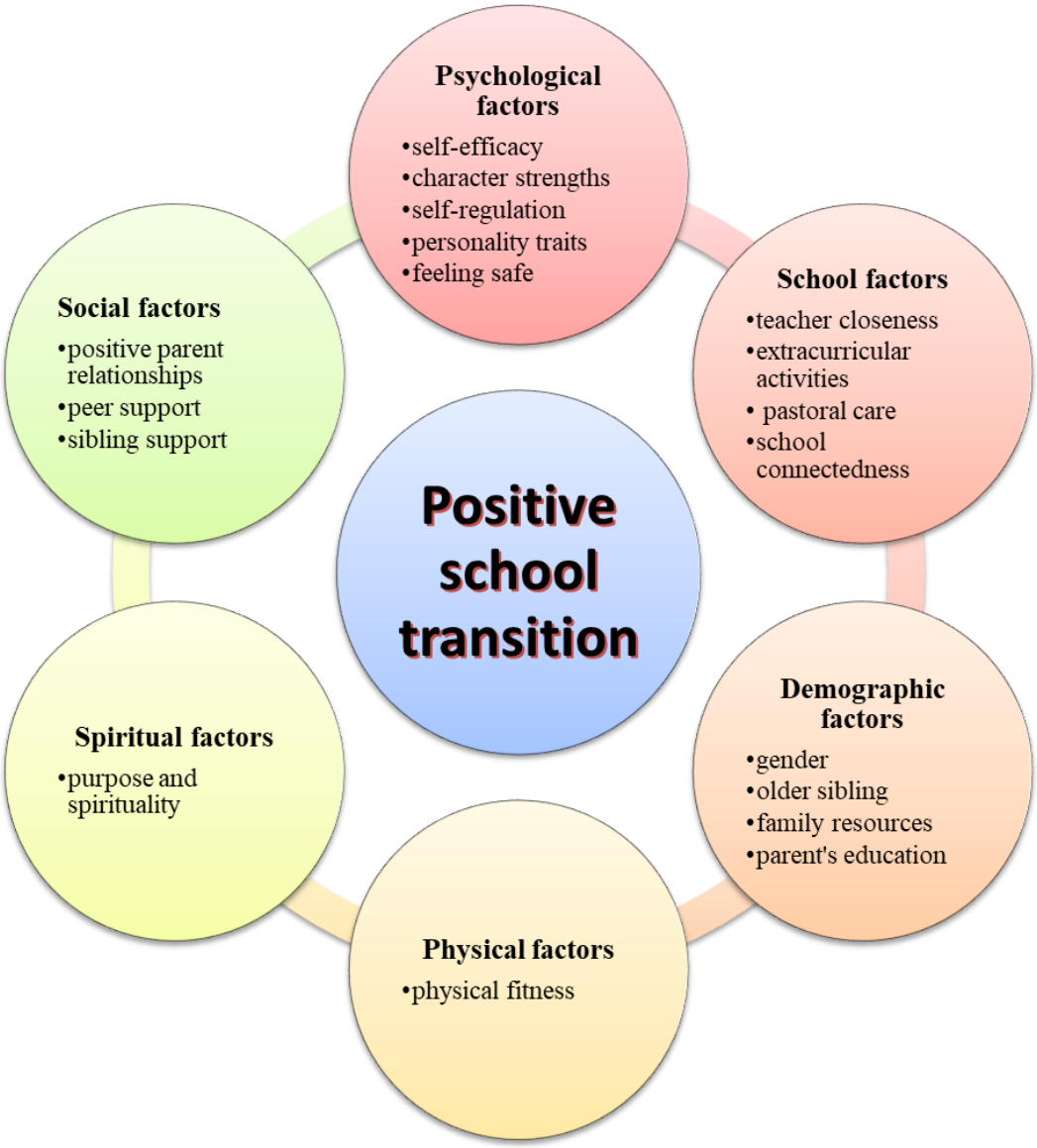


Figure 2-3. Factors influencing a positive transition to secondary school, based on the literature review

Social factors

While the distress-focused literature showed that reduced social support results in poor health outcomes such as depression (Newman et al., 2007), the current review found evidence that positive relationships are robust facilitators of transition success for adolescents. In fact, social factors were the most researched factors in the transition literature and the relationships with peers and family (including parents and siblings) were central in this regard. In terms of family relationships, Schneider et al. (2008) determined the significance of parents' support for greater school bonding and academic motivation. Furthermore, positive family role models, supportive parenting, and perceived attachment security to the mother promoted adolescents' academic competence and performance over the course of school transition (Maltais et al., 2017; Roosa et al., 2012; Serbin et al., 2013).

A primary explanation of these outcomes is that familial support not only inoculates adolescents against negative outcomes such as emotional problems (Duchesne, Ratelle, Poitras, & Drouin, 2009) but also strengthens them to better tolerate stressful events such as school transition (Hanewald, 2013). The relationships with the peer group were found to facilitate school success as well. For example, Kingery and Erdley (2007) demonstrated that peer acceptance and quality of friendships, as well as their quantity, predicted school involvement in American early adolescents. Similarly, Aikins et al. (2005) found the role of social skills and friendship quality salient in successfully adjusting to school post transition. Although friendship quality predicted goal-mastery orientation, quality of friendships and quantity of friends did not predict academic achievement (Kingery et al., 2011; Sebanc et al., 2014). However, peer acceptance positively correlated with academic achievement through school transition (Kingery et al., 2011) and negative friendship quality lowered academic achievement (Sebanc et al., 2014). A comparison of family and peer support showed that family support is more essential than peer support for adolescents' school bonding and academic motivation (Schneider et al., 2008), which is one of the interesting findings of this review. While support from friends did not promote school bonding and motivation across school transition (Schneider et al., 2008), it bolstered mental and emotional wellbeing in adolescents in Australia (Lester & Cross, 2015) and socioemotional functioning of adolescents in the US (Benner et al., 2017).

Support from siblings was the least researched in the transition literature. Only one empirical study demonstrated the positive association of sibling support with school commitment across intermediate to secondary school transition (Rogers et al., 2017). In sum, social factors such as support from parents, peers (more than friendship quality and quantity), and siblings are salient predictors of school-specific indicators of positive school transition equivalent to existing empirical evidence (Hanewald, 2013). Future research is recommended to investigate further the role of older siblings in enhancing wellbeing during the transition.

Psychological factors

The research on the psychological factors promoting positive transition was limited. One study each was found showing the value of five psychological variables during school transition: self-efficacy, self-regulation, personality traits, feeling safe, and character strengths. In a longitudinal study in Israel, Madjar and Chohat (2017) proved that self-efficacy or belief in one's abilities is central to school engagement after school transition. Moreover, various studies have shown an association of adolescent's self-efficacy with many positive outcomes such as wellbeing, learning, and motivation (Schunk & DiBenedetto, 2014). In another longitudinal study of transition from intermediate to secondary school, academic self-regulation was recognized as a significant facilitator of academic achievement and adjustment (Xia et al., 2016). Similarly, possessing personality traits of agreeableness and openness facilitated achievement and adjustment in school (Hair & Graziano, 2003). Parenthetically, it is noteworthy that self-regulation has been hypothetically related to self-control, which has also been previously associated with life satisfaction, academic success (Boals, Vandellen, & Banks, 2011), emotional wellbeing (Ronen, Hamama, Rosenbaum, & Mishely-Yarlap, 2016), and national prosperity (Science Advisory Committee, 2011). A temperance strength, self-regulation, also strongly and positively predicted subjective wellbeing, school performance, and achievement, whereas intellectual and interpersonal strengths resulted in cognitive achievement and social functioning, respectively, at school (Shoshani & Slone, 2013). Finally, adolescents' intrinsic feelings of safety at school enhanced their mental and emotional wellbeing over time (Lester & Cross, 2015). Developing programs and interventions that reinforce these skills can mentally toughen adolescents to deal with the transition.

Spiritual factors

Other character strengths essential for positive transition were transcendence (e.g., spirituality and purpose), which were strong predictors of adolescent's subjective wellbeing and emotional adjustment to school (Shoshani & Slone, 2013). Some of these strengths, such as "spirituality," which has been defined as engaging in "meaningful reflection and introspection" (Norrish, 2015, p. 267), have numerous positive outcomes for adolescents (Moore & Lippman, 2005), such as improved coping ability and academic learning (Kim & Esquivel, 2011). Similarly, having a positive purpose, defined as "believing in and serving something greater than the self, and deliberately engaging in activities for the greater good" (Norrish, 2015, p. 255), was found to be crucial for wellbeing. A lack of purpose or meaning in life was positively related to psychological distress but negatively related to life satisfaction and resilience (Schulenberg, Smith, Drescher, & Buchanan, 2016). Not only "possessing" these strengths is linked with wellbeing (Oppenheimer, Fialkov, Ecker, & Portnoy, 2014; Shoshani & Slone, 2013), "using" personal strengths is also related with widespread benefits such as vitality, positive affect, wellbeing, greater self-esteem, and less stress (Wood et al., 2011), although these benefits of "strength use" are yet to be

investigated during transition. Overall, only one study (Shoshani & Slone, 2013) stressed the importance of spiritual variables as crucial for promoting a positive transition.

It is interesting to note, however, that the relationship of some popular psychological variables with positive school transition has been overlooked in the literature. For example, even though many scholars have advocated that mindful adolescents (either through temperament or training) experience greater wellbeing (Huppert & Johnson, 2010), how this psychospiritual variable, mindfulness, influences positive transition is still unknown. Considering this limitation, a useful avenue for future research would be exploring the impact of popular spiritual variables on wellbeing during the transition.

Physical factors

There are well-documented benefits of physical activity, good sleep and a healthy diet (Brand & Kirov, 2011; Kulkarni, Swinburn, & Utter, 2015; Moore & Lippman, 2005). However, in the current systematic review, only one variable appeared under the broad spectrum of physical health. In a study in the US, physical fitness predicted higher academic achievement in adolescents across school transition, which suggests the significance of possessing good overall physical health for transition success (London & Castrechini, 2011). While insufficient activity, sleep deprivation and an unhealthy diet have been related to unfavorable health outcomes (Moore & Lippman, 2005), it is surprising that there have not been any studies that have shown associations of these exclusively with wellbeing. Thus, researchers are advised to test empirically whether aspects of physical health may improve the transition to secondary school.

School factors

School factors have been researched extensively in the transition success literature. Specifically, perceived student–teacher relationships, school connectedness, and participation in extracurricular activities were identified as essential predictors of transition success. In addition, school ecology and climate (specifically feeling safe at school) were equally important predictors of a successful transition. In a study of the transition from Year 8 to Year 9, Longobardi et al. (2016) ascertained that perceptions of greater closeness to the teacher led to higher academic achievement over the course of school transition. Greater support from the teacher has also been accounted for in higher amounts of enjoyment, curiosity and effort in schoolwork (Moore & Lippman, 2005). Further, extraneous support from the teacher encouraged adolescents' academic involvement and achievement (Lester & Cross, 2015).

Another vital facilitator of positive transition is school connectedness. Lester and Cross (2015) established that connectedness with school strongly predicted wellbeing over the course of school transition in Australian adolescents. School belonging was also significant in increasing school engagement (Benner et al., 2017). Several scholars have discussed the power of school connectedness in contributing to better academic, behavioral, and mental health outcomes in

general (Hanewald, 2013; Waters et al., 2010). One study discussed the contribution of school ecology to school connectedness, with schools' pastoral care and the presence of graffiti enhancing adolescents' sense of connectedness to their school (Waters et al., 2010). There is also some evidence that liking one's school improves adolescents' academic attainment over time (Riglin et al., 2013). Interestingly, the evidence suggests that active engagement in extracurricular activities (especially in sporting, academic, and community-based activities) positively affects the academic performance and school adjustment of adolescents (Bohnert et al., 2013; Schwartz et al., 2015). Therefore, it is germane to note the significance of these school factors in fostering positive transitions.

Demographic factors

Five studies found that demographic factors (e.g., gender, birth order, race, family resources, and parents' education) were significant in determining adolescents' reaction to school transition. For example, the transition to secondary school in the US was found to affect boys' school functioning more negatively than that of girls (Benner et al., 2017). This could indicate that boys have greater difficulties than girls do in adjusting to a more academically demanding environment. However, boys were generally found to be more connected to their school after the transition to secondary school (Akos & Galassi, 2004a). Gender differences were also observed in academic performance (Serbin et al., 2013) and self-efficacy (Madjar & Chohat, 2017). Girls have been found to achieve better grades than boys across the transition to junior high school (Roosa et al., 2012), as well as feeling more connected to their school than boys after the transition to intermediate school. However, in one study, no differences in adjustment across transition were observed by gender (Kingery et al., 2011).

While low family income influenced academic performance negatively (Serbin et al., 2013), having a parent with at least high school education correlated positively with academic performance (Roosa et al., 2012). In a NZ context, a lower SES of adolescents lead to a decline in achievement and reading scores (McGee et al., 2004; Nicholson & Gallienne, 1999). Lower SES families in NZ were also less likely to attend prestigious schools and more likely to change schools because of lack of a permanent family home or work for parents (Hawk & Hill, 2004; Wylie & Chalmers, 1999). Together, these studies have significant implications for Māori and Pacific Island students in NZ who attend low-socioeconomic schools (Nicholson & Gallienne, 1999). Nevertheless, the way SES influences wellbeing during school transition is unknown. In relation to the transition to intermediate school, being bilingual had inconclusive results; one study showed that bilingual status predicted higher grades (Sebanc et al., 2014) and another showed no significant association with academic performance (Roosa et al., 2012).

Race has been associated with some difficulties in adolescents who are transitioning from intermediate school to secondary school, with Latinos in the US finding the transition more

challenging than Caucasian and African-American adolescents (Akos & Galassi, 2004a). Having an older sibling, specifically a brother, has been found to provide a buffer against this stress by promoting school commitment (Rogers et al., 2017). Thus, demographic variables deserve scientific attention to clarify their contribution to adolescent wellbeing during the transition.

Appraisal of bias

The quality assessment process revealed that the majority of studies (15) in this review had a moderate risk of bias. Most studies clearly defined the research question, study population, and measures. Given that a substantial number of studies were longitudinal in nature, self-report surveys were employed to collect data, which precluded objectivity in assessment. In addition, while studies reported reliability estimates relevant to their samples, about 86% did not report the validation of the measure. Some studies had attempted to make the study more objective by gathering parents', teachers', and friends' reports.

Another aspect that could have created bias in the research findings was the absence of exposure levels. For example, independent variables that could have been measured categorically (e.g., with categories low, high, and medium) were instead measured as continuous variables. The absence of categorical levels reduced the credibility of the associations generated between the outcomes and the predictors because the precise amount of variable that yielded an outcome (e.g., *how much* physical fitness or friendship quality) was uncertain (National Heart Lung and Blood Institute, 2014). Furthermore, some of the studies used dated data to examine their research question (Rogers et al., 2017; Schwartz et al., 2015). This reduced the rigor and reliability of the findings because, for example, the researcher had no control over the way the data were collected and the results may not have held true in the current scenario. Nonetheless, some of the strengths of these studies were repeated assessments, lower attrition rates, and allowing sufficient time to track the phenomenon of transition.

Summary of the findings, implications, and directions

In summary, perceived social support (parent support, peer acceptance, and sibling support) and school factors (perceived teacher support and school belonging) were found to be positively associated with transition success, consistent with previous reviews (McGee et al., 2004; Rens et al., 2017). Adolescents' involvement in extracurricular activities and school ecology contributed to positive transition as well. In general, social and school factors have been extensively investigated in the transition research; hence, they need to be reinforced in transition programs. While physical fitness, spirituality, and psychological factors (temperance, intellectual, interpersonal strengths, and having an agreeable and open personality) significantly predicted positive transition, only a limited number of studies had explored their significance in transition success. Similarly, the influence of demographic factors (e.g., having an older sibling) on positive transition has been barely assessed in the literature. Gender differences have been observed in

studies; however, future research should verify the relationship between gender and wellbeing during school transition. Furthermore, no conclusive results were found for the significance of bilingual status in positive school transition. Compounding these gaps, a correlational evaluation of the role of physical, psychological, spiritual, and demographic factors in transition success is warranted in future.

This review relied on the wellbeing theory to devise a novel conceptual framework to collate, organize, connect, integrate, and interpret the disparate findings on the broad facilitators of positive school transition. The findings suggested that besides external support from family, peers, and teachers, aspects that are personal to adolescents (e.g., feeling safe, physical fitness, character strengths, and self-efficacy) also support the transition to secondary school. This study not only provides empirical support for previous studies on perceived social support and some school factors (e.g., school belonging and teacher support), it also made some fresh contributions. To the best of my knowledge, no study has previously highlighted the significance of physical, spiritual, and psychological facilitators of school transition *on a comprehensive basis*. These facilitators represent valuable resources to prepare adolescents for transition and thus, may aid in realizing the objective of school transition programs. The preliminary findings of this study are a practical and all-inclusive guide for policymakers and school practitioners when devising extensive school transition programs, at least until transition and wellbeing researchers have developed a more solid model of transition success based on empirical research.

Limitations in the literature and directions for future research

The search made it apparent that the transition from intermediate to secondary school has received comparatively less attention than the transition from primary to secondary school. The reasons for this paucity of information could be either the non-existence of an intermediate school system in several countries or simply that researchers have discounted this cardinal phase of transition. Moreover, most research came from the US and researchers from other countries have only marginally studied the facilitators of positive transition. Surprisingly, no study from NZ appeared in the database. There were also no studies that examined wellbeing predictors over the course of the transition from intermediate to secondary school. Only two studies examined wellbeing during other types of school transition (Lester & Cross, 2015; Shoshani & Slone, 2013), which is a potential limitation of the current investigation, as wellbeing was regarded as an indicator of transition success. Second, the number of studies that were excluded in the initial stages of analysis were not computed and recorded. Another limitation is that only the candidate was responsible for data extraction, evaluation, selection, and quality assessment, which might pose a bias in the results. Even though the outcome at every stage was re-examined to ensure objectivity, the findings of the current study should be interpreted in light of these limitations, in addition to the potential bias in the reviewed studies.

Scholars in various parts of the world are advised to pay more attention to intermediate school transition and adolescents' wellbeing during this phase, as ignoring it can lead to life-altering consequences for adolescents. A greater understanding of the factors that enhance adolescent wellbeing during the transition from intermediate to secondary school would aid in imparting timely education to adolescents and their families regarding what could help with their successful transition. This enterprise would not only buffer adolescents against any negative influences but also make them independent in coping with future challenges.

Conclusion

The transition to secondary school is a crucial period for adolescents, as it not only defines their adaptation to their future school but also affects their overall wellbeing, which can have significant implications. Employing a positive education perspective, this review found further support for the role of social and school factors in school-specific or academic success and in facilitating a positive school transition. Some evidence regarding the value of largely unexplored psychological, physical, demographic, and spiritual factors was found to facilitate the transition to secondary school as well. There are significant gaps in the literature on the transition from intermediate to secondary school; research regarding the aspects that might enhance adolescents' wellbeing during this stage is particularly limited. It is hoped that the findings from this research will encourage and inform empirical studies and subsequently, positive school transition programs. Implementing comprehensive transition programs during the crucial period of secondary school transition can prepare adolescents in advance for the transition and thereby, ensure a smooth transition to secondary school.

CHAPTER 3: A PROTOTYPE ANALYSIS OF NZ ADOLESCENTS' CONCEPTUALIZATIONS OF WELLBEING

"Understanding the perspectives of children and youth is an important task in conceptualizing positive development. In addition, measuring positive and protective factors requires input from children and youth to ensure that the ideas, wording, response categories, and data collection methods employed are appropriate for use by children" (Lippman et al., 2014, p. 2852).

Preface

The above quotation articulates, in part, the motivation behind this study. There is a growing global and domestic recognition that adolescents must have a say in their wellbeing models, programs, and policies (Education Review Office, 2013; Education Services Australia, n.d.). However, most theoretical, conceptual, and promotional models of wellbeing are based on studies conducted on adults and little is known about the way adolescents define wellbeing and what they think promotes their wellbeing, especially in NZ. Placing adolescents as active research participants was also fundamental because the review of existing transition literature in Chapter 2 revealed significant gaps in knowledge regarding factors that facilitate wellbeing during the secondary school transition. Since in this research wellbeing is an indicator of positive school transition, it was logical to gain better clarity of adolescent understanding of wellbeing. The current study investigates NZ adolescents' meaning and sources of wellbeing, as well as the way adolescents' wellbeing conceptualizations vary as a function of SES. This chapter discusses how adolescent views are similar to, and different from, those of NZ lay adults' and academics' understandings of wellbeing. This chapter is the second of two studies that were undertaken with the intention of informing the predictor variables of this research. In addition, it provided the opportunity to develop more precise components of the survey instrument in Chapter 4, Part B of the preparatory phase. This chapter comprises the manuscript that is published in the International Journal of Wellbeing (Bharara, Duncan, Jarden, et al., 2019).

Abstract

This research investigated NZ adolescents' (aged 11 to 13, $N = 361$) perceptions of wellbeing from a prototype perspective. Specifically, three studies examined what constitutes and promotes wellbeing, whether adolescents' perspectives are aligned with adults' conceptualizations and academic models of wellbeing, whether SES influences adolescents' conceptualization, and whether wellbeing is prototypically organized. Results showed that wellbeing is prototypically organized, as some components are more central to the concept of wellbeing and others are more peripheral. Contrary to lay adults' conceptualizations and popular wellbeing models, adolescents consider enjoyment/having fun, feeling safe, and being kind/helpful as central components of wellbeing, and sense of satisfaction as a peripheral component of wellbeing. Furthermore, low-SES adolescents consider comfort/being wealthy, being focused, good physical health, good values, and success/achievements more central for wellbeing than high-SES adolescents. Consistent with the current literature, positive family relationships, positive friendships, and physical activity/sport were the most frequently reported pathways to wellbeing among adolescents. Overall, researchers and practitioners should consider adolescents' understanding of wellbeing in the development of wellbeing assessments and interventions.

Introduction

Over the last two decades, adolescent wellbeing has received increasing attention at macro and micro levels (Andresen, Bradshaw, & Kosher, 2019; Rees & Dinisman, 2015). The United Nations (1989) has declared wellbeing is a basic right for adolescents and that their views must be obtained in all matters that affect them. Both national and international governments, as well as adolescent wellbeing scientists, have emphasized the importance of greater participation of adolescents in conceptualizing wellbeing and considering adolescents' conceptions in wellbeing models, programs, and policies (Ben-Arieh, 2005; Ben-Arieh et al., 2014; Bourke & Geldens, 2007; Casas, 2011; Education Review Office, 2013, 2015c; Education Services Australia, n.d.; Fattore, Mason, & Watson, 2007; Ministry of Youth Development, 2004).

A lack in consensus over the conceptualizations of wellbeing is a potential impediment to the progress, as well as the precision, of wellbeing science. Researchers conceptualize wellbeing in distinct ways (Hone et al., 2014) and perceptions of adolescents are likely to differ to adults' (Fattore et al., 2007; Gilman & Huebner, 2003). Such differences in perspectives among researchers, adults and adolescents about wellbeing conceptualizations has significant implications for assessment and intervention (Ben-Arieh et al., 2014; Bourke & Geldens, 2007; Casas, 2011; Chaplin, 2009; Fattore et al., 2007). For example, school or positive education interventions have often been unsuccessful, potentially due to disparities between experts' and adolescents' notions (Bott et al., 2017; Cook, Kilgus, & Burns, 2018). Understanding adolescents' meaning and sources of wellbeing is therefore a critical question worthy of empirical investigation. Although adolescents are willing and capable to contribute (Andresen et al., 2019; Fattore et al., 2007; Sarriera & Bedin, 2017), extant wellbeing research has traditionally shown a bias towards adults. There is an inadequate understanding of what constitutes and promotes wellbeing for adolescents.

Wellbeing has been defined as individuals' evaluations and perceptions of the quality of their lives (Keyes, 2013), yet researchers have usually disregarded or discounted adolescents' perceptions regarding their own wellbeing (Casas, 2011). There are limited studies on adolescents' wellbeing, particularly in comparison to the extensive literature available on adults (Ben-Arieh, 2005; Blaskova & McLellan, 2017; Camfield, Streuli, & Woodhead, 2010; Casas, 2011). While there have been some emerging research efforts at obtaining adolescents' views of wellbeing in developed countries (Rees & Dinisman, 2015), to date, no study has examined the wellbeing conceptions of 11- to 13-year-olds in NZ. In addition, the scant empirical research in other countries is largely qualitative in nature (Chaplin, 2009; Crivello, Camfield, & Woodhead, 2009; Fattore et al., 2007). Due to the absence of quantitative evaluation of adolescents' wellbeing perspectives, it is unknown how the components of wellbeing may be arranged in adolescents' perceptions (i.e., which components are the most or least significant). Whether adolescents' components of wellbeing vary as a function of SES is also yet to be investigated empirically.

For the first time in New Zealand, the current study primarily aims to investigate the components of and pathways to wellbeing as per the perceptions of adolescents (aged 11 to 13) from low and high SES, utilizing a mixed-method approach. This study also provides a better understanding of how adolescents' conceptions of wellbeing are similar to, or different from, those of adults and researchers. Since adolescents are advisers of research work, understanding their perspectives may enable us to develop more accurate components of our assessment measures and frameworks of our cross-sectional and longitudinal studies. Understanding adolescents' conceptions may also help to enhance the overall precision, acceptability, and effectiveness of wellbeing interventions targeting this population. We first address the existing literature regarding academic and lay perceptions of wellbeing.

Research on conceptualizations and definitions of wellbeing

The concept of wellbeing is elusive. Presently, there is no global or agreed-upon definition of wellbeing (Baker, Green, & Falecki, 2017; Diener & Seligman, 2004). Several definitions of wellbeing exist in the academic literature (Diener, Scollon, & Lucas, 2003; Hone et al., 2014) that differ, in part, due to the variations in researchers' philosophical tradition. Researchers have theorized wellbeing as having components of the hedonic approach, comprising positive emotions toward one's life (i.e., happiness, life satisfaction, and affect equilibrium), the eudaimonic approach (comprising positive psychological and social functioning), and the current holistic approach, which integrates emotional/subjective, psychological, and social wellbeing (Keyes, 2013; Norrish et al., 2013).

Informed by these approaches, many academic models of wellbeing have been proposed that denote different conceptualizations of wellbeing (see Figure 3-1) (Diener et al., 2010; Durie, 1985; Keyes, 2005; Renshaw et al., 2014; Ryff, 1989; Ryff & Keyes, 1995; Seligman, 2011b; Westerhof & Keyes, 2010). For example, some components listed in Keyes (2005) model, namely social growth, positive affect, and personal growth, do not feature in Diener et al.'s (2010) model. Similarly, Seligman (2011b) identified five components of wellbeing in his PERMA model (positive emotion, engagement, relationships, meaning and purpose, and accomplishment), whereas Huppert and So (2013) proposed 10 components of wellbeing (including positive relationships, positive emotions, self-esteem, and emotional stability). One model of 12 positive psychology building blocks for adolescents is composed of four core components: belief-in-self, belief-in-others, emotional competence, and engaged living (Renshaw et al., 2014). Compounding such academic disagreements, making a choice among wellbeing models may present educators, psychologists, and researchers with a dilemma.

KEYES	HUPPERT & SO	DIENER et al.	SELIGMAN et al.
Positive relationships	Positive relationships	Positive relationships	Positive relationships
Positive affect (interested)	Engagement	Engagement	Engagement
Purpose in life	Meaning	Purpose and meaning	Meaning and purpose
Self-acceptance	Self-esteem	Self-acceptance and Self-esteem	–
Positive affect (happy)	Positive emotion	–	Positive emotion
–	Competence	Competence	Accomplishment/ Competence
–	Optimism	Optimism	–
Social contribution	–	Social contribution	–
Social integration	–	–	–
Social growth	–	–	–
Social acceptance	–	–	–
Social coherence	–	–	–
Environmental mastery	–	–	–
Personal growth	–	–	–
Autonomy	–	–	–
Life satisfaction	–	–	–
–	Emotional stability	–	–
–	Vitality	–	–
–	Resilience	–	–

Figure 3-1. Four different academic conceptualizations of wellbeing in Hone et al. (2014)

There have been empirical attempts to define wellbeing with greater accuracy by examining lay conceptions of wellbeing (Anderson & Graham, 2016; Chaplin, 2009; Fattore et al., 2007; Hone et al., 2015; Soutter, O'Steen, & Gilmore, 2012). Research on the lay conceptualizations of wellbeing has been conducted with affluent Caucasian adults or late adolescents (Hone et al., 2015; Soutter et al., 2012). Hone et al. (2015) demonstrated that NZ adults conceptualize wellbeing as good mental health, physical health, good relationships, work-life balance, and feeling valued. While the methodology of this study was systematic, the sample was predominantly European. Soutter et al. (2012) found that having resources, being independent, relating well with teachers, functioning effectively in assessment-related activities, and striving toward scoring credits were reported as the most important components for 17- to 21-year-olds' understanding of wellbeing.

More recently there has been a growth in qualitative studies on the perceptions of children and adolescents (Rees & Dinisman, 2015). In their study, Anderson and Graham (2016) asked 6- to 18-year-olds to rank two pre-defined concepts of wellbeing. Although the authors found support for recognition and participation as important components, the study was limited by their chosen

methodology, as the survey format restricted choice to two academic concepts of wellbeing and a free-response format was not employed to capture adolescents' views. Chaplin (2009) used an interview method and identified sports, hobbies, achievements, material things, and pets and people as what constitutes and promotes wellbeing of American adolescents (aged 8 to 18). Another qualitative study by Fattore et al. (2007) utilized task-oriented strategies to explore views of 8- to 15-year-olds in Australia and reported themes of agency, feeling secure, and a positive sense of self, and concrete themes of relationships, material resources, home, and physical environment. These authors also highlighted the need to study variations in perceptions across socioeconomic groups. While the above studies were conducted in developed countries, Crivello et al. (2009) examined children's and adolescents' wellbeing components in developing countries (e.g., Ethiopia and Peru), some of which were being joyful, wearing clean clothes, and having electronic goods. Overall, the literature signifies that wellbeing is a comprehensive concept characterized by several components that may vary as a function of a person's experience, age, and country. In the next section, we move beyond conceptualizations of wellbeing and review the research on pathways to wellbeing.

Pathways to wellbeing

Less attention has been paid to obtaining views of adolescents about ways to enhance wellbeing and involving them in the creation of promotional models and programs of wellbeing (Casas, 2011). In the context of wellbeing promotion of adolescents, the Geelong Grammar School's whole-school positive education model is focused on fostering positive purpose, positive relationships, positive emotions, positive health, positive engagement, and positive accomplishment within the school (Norrish, 2015). The Strath Haven Positive Psychology Curriculum program aims to strengthen relationships, meaning, positive emotions, and character strengths (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009), while a 10-session Wellbeing Promotion Program focuses upon building hope, strengths, gratitude, optimism, and kindness in schools (Suldo & Savage, 2016). Public health messaging aimed to improving wellbeing has also come from government frameworks. For example, Aked, Marks, Cordon, and Thompson (2008) suggested Five Ways to Wellbeing: taking notice, being active, connecting with others, learning, and giving. Investigating pathways to wellbeing among NZ lay adults, Hone et al. (2015) found physical activity, nurturing relationships, interests/hobbies, and eating healthily as the most frequently reported. An examination of NZ adolescents' perceptions of ways to improve wellbeing is warranted, to address the lack of existing empirical data on this topic, which could have meaningful theoretical implications and practical advantages for organizations and individuals working with adolescents.

Importance of adolescents' wellbeing perceptions

Adolescents' understanding of wellbeing can inform the theory and application of wellbeing in schools. Adolescents' views may be useful in refining or validating researchers' models of

wellbeing and enhance the precision with which wellbeing is assessed (Bourke & Geldens, 2007). A greater understanding of adolescents' conceptualizations of wellbeing may also improve the efficacy of school interventions considering the "contextual fit" and "precision education" propositions (Cook et al., 2018; Horner, Blitz, & Ross, 2014). Precision education supports the idea that the key components of interventions should be tailored to individuals' needs and perceptions (Cook et al., 2018). Horner et al. (2014) defined contextual fit as the match between components of an intervention and the needs and perceptions of those who experience the intervention. How well a program is received or valued in a certain setting, or the social validity/acceptability of school interventions, is likely to depend on the opinions of adolescents who are directly affected by the program (Marchant, Heath, & Miramontes, 2012). It is potentially misleading for researchers to define adolescents' wellbeing without considering adolescents' viewpoints. The present study attempts to address this gap by investigating adolescents' conceptualizations of wellbeing, utilizing a prototype analysis methodology (Rosch, 1975).

A prototype analysis perspective

Prototype analysis is a mixed-method approach that has been established as an effective method of analysis for natural language categories, such as happiness, fear (Fehr & Russell, 1984), gratitude (Lambert, Graham, & Fincham, 2009), forgiveness (Kearns & Fincham, 2004), infidelity (Weiser, Lalasz, Weigel, & Evans, 2014), love and commitment (Fehr, 1988), and wellbeing (Hone et al., 2015; Jarden, Sandham, Siegert, & Koziol-McLain, 2018). This method assumes some components are more important or central to a concept and others are less important or peripheral. In a prototype approach, thus, all components of a concept are not equally representative of that concept, contrary to a classical view where category membership is determined by necessary, sufficient, and fixed criteria (Rosch, 1975). A prototype approach helps in identifying a "fuzzy collection" (Lambert et al., 2009, p. 1195) of the central components of a concept (also called *prototypes*) rather than identifying critical components(Lambert et al., 2009, p. 1195). For a comprehensive review of the strategy, read Fehr (1988) and Kearns and Fincham (2004).

Driven primarily by this approach, this study has drawn inspiration from Hone et al.'s (2015) research. They demonstrated that wellbeing is prototypically organized, using a sample of NZ teachers and lawyers. In addition, the current differences between different academic models of wellbeing indicates the components of wellbeing are not fixed (Hone et al., 2015) and "the boundaries of the notion of well-being are elastic" (Ben-Arieh et al., 2014, p. 3). Rosch (1975) listed two essential conditions of the prototype analysis method reflected in the current study: a) the participants should be able to list the features of the concept and reliably rate which components are more central to the concept, and b) the centrality rating of components should influence participants' perceptions of the concept.

The present study

The main research question of the present study was: What are the perceptions of NZ adolescents (aged 11 to 13 years) about the 1) components of wellbeing and 2) pathways to wellbeing? We also hypothesized that a) wellbeing will be prototypically organized in adolescents, and b) differing SES will be associated with adolescents' perceptions of the centrality of the components. We subsequently examined whether NZ adolescents' perceptions aligned with popular academic models and NZ adults' conceptualizations of wellbeing.

Methods

Overview of studies

Three studies were conducted to address the above aims. In Study 1, participants listed the components and pathways regarding wellbeing in free-response format. In Study 2, a different sample of participants rated the centrality (or importance) of the components generated in Study 1. Study 3 tested the hypothesis that central components of wellbeing were related more closely to perceptions of wellbeing than the peripheral components on a third sample of adolescents. The effect of socioeconomic differences was examined in all three studies.

Recruitment process for all studies and ethical considerations

The recruitment process involved emailing schools in Auckland, NZ with a study invitation. We used convenience sampling technique for recruitment, though preference was given to the school type (state intermediate schools with Years 7 and 8) and school socioeconomic decile. In New Zealand, school decile is a key measure of the school students' SES. Decile 1 draws the highest proportion of students from low-socioeconomic backgrounds, whereas Decile 10 draws the highest proportion of students from high-socioeconomic backgrounds (Ministry of Education, 2018a). Two state intermediate schools agreed to participate in the study: one Decile 1 and the other Decile 10. These schools were located in ethnically and socioeconomically diverse regions. The schools provided different classes for participant recruitment. From each class that was offered, we recruited only those students who assented to participate. There was no overlap in participants of the three studies and the participants of all three studies were recruited from the same schools. The data for Study 1 were collected between 7 May and 6 June 2017, for Study 2 between 25 June and 28 June 2017, and for Study 3 between 27 July and 31 July 2017.

Ethical approvals for all the procedures and materials were obtained from the Auckland University of Technology Ethics Committee (AUTEC; see Appendix A, Appendix B, and Appendix C). A meeting was held with the principals of participating schools to inform them about the study aims. The potential participants and their parents were given separate sheets informing them about the study's aim, importance, and procedure about two weeks prior to each study. The studies utilized anonymous surveys and involved minimal risk so parental consent was not sought; however, participants' assent was taken electronically before each study. A

registration system was used to collect participants' demographic information and assent. Participation in the study was by voluntary inclusion only and the parents could withdraw their children from participating in the study, or the students could leave on their own. University-branded pens were given to all the participants of each study as incentives.

Study 1: Free Listing and Compilation of Prototypic Wellbeing Components and Pathways to Wellbeing

The aim of the first study was to compile a list of wellbeing components and aspects aimed at enhancing wellbeing. Participants were first asked to list as many wellbeing components as they could think of. Second, they were asked to list all the aspects they thought fostered their wellbeing (i.e., their pathways to wellbeing). Both the questions utilized an open-ended response format.

Participants

The sample comprised 125 adolescents (65 boys and 60 girls) aged 11 (39%), 12 (55%) and 13 (6%) from Year 7 (46%) and Year 8 (54%) from two Auckland schools. Thirty-eight percent of participants were from a low-decile school (48 from Decile 1) and 62% from a high-decile school (77 from Decile 10). Approximately 53% of the sample was NZ European. The remaining participants were Māori (indigenous people, 11%), Pacific Islanders (18%), Asian (7%), and African/Middle Eastern (4%). Approximately 7% of participants indicated they were of mixed ethnicity.

Procedure

The survey was managed in-person by the candidate within school hours. Participants followed a web link on their school computers to register for the survey and provided their demographic details and assent. Those who submitted the registration form could subsequently access the electronic survey presented on the SurveyMonkey platform (SurveyMonkey, 2019). They were given the following verbal, and then on-screen, instructions in their respective schools (adapted from Fehr & Russell, 1984, Study 6; Hone et al., 2015):

> This is a study on what young New Zealanders of your age think of when they think of the word *wellbeing*. For example, if you were asked to list the components of fear, you might write: possible danger occurs, heart beats wildly, eyes open wider, the person runs as fast as they can. Similarly, if you were asked to write the components of sadness, you might write: becoming quiet and lazy, crying. In the current study, we are not interested in fear or sadness, but in the characteristics of wellbeing. Imagine that you are explaining the concept wellbeing to someone who does not know about wellbeing and answer the following question: What, in your opinion, are the components of wellbeing? There is no time limit. List as many as you can.

After the participants answered the above question, they answered an additional question on the same screen:

> What, in your opinion, enhances your wellbeing? Specifically, which factors in your life or particularly at your home, school, and society help in improving your wellbeing?

Analysis

A list of verbatim responses was prepared, only correcting for spelling. Adhering to the coding procedure outlined in Fehr (1988), two broad steps of analysis were undertaken, similar to prototype analysis research (Fehr & Russell, 1984; Hone et al., 2015; Kearns & Fincham, 2004; Lambert et al., 2009; Weiser et al., 2014). Note that these steps were assumed separately for components and pathways regarding wellbeing. The first step involved identifying and extracting monolexemic linguistic units that were distinct and easily recognizable, such as component responses "happy" and "joyful" and pathway responses "family" and "pets." When participants used a phrase, judgment was deemed necessary to decide whether a phrase conveyed one or multiple thoughts. For example, the responses "others don't put you down" or "joy in basic luxury such as running water" were judged to convey one thought and noted as individual linguistic units, whereas the responses "completing something or doing something right" and "having help when needed and treated well by others" were judged to convey two thoughts and retained as distinct components. Phrases were separated only in terms of meaning; the unit largely remained original.

The linguistic units preceded by attributive words, such as "lots of energy," were coded as a single item. For data organization, identical units were combined as one and their frequencies were noted. For example, all "games" responses were written only once in the list, with the frequency besides them. An elaborate reading of the text with a combined usage of word-frequency tools (tools that identify the number of times each word occurs in the text) facilitated unit identification. As an outcome, 551 component linguistic units were reduced to 203 after deleting duplicates, yielding an average of 4.40 components per participant (approximately 4.60 for high-decile school participants and 4.00 for low-decile school participants). For pathways, 565 linguistic units were reduced to 188, with each participant generating an average of 4.52 linguistic units (4.54 for low-decile group and 4.50 for high-decile group).

After mapping out the linguistic units and preparing separate lists for components and pathways, the units were allocated to a category. Single unique words were formed into independent categories. For example, the linguistic unit "being happy" was allocated to the category "being happy." Items that were similar in grammatical form and conveying the same meaning were classified under one category. Classifying similar units together aided in avoiding redundancy. For example, "being happy" and "happiness" were treated as a single component category. Also, words with similar meaning, such as "cheerful" and "joyful," were assigned to the same category

of "being happy." Concerning pathways, "my pets," "playing with my dog," and "having animals" were categorized under the pathway category of "pet ownership and attachment." Responses such as "beach" and "rain and sunlight make me feel warm and cozy" were collapsed into the category "nature." Responses were classified verbatim to depict adolescents' exact thoughts and maintain the authenticity of responses. For example, the unit "belief in your abilities" was categorized as "belief in your abilities." Responses such as "being loved" and "trying new things" were categorized as reported.

Besides following a conservative categorizing approach, a balance was maintained by combining similar units and keeping the non-similar ones separate. For instance, responses about pathways that included activities such as "dance," "cooking," and "reading" were headed under the category "hobbies/doing things that interest you." Although an activity *dance* may potentially enhance wellbeing, a broad categorizing approach was applied for locating key breadth strategies from an application point of view. However, instead of collapsing pathway responses such as "Netflix," "computer games," and "watching movies" to the category of "hobbies/doing things that interest you," a new category of "digital entertainment" was created. Some components necessitated examination of the adjoining words in the response. For example, the unit "healthy" was judged to be a part of the category "good physical health," as it followed or preceded the words with a physical dimension, such as "active and healthy" and "being healthy and fit." We have published the raw data online so readers can examine our judgments (Bharara, Duncan, & Jarden, 2018a, 2018b).

Since the participants were schoolchildren, an estimated 50% of linguistic units were associated either semantically or linguistically and were classed into the same component or pathway category. Judgment calls were validated by the third and fourth authors of this study and any discrepancies were resolved through discussion. Various responses were idiosyncratic; that is, they were mentioned by only one participant. Any component category that was listed by less than 2% of the sample (39 components) was discarded from further analysis to reduce the burden on Study 2 participants (who had to rank the centrality of these components). Similarly, pathway categories listed by less than 2% of the sample (47) were excluded from further analysis (Hone et al., 2015).

Results

Table 3-1 shows the 26 components of wellbeing sorted by Study 2 centrality ratings. The table displays the frequency of components (the number of times each component occurred in the text) and the participants' listing percentage of the components. Note that how frequently each component occurred in the text was different compared to the percentage of participants that mentioned a component. More than 70% of the sample listed being happy as a component of wellbeing, followed by being kind/helpful (35%), and good physical health (34%). Being focused

(2.4%), contentment/peace (3.2%), and being grateful (3.2%), were the least listed components. Table 3-1 also depicts the percentage of participants that listed each component from low- and high-decile schools. Both socioeconomic groups listed being happy as their most frequently reported component of wellbeing. While the low-decile school participants listed being kind/helpful second (56%), the component moved into third place for the high-decile school's participants (22%).

Figure 3-2 shows a word cloud that illustrates the 37 pathway categories of wellbeing. The size of the text in the figure is based on the participants' listing percentage. More than half of the adolescents thought that positive family relationships (60%) and positive friendships (55%) enhance their wellbeing. While 34% of the participants listed physical activity/sport, 30% listed hobbies/doing things that interest you as important pathways to wellbeing. Other important pathways were nature (17%), digital entertainment (16%), pet ownership and attachment (14%), being kind/helpful (14%), socializing, being around positive people (13% each), and healthy diet (12%). The mean of the participants' listing percentages was 10.8%. Both socioeconomic groups frequently listed positive family relationships, positive friendships, and physical activity/sport as pathways to wellbeing.

Table 3-1. Study 1 wellbeing components arranged by Study 2 centrality ratings

	Study 1	Listing percentage			Study 2	
Component	Frequency	% low decile	% high decile	% total participants	Centrality rating	*SD* (s)
Being happy	130	70.8	74.0	72.8	9.03	1.51
Enjoyment/having fun	19	20.8	7.79	12.8	8.80	1.53
Feeling good	22	14.7	19.5	17.6	8.65	1.48
Feeling safe	20	10.4	13.0	12.0	8.63	1.76
Good mental health	14	8.33	11.7	10.4	8.47	1.73
Being kind/helpful	54	56.4	22.1	35.2	8.36	1.89
Belief in your abilities	7	4.12	6.49	5.60	8.25	1.74
Being respectful	19	27.0	5.19	13.6	8.23	1.93
Being respected/encouraged	9	6.25	6.49	6.40	8.21	1.72
Positive attitude/optimism	11	2.08	11.7	8.00	8.17	1.79
Self-confidence	7	2.08	7.79	5.60	8.12	1.94
Good values	5	2.08	3.90	3.20	8.07	2.04
Being grateful	4	2.08	3.90	3.20	8.02	2.06
Good relationships	26	12.5	13.0	12.8	7.95	2.29
Excitement	18	12.5	15.6	14.4	7.95	1.96
Good physical health	50	22.9	40.3	33.6	7.80	2.37
Good temperament/behavior	21	16.7	14.3	15.2	7.77	2.00
Success/achievements	7	4.12	6.49	5.60	7.75	2.27
Feeling calm and relaxed	9	6.25	6.49	6.40	7.74	1.90
Contentment/peace	4	0.00	5.19	3.20	7.70	1.92
Sense of satisfaction	9	2.08	9.09	6.40	7.15	2.08
Energetic	15	10.4	13.0	12.0	7.12	2.46
Being focused	3	0.00	3.90	2.40	6.75	2.33
Being expressive	6	4.12	5.19	4.80	6.57	2.34
Comfort/being wealthy	8	2.08	7.79	5.60	6.11	2.99
Absence of sadness	8	0.00	9.09	5.60	5.58	2.98

Figure 3-2. Adolescents' pathways to wellbeing

Discussion

Many responses were reduced to a limited number of components and pathways, comparable to the results of other prototype studies (Hone et al., 2015; Kearns & Fincham, 2004; Weiser et al., 2014). Three components appeared most frequently in the text: being happy, being kind/helpful, and good physical health. Only 5.6% of adolescents in the current study listed comfort/being wealthy as a component of wellbeing. These results are partially different to prior studies (Chaplin, 2009; Fattore et al., 2007). Another important observation was adolescents' listing of "feeling safe" in the present research, and in previous research (Anderson & Graham, 2016; Fattore et al., 2007). Components of wellbeing not discussed in the current academic models were evident; for example, being kind/helpful, good physical health, feeling safe, and enjoyment/having fun. The non-appearance of these components in academic models suggests that adolescents may have a different characterization of wellbeing.

Both socioeconomic groups frequently listed being happy, good physical health, and being kind/helpful as components of wellbeing. However, the listing percentages of some components varied. For example, the low-socioeconomic group mentioned good physical health considerably less than the high-socioeconomic group, whereas the high-socioeconomic group did not list enjoyment/having fun as much as the low-socioeconomic group. Hence, some influence of SES in the recall of wellbeing components was evident, which was further tested in Study 2.

Overall, the prototype of wellbeing includes beliefs, feelings, and actions. Participants listed cognitive states, mindsets, and beliefs such as contentment/peace, belief in your abilities, and positive attitude/optimism. Interestingly, actions were perceived as components of wellbeing such as being kind/helpful. Emotive states and feelings were also listed by the participants such as being happy and feeling good. Of importance is the holistic amalgamation of psychological, social, physical, spiritual, and demographic aspects in adolescents' perception of wellbeing, similar to our multidimensional understanding of the concept. This understanding is also comparable to Durie's (1985) Māori model of wellbeing, Te Whare Tapa Whā, which compares hauora (wellbeing) with the four walls of a house (whare) comprising four dimensions, namely taha tinana (physical health), taha hinengaro (mental health), taha wairua (spiritual health), and taha whānau (family).

The most frequently listed pathway to wellbeing was positive family relationships, followed by positive friendships and physical activity/sport, all of which are social and physical components. These findings resonate with wellbeing models such as the Geelong Grammar School model (Norrish et al., 2013), as well as previous research with adolescents on pathways to wellbeing (Chaplin, 2009). The government frameworks that identify Five Ways to Wellbeing (Aked et al., 2008; Mental Health Foundation of New Zealand, 2018) are also reflected in the current study in the following ways: *connect* (similar to positive friendships and positive family relationships),

give (similar to being kind/helpful), *be active* (similar to physical activity/sport), *keep learning* (similar to learning), and *take notice* (similar to nature). Surprisingly, adolescents did not list some pathways to wellbeing (e.g., mindfulness) that have been demonstrated to have a positive effect on wellbeing (Norrish, 2015). This omission suggests adolescents in the current study were uninformed about these pathways and they seemed to be more familiar with *tangible pathways to wellbeing* (e.g., sports, pets), which are clear-cut and straightforward to their understanding, rather than *intangible pathways to wellbeing* (e.g., mindfulness) which are abstract.

Study 2: Centrality Ratings of Wellbeing Components

The objective of Study 2 was to determine the centrality of Study 1 components. If a concept possesses a prototypical structure, the individuals should not only be able to list the components of a concept but also rate how central or peripheral each component is to their concept of wellbeing, with substantial agreement on these ratings. A different group of participants, thus, judged how important or unimportant each component previously identified in Study 1 was to their own concept of wellbeing, and their judgments were examined for agreement. The impact of socioeconomic decile on wellbeing components' centrality ratings was also examined.

Participants

The sample comprised 122 intermediate school students (65 boys and 57 girls) from Year 7 (39%) and Year 8 (61%), aged 11 (32%), 12 (57%), and 13 (11%), from two schools in Auckland. Thirty-four percent of participants were from a low-decile school (42) and 66% (80) were from a high-decile school. Approximately 56% were of European background, 13% were Māori, and 12% were Pacific Islanders. Some participants indicated that they were Asian (7%) or African (2%). About 10% of participants reported that they were of mixed ethnic background (including Māori European, Pacific Māori, or Pacific European). The demographic characteristics of these participants were comparable to the Study 1 sample.

Procedure

Participants filled in the registration details and accessed the online survey. Participants were given the following verbal and on-screen instructions within the school hours (adapted from Hone et al., 2015):

> In a previous study, we asked students of your school level to list the components of wellbeing that came to their mind when they thought of the word wellbeing. On the next page, you will read the responses of the students in our earlier study in alphabetical order. After reading each one, please rate how important or less important you think each component is to your understanding of wellbeing by clicking a number between 0 (an extremely poor component of wellbeing) to 10 (an extremely good component of wellbeing).

Analysis

Two measures provided evidence for the reliability of the means of ratings of 26 components. First, the intraclass correlation coefficient (ICC) was calculated, which is equivalent to the mean of all possible split-half correlations of the 122 judges with respect to 26 components (ICC = .910, $p < .000$, average measures), which showed excellent inter-rater reliability. Second, the data matrix was flipped (treating 26 components as cases and 122 participants as items), which also indicated an exceptionally high internal consistency of the ratings ($\alpha = 0.96$). Spearman's rank correlation coefficient was computed to examine the relationship between Study 1 listing percentages and Study 2 centrality ratings. A Mann-Whitney test was also conducted to examine whether school decile influenced the mean centrality ratings of the 26 components.

Results

Table 3-1 shows the mean centrality ratings of the components in descending order. The correlation between centrality ratings in Study 2 and participants' listing percentage in Study 1 was moderately positive ($r_{s\ (rho)} = 0.522$, $p < .01$ one-tailed). Nearly half of the components were listed frequently and given high centrality ratings (e.g., being happy), whereas some components that were frequently mentioned in Study 1 received a relatively lower centrality rating in Study 2 (e.g., good physical health). Figure 3-3 shows a scatterplot graph illustrating the relationship between Study 1 and Study 2 component rankings. For example, feeling good was ranked third in Study 2 but fourth in Study 1.

Significant differences exist in mean centrality ratings of five components as a function of school decile. Specifically, individuals in the low-socioeconomic group considered the following components more central for wellbeing than the high-socioeconomic group: *being focused* (8.00, 7.00, $p = 0.005$ $r = 0.260$), *comfort/wealthy* (7.50, 6.00, $p = 0.004$, $r = 0.260$), *good physical health* (10.00, 8.00, $p = 0.00100$, $r = 0.300$), *good values* (10.00, 8.00, $p = 0.005$, $r = 0.250$), and *success/achievements* (9.00, 8.00, $p = 0.004$, $r = 0.260$). Good physical health was associated with a medium effect size. The high-socioeconomic group did not consider any component more central than the low-socioeconomic group.

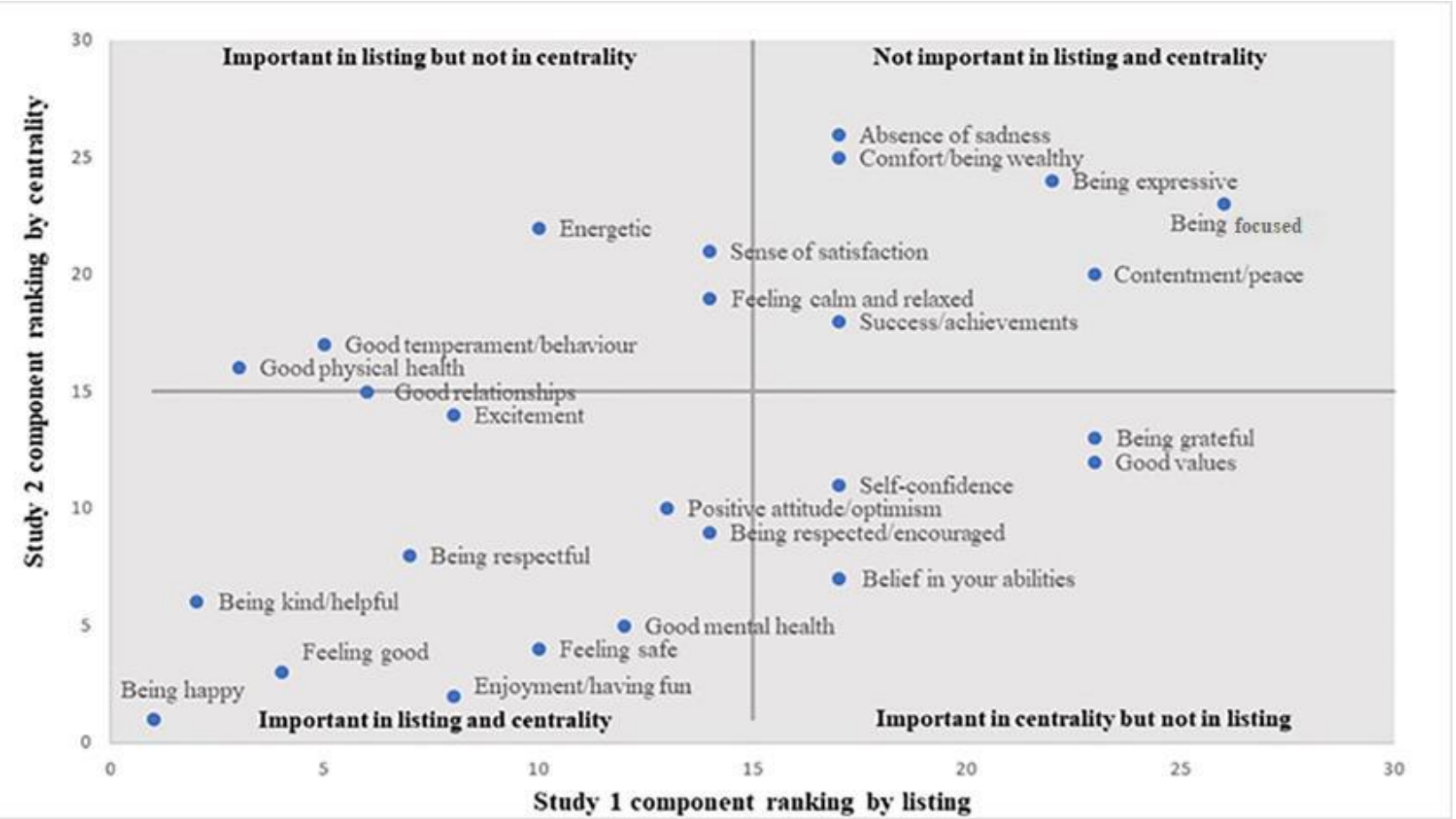


Figure 3-3. Components' ranking correlation between Study 1 (listing phase) and Study 2 (centrality phase)

Discussion

Adolescents perceive some wellbeing components as being more central than others, thereby fulfilling the first condition for ascertaining a concept's prototypical structure. For example, feeling safe, enjoyment/having fun, and being kind/helpful received higher ratings than the components comfort/being wealthy and sense of satisfaction, which are less prototypical of wellbeing. While research has reported economic circumstances and material possessions as a key domain of wellbeing for American adolescents (Chaplin, 2009; Land, Lamb, & Mustillo, 2001) and Australian adolescents (Fattore, Mason, & Watson, 2009), it is noteworthy that possessing material things was less significant for our sample of NZ adolescents; that is, comfort/being wealthy was observed to be a peripheral component.

Some disparities were apparent in Study 1 and Study 2 data which is consistent with other prototype research ((Hone et al., 2015; Kearns & Fincham, 2004). This finding could be attributable to the distinct cognitive processes associated with listing and rating components (Fehr, 1988). Listing items requires different heuristics than rating a predetermined list (Kearns & Fincham, 2004). Finally, school decile significantly impacted the ratings of five components; however, the differences in perceptions were not significant for 21 components. Thus, adolescents with different SES mostly have parallel perceptions about wellbeing components, with unique variations regarding certain aspects, such as good physical health.

Study 3: Impact of Components' Centrality on Perception of Wellbeing

The first two studies fulfilled the first condition of prototype analysis procedure. Study 3 was a validation study conducted to test the second and final condition: Does components' centrality have an impact on participants' perceptions of wellbeing? We hypothesized that (if wellbeing is prototypically organized) central components would be perceived as more representative of the concept of wellbeing than peripheral components. The interaction between school decile and component centrality on the perception of wellbeing was also tested. To address the aim, a different sample was presented with descriptions of two imaginary persons depicting the central and peripheral components of wellbeing identified in Study 2.

Participants

Participants were 114 NZ adolescents (60 boys and 54 girls) from a low-decile (37%, 42) and high-decile (63%, 72) Auckland intermediate school. Approximately 41% of the participants were from Year 7 and 59% from Year 8. Participants were of different ethnic backgrounds, including Māori (12%), Pacific Islander (17%), NZ European (55%), Asian (11%), and African/Middle Eastern (2%). The remaining identified themselves as of mixed ethnicities (3%). Age of the participants was 11 (28%), 12 (58%), and 13 (14%) years. This sample had similar demographic characteristics to the previous samples.

Procedure

In using central and peripheral components of wellbeing in writing the scenarios, a procedure of median split was applied to divide the Study 2 centrality ratings into central and peripheral categories consistent with other prototype analysis studies. Centrality ratings higher than 7.98 (median of the 26 ratings) were considered central, and ratings lower than this value were considered peripheral (see Table 3-1). Even though essential for the current study, the authors acknowledge that centrality is continuous and such demarcation is artificial (Lambert et al., 2009). Based on the median, the participants were presented with two imaginary scenarios describing central (Sam's scenario) and peripheral (Laura's scenario) components of wellbeing in a random manner. Mean centrality scores of central and peripheral components were 8.38 and 7.22 respectively.

> Sam's wellbeing: Sam is *happy* and *feels good*. He is known for his *kindness and helpful nature*. When he is at school, he *believes in his abilities* to accomplish his set goals. When he is not at school, he engages in *fun activities* that he likes for the sake of his *enjoyment*. In general, he *feels emotionally and physically safe* at his school and at his home. What's more, his school counselor recently informed him that he has *good mental health*.
>
> Laura's wellbeing: Laura is *energetic*. She *does not feel sad*. *Being expressive* by nature, she likes interacting with her classmates during class discussions. She experiences a *sense of satisfaction* when she *focuses* on her schoolwork. Although she is from a *wealthy* family and leads a comfortable life, she finds *contentment and peace* in life's small blessings.

Participants were instructed to rate how closely each scenario matched with their concept of wellbeing by clicking a number on an 11-point scale (0 = extremely poor match to 10 = extremely good match).

Analysis

A generalized linear mixed model (GLMM) was carried out to quantify the associations of centrality and centrality × decile with perceptions of wellbeing. Since scale variables were utilized with the dependent variable being numeric, the probability distribution was normal. Identity link function was used because the distribution was left-skewed. The analyses were conducted using the IBM Statistical Package for the Social Sciences (SPSS) Statistics 24.0.

Results

The central scenario (Sam's mean = 8.00) was rated higher than the peripheral scenario (Laura's mean = 7.26). The association between centrality and scenario selection was statistically significant (0.737; CI 0.324, 1.150; $p = 0.001$). The Decile × Centrality (central or peripheral) interaction was also significant (1.204; CI 0.116, 2.293; $p = 0.030$). In other words, the central scenario was more closely associated with the representation of wellbeing than the

peripheral scenario. The association between the selection of the scenarios and component centrality was moderated by school decile. Table 3-2 shows the descriptive statistics for the two scenarios.

Table 3-2. Descriptive statistics for the imaginary wellbeing scenarios as per school decile

School decile	Scenario	*N*	*M*	*SD*	*Md*	Interquartile range
High	Sam (central)	72	8.25	1.42	8.00	1
	Laura (peripheral)	72	7.07	1.92	7.00	3
Low	Sam (central)	42	7.57	2.66	9.00	5
	Laura (peripheral)	42	7.60	2.27	7.50	4

Discussion

Our findings suggest that wellbeing is prototypically organized in adolescents. Comparisons of the medians in Table 3-2 also show that both low- and high-socioeconomic groups rated the central scenario higher than the peripheral scenario. Because socioeconomic decile moderated the relationship between selection of the scenario and centrality, it seems apparent that central components of wellbeing and decile-specific perceptions are not mutually exclusive.

Discussion and Implications

This is one of the first studies to systematically determine 11- to 13-year-olds' perspectives of components and pathways regarding wellbeing via prototype analysis and examine the influence of socioeconomic decile on these perceptions. The findings may be a guide for those engaged in the assessment and promotion of adolescents' wellbeing in schools.

Is wellbeing prototypically organized in adolescents?

Our study finds that wellbeing is prototypically organized in adolescents. Participants could freely list and rate wellbeing components, and components' centrality significantly affected the perception of wellbeing. Hence, the research fulfilled the two conditions stated by Rosch (1975) in demonstrating a concept's prototype structure. This finding extends on a body of work with NZ workers that is evidence of the prototypical structure of wellbeing (Hone et al., 2015; Jarden et al., 2018). Having a prototype structure of wellbeing suggests wellbeing assessment should take into regard a "fuzzy" (Lambert et al., 2009, p. 1195) presence or absence of central components, instead of requiring components with necessary and sufficient criterion.

Do adolescents' perceptions of wellbeing components correspond with academic models and NZ adults' conceptualizations?

Since wellbeing is prototypically structured, adolescents' wellbeing conceptualizations include central components (e.g., being happy) and peripheral components (e.g., contentment/peace). It

is noteworthy that adolescents' perceptions of central components of wellbeing, comprising being happy, enjoyment/having fun, feeling safe, and being kind/helpful, are quite distinct compared to NZ adults' wellbeing perceptions of good physical health, work-life balance, feeling valued, and good relationships. This finding signifies that elements that are desirable for adults may potentially not be desirable for adolescents. Therefore, wellbeing practitioners should be careful about the selection of elements of their assessment measures and interventions for adolescents (Marchant et al., 2012).

The results were assessed to examine how the central components are aligned with commonly used academic models, which demonstrated partial alignment. Adolescents' prototype of wellbeing is wide ranging (including emotions, behaviors, and cognitive states), and wellbeing experts have also shown consensus over the multidimensional nature of wellbeing (Huppert & So, 2013). Regarding the components of wellbeing, however, some differences were observed. While some central components correspond to the researchers' definitions of wellbeing, others are recognized by researchers as correlates of wellbeing rather than as components. For example, in terms of similarities, components such as being happy and feeling good relate to the positive affect/emotion dimension included in academic models (Huppert & So, 2013; Keyes, 2005; Seligman, 2011b). In contrast, components such as being kind/helpful do not appear as components in academic models but have been shown to correlate positively with wellbeing (e.g., Layous, Nelson, Oberle, Schonert-Reichl, & Lyubomirsky, 2012 studied kindness and wellbeing). Likewise, there is no exclusive focus on components feeling safe and enjoyment/having fun in wellbeing models irrespective of their unique presence in government frameworks of wellbeing (Canadian Institute for Health Information, 2009; Education Review Office, 2015b), and in empirical research with adolescents (Fattore et al., 2007). Adolescents also mentioned "being respected/encouraged" and "being respectful" as components of wellbeing in the current study, mirroring the results of Anderson and Graham (2016). The central component *belief in your abilities* is present in only one model of adolescent wellbeing (Renshaw et al., 2014). Overall, current models do not fully address what adolescents perceive to be wellbeing.

Some aspects normally observed in academic models such as meaning and purpose (Diener et al., 2010; Huppert & So, 2013; Keyes, 2005; Seligman, 2011b) were not listed by adolescents, even using their own language and terminology such as meaning and purpose. Furthermore, while adolescents stated some behaviors as components of wellbeing (e.g., being kind and helpful and being respectful), most measures of wellbeing are cognitive and emotional, and hardly any ask about behaviors. Therefore, we suggest that formulating a broader definition of wellbeing customized to the adolescents' perspectives, as outlined in this research, may be useful (comprising components omitted from academic models, such as enjoyment/having fun, feeling safe, being kind/helpful, being respected, and being respectful). By suggesting a broader definition, we do not imply that experts disregard their own judgments. Instead, we suggest

adolescents' perceptions of wellbeing identified in the current study may help inform researchers' models, which may also clarify the understanding of the concept of wellbeing for researchers.

How do adolescents' perceptions of pathways to wellbeing correspond with current research and academic models?

The most frequently listed pathways to wellbeing identified in this study build upon extant evidence. Positive relationships, physical activity, engaging in hobbies, and being kind/helpful are indispensable aspects of the current wellbeing promotion models and programs (Aked et al., 2008; Norrish, 2015; Suldo & Savage, 2016). These results also correspond to the NZ workers' prototype research and research with adolescents (for a review see Chaplin, 2009; Hone et al., 2015). Eating healthily and socializing activities are significant aspects of the positive health and relationships domains of the Geelong Grammar School positive education model (Norrish, 2015) while the pathway pet ownership and attachment was also found in previous research (Chaplin, 2009). Interestingly, between 12 and 17% of 11- to 13-year-olds listed nature, being around positive people, and digital entertainment as ways to improve wellbeing in Study 1. Government promotional wellbeing framework has given importance to some of these aspects such as nature (Aked et al., 2008), whereas popular promotional models are less likely to emphasize the aspects such as pet ownership and attachment, nature, being around positive people, and digital entertainment. Research suggests contact with nature, including bushwalks and enjoying a day at the beach, enhances the mental wellbeing of adolescents (Sarriera & Bedin, 2017). Research on the effects of digital entertainment on adolescents is mixed. Previous researchers have criticized the use of digital entertainment for adolescents; however, positive psychology researchers have focused on the beneficial effects of digital entertainment (e.g., exposure to programs depicting positive behaviors) on adolescents (De Leeuw & Buijzen, 2016). Similarly, owning pets is beneficial for the wellbeing of adolescents (Purewal et al., 2017). Overall, the pathways digital entertainment, pet ownership and attachment, being around positive people, being kind/helpful, and nature represent useful targets for adolescents' wellbeing promotion in the future.

Does SES influence adolescents' wellbeing perceptions?

SES influences adolescents' perceptions of wellbeing. Both groups showed similar perceptions in the listing phase. However, significant differences were observed in the perceptions in the rating phase. This result indicates wellbeing perceptions of adolescents with different socioeconomic standing are broadly similar, but differences exist in the value given to certain components. For example, the low-socioeconomic group considered five components of 26 (including comfort/being wealthy, and success/achievements) more important for wellbeing than the high-socioeconomic group. Differences in ratings may have surfaced due to adolescents' diverse SES, culture, or overall culture of the school. Additionally, SES moderated the relationship between centrality and perception of wellbeing. Consequently, socioeconomic

groups' unique perceptions should be combined with adolescents' general perceptions in understanding their idea of wellbeing.

Other insights and implications

The examination of adolescents' freely listed responses identified interesting insights regarding their understanding of wellbeing. First, 98% of adolescents listed components relevant to the field of wellbeing and only 2% did not respond or listed aspects unrelated to the concept of wellbeing (as conceptualized by academic researchers). This study demonstrates adolescents' awareness of the concept of wellbeing—specifically, a considerable number of components (551) and pathways to wellbeing (565) were listed. Adolescents mentioned relatively tangible pathways such as family, peers, sports, and pets rather than abstract constructs such as mindfulness. While Norrish (2015) explains the lack of consideration of internal dimensions as adolescents' occasional "narrow thinking" and their focus on "material possessions" (p. 47), the present study shows adolescents' appreciation of deeper aspects such as nature and being kind/helpful. It is possible that adolescents are engaged in mindful activities but cannot give a name to the mental state due to lack of instruction.

Similarly, adolescents listed 14 more pathways than components, demonstrating a greater awareness of the ways to foster wellbeing than of the concept of wellbeing. Whether that awareness is due to adolescents' interest and curiosity in enhancing wellbeing is largely unknown. Possibly, the notion of a component is more abstract than practical ways to foster wellbeing. Awareness reasons could vary, but some effortless awareness at an intuitive level of recognition is evident. Such "intuitive recognition" of the concept "may not be perfect, even though essential before testing or clarifying" (Cloninger, 2004, p. 8) the meaning of the concept. Further empirical research is required to support the notion of intuitive understanding of wellbeing among adolescents.

Secondly, adolescents demonstrated some overlapping perceptions of the aspects that research suggests define and improve wellbeing. Certain components of wellbeing were also listed as pathways to wellbeing such as good physical health. The pathway-component overlap suggests that adolescents are either confused about the ideas of attribute and promotion, or they suppose a relation between aspects that define versus improve wellbeing. The second assumption has some empirical support (Chaplin, 2009). The results show the components mentioned dually varied in frequency. For example, good physical health was listed frequently as a component but less frequently as a pathway. The variation in frequency might theoretically point to the possibility that *adolescents are rather perceptive* in discerning the difference between two intricate concepts. They listed a variety of responses that are characteristic of pathways and components (i.e., some of their pathways were incongruent with their own conception of wellbeing); however, they also

showed some overlap. Thus, in schools, educators may consider promoting the central components of wellbeing not mentioned as pathways (e.g., enjoyment/having fun).

Finally, adolescents' perceptions of wellbeing vary broadly. Though it is noticeable that some components and pathways were collectively stated by a high percentage of adolescents, no component or pathway of wellbeing was mentioned universally. The variability in responses reflects the distinctive characteristics or experiences influencing wellbeing perceptions. Hence, in the future, it will be valuable to consider adolescents' unique worldview together with the commonly perceived aspects of wellbeing. Parallel to the United Nations Educational, Scientific, and Cultural Organization's (2004) curriculum differentiation approach, where a curriculum is modified to match the learning needs of an individual, assessment measures and positive education practices ought to be personalized to fit wellbeing perceptions of adolescents, to pave the way for more precision in application of wellbeing (Cook et al., 2018; Horner et al., 2014).

Limitations and future directions

An open-ended survey was utilized for collecting qualitative data from many individuals at the same time. It is possible the writing ability of some participants affected the length and quality of their responses. Nevertheless, the candidate ensured participants understood the questions and participants were also free to ask for clarification. Secondly, the findings are limited by our subjective opinions and that of participants. For example, the coding of responses was subjective, and how one individual perceives a component of wellbeing may differ from another individual. Thirdly, the effect of ethnicity on adolescents' wellbeing perceptions could not be examined. An important direction for future research, therefore, is to investigate how adolescents' awareness of wellbeing differs across cultures. Finally, we recognize that the sample size of low-decile group was relatively smaller than the high-decile group in all three studies (e.g., Study 1 $n = 48$ for low-decile group and $n = 77$ for high-decile group), which may have potentially underrepresented low-socioeconomic individuals' views. Taking the sample size into account, future research could assess low-socioeconomic group perceptions using a larger sample.

The literature on adolescents' perceptions of wellbeing is relatively inadequate and recent. The present study provides preliminary evidence about the variation in adolescents' prototype of wellbeing as a function of SES. It is essential that further research examines the stability of adolescents' perspectives of wellbeing across countries and also investigates changes over time. As Fehr (1988) posited, it is likely that the prototypic features of a concept may vary with different populations, but the prototypical structure of a concept remains. Another useful direction for future research would be to study adolescents' perceptions of components of wellbeing (e.g., enjoyment/having fun) and the extent to which adolescents' prototype of wellbeing matches with an individual's representation of wellbeing.

Conclusion

This study contributes to an under-investigated area of adolescent wellbeing. Adolescents' perceptions of wellbeing components are partially aligned with popular academic models, but also different from adults' perceptions. Therefore, a broader definition of wellbeing is warranted, tailored to the adolescents' prototypical wellbeing representation (especially incorporating the components enjoyment/having fun, feeling safe, and being kind/helpful). Besides three most listed pathways to wellbeing (positive family relationships, positive friendships, and physical activity/sport), researchers may include activities around hobbies, nature, digital entertainment, pets, kindness, positive people, socializing, and healthy diet in their promotional models. It is imperative that practitioners and researchers consider adolescents' perceptions in designing assessment measures and positive education programs. When devising assessments and policies for low-socioeconomic groups, the components comfort/being wealthy, success/achievements, good physical health, being focused, and good values should be taken into account with adolescents' general conceptualizations of wellbeing.

Final Remarks on Part A of the Preparatory Phase

Based on the findings of Part A, several predictor variables were selected from a positive education perspective for the subsequent work for this current research. An example of applying a positive education perspective in the selection of predictor variables was the exclusion of parent's education from further analysis, a factor that was found to facilitate positive transition to secondary school in Chapter 2. Predictor variables comprised personal resources, strengths, skills, and positive lifestyle behaviors that can be taught to adolescents and encouraged in schools for wellbeing promotion. These variables also comprised demographic factors that may potentially give impetus to the learning of the tools and strategies of wellbeing promotion. Table 3-3 displays these predictor variables organized within a conceptual framework of positive school transition.

Table 3-3. Predictor variables

Demographic factors	Psychological factors	School factors	Social factors	Physical factors	Spiritual factors
• Gender • SES • Ethnicity • Older sibling	• Feeling safe • Strength use and knowledge • Self-control • Self-efficacy • Enjoyment • Being kind and helpful • Hobbies and leisure activities (including digital entertainment)	• Perceived teacher support • School belonging • Involvement in organized activities	• Positive family relationships (including perceived parent support) • Positive friendships (including perceived peer support) • Being around positive people • Socializing activities • Pet ownership	• Sleep duration • Physical activity • Healthy diet • Active transport (travel to and from school)	• Nature or connection with nature • Spirituality • Mindfulness • Purpose

Notes. The predictor variables in purple are informed by adolescents' conceptions of wellbeing; predictor variables in black are informed by the review of the literature.

Four additional variables, namely ethnicity, mindfulness, sleep duration, and active transport, were included in the list of predictor variables as per the empirical importance of these variables for wellbeing. For example, Prendergast, Schofield, and Mackay (2016) concluded that Māori and Pacific adults experience higher wellbeing than European adults. Similarly, they showed that sleeping restlessly almost all the time has serious repercussions on NZ adults' optimal wellbeing. Regarding sleep benefits, a longitudinal study showed that longer sleep duration was associated with better subjective psychological wellbeing in Norwegian and Swiss adolescents (*M* age = 13.05 ± 1.49 years) (Kalak, Lemola, Brand, Holsboer-Trachsler, & Grob, 2014). While active travel was observed to reduce depression in adolescents in a cross-sectional study (Sun,

Liu, & Tao, 2015), it improved psychological wellbeing in adults in a longitudinal study (Martin, Goryakin, & Suhrcke, 2014). Mindfulness, awareness of the present situation, contributed to life satisfaction in adolescents in the US (Bluth & Blanton, 2014). Whether these findings apply to NZ adolescents is examined in the exploratory phase of this thesis. See the Glossary of Terms for the meanings and definitions of the predictor variables. The understanding of the psycho-socio-spiritual, physical, and school predictor variables in this thesis was influenced by academic definitions, adolescent free responses, and more precisely, through the questions asked to the participants in the survey. Based on the predictor variables depicted in Table 3-3, the next phase demonstrates the development and validation of the PSTRS and its subscales.

As alluded to in Chapter 3, an interesting observation of the study is that there was some overlap between adolescents' ideas of meaning and promotion of wellbeing. For example, in Study 2, being kind/helpful was considered a central component of wellbeing and more than 12% of our sample also listed it as a pathway. This observation has empirical backing from studies of lay people's perceptions of wellbeing (Chaplin, 2009; Hone et al., 2015). Linking this reflection to the transition literature, certain aspects that adolescents thought were central to the meaning of wellbeing, such as feeling safe and self-efficacy, have been shown to facilitate mental wellbeing and school engagement, respectively, during school transitions (Lester & Cross, 2015; Madjar & Chohat, 2017). In line with the empirical evidence and given the connection between adolescents' meaning of wellbeing and the pathways they use to build wellbeing, I believe a potentially useful way of promoting wellbeing during transitions may also be promotion of central components of wellbeing not mentioned as pathways; therefore, 'enjoyment' was also selected as a predictor variable in this thesis.

PREPARATORY PHASE: PART B

SURVEY DEVELOPMENT

CHAPTER 4: INITIAL DEVELOPMENT AND VALIDATION OF THE POSITIVE SCHOOL TRANSITION READINESS SURVEY (PSTRS)

Preface

The studies in the preceding chapters were necessary to determine the predictor variables used in this thesis. Chapter 2 revealed 14 components essential in navigating varied types of school transition. Chapter 3 discovered nine components based on adolescent conceptualizations of wellbeing. Four components were deemed sufficiently important to be included. While these 27 variables were successfully categorized into the conceptual framework of the thesis, one question remained: how can these predictor variables be assessed collectively, quickly, and frequently without exhausting 11- to 14-year-old adolescents in intermediate schools? A review of the literature indicates that lengthy assessments reduce the motivation of test-takers and create response biases (Organization for Economic Co-operation and Development, 2013). Furthermore, most school transition evaluation research has focused on the *anxieties* of adolescents with regard to school transition. The next logical step was, therefore, to develop and validate a survey with brief subscales to assess the components discovered in the first two studies. Testing the psychometric properties of the assessment measure was essential for lending credibility to the research findings.

This chapter describes the preliminary development and validation of a novel PSTRS comprising multiple brief subscales for measuring the predictor variables of this thesis. While I was primarily interested to validate only subscales in the survey, during the process I extended my objective to explore the reliability and validity of the full survey with the intention that it could be revised in future research and be used by school professionals to determine adolescent readiness to transition. For the purpose of this study, analyses were not performed on demographic factors (gender, ethnicity, SES, and older sibling), sleep duration, active transport, and pet ownership. A combination of binary and open-ended response formats was utilized for evaluating these predictor variables in the exploratory phase. An ordered categorical response format was used for measuring active transport. The questions asked are provided in Appendix F. Note that this study was only an initial attempt at validating the PSTRS and the intention was to revise the survey based on findings of this thesis in the second round of validation, as well as in future research.

Abstract

The transition to secondary school can be a challenging period for adolescents. Although several questionnaires exist to measure transition-related wellbeing concerns, there is a need to develop a comprehensive survey for assessing the knowledge and skills that adolescents require to adapt effectively to a new school. Thus, the purpose of this study was to develop and investigate the psychometric properties of a preliminary self-report tool (PSTRS) for identifying the presence or absence of factors that facilitate transition to secondary school and are important for adolescent understanding of wellbeing. The PSTRS was developed in a series of stages that involved a systematic review of the school transition literature, a review of psychometric scales, empirical data of adolescents' wellbeing conceptualizations, expert reviews, and a pilot study. Seventy-one items were compiled to collect information on 20 school, social, physical, psychological, and spiritual components. Cronbach's alpha for the survey was 0.943 in a sample of Year 8 NZ intermediate school students (N = 471). Test–retest reliability was 0.866 in a subsample of 121 participants. Single-measures ICCs of subscales ranged from 0.501 to 0.943. The PCA resulted in a three-component factor structure. The PSTRS and its subscales positively correlated with wellbeing and negatively correlated with anxiety. Overall, PSTRS appears to be a reliable and valid tool for determining adolescent readiness to transition to secondary school. PSTRS data may be useful for researchers, school professionals, psychologists, and policymakers to better understand successful school transitions.

Introduction

The transition to secondary school can be challenging for adolescents as this period is accompanied by rapid developmental changes and marked discontinuities in school systems (Anderson et al., 2000; Loke & Lowe, 2013; Rens et al., 2017). Despite this, there are gaps in the literature relating to the assessment of adolescent readiness to transition. In NZ there is a three-tier school system in which adolescents typically attend intermediate schools (Years 7–8) in between contributing (Years 1–6) and secondary schools (Years 9–13). Accordingly, intermediate school adolescents in NZ negotiate two transitions in two years (Hawk & Hill, 2004; McGee et al., 2004) and they are more likely to experience disruption in achievement when compared to those who directly transition from full-primary (Years 1–8) to secondary school (Alspaugh, 1998).

The intermediate to secondary school transition, in particular, has a negative effect on most adolescents, both in NZ and overseas (Hawk & Hill, 2004; Newman et al., 2007). The transition to secondary school may not be a seamless experience for adolescents because of the ensuing social changes and the contrast in pedagogy and organization between primary/intermediate and secondary schools (Akos & Galassi, 2004b; Hawk & Hill, 2004). Adolescents experience the school transition at a time of abrupt and powerful pubertal growth and development (Anderson et al., 2000). With simultaneous changes comes a heightened potential for discomfort and drawbacks (Eccles et al., 1993; Simmons et al., 1987). Research demonstrates that the extent to which the school transition phase is daunting for adolescents is linked to adverse consequences (Hanewald, 2013; Rens et al., 2017; Waters et al., 2012), such as school dropout (McGee et al., 2004), depression (Newman et al., 2007), and anxiety (Benner & Graham, 2009). There are also reports of declines in wellbeing, achievement, self-esteem, and academic performance during the transition to secondary school (Alspaugh, 1998; Benner, 2011; Cox & Kennedy, 2008; Symonds, 2015). Finally, an increase in discipline problems, less school satisfaction, and more negative attitudes toward teachers have been documented (Donegan, 2008; Haladyna & Thomas, 1979; Hirsch & Rapkin, 1987). The successful navigation of school transition, in contrast, is positively related to adolescent wellbeing and achievement (Rutter, 1989; Vitaro & Tremblay, 2008). These outcomes, in part, have led transition researchers to shift their focus from poor transitions to assessing positive school transition.

The assessment of transition success is normally based on divergent criteria (Ng-Knight, 2015). Some of the criteria of positive school transition are outlined as school bonding (Ng-Knight et al., 2016), high grades, and school engagement (Zendarski et al., 2016). A 2019 systematic review for this thesis concluded that substantial criteria for assessing positive transition are school-related and lack focus on adolescent wellbeing (Bharara, 2019). Only over the last decade has school transition been explained from a positive perspective as a period of opportunity to build adolescent wellbeing. For instance, transition researchers have investigated factors that buffer

against suffering, improve the transition experience, and promote wellbeing (Madjar & Chohat, 2017; Shoshani & Slone, 2013). However, there are limited examples of the comprehensive evaluation of such factors in practice. Such evaluation may be worthwhile in identifying adolescent readiness to adapt effectively to a new educational setting, and thus, in informing interventions that strengthen transitions and adolescent wellbeing in schools.

The importance of accurate and comprehensive assessment aligns with a growing international and national emphasis on improving school transitions and adolescent wellbeing in schools (Department of Education and Training, 2016; Education Review Office, 2012a, 2016a; Rice, 2001). Wellbeing is recognized as being important for positive transitions and the NZ government has highlighted the important role schools have in promoting wellbeing for facilitating transition (Education Review Office, 2012a, 2016a). Indeed, wellbeing has far-reaching favorable academic and behavioral implications for adolescents (Dix et al., 2012; Norrish, 2015; O'Connor et al., 2016; Suldo et al., 2011). The transition to secondary school is, therefore, a window of opportunity for delivering programs/interventions to bolster adolescent adaptation to the new school as well as their competence and wellbeing (Rice, Frederickson, Shelton, et al., 2011; Riglin et al., 2013). To prepare and support adolescents for the transition in an optimum manner, schools are required to have a clear and comprehensive understanding of adolescent skills, needs, and dispositions. Yet, the assessment of transition adaptation in NZ is limited as most of it is targeted toward academic performance and attendance (Education Review Office, 2012a).

Existing self-report measures of school transition primarily collect information on concerns and adversities related to school transition. The School Transition Questionnaire retrospectively assesses adolescent experiences and concerns related to the new school (Akos & Galassi, 2004b). While the Environmental School Transition Anxiety Scale evaluates environmental concerns regarding the transition to intermediate school (Loke & Lowe, 2013), the School Concerns Questionnaire measures concerns of the adolescents related to the primary–secondary transition (Rice, Frederickson, & Seymour, 2011). Assessing transition-related anxiety and concerns is useful in identifying adolescents who are suffering (Loke & Lowe, 2013), and yet placing the sole focus on recognizing weaknesses limits the preventive efforts used to promote wellbeing (Seligman & Csikszentmihalyi, 2000). Therefore, there is a need to evaluate transition-related knowledge of wellbeing to determine adolescent readiness for successful navigation of the transition trajectory.

Several transition researchers have provided compelling evidence that the school transition experience is enhanced by multiple factors relevant to adolescents' lives (Ng-Knight, 2015; Rens et al., 2017), such as perceived family support (Longobardi et al., 2016). Similarly, adolescents' multidimensional conceptualizations of the meaning and sources of wellbeing are argued to be significant for devising effective assessments and interventions (Ben-Arieh, 2005; Bharara,

Duncan, Jarden, et al., 2019; Casas, 2011). Examination of factors that enhance a positive transition to secondary school and comprise adolescents wellbeing conceptualizations are reported to include several psychological, social, school, physical, spiritual, and demographic factors (Bharara, 2019; Bharara, Duncan, Jarden, et al., 2019). These factors, such as perceived teacher support, self-control, and safety, are known to be positively associated with aspects of wellbeing and negatively associated with psychological problems such as depression and anxiety (Boals et al., 2011; Grills-Taquechel, Norton, & Ollendick, 2010; Lampropoulou, 2018; Nijs et al., 2014; Ronen et al., 2016; Suldo et al., 2009). Although equivalent instruments can assess such factors separately, a broad and consolidated survey to assess positive school transition readiness potentially represents a more comprehensive and time-efficient approach and is in harmony with the research that indicates a 'whole-school approach' is beneficial for promoting transitions (Rice, Frederickson, Shelton, et al., 2011).

Adolescents' evaluations of their skills and competencies regarding adaptability to secondary school and their knowledge about wellbeing is recognized to provide significant information for planning, implementation, and review of interventions as well as policymaking. Schools in NZ are suggested to be coherent in their learning and wellbeing approaches for achieving positive transitions (Education Review Office, 2012a). Consequently, a survey that merges the components of academic indicators of positive transition with wellbeing would be valuable for the holistic evaluation of adolescent positive transition to school. While assessment tools exist that can evaluate individual factors that improve transition and wellbeing, such as self-efficacy (Madjar & Chohat, 2017; Schwarzer et al., 1997), to date there is no self-report measure that captures a wide range of components that facilitate positive transitions and are useful for adolescent understanding of wellbeing. Ziegler, Kemper, and Kruyen (2014) proposed that the evaluation of diverse components in an instrument could be made simpler and more practical with short scales (i.e., composed of fewer than 10 items). Fewer items are less monotonous to respond to (Gardner, Cummings, Dunham, & Pierce, 1998) and mitigate response biases (Organization for Economic Co-operation and Development, 2013). Besides being less burdensome for respondents, brief measures are also useful for researchers and educators who have limited time and resources (Gosling, Rentfrow, & Swann, 2003). Owing to these benefits, several measures with short scales have been created and validated (Sandy, Gosling, Schwartz, & Koelkebeck, 2017).

The present study

This study developed and investigated the reliability and validity of the PSTRS in a sample of NZ intermediate school adolescents. The PSTRS was intended to be a wide-ranging self-report survey composed of several brief subscales to provide preliminary research information and to identify the presence or absence of factors that facilitate a positive transition to secondary school and comprise adolescents' conceptualizations of wellbeing. It was also hypothesized that the PSTRS

would be a quick and non-burdensome way to collect data electronically from intermediate school adolescents that could be administered individually, in a group, or self-administered. The PSTRS was intended to be a general and broad, rather than in-depth, measure of readiness for school transition. Specifically, from a breadth perspective, this study was interested in a) collating and incorporating all components that the literature shows are linked with positive secondary school transition and comprise adolescent conceptualizations of wellbeing in the survey, b) developing brief subscales (up to six items) to assess these components in the survey, and c) determining initial psychometric properties of the subscales and the entire survey. The motive behind this broad approach for survey development was the plan to utilize the subscales in the PSTRS for collecting data for this thesis's cross-sectional and longitudinal studies. The data from these studies may be useful in further refinement of the survey. Such an instrument may eventually be useful for professionals concerned about adolescent readiness to transition to secondary school.

The first aim of this study was to develop and investigate the psychometric properties of the PSTRS subscales. The secondary aim was to investigate the reliability and validity of the full PSTRS. Internal consistency reliability and test–retest reliability analyses were conducted. To determine the construct validity of the PSTRS, the communalities of the PSTRS components and identified patterns in the components were examined using PCA. Specifically, the study observed whether a wide number of components in the survey (20) were related to a small number of Principal Components (PCs). Finally, the way the PSTRS subscales and the full PSTRS correlated with theoretically related constructs of wellbeing and anxiety were investigated. The next sections first discuss the development of the PSTRS and then its psychometric properties.

Methods

Stages of survey development

The survey was developed in five stages, some of which were based on previously published work. The first two stages informed the survey components and item sources. The third stage involved item compilation. The fourth and fifth stages involved gathering expert and adolescent opinions regarding the survey. Together, these stages resulted in additions, eliminations, and/or modifications to the survey.

Stage 1: A review of the literature and existing instruments

In the first stage, a systematic review of transition literature was undertaken to determine the aspects that facilitate positive transition to secondary schools (Bharara, 2019). From this initial evaluation of the literature, 11 key components (including self-efficacy, self-control, and perceived teacher support) were identified to be incorporated into the survey, and the most psychometrically sound instruments appropriate for use by adolescents were catalogued for these components.

Stage 2: Adolescents' wellbeing conceptualizations and the review of corresponding instruments

In this stage, an empirical study was conducted to gather adolescent conceptions of the meaning and sources of wellbeing and eight more components were identified to be added to the survey profile (Bharara, Duncan, Jarden, et al., 2019). Some of these components were feeling safe, enjoyment, being kind and helpful, hobbies and leisure activities, and being around positive people (people who are encouraging and respectful). Empirically validated measures were subsequently reviewed for these components. For the definitions and meaning of these components, see the Glossary of Terms at the front of the thesis.

Stage 3: Item construction and survey structuring

As identified in the first two stages, most items were adapted from empirically validated published instruments (see Table 4-2) on the basis of high-factor loadings of 0.710 and above (Robinson, 2018; Ziegler et al., 2014). Items that were related in meaning and/or were ambiguous for the concerned age group were dropped. To ensure items were age appropriate, certain items were written or rewritten for constructs (e.g., connection with nature). Items were written for the components being around positive people and organized activity involvement. The breadth of a component was covered with as few items as possible. Where practical, three items were chosen per component to balance the content. The response format of the items was modified to ensure uniformity in the measurement of predictor variables (as well as of outcomes in the exploratory phase). Eleven-point numerical scales with absolute verbal labels at anchors (e.g., 0 = very strongly disagree and 10 = very strongly agree with minimum score = 0, and maximum score = 10) were adopted, except at places where another format was better suited. For a web survey, 11-point scales and labels at the end points are shown to increase data quality (Revilla & Ochoa, 2015). Longer numerical scales with a midpoint are also suggested to give respondents an option to freely express themselves (Organization for Economic Co-operation and Development, 2013). Introductory texts were used from the source tests to enable respondents to adjust to the fact that the next set of questions concerned a different component. The items in the PSTRS were grouped by components and the items with similar response formats were ordered together for ease of survey performance. The subscales were presented in random order. After survey compilation, it was sent to experts for review and adolescents' views were gathered.

Stage 4: Experts' opinions and review

A panel of three university professors with expertise in questionnaire development reviewed the survey. The panel's feedback was obtained regarding item clarity, relevance, phrasing, and order. Whether the items reflected what they purported to measure was also checked (i.e., face validity). At this stage, one more component, mindfulness, was added to the survey. In sum, the first four steps yielded an aggregate of 71 items assessing 20 components with an average of approximately three items per component. Based on the findings of these four stages, the adolescents were also asked questions about gender, ethnicity, their name of school, sleep duration, pet ownership,

active transport, and having an older sibling. Demographic items were presented near the end of the survey because this arrangement avoids emotional responding and makes answering questions less difficult when the respondents are fatigued (Robinson, 2018). Next, a pilot study of the profile was conducted for further refinement of items.

Stage 5: Pilot study

To evaluate feasibility, the survey was pre-tested with a small Year 8 sample ($N = 11$). The purpose of the pilot study was to gather adolescent opinions about language, comprehension, duration, readability, and pertinence of the instrument. The study was held after gaining approval from the host university's ethics committee. The participants were provided with a sheet informing them about the survey. Participation in the survey was voluntary. Assent was obtained electronically before adolescents participated in the study. Parent consent was not sought as the data in the pilot study were not analyzed. Any identifiable details about the participants were kept anonymous.

The participants were asked to complete the survey on their laptop devices at school within school hours. The survey was presented on the SurveyMonkey platform (SurveyMonkey, 2019). While no time limit was stated, the time participants took to complete the survey was recorded. The participants were requested to pay attention to the wording and style of the survey. Following survey completion, participants were redirected to a form to provide feedback about the survey's understandability and length (see Appendix I). A discussion was held with participants to obtain additional feedback.

Nine participants reported that they understood the questions (about 82%) and two participants had difficulty in understanding one question each (about 18%). All participants reported that they did not skip any question (100%). Concerning the survey length, four participants (36.4%) thought the survey was slightly long. Another four participants (36.4%) considered it to be of perfect length. The remaining three participants reported that the survey was long (18.2%) or slightly short (9.10%) (see Appendix I). The average duration of the survey was 15 minutes 50 seconds. In the discussion, participants commented on the relevance of the items for their lives. Based on the written and verbal feedback, a small number of items were amended and explanatory text was included for complicated words. For example, the word *nature* was defined parenthetically with the item asking about nature. No item was eliminated in this stage. Overall, the PSTRS development process culminated in 71 items for assessing 20 components, which were presented in Likert-type response format. Questions about gender, older sibling, active transport, sleep duration, and pet ownership were asked using a combination of binary, open-ended, and ordered categorical response format (see Appendix F).

Validation

Participants

The recruitment process involved emailing the principals of the 117 state intermediate schools in NZ. About 19% of the schools responded within the timeline and almost 7% (8) agreed to participate. Six schools were situated in diverse regions of Auckland, as well as one in Nelson and one in Wellington. Four schools were high-socioeconomic decile (9 and 10), two were Decile 1 (lowest SES), and two were medium socioeconomic deciles (4 and 7). The participating schools had combined enrolments of approximately 2,023 students in Year 8 in 2018, of whom about 23.3% chose to participate and obtained parental consent. From the eight participating schools, only two schools (Deciles 1 and 7) agreed to arrange a retest study, which comprised a sample of 121 Year 8 adolescents. Table 4-1 displays the demographic information of the baseline and test–retest studies. More girls than boys completed the survey in both studies. The participants were of varied ethnic backgrounds and many of them were 12 or 13 years of age. The baseline sample was adequately representative of national intermediate school ethnic distribution (Education Counts, 2019). Note that 397 students of 471 provided identifiable information in the baseline study and all participants furnished their details in the retest study.

Table 4-1. Participant demographic information

Demographic components	Characteristics	All Participants Baseline		Test–retest	
N		471		121	
		No.	%	No.	%
Gender	Female	213	45.2	76	62.8
	Male	184	39.1	45	37.2
	Missing	74	15.7	-	-
Age	11 years	2	0.40	-	-
	12 years	184	39.1	56	46.3
	13 years	209	44.4	65	53.7
	14 years	1	0.21	-	-
	Missing	75	15.9	-	-
Ethnic group	NZ European	206	43.7	44	36.4
	Asian	74	15.7	12	9.90
	Pacific Island	59	12.5	38	31.4
	Māori	28	5.94	11	9.10
	African	13	2.76	1	0.80
	Middle Eastern	7	1.49	1	0.80
	Other	10	2.12	14	11.6
	Missing	74	15.7	-	-
School location	North Auckland	205	43.5	-	-
	West Auckland	141	29.9	71	58.7
	South Auckland	88	18.7	50	41.3
	Central Auckland	18	3.80	-	-
	Nelson	7	1.49	-	-
	Wellington	12	2.50	-	-
School SES (decile)	10 (highest SES)	212	45.0	-	-
	9	12	2.50	-	-
	7	141	29.9	71	58.7
	4	18	3.80	-	-
	1 (lowest SES)	88	18.7	50	41.3

Measures

To assess wellbeing, an online tool that has been implemented in many schools in NZ, Australia, and various other countries such as Switzerland and the UK, was utilized. Adolescents were asked to complete 27 11-point numerical items with verbal labels for the anchors. An example item in the global domain was "How happy were you yesterday?" with "0 = did not feel happy at all yesterday" and "10 = felt happy all the time yesterday" (Jarden et al., 2015). The maximum score on each item was 10 and the minimum score was 0; higher scores on the scale indicated higher wellbeing. In the current study sample, the alpha coefficient of the full scale was 0.927. More information about the wellbeing instrument can be requested from the authors. Anxiety was assessed with a single 11-point scale item "How worried or anxious were you yesterday?" with "0 = did not feel worried or anxious at all yesterday" and "10 = felt worried or anxious all of the time yesterday," as recommended by OECD (2013) and UK Office for National Statistics (2018). See Appendix G to review the wellbeing assessment.

Procedure

A personal meeting was scheduled with the school principals who emailed their agreement to participate. The meeting was held to dispense study material for parents and potential participants. For schools located outside Auckland, the information was sent electronically. Parents and potential participants were provided with a sheet detailing information about the study three weeks prior to survey administration. This information sheet was given along with a hard copy of the parent consent form. Parents were given two weeks to provide approval for their child's participation in the survey. The parents could submit their consent electronically by accessing a link in the information sheet or by completing the printed form. After a week of collecting parent consent forms, the candidate administered the survey in schools in groups during school hours through the SurveyMonkey website (SurveyMonkey, 2019). Participant assent was sought electronically on the day of survey administration; participation in the research was voluntary. The participants were free to withdraw from the study at any time. The retest study was held after three weeks. Specifically, participants completed the survey on the following two occasions: end of September 2017 and three weeks later in October 2017. The data were matched using the email address and full name of each participant. As an incentive, 10 random participants received $10 gift vouchers in the baseline study and $15 gift vouchers in the retest study. All procedures and material were approved by the host university's ethics committee (see Appendix D and Appendix E).

Analyses

Analyses were conducted using the SPSS version 25 (IBM, 2017). Missing value pattern analysis was performed on the item-level baseline data. The data were missing for 105 cases, with about 6% of values missing overall and between 8% and 16% of values missing for almost 45 items. The remaining 31 items had between 1% and 3% of data missing. Little's Missing Completely at Random (MCAR) test indicated that data were MCAR ($0.164 > 0.05$). Shapiro-Wilk tests and normality plots revealed that the data distribution was not normal. Responses on the items with 11-point response format were numerical ratings. Negatively worded items were reverse coded. Frequency items with labels were coded as 1 (Never), 2 (Once or twice a month), 3 (Less than 3 times a week), 4 (3 to 5 times a week), and 5 (6–7 times a week). Item scores on each component were summed to compute a total component score. The overall PSTRS score was calculated by adding scores on 20 components comprising 71 items.

Cronbach's alpha was computed for each subscale and the PSTRS. Since the listwise deletion in the reliability analyses would have led to considerable data loss, a multiple linear regression imputation method (automatic model) was appropriate for the dataset (Graham, 2009; Schafer, 1999). Based on prior evidence, five imputations were performed as the data loss was not unusually high (Schafer, 1999). Specifically, five datasets were generated with different values substituted and alpha on each dataset was computed; these statistical results were aggregated to

substitute missing item values. There were negligible differences between the original and pooled alpha values. While any alpha value above 0.700 is considered good or excellent, Cronbach's alpha threshold is subject to variation depending on several factors such as the length of the scale (Sandy et al., 2017). Therefore, average inter-item correlations of subscales that resulted in low alpha coefficients were also evaluated. When both alpha and average correlation values were low for a subscale, a closer item-level analysis was performed.

There were no missing data for the retest study. Since item response formats were different, item scores on each subscale and the PSTRS were summed and divided by the number of items to compute mean total scores. Mean total scores were used to calculate the ICCs and their 95% confidence intervals. A two-way mixed-effects model and an absolute agreement were utilized (Koo & Li, 2016). Because the aim was to examine communalities of the components and identify patterns in data on components, PCA was performed on 20 components of the PSTRS with standardized *z* scores. There were no differences in the PCA output between original raw scores and *z* scores. Spearman's rank order correlation coefficients were computed to investigate the relationships of the PSTRS components with wellbeing and anxiety. For factor and correlation analyses, missing values were excluded pairwise.

Results

Descriptive analysis

Table 4-2 shows the descriptive statistics for the PSTRS components and the full PSTRS. As can be seen in the table, Year 8 adolescents had positive perceptions regarding several PSTRS components. For example, they felt safe (*Md* = 8.50), experienced positive family relationships (*Md* = 7.50), consumed a healthy diet (*Md* = 8.89), and typically indicated that they were kind and helpful (*Md* = 8.00). In contrast, adolescents perceived themselves to be less spiritual and rarely experienced the presence of a higher power in life (*Md* = 3.33). In addition, they reported average self-control (*Md* = 5.00) and engagement in socializing activities (*Md* = 5.00).

Internal consistency reliability

Cronbach's alpha is sensitive to the number of items and usually underestimates internal consistency reliability for short subscales to 0.500 and lower (Tavakol & Dennick, 2011). As can be seen in Table 4-3, the coefficient alphas of each subscale ranged from 0.231 to 0.970 (*M* = 0.763). Alpha coefficients for 12 subscales (*feeling safe, strength use and current knowledge, perceived teacher support, being kind and helpful, school belonging, positive family relationships, positive friendships, nature, spirituality, purpose,* and *being around positive people*) were excellent (ranging from 0.803 and 0.970), and for two subscales (*self-efficacy*, 0.714 and *mindfulness,* 0.719) they were good. For the subscales *self-control, enjoyment,* and *diet,* the alpha value only narrowly missed the value of 0.700, while for only two, *involvement in organized activities* and *frequency of physical activity*, the alpha value was slightly lower than 0.600.

Subscales that closely reached the alpha threshold demonstrated optimum average inter-item correlations within the 0.150 to 0.500 range (Clark & Watson, 1995): 0.368, self-control; 0.428, enjoyment; 0.437, diet; 0.237, involvement in organized activities; and 0.408, frequency of physical activity.

The alpha coefficient was inadequate for only one subscale: *hobbies and leisure activities* (0.231). This component also produced low average inter-item correlation. The observation of the corrected item-total correlation showed that low values were due to poor interrelatedness between its items rather than coverage of heterogeneous concepts (Tavakol & Dennick, 2011). Closer examination of the item statistics ascertained that removal of any item in this subscale did not yield any significant increase in alpha value. Considering the low inter-item correlations, items on hobbies and leisure activities were split into two categories to explore the possibility that these activities (hobbies and leisure) are distinct. Reliability analysis was conducted on each of the two-item subscales. The segregation of categories raised the alpha value of two-item leisure activities subscale ("how often do you engage in entertainment activities?" and "how often do you engage in computer and internet activities?") to 0.525, with 0.356 average inter-item correlation; whereas the estimates for hobbies ("how often do you engage in a) indoor hobbies and b) outdoor hobbies?") slightly increased to 0.237 and 0.136, respectively. The average inter-item correlation of hobby subscale nearing the threshold of 0.150 possibly represents its broad focus (Clark & Watson, 1995).

Table 4-2. Descriptive statistics for the PSTRS and item sources

Subscales	*N*	Items	Total score	Response format	*M* ± *SD*	*Md* (25th, 75th %ile)	Item sources	Source Google Scholar citations
Feeling safe	420	2	20	0–10	8.13 ± 1.82	8.50 (7.50, 9.50)	SRS Safe School Survey, personal safety (Skiba et al., 2006); School safety subscale of Delaware School Climate Survey (Bear et al., 2011).	48; 152
Strength use and current knowledge	471	6	60	0–10	7.48 ± 1.74	7.83 (6.33, 8.83)	Strength Use and Current Knowledge Scale (Govindji & Linley, 2007; Wood et al., 2011).	627
Self-control	471	3	30	0–10	4.88 ± 2.13	5.00 (3.33, 6.33)	Brief Self-Control Scale (Tangney et al., 2004).	3672
Self-efficacy	463	3	30	0–10	6.84 ± 1.69	7.00 (5.67, 8.00)	General Self-Efficacy Scale (Schwarzer et al., 1997).	4956
Enjoyment	418	3	30	0–10	7.32 ± 1.71	7.67 (6.33, 8.67)	Quality of Life Enjoyment and Satisfaction Questionnaire (Endicott et al., 1993).	1562
Being kind and helpful	415	6	60	0–10	7.85 ± 1.73	8.00 (6.33, 9.33)	Kindness Subscale of The Compassion Scale (Pommier, 2011); Helping Attitudes Scale (Nickell, 1998).	69; 43
*Hobbies and leisure activities	420	4	20	1–5	7.10 ± 1.45	7.50 (6.25, 8.13)	Adolescents' participation and interest in leisure activities (Garton & Pratt, 1987); Adolescent Leisure Interest Profile (Fitzgerald, Joseph, Hayes, & O'Regan, 1995).	49; 122
Perceived teacher support	463	3	30	0–10	6.92 ± 2.47	7.33 (5.33, 9.00)	The Teacher and Classroom Support Scale (Torsheim et al., 2000).	111
School belonging	463	3	30	0–10	6.47 ± 2.29	6.67 (5.00, 8.33)	Psychological sense of school membership (Goodenow, 1993; Ye & Wallace, 2013).	1525
Involvement in organized activities	463	4	40	0–10	6.46 ± 2.38	6.75 (5.00, 8.25)	New items; informed by "What do children need to flourish?" (Moore & Lippman, 2005).	
Positive family relationships	460	6	60	0–10	7.11 ± 2.05	7.50 (5.83, 8.67)	Multidimensional Scale of Perceived Social Support (Zimet et al., 1988); The Brief Family Relationship Scale (Fok et al., 2014).	5877; 12
Positive friendships	453	6	60	0–10	7.12 ± 2.23	7.50 (5.50, 9.00)	Bukowski Friendship Qualities Scale (Bukowski et al., 1994); Multidimensional Scale of Perceived Social Support (Zimet et al., 1988).	819; 5877

Subscales	*N*	Items	Total score	Response format	*M* ± *SD*	*Md* (25th, 75th %ile)	Item sources	Source Google Scholar citations
Around positive people	415	4	40	0–10	7.01 ± 2.03	7.50 (5.75, 8.50)	New items; written considering adolescent free responses regarding pathways to wellbeing.	
*Frequency of physical activity	420	2	20	1–5	6.21 ± 2.62	6.25 (3.75, 8.75)	Adolescents' participation and interest in leisure activities (Garton & Pratt, 1987); Adolescent Leisure Interest Profile (Fitzgerald et al., 1995).	49; 122
*Diet	396	3	21	1–7	8.09 ± 2.18	8.89 (6.67, 10.00)	Informed by the questionnaire on physical activity and nutrition, Centre for Physical Activity and Nutrition, Auckland University of Technology (AUT).	
Nature	430	3	30	0–10	6.49 ± 2.26	6.67 (5.00, 8.33)	Nisbet Nature relatedness scale (Nisbet et al., 2008)	703
Spirituality	415	3	30	0–10	4.12 ± 3.91	3.33 (0.00, 8.00)	Daily Spiritual Experience Scale (Underwood & Teresi, 2002)	946
Purpose	461	3	30	0–10	6.36 ± 2.08	6.67 (5.00, 8.00)	Purpose in Life Test: Short Form (Schulenberg et al., 2011)	92
Mindfulness	463	3	30	0–10	6.28 ± 2.16	6.33 (4.67, 8.00)	Mindfulness Attention Awareness Scale for Adolescents (MAAS-A) (Brown, West, Loverich, & Biegel, 2011)	232
*Socializing activities frequency	420	1	5	1–5	5.86 ± 2.80	5.00 (2.50, 7.50)	Adolescents' participation and interest in leisure activities (Garton & Pratt, 1987); Adolescent Leisure Interest Profile (Fitzgerald et al., 1995).	49; 122
Total	471	71	676		462.50 ± 79.11	467.50 (417.00, 517.00)		

Notes: For interpreting subscales marked with an asterisk (*) see the following descriptive statistics: *Socializing, *Md* = 3.00 (2.00, 4.00); *Hobbies and leisure activities, *Md* = 4.00 (3.50, 4.25); *Physical activity frequency, *Md* = 3.50 (2.50, 4.50); and *Diet, *Md* = 6.33 (5.00, 7.00). Sources are not copyrighted for research purposes.

Table 4-3. Internal consistency estimates, test–retest reliability coefficients, and correlations

Components	Cronbach's α	Intraclass Correlation				Spearman's rho (2-tailed)	
		Single-Measures ICC	95% Confidence Interval		Average Measures ICC	Wellbeing	Anxiety
			Lower Bound	Upper Bound			
Feeling safe	0.805	0.782	0.702	0.843	0.878	0.639***	−.330***
Strength use and current knowledge	0.916	0.822	0.754	0.872	0.902	0.725***	−0.330***
Self-control	0.636	0.774	0.691	0.837	0.873	0.302***	−0.215**
Self-efficacy	0.714	0.726	0.628	0.801	0.841	0.615***	−0.201***
Enjoyment	0.680	0.699	0.596	0.780	0.823	0.664***	−0.280***
Being kind and helpful	0.936	0.821	0.753	0.871	0.902	0.498***	−0.119*
Hobbies and leisure activities	0.231	0.560	0.424	0.671	0.718	0.223***	−0.044
Perceived teacher support	0.878	0.811	0.740	0.864	0.896	0.569***	−0.254***
School belonging	0.831	0.792	0.714	0.850	0.884	0.745***	−0.305***
Involvement in organized activities	0.551	0.501	0.354	0.623	0.667	0.237***	−0.120**
Positive family relationships	0.847	0.846	0.787	0.890	0.917	0.521***	−0.172***
Positive friendships	0.909	0.766	0.681	0.830	0.867	0.504***	−0.197***
Around positive people	0.934	0.719	0.620	0.796	0.837	0.661***	−0.248***
Socializing activities frequency	–	0.554	0.416	0.667	0.713	0.239***	−0.053
Frequency of physical activity	0.578	0.751	0.662	0.820	0.858	0.385***	−0.065
Diet	0.683	0.726	0.629	0.800	0.841	0.242***	−0.029
Nature	0.803	0.801	0.726	0.857	0.890	0.319***	−0.081
Spirituality	0.970	0.943	0.919	0.960	0.971	0.176***	−0.101*
Purpose	0.805	0.710	0.604	0.791	0.831	0.621***	−0.209***
Mindfulness	0.797	0.711	0.610	0.789	0.831	0.381***	−0.166***
Full scale	0.943	0.866	0.636	0.936	0.928	0.816***	−0.283***

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Test–retest reliability

Scholars have argued that test–retest (i.e., stability in the test scores over time) serves as a more useful reliability estimate for short scales than internal consistency (Ziegler et al., 2014). Any ICC coefficient value between 0.500 and 0.750 is moderate, between 0.750 and 0.900 is good, and above 0.900 is excellent (Koo & Li, 2016). Table 4-3 displays the single-measures ICC coefficients between 0.501 and 0.943 (M = 0.741) and their 95% confidence intervals. Both single and average ICC measures are reported, but the results are discussed utilizing single-measure coefficients, which are lower estimates of reliability than average measures.

The test–retest single-measure ICC estimates were between moderate and excellent for all subscales including hobbies and leisure activities. As per the 95% confidence interval of these estimates, the level of test–retest reliability was "moderate" to "good" for 14 subscales, "good" for two subscales (strength use and current knowledge and being kind and helpful), "excellent" for spirituality subscale, and "poor" to "moderate" for subscales hobbies and leisure activities, socializing activities frequency, and involvement in organized activities.

Principal Component Analysis (PCA)

The Kaiser-Meyer-Olkin value was 0.898, which showed that the sample size was adequate for factor analysis and Bartlett's Test of Sphericity reached statistical significance ($X2$ = 3005.950; $p < 0.001$), which supported the suitability of correlation matrix for conducting factor analysis. There were four PCs with eigenvalues exceeding 1, explaining 34.02%, 8.29%, 7.42%, and 6.54% of the variance respectively. An inspection of the Scree Plot revealed a sharp break (Cattel's elbow effect) after the first component and then again after the fourth component. The Monte Carlo PCA for parallel analysis further supported these results, as eigenvalues of four components exceeded the randomly generated matrix of the same size. A decision was made to retain three factors, as the pattern matrix realized a simple structure in this scenario and less than two variables loaded strongly on the fourth factor in the pattern matrix (Watson, 2017).

To examine communalities of the components and construct validity of the PSTRS, a PCA with oblique rotation (Promax) was conducted with a three-factor solution accounting for 49.8% of the variance, with PC 1 contributing 34.0%, PC 2 contributing 8.33%, and PC 3 contributing 7.42%. As shown in Table 4-4, 12 variables loaded on the first PC with average pattern coefficient of 0.675. The remaining six loaded on the second PC with average pattern coefficient of 0.546, and two components loaded on the third PC (total 6 items) with average pattern coefficient of 0.702. Coefficients and communalities were above the thresholds of 0.300 and 0.200, respectively (Costello & Osborne, 2005; Samuels, 2017), with average communality of 0.498. There were no significant cross-loadings in the pattern matrix; that is, differences in loadings of variables on more than one PC were greater than 0.100. Cross-loading variables were retained and no

component was eliminated at this point because this information was required for future studies and refinement of the PSTRS.

There was a weak positive correlation between the first and third PCs ($r = 0.196$) and a moderate positive correlation between the first and second PCs ($r = 0.432$). The relationships among variables with three PCs were partly consistent with the conceptual framework of the current study. Descriptive labels suggested for the three PCs are positive connections and psychospiritual readiness, lifestyle, and self-control and mindfulness. The first PC, positive connections and psychospiritual readiness, comprises school-psychosocial-spiritual items. It indicates a) adolescent psychological and spiritual preparedness, and b) adolescent relationships with significant others and the availability of school and social support. The second PC covers lifestyle items, and represents frequency of physical and socializing activities, diet, involvement in hobbies and extracurricular activities, and connection with nature. The third PC comprises items on self-control and mindfulness, and represents the ability to refrain from undesired impulses and adolescent attentiveness and awareness. Figure 4-1 illustrates the component plot in rotated space.

Associations of the PSTRS with wellbeing and anxiety

As can be seen in Table 4-3, zero-order correlations between PSTRS component scores and wellbeing scores were positive and significant ($p > 0.001$) at the same time. Eleven components (55%) returned large correlations, four (20%) returned moderate correlations, and five components returned weak correlations (25%). There was also a negative relationship between PSTRS and anxiety.

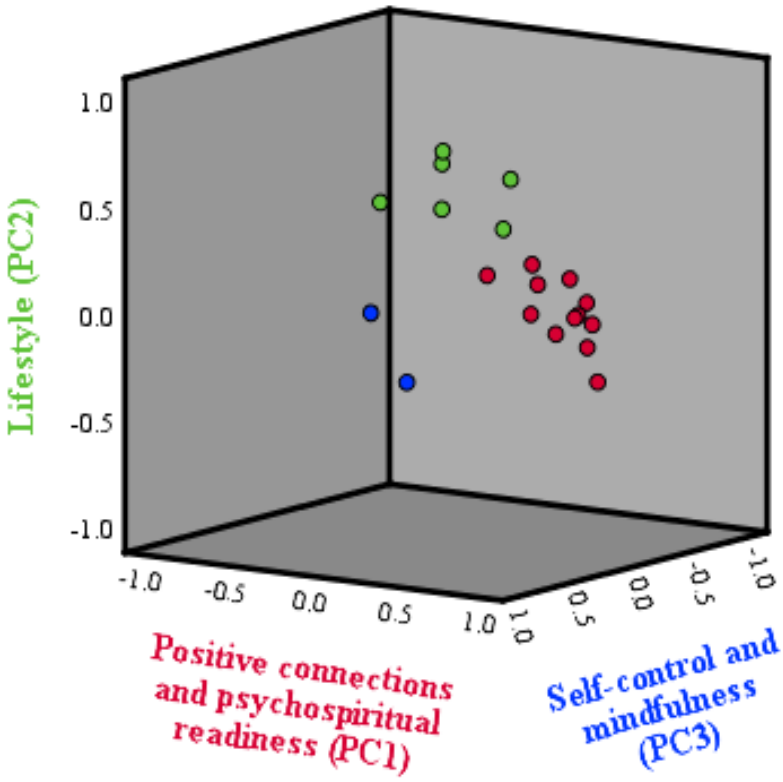


Figure 4-1. Component plot in rotated space

Table 4-4. Pattern coefficients and communalities of the PSTRS

	Pattern coefficients			Communalities
Components	PC (1)	PC (2)	PC (3)	
Perceived teacher support	**0.891**			0.659
School belonging	**0.866**			0.701
Enjoyment	**0.777**			0.629
Around positive people	**0.771**			0.613
Feeling safe	**0.715**			0.519
Positive friendships	**0.672**			0.467
Being kind and helpful	**0.668**			0.560
Strength use and current knowledge	**0.636**			0.599
Positive family relationships	**0.597**			0.431
Purpose	**0.541**			0.493
Spirituality	**0.520**		−0.486	0.390
Self-efficacy	**0.442**			0.489
Frequency of physical activity		**0.725**		0.535
Hobbies and leisure activities		**0.650**		0.386
Socializing activities frequency		**0.557**	−0.331	0.424
Diet		**0.519**	0.352	0.399
Involvement in organized activities		**0.454**		0.210
Nature		**0.376**		0.311
Mindfulness			**0.702**	0.587
Self-control			**0.702**	0.542

Note. Loadings on the three PCs are in bold.

Discussion

The aim of this study was to develop and investigate the psychometric properties of a preliminary self-report survey, the PSTRS, for identifying the presence or absence of factors that facilitate transition to secondary school and are important for adolescent understanding of wellbeing. The PSTRS presents a convenient and quick method for assessing a wide range of components that adolescents perceive to be important for their wellbeing and that facilitate transition to secondary school. Such assessment may be useful for determining adolescent general readiness for school transition. Naturally, researchers interested in the in-depth analysis of an individual component would continue to find value in existing longer scales.

Scoring and interpretation: The PSTRS is intended for adolescents aged 11 to 14 years. The score on each item is the corresponding number marked by respondents on the profile, except that the items represented with an (R) are first reverse coded. For example, for reverse-scored items, the response of 10 should be replaced with 0 and a response of 0 should be replaced with 10.

1. Index of overall readiness: After items are reverse scored, scores on each item are added for computing a total raw score. A total possible score on the PSTRS is 676. A higher total raw score indicates a higher presence of overall readiness for positive transition. The index of readiness is presented below:

Score	Percentile	Index of Readiness
417	25th	Low
467.5	50th	Average
517	75th	High

2. To determine the presence or absence of 20 components that comprise PSTRS, the total score on each item of the component is computed. Next, the raw score on the component is divided by the total number of items to compute the total mean score. The total mean score on the component is then interpreted as per the percentiles reported in Table 4-2.

The results suggested that the internal consistency reliability of the PSTRS and its subscales was acceptable and that items appeared to be measuring the same concept. Most subscales demonstrated excellent or good internal consistency reliability. Not surprisingly, the alpha coefficients of five subscales were below 0.700 but above 0.550, which is promising, as the average inter-item estimate was adequate. The alpha values can be affected by the length of the scale (Tavakol & Dennick, 2011). Certain subscales (such as spirituality) demonstrated a large alpha value, which possibly signifies that its items were especially intercorrelated and had a narrow focus (Clark & Watson, 1995). Overall, it could be inferred from the findings that each subscale was internally consistent, except hobbies and leisure activities; only this subscale produced inadequate alpha and correlation values. A potential way of increasing the internal consistency of this subscale would be to split the hobbies and leisure activities items into two categories and to compute distinct scores, as discussed in the results section. An alternative avenue for researchers would be to pool more items related to the concept of hobbies and subsequently evaluate its alpha reliability, but use leisure items in its existing form. As previously noted, test–retest reliability is considered a more useful estimate of the reliability of short measures than internal consistency. The test–retest reliability of all the subscales (including hobbies and leisure activities) and full PSTRS was moderate or excellent. The current study results regarding the internal consistency and test–retest reliabilities were comparable to other studies (Gosling et al., 2003; Sandy et al., 2017).

One of the novel contributions of this study is the finding that positive support/connections and psychospiritual readiness, lifestyle, and self-control and mindfulness indicate adolescent readiness to transition to secondary school. Some of the key questions that can be answered by the PSTRS pertaining to the evaluation of adolescent readiness to transition positively from intermediate to secondary school could be as follows: Are the adolescents mentally prepared to transition from the intermediate school environment to the secondary school setting? Do they have enough positive support, knowledge, and skills to help them wade through the critical period of transition? Are the adolescents sufficiently mindful and self-controlled to cope with the school change? To what extent are their lifestyles appropriate to help them to adapt to a new situation?

The communalities were above 0.20, which demonstrated that the PCs adequately represented the components in the PSTRS, which is evidence of construct validity. The PSTRS and its subscales also correlated positively with the theoretically related concept of wellbeing and negatively with anxiety. This finding was in line with previous studies indicating relationships of some of the components in PSTRS, such as self-efficacy and self-control, with either wellbeing or mental ill-being (Madjar & Chohat, 2017; Muris, 2002; Ronen et al., 2016). Thus, it was concluded that the PSTRS is a reliable and valid measure. It is noteworthy that items were created for the subscale "being around positive people," which showed excellent internal consistency, with moderate to good test–retest reliability and validity. This subscale of being around positive people is also a new addition to the evaluation literature.

PSTRS data have significant implications for theory, research, interventions, policy, and individuals. First, a comprehensive evaluation can aid in expounding the complex nature of positive school transition. Second, identification of the presence or absence of the components in the PSTRS may provide useful information to school professionals involved in aiding transition (Rice, Frederickson, & Seymour, 2011). A collective assessment could identify vulnerable adolescents, as well as their strengths and potential areas for improvement (Education Review Office, 2012a), and this knowledge, could inform interventions and policymaking. Third, the assessment is beneficial for correlational, longitudinal, and internet studies (Sandy et al., 2017) within adolescent samples. Finally, students may engage in introspection regarding their own strengths and create awareness of areas for improvement. In sum, the PSTRS is a useful tool for school professionals, practitioners, researchers, and adolescents concerned with the transition to secondary school.

There are some limitations to the current study. Owing to the emphasis on broad coverage of components, it was not possible to have a uniform response scale for items. Despite some variations, best efforts were made to balance the survey for ease of performance. Second, the PSTRS subscale "hobbies and leisure activities" suffered from low internal consistency, although the test–retest reliability was adequate. While there are numerous advantages of online assessment, such as convenience and efficiency, a third limitation is that server interruptions caused difficulties for participants filling in the survey, which affected the range and quality of data. In other words, some valuable participants and data were lost. Occasionally, the website went down because of maintenance issues. There were also instances where responses of the respondents cleared out on earlier pages as they proceeded in the survey. Consequently, more data were lost for some components than for others.

Conclusion

This study developed the PSTRS and investigated the initial psychometric properties of its subscales and the entire survey in a sample of NZ intermediate school adolescents. Cronbach's alpha and the test–retest reliability outcomes of the survey were very satisfactory and above 0.800. Single-measures ICCs of subscales were moderate to excellent. The PCA resulted in a three-factor structure and the following descriptive labels were proposed: positive connections and psychospiritual readiness, lifestyle, and self-control and mindfulness. The PSTRS and its subscales correlated positively with wellbeing and negatively with anxiety. This study demonstrated that PSTRS and its subscales were valid and reliable for the assessment of predictor variables in the cross-sectional and longitudinal studies. The survey profile represents a time-efficient method for schools to determine adolescents' readiness to transition to secondary school. Further, the PSTRS can be administered in its entirety or by separately administering and analyzing specific subscales of interest. Future work should consider refining and validating the PSTRS in other populations and age groups.

Final Remarks on Part B of the Preparatory Phase

Part B of the preparatory phase developed a survey consisting of brief and reliable subscales to be utilized in the exploratory phase of this thesis to assess the predictor variables. School, social, psychological, and spiritual variables loaded on PC 1 labelled as positive *support/connections and psychospiritual readiness*. The nature component (or connection with nature), conceptualized as a spiritual component, loaded most on PC 2 labelled as *lifestyle*. Involvement in activities (such as leisure, socializing, and extracurricular) and connection with nature loaded on the same PC as physical activity and diet. Finally, self-control and mindfulness loaded on PC 3. The finding, that 20 components could be categorized into three PCs, is unique, although partially consistent with this thesis's conceptual framework.

As mentioned earlier, six predictor variables—gender, ethnicity, sleep duration, having an older sibling, SES, and pet ownership—were measured with open-ended or binary questions. Active transport was presented on an ordered categorical format, which showed excellent internal consistency reliability for travel to school (Cronbach's $\alpha = 0.959$) and travel from school (Cronbach's $\alpha = 0.947$). The retest reliability was also substantial to almost perfect as the weighted Cohen's kappa and 95% confidence intervals were 0.794 (0.682, 0.906) and 0.875 (0.797, 0.954) for travel to and travel from school respectively (Landis & Koch, 1977).

EXPLORATORY PHASE

ASSOCIATIONS

CHAPTER 5: EXPLORING PREDICTORS OF WELLBEING IN NZ ADOLESCENTS: A CROSS-SECTIONAL STUDY

Preface

Using the predictor variables generated in Part A of the preparatory phase and the self-report instrument devised in Part B of the preparatory phase, this phase implemented a two-wave longitudinal design for exploring predictors of positive school transition as indicated by wellbeing. Chapter 5 is a cross-sectional study designed to provide an overview of the data collected at the baseline when adolescents were in Year 8 intermediate schools. This chapter begins by making a case for examining adolescent wellbeing, throwing light on the mounting rates of depression and the benefits of high levels of wellbeing in adolescents. Since the way Year 8 adolescents experience wellbeing in NZ is still unclear, a review of cross-sectional studies of factors associated with wellbeing is discussed next, revealing the following two gaps. First, while research on wellbeing has mushroomed in the last two decades, most public health research has, to date, focused on the negative side of wellbeing. Second, limited research on examining the positive side of wellbeing was noted to provide a restricted understanding of the construct to the exclusion of a holistic approach. For example, assessing emotional wellbeing alone and ignoring other types of wellbeing may not provide a complete picture of wellbeing, and thus may affect decision making around practice and policy.

For understanding adolescent wellbeing in its entirety, it was therefore crucial to understand the wellbeing of adolescents in multiple dimensions, such as global wellbeing, domain-specific wellbeing, school wellbeing, and component wellbeing. Global wellbeing is a global perspective of subjective or emotional wellbeing and refers to the way adolescents evaluate their feelings of happiness, anxiety, satisfaction with life, and to what extent they feel their actions are worthwhile. Domain-specific wellbeing refers to adolescent subjective evaluations of the value of, and their satisfaction with, specific life areas such as education and family. School wellbeing or wellbeing in school pertains to adolescents' perceived satisfaction with their self and social life within the school. Component wellbeing is a self-reported measure of wellbeing on certain aspects such as resilience (Jarden et al., 2015). This chapter characterizes wellbeing in different dimensions in NZ Year 8 adolescents and specifies differences in global, school, domain-specific, and component wellbeing by gender. It further demonstrates the independent predictors of global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing from a comprehensive perspective. The paper from this chapter is currently under preparation for journal submission.

Abstract

The evidence suggests that wellbeing is multidimensional; however, most previous studies have examined predictors of only one dimension of wellbeing on a piecemeal basis, without taking into account wide-ranging factors that may contribute to wellbeing. In addition, there is no study in NZ that has identified factors that predict wellbeing among Year 8 adolescents. From a comprehensive perspective, this cross-sectional study aimed to characterize global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing in NZ adolescents (*M* age = 12.5, *N* = 471). We further aimed to explore the associations between several psycho-socio-spiritual, school, physical, and demographic factors and self-reported global, school, domain-specific, and component wellbeing, using GLMMs. The results showed that most Year 8 adolescents evaluated their wellbeing positively. However, female adolescents reported lower satisfaction with health and lifestyle than males. Controlling for 27 psycho-socio-spiritual, demographic, school, and physical factors, the three most salient predictors of global wellbeing were ethnicity, feeling safe, and enjoyment; for domain-specific wellbeing, they were gender, strength use and knowledge, and feeling safe. School wellbeing was predicted independently and strongly by being around positive people, school belonging, and feeling safe, while the three most significant predictors of component wellbeing were self-efficacy, school belonging, and physical activity. These findings provide a platform for future adolescent wellbeing research and have implications for wellbeing policies and programs.

Introduction

Adolescence is a critical period characterized by powerful and rapid developmental changes and it is during this time individuals develop skills to make healthy transitions to adulthood and contribute to society. However, many adolescents suffer declines in life satisfaction and happiness (Gilman & Huebner, 2003; World Health Organization, 2016) and are even presented with mental health challenges such as anxiety and depression (De Jong, Sportel, De Hullu, & Nauta, 2012; Kessler et al., 2005). Globally, an estimated 20% of children and adolescents develop mental illnesses or difficulties before the age of 14 (World Health Organization, 2018). Adolescents in NZ also rate high on psychological morbidity, as well as rating the highest on suicide among OECD countries (Organization for Economic Co-operation and Development, 2009). These negative outcomes are particularly aggravated for those in intermediate schools, who simultaneously undergo pubertal and secondary school transitions (Hawk & Hill, 2004; Newman et al., 2007). Given the rising prevalence of mental health problems, adolescent wellbeing promotion has become a central focus of governments, both in NZ and internationally (Education Review Office, 2015c; Fox et al., 2015).

According to Keyes (2013), "complete mental health" is not only the absence of pathology but also the presence of positive states of wellbeing in individuals; one is said to be in a state of wellbeing when positive evaluations of everyday life substantially outweigh the negative evaluations. In recent decades, interest in wellbeing has flourished among researchers across various disciplines, with a growing recognition that understanding the way adolescents experience wellbeing is crucial in helping them to develop their full potential and lead productive and fully functional lives (Ben-Arieh, 2005; Gilman & Huebner, 2003; Lippman et al., 2014). Having good wellbeing buffers adolescents against psychopathology (Seligman et al., 2009) and ameliorates the effects of undesirable outcomes such as loneliness (Shaheen, Jahan, & Shaheen, 2014). Wellbeing even enables adolescents to perform better in school and academic pursuits and to have good relationships (Dix et al., 2012; Forrest et al., 2013). Despite increasing research efforts underlining the value of wellbeing (Gilman & Huebner, 2003), little is known about factors that predict wellbeing in adolescents (Ash & Huebner, 2001), particularly in NZ.

Substantial research has focused on studying the predictors of ill-being and while risk or protective factors have also been studied extensively, less attention has been paid to factors that promote wellbeing among adolescents (Lippman et al., 2014). Although limited adolescent studies have demonstrated predictors of wellbeing through employing sophisticated analyses (Caroli & Sagone, 2014; Moreira, Gouveia, & Canavarro, 2018; Ronen et al., 2016), there are still many information gaps pertaining to the understanding of wellbeing and examination of its predictors from a comprehensive perspective. As the theoretical evidence base regarding separate wellbeing dimensions has been demonstrated elsewhere, this study simultaneously characterizes

four dimensions of wellbeing—global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing (including resilience and health and lifestyle satisfaction)—in Year 8 adolescents. This is the first study that concurrently explores the associations between several demographic, psychological, social, school, physical, and spiritual factors and these dimensions of wellbeing in Year 8 adolescents. The predictor variables in this study were based on a literature review and adolescents' conceptualizations of wellbeing (Bharara, 2019; Bharara, Duncan, Jarden, et al., 2019). Our investigation may potentially provide a more complete and inclusive understanding of adolescent wellbeing as well as replicate or clarify previous findings. The next section addresses the literature related to the understanding and predictors of wellbeing.

Dimensions of wellbeing

While there are many definitions of wellbeing, there is widespread consensus in the literature that wellbeing is a multidimensional concept (Huppert & So, 2013; Keyes, 2007). The current understanding of wellbeing includes aspects of subjective wellbeing (i.e., happiness, life satisfaction, and affect equilibrium), also known as emotional or hedonic wellbeing, and psychological and social wellbeing, referred to as eudaimonic wellbeing (Huppert & So, 2013; Keyes, 2002, 2013). A global perspective is argued to be necessary for the investigation of subjective wellbeing comprising all three aspects of life satisfaction, happiness, and affect balance (Lampropoulou, 2018). In fact, many other dimensions are viewed as being critical for overall adolescent wellbeing, including school wellbeing (Evans, Martin, & Ivcevic, 2018; Løhre, Moksnes, & Lillefjell, 2014), domain-specific wellbeing which represents satisfaction with life areas such as social life, physical health, and education (Ben-Arieh et al., 2014; Land et al., 2001), and wellbeing on components such as resilience (Harris, Brett, Starr, Deary, & McIntosh, 2016). Multiple dimensions need to be assessed to understand wellbeing in its entirety (Ben-Arieh, 2005; Ben-Arieh & Frønes, 2007; Diener, Suh, Lucas, & Smith, 1999), as good wellbeing in one dimension may not protect adolescents from experiencing poor wellbeing in other dimensions (Ben-Arieh et al., 2014). Nevertheless, the extant adolescent wellbeing research has almost exclusively examined only one dimension of wellbeing (e.g., subjective wellbeing or psychological wellbeing) (Caroli & Sagone, 2014; Ronen et al., 2016). Often, the assessment of even one sort of wellbeing is not complete (Lampropoulou, 2018); for example, subjective wellbeing is often measured along with either affect or life satisfaction (Shin & You, 2013).

Another limitation in the existing research pertains to the lack of emphasis on the conceptualizations of adolescents in the selection of predictor variables. Research demonstrates that adults' and adolescents' understandings of wellbeing are distinctly different (Bharara, Duncan, Jarden, et al., 2019; Gilman & Huebner, 2003). For example, while enjoyment/having fun and feeling safe are central to adolescent wellbeing (Bharara, Duncan, Jarden, et al., 2019), adults place more value on work-life balance and physical health (Hone et al., 2015). Thus, addressing adolescent perspectives in research is important to propel the development of effective

and well-received assessments and interventions (Bourke & Geldens, 2007; Cook et al., 2018). For an extensive review of adolescents' conceptions of the meaning and sources of wellbeing, see Bharara, Duncan, Jarden, et al. (2019) and Chaplin (2009).

While the results in adolescent wellbeing studies are uniform in suggesting that most adolescents evaluate their lives positively (Gilman & Huebner, 2003; Lampropoulou, 2018), differences associated with gender of adolescents have been demonstrated, with females experiencing lower wellbeing than males (Bisegger, Cloetta, von Rueden, Abel, & Ravens-Sieberer, 2005; Meade & Dowswell, 2016). It is still unclear, however, how global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing is characterized in NZ Year 8 adolescents, and whether there are differences in these dimensions by gender. Overall, studies have verified that adolescent wellbeing is multidimensional (Ben-Arieh et al., 2014; McCullough, Huebner, & Laughlin, 2000) indicating that predictors of wellbeing may also be diverse in adolescents.

Predictors of wellbeing

Research has shown that several factors can differentially predict the various dimensions of adolescent wellbeing (McCullough et al., 2000; Suldo & Huebner, 2004), and these predictors have been analyzed as separate components or units (Bluth & Blanton, 2014; Caroli & Sagone, 2014; Moreira et al., 2018). Our prior empirical studies showed that a wide range of demographic, psychological, school, social, physical, and spiritual factors are likely to influence adolescent wellbeing (Bharara, 2019; Bharara, Duncan, Jarden, et al., 2019). The literature on the influence of demographics on adolescent wellbeing has shown inconsistent results. Some findings have suggested that gender, SES, and ethnicity are either not significantly implicated in wellbeing (Dinisman & Ben-Arieh, 2016; Gilman & Huebner, 2003) or have weak relationships with it (Huebner, Drane, & Valois, 2000; Huebner, Seligson, & Valois, 2006). Others have found that gender, birth order, or ethnicity can have an effect on the wellbeing of adolescents (Ben-Zur, 2003; Bradshaw, Keung, Rees, & Goswami, 2011; Fullerton, Ursano, Wetzler, & Slusarcick, 1989).

Previous research has demonstrated that psychological factors influencing depression, psychological wellbeing, or emotional wellbeing can include self-control, self-efficacy, knowledge and use of personal strengths, being kind and helpful, and involvement in hobbies and leisure activities (Caroli & Sagone, 2014; Layous et al., 2012; Ronen et al., 2016; Shin & You, 2013; Shoshani & Slone, 2013). Researchers are yet to focus on the role of enjoyment and feeling safe in adolescent wellbeing, although they have noted that mental health problems are related to feeling unsafe (Nijs et al., 2014). With the gradual shift of research attention from adult to adolescent wellbeing (Lampropoulou, 2018), school factors have been examined. High perceived teacher support and organized activity involvement have been linked to subjective wellbeing and life satisfaction (Badura, Geckova, Sigmundova, van Dijk, & Reijneveld, 2015; Suldo et al.,

2009), while a sense of belonging at school has been shown to be associated with psychological wellbeing in NZ adolescents (Jose & Pryor, 2010). Positive family and peer relationships have been widely investigated as social factors influencing subjective or psychological wellbeing (Lampropoulou, 2018; Moreira et al., 2018; Van Ryzin, Gravely, & Roseth, 2009) and they have been shown to be the most important factors for adolescent wellbeing (Chaplin, 2009; Rees & Dinisman, 2015). Further, adolescents' ideas have suggested that owning pets, being around positive people, and socializing activities foster their wellbeing (Bharara, Duncan, Jarden, et al., 2019).

Physical activity, healthy diet, and adequate sleep have been found beneficial for adults' emotional wellbeing or quality of life (Cerin, Leslie, Sugiyama, & Owen, 2009; Milte, Thorpe, Crawford, Ball, & McNaughton, 2015; Prendergast et al., 2016); however, surprisingly few studies have examined the influence of these physical factors in adolescent wellbeing. In one study, a healthy diet for NZ adolescents was found to improve their emotional health (Kulkarni et al., 2015); Kalak et al. (2014) found that longer sleep duration was associated with psychological wellbeing and Sun et al. (2015) found that active travel modes reduced depression. While spiritual factors contributing to life satisfaction in adolescents have been found to include purpose (Shoshani & Slone, 2013) and mindfulness (Bluth & Blanton, 2014), little is known about the relationship of spirituality and connection with nature and adolescent wellbeing; O'brien et al. (2013) found that having strong spiritual beliefs reduces risk behaviors in NZ adolescents and a meta-analysis by Tillmann, Tobin, Avison, and Gilliland (2018) found that "greenness" decreases depression.

Overall, most of the research on the determinants of adolescent wellbeing has presented a unidimensional assessment of factors that affect wellbeing. This approach is limited because some factors are related empirically and/or theoretically, and this can confound the associations (Ben-Arieh, 2005; Ben-Arieh & Frønes, 2007; Diener et al., 1999). There are significant gaps in knowledge related to the relationship of physical and spiritual factors with adolescent wellbeing; the way demographic, psychological, school, social, physical, and spiritual factors may collectively affect global, school, domain-specific, and component wellbeing is unknown. Recent scholarship has recommended developing a more complex conceptual model of wellbeing (Lampropoulou, 2018; Moore, Cox, & Evans, 2018), approaching it "as a synthesis of various indicators, suggesting a broader perception of the concept" (Lampropoulou, 2018, p. 14). Such knowledge regarding the way different factors predict adolescent wellbeing is required to inform the basis for effective programs and policies (United Nations International Children's Emergency Fund-Innocenti, 2019).

The current study

Recognizing the recent multidimensional work on wellbeing and the limitations in the extant literature, this study aimed to characterize global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing in NZ Year 8 intermediate school adolescents, as well as examine differences in these dimensions by gender. Consistent with prior research (Gilman & Huebner, 2003; Lampropoulou, 2018), this study hypothesized that the sample would evaluate their wellbeing positively. In addition, based on prior evidence, this study hypothesized that female adolescents would experience lower wellbeing on these dimensions than male adolescents (Meade & Dowswell, 2016). From a comprehensive perspective, a further aim was to explore the associations of several demographic, psychological, social, school, physical, and spiritual factors (27) with global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing. The goal was to determine the most definite and independent predictors of these dimensions of wellbeing before the transition from intermediate school to secondary school. Results were not hypothesized, as numerous predictor variables were included and findings regarding many of them were absent in the exiting literature (physical and spiritual factors) or were contradictory (demographic factors). Adapting Durie's model of wellbeing (1985), which is relevant to the NZ context, these findings related to the predictors of wellbeing were organized into demographic, psychological, school, social, physical, and spiritual factors.

Methods

Participants

The sample comprised 471 Year 8 adolescents (213 females and 184 males) aged 11 to 14 years (*M* age = 12.5, *SD* = 0.515). An invitation was sent to every NZ state intermediate school (117), of which eight (7%) expressed an interest in the study; the remaining either did not respond or declined because of academic priorities. All Year 8 adolescents from consenting schools were eligible to participate. The study participants attended eight intermediate schools located in different cities of NZ, mostly in different areas of Auckland city, which is the most ethnically diverse region in NZ. Two hundred and twenty-four (224) participants were from high-SES schools (47%), 159 were from middle-SES schools (34%), and 88 were from low-SES schools (19%). The ethnicities represented were 44% NZ European, 13% Pacific Islander, 16% Asian, 6% Māori, 4% Middle Eastern and African, and 2% other; 15% (74) of the participants did not provide identifiable information. The current study's sample fairly represented the ethnic distribution in the NZ intermediate school population in 2019 (Education Counts, 2019). The data were collected between September 2017 and November 2017.

Measures

Wellbeing

Wellbeing was measured using an online survey (Jarden et al., 2015) that is currently utilized in more than 35 schools worldwide, particularly in NZ and Australia. The participants answered 27

questions about global wellbeing (5 questions), domain-specific wellbeing (5 questions), school wellbeing (8 questions), and component wellbeing (9 questions) on an 11-point scale with verbal labels for anchors. Global wellbeing measured overall life satisfaction and affect balance, as well as happiness. Domain-specific wellbeing measured adolescent perceived *importance of*, and *satisfaction with* five life areas, namely family, friendships and social life, education, physical health, and fun and leisure. School wellbeing measured personal and social aspects related to schools, such as the adolescents' perceived satisfaction with their appearance and health in school, in addition to satisfaction with relationships at school. Component wellbeing measured total perceptions of the adolescents' resilience, satisfaction with general health and lifestyle, and their role and the school's role in wellbeing enablement. An example item in the global domain was "*How happy were you yesterday?"* with "0 = did not feel happy at all yesterday" and "10 = felt happy all the time yesterday". The results on the items were scored to derive a total score on each domain, with higher scores indicating higher wellbeing. In the present study sample, the alpha coefficient of the whole scale was 0.927. The assessment took approximately 6 minutes to complete. The wellbeing assessment is provided as a supplement in Appendix G.

Predictor variables

An online survey (PSTRS) was devised, following a multi-step design to assess psychological, social, school, physical, and spiritual predictor variables, with a typical item to be rated on an 11-point scale (e.g., 0 = Do not at all agree, 10 = Completely agree) (Bharara & Duncan, 2019). The predictor variables measured in this study were as follows:

- Psychological factors: feeling safe, strength use and knowledge, self-control, self-efficacy, enjoyment, being kind and helpful, and hobbies and leisure
- Physical factors: physical activity, healthy diet, active transport
- School factors: perceived teacher support, organized activities involvement, school belonging
- Social factors: positive family relationships, positive friendships, being around positive people, and socializing activities frequency
- Spiritual factors: nature, mindfulness, spirituality, and purpose
- Demographic factors: gender, older sibling, ethnicity, and SES.

An example item in the school belonging subscale was "I feel proud of belonging to this school" (see Appendix F). Items in each subscale were summed to compute a total score, with higher scores indicating a higher presence of the concept measured. Each subscale showed good test–retest reliability in the current sample (*M* single-measures ICC = 0.741). Cronbach's alpha for the survey was 0.943 and the test–retest reliability was 0.866.

The participants were asked the questions, "Are you male or female," "Do you have an older sibling?" and "Do you have a pet?" to report on their gender, the presence of older sibling, and pet ownership, respectively. They were asked to report their usual times of going to bed and

waking up on a weekday and weekend, to measure sleep duration. To assess active transport, they were asked to answer how they had usually traveled to and from school during the previous school week by choosing an option from the four provided options: car, bus, walk, and bicycle. SES was assessed through school decile, which represents the SES of the student community in NZ schools. The participants answered a multiple-choice format question regarding ethnicity and self-reported their age, year level, and school's name.

Procedure

Informed consent was gained from schools, adolescents, and their parents. The participants were recruited through school classes. The candidate provided school principals with a packet containing study information sheets for parents and adolescents, and parent consent letters that were distributed by the respective class teachers or the candidate, according to the school's preference. The students whose parents had consented were assembled on the day of survey administration. Of these adolescents, the ones who provided their electronic assent to participate were included. In the Auckland region, after giving a short description of the study and instructions, the candidate collected the data via an online survey in groups, during school hours. For schools located outside Auckland, the parents submitted the consent electronically and the data were collected online in the presence of school staff. Ten random participants received $10 incentives. All procedures were approved by the host university ethics committee (see Appendix D).

Analyses

The total scores on each subscale were computed and converted into percentages to facilitate comparison and interpretation. For analyzing SES, 10 school deciles (10 being the highest SES and 1 being the lowest SES) were categorized into two groups: Deciles 1 to 5 were categorized as low to average, and Deciles 6 to 10 were categorized as above average to high. Active transport was classified into active, mixed, and passive. Sleep duration was computed by calculating the number of hours of sleep on weekdays and weekend days. Harman's Single Factor test's total variance for a single factor was 23.1%, showing that common method bias did not affect this study data. Descriptive statistics including mean, standard deviation, median, and 25th and 75th percentiles were computed. A Mann-Whitney *U* test was performed to examine the differences between males and females in wellbeing.

GLMMs were applied to quantify the significant predictors of wellbeing. The GLMM method was selected because the distribution was non-normal (which is often the case with school-type and wellbeing data) and the number of observations across clusters was unbalanced (i.e., the number of subjects varied across schools). The percentage of missing data ranged from 0 to 16%; the missing value analyses indicated that data were MCAR ($p > 0.05$). The Maximum Likelihood Estimation technique was applied in the GLMM analyses, which is considered appropriate to

account for missing data and eliminate case bias (Graham, 2009; Twisk, de Boer, de Vente, & Heymans, 2013). School was included as a random effect.

Three separate analyses were conducted for each predictor variable for global, school, domain-specific and component dimensions of wellbeing. First, in the unadjusted models (Model 1), each predictor variable was included separately. Then partially adjusted models (Model 2) were used, in which predictor variables were grouped according to their factor designation (e.g., psychological, school). Fully adjusted models (Model 3) that included all potential predictors were conducted next. Models 1 to 3 were conducted separately for global wellbeing, domain-specific wellbeing, school wellbeing, and component wellbeing. Model fit was assessed with the corrected Akaike Information Criterion, which was the lowest for Model 3 and highest for Model 1, suggesting that Model 3 was a better fit for the data than Models 1 and 2.

Results

Table 5-1 presents descriptive statistics of the wellbeing dimensions for the total sample and the results from a Mann-Whitney *U* test regarding the differences in wellbeing dimensions by gender. It shows that the median global wellbeing percentage was 70.0% ($N = 471$). In general, 75.4% adolescents in the study reported being happy (slightly, mildly, pretty, or very), 14.0% being unhappy (slightly, mildly, pretty, or very), and 10.6% being neutral (neither happy nor unhappy). Further, half the sample was quite satisfied with their life (70.0%) and thought things were reasonably worthwhile (70.0%). In contrast, about 18.0% of these adolescents had experienced some degree of worry or anxiety the day before. The adolescents typically reported that various life domains were very important (92.0%), although their satisfaction with these domains was lower (84.0%). For example, 73.5% of the adolescents thought families were very important but only 47.6% were fully satisfied with their family domain. The importance of, and satisfaction with, other life domains in the adolescents was, respectively, as follows: fun and leisure (45.0%, 29.0%), education (41.0%, 24.0%), friendships and social life (39.0%, 26.0%), and physical health (37.4%, 23%).

The median school wellbeing was 77.5%, with median personal and social school wellbeing at 75.0% and 77.5%, respectively. In this study's sample, 42.7% of adolescents reported never being bullied and 8.50% reported being bullied at varying levels of frequency. In addition, 22.0% of adolescents reported that teachers completely cared for them, compared to about 2.00% (10) who reported that teachers never cared for them. Of the total sample, about 12.0% felt some degree of sadness at school. As regards their physical appearance, 2.50% (12) never felt good and 15.3% felt good all the time. About 17.0% reported feeling sick at school and 18.3% (86) reported never suffering from headaches and/or stomach pains at school.

Of all the other dimensions of wellbeing, median component wellbeing was the lowest (N = 430), with adolescents' average reports of resilience (63.3%) being lower than perceived satisfaction with health and lifestyle component (70.0%, see Table 5-1). For instance, 57 adolescents out of 434 perceived themselves as someone who could bounce back quickly after tough times, compared with 70 who were uncertain and 7 who could never bounce back. There was no significant difference in the wellbeing percentages of males and females, except that females reported significantly lower wellbeing on the health and lifestyle component than males did ($p < 0.01$). In contrast, female adolescents considered life domains (such as family, friendships, and education) as more important than males, and this difference approached statistical significance ($p = 0.053$).

Table 5-1. Descriptive statistics of the total sample and differences by gender regarding the dimensions of wellbeing

	Male			Female			*p*	All		
Wellbeing dimensions	*N*	*Mean* ± *SD*	*Md* % (25th, 75th %ile)	*N*	*Mean* ± *SD*	*Md* % (25th, 75th %ile)	Mann-Whitney	*N*	*Mean* ± *SD*	*Md* (25th, 75th %ile)
Life satisfaction and affect balance	184	68.6 ± 16.4%	70.0% (60.0%, 82.5%)	213	68.5 ± 14.0%	70.0% (60.0%, 77.5%)	0.776	471	68.6 ± 15.2%	70.0% (60.0%, 80.0%)
Happiness	184	66.6 ± 20.2%	70.0% (60.0%, 80.0%)	213	68.9 ± 20.1%	70.0% (50.0%, 80.0%)	0.307	471	67.6 ± 20.7%	70.0% (60.0%, 80.0%)
Global wellbeing	184	68.2 ± 15.6%	70.0% (60.0%, 78.0%)	213	68.6 ± 13.5%	70.0% (60.0%, 78.0%)	0.873	471	68.4 ± 14.8%	70.0% (60.0%, 78.0%)
Domain importance	184	85.8 ± 13.9%	90.0% (80.0%, 96.0%)	213	88.7 ± 11.7%	92.0% (84.0%, 98.0%)	0.053	471	86.9 ± 13.2%	92.0% (80.0%, 96.0%)
Domain satisfaction	184	80.1 ± 16.2%	84.0% (72.0%, 92.0%)	213	81.6 ± 16.1%	86.0% (74.0%, 92.0%)	0.311	471	80.4 ± 16.1%	84.0% (72.0%, 92.0%)
Domain-specific wellbeing	184	83.0 ± 13.8%	86.0% (78.0%, 93.0%)	213	85.1 ± 12.6%	88.0% (79.5%, 95.0%)	0.131	471	83.7 ± 13.4%	87.0% (78.0%, 94.0%)
Personal	184	73.7 ± 15.9%	75.0% (62.5%, 86.9%)	213	70.9 ± 16.8%	72.5% (60.0%, 82.5%)	0.090	471	71.7 ± 16.6%	72.5% (60.0%, 85.0%)
Social	184	75.7 ± 17.4%	77.5% (67.5%, 89.4%)	213	75.1 ± 17.5%	80.0% (62.5%, 90.0%)	0.699	471	75.1 ± 17.3%	77.5% (65.0%, 87.5%)
School wellbeing	184	74.7 ± 15.5%	77.5% (65.3%, 86.3%)	213	73.0 ± 15.8%	76.3% (62.5%, 85.0%)	0.260	471	73.4 ± 15.6%	76.3% (62.5%, 85.0%)
Resilience	184	63.9 ± 19.1%	63.3% (50.0%, 76.7%)	213	64.1 ± 18.7%	63.3% (51.7%, 80. 0%)	0.970	434	63.5 ± 18.9%	63.3% (50.0%, 76.7%)
Health lifestyle satisfaction	183	71.0 ± 18.7%	75.0% (60.0%, 83.0%)	212	66.2 ± 18.9%	69.0% (55.0%, 80.0%)	0.008**	430	68.7 ± 18.7%	70.0% (58.0%, 83.0%)
Wellbeing enablement	183	67.3 ± 19.8%	70.0% (50.0%, 80.0%)	212	67.3 ± 21.1%	70.0% (50.0%, 80.0%)	0.926	432	67.3 ± 20.1%	70.0% (50.0%, 80.0%)
Component wellbeing	182	67.7 ± 14.7%	69.0% (58.0%, 78.0%)	211	65.7 ± 15.7%	68.0% (56.0%, 76.0%)	0.231	430	66.6 ± 15.1%	68.0% (57.0%, 77.3%)

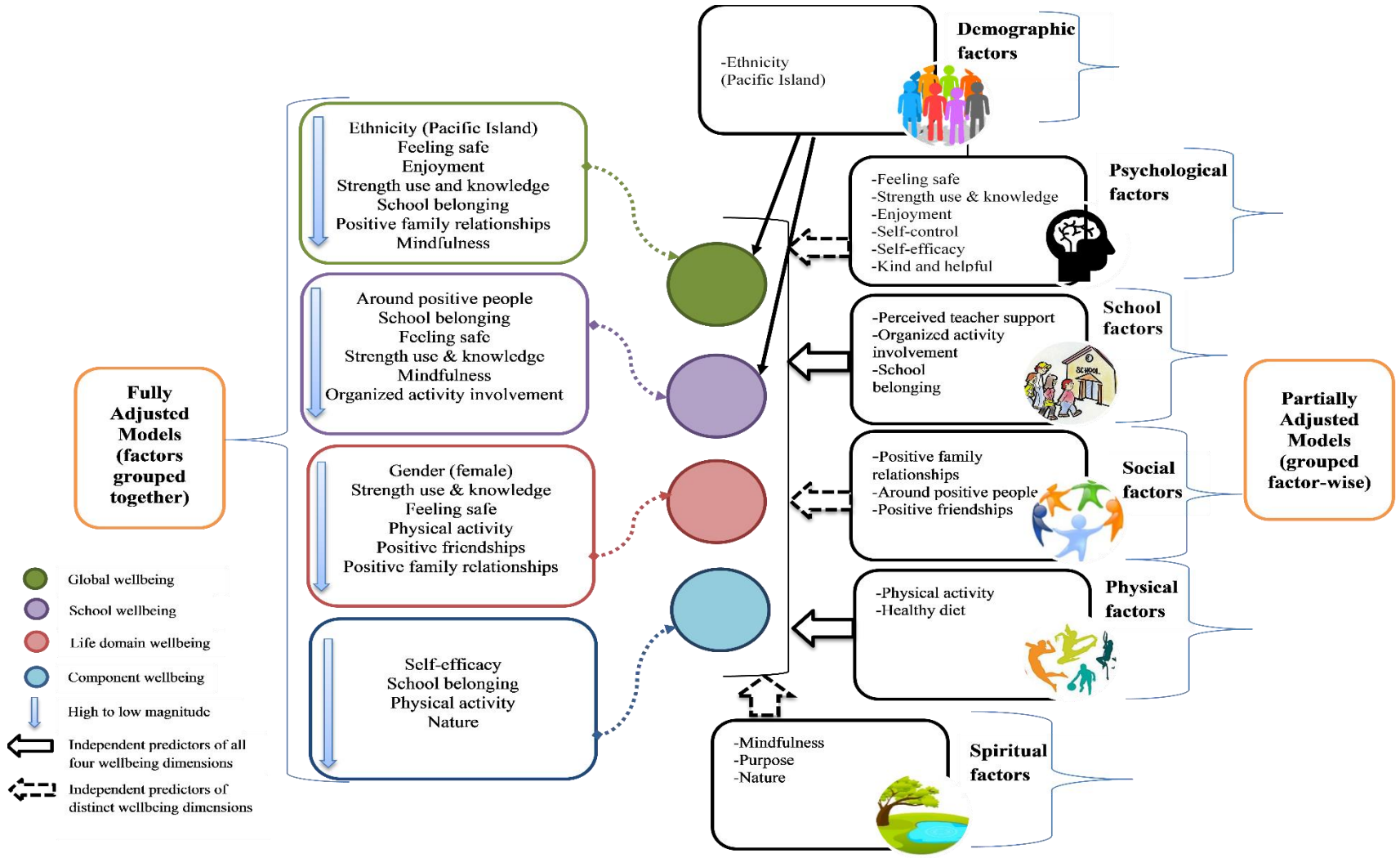
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Predictors of wellbeing

Table 5-2 to Table 5-5 present the associations of the predictor variables with global wellbeing (see Table 5-2), school wellbeing (see Table 5-3), domain-specific wellbeing (see Table 5-4), and component wellbeing (see Table 5-5) in unadjusted, partially adjusted, and fully adjusted models. Figure 5-1 illustrates the results of the fully and partially adjusted models. Among demographic factors, female adolescents experienced significantly higher domain-specific wellbeing than males after adjusting for all factors (2.65%, $p < 0.05$). Further, adolescents who identified themselves as a Pacific Islander had significantly higher school wellbeing than NZ Europeans (Model 2, see Table 5-3), and this association was independent. In fact, ethnic background accounted for the most variance in the adolescents' global wellbeing when all 27 factors were adjusted (5.14%, $p < 0.05$).

Significant linear and independent relationships were observed between the psychological factors feeling safe, strength use and knowledge, and enjoyment and each dimension of wellbeing. Feeling safe contributed the second most to global wellbeing, after adjusting for 27 factors (0.173%, $p < 0.001$) and to school wellbeing in the psychological group (0.328%, < 0.001). Enjoyment accounted for the third-highest variance in global wellbeing (0.162%, $p < 0.01$) and strength use and knowledge accounted for the second-highest variance in domain-specific wellbeing (0.165%, $p < 0.001$) in Models 3. Further, higher self-efficacy was the strongest predictor of adolescent component wellbeing ($p < 0.001$) in the fully adjusted model relative to other 26 factors, with a hypothetical 1% increase in self-efficacy being associated with a 0.258% increase in the component wellbeing. Self-control independently enhanced global, school, and the component dimensions of wellbeing only when psychological factors were controlled (Model 2; see Table 5-2, 5-3, and 5-5). While the factor, being kind and helpful, was independently and positively associated with the component and life domain wellbeing in the partially adjusted models, a negative relationship with school wellbeing was evident in Model 3 (−0.097%, $p < 0.05$).

Among school factors, school belonging was the most important predictor of wellbeing. For instance, a 1% increase in school belonging was significantly associated with a 0.292% increase in global wellbeing (Model 2; see Table 5-2), whereas perceived teacher support and involvement in organized activities were associated with 0.067% and 0.089% increases, respectively. Adolescents who perceived themselves as belonging to their school had higher global wellbeing ($p < 0.05$), school wellbeing ($p < 0.001$), and component wellbeing ($p < 0.01$), even after each factor ($n = 27$) was controlled. While organized activities involvement was a weak predictor of school wellbeing when all factors were adjusted (0.050%, $p < 0.05$, Model 3), high perceived teacher support independently predicted each dimension of wellbeing only when school factors were controlled (see Figure 5-1) and reduced global wellbeing in Model 3 (−0.081%, $p < 0.05$).



Note: Pictures in the figure do not require attribution.

Figure 5-1. Predictors of global, school, domain-specific, and component wellbeing in fully adjusted and partially adjusted models

When all factors were adjusted, positive family relationships emerged as a relatively weak predictor of global wellbeing (0.098%, $p < 0.01$) and domain-specific wellbeing (0.080%, $p < 0.05$), while being around positive people strongly predicted school wellbeing (0.205%, $p < 0.001$). Adolescent perceptions of having positive friendships in Year 8 also predicted their domain-specific wellbeing (0.093%, $p < 0.01$, Model 3). Physical activity and healthy diet significantly and independently predicted each wellbeing dimension when physical factors (including active transport and sleep) were held constant, although physical activity was a better predictor of wellbeing than consuming a healthy diet among adolescents. For example, a 1% increase in physical activity was associated with a 0.156% increase in global wellbeing as compared to healthy diet's 0.094% contribution (see Table 5-2, Model 2). In the fully adjusted models, greater frequency of physical activity improved domain-specific wellbeing ($p < 0.001$) and component wellbeing ($p < 0.05$), although perceptions of consuming a healthy diet had no significant effects on these dimensions.

After adjusting for spiritual factors (nature, spirituality, mindfulness, and purpose), purpose demonstrated significant positive independent associations with all dimensions of wellbeing, with purpose associated with the highest increase in wellbeing among spiritual factors. For instance, a 1% increase in the purpose scores led to a 0.355% ($p < 0.001$) rise in component wellbeing; the amount of change caused by mindfulness was small in comparison (0.101%, $p < 0.001$; Model 2). However, purpose was not found to be a significant predictor of any dimension of wellbeing in fully adjusted models, whereas mindfulness showed significant associations with school wellbeing (0.090%, $p < 0.001$) and global wellbeing (0.070 %, $p < 0.05$) when all factors were controlled. Connection with nature was a weak predictor of component wellbeing in Model 3, relative to the strength of other predictors (0.063%, $p < 0.05$), but was associated with a slight significant decrease in school wellbeing when all factors were controlled (−0.066%, $p < 0.01$; see Table 5-3).

Overall, after controlling for 27 predictor variables, the factors that predicted different dimensions of wellbeing are presented below in a descending order of magnitude:

- *Global wellbeing* was predicted by ethnicity (being a Pacific Islander), feeling safe, enjoyment, strength use and knowledge, school belonging, positive family relationships, and mindfulness.
- *School wellbeing* was predicted by being around positive people, school belonging, feeling safe, strength use and knowledge, mindfulness, and organized activity involvement.
- Predictors of *domain-specific wellbeing* were gender (being a female), strength use and knowledge, feeling safe, physical activity, positive friendships, and positive family relationships.

- Predictors of c*omponent wellbeing* were self-efficacy, physical activity, school belonging, and nature (see Figure 5-1).

Controlling for predictor variables as per factor designation, school factors (school belonging, organized activities involvement, and perceived teacher support) and physical factors (physical activity and healthy diet) had positive and significant associations with all four wellbeing dimensions. In comparison, psychological factors (feeling safe, strength use and knowledge, self-control, self-efficacy, enjoyment/having fun, and being kind and helpful), social factors (positive family relationships, positive friendships, and being around positive people), and spiritual factors (nature, mindfulness, and purpose) independently but differentially predicted wellbeing dimensions. When only demographic factors were adjusted, gender did not predict any dimension of wellbeing.

Pet ownership, SES, having an older sibling, sleep duration, and active transport (to and from school) were not significantly associated with adolescent wellbeing in partially and fully adjusted models, and spirituality, hobbies and leisure, and socializing activities frequency had interdependent associations with wellbeing. Therefore, the study found that even after controlling for 27 factors, varied factors merged to predict multidimensional wellbeing. For example, component wellbeing was predicted by a psychological, school, physical, and spiritual factor. Further, associations of predictor variables with adolescent wellbeing were complex and dependent on the adjustment of other confounding variables.

Table 5-2. Associations of factors with global wellbeing in unadjusted, partially adjusted and fully adjusted GLMM models

Factors	Unadjusted		Partially adjusted		Fully adjusted	
Demographic	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Gender						
Male	Ref		Ref		Ref	
Female	0.436 (−2.39, 3.26)	0.762	0.467 (−2.38, 3.31)	0.747	0.988 (−1.48, 3.45)	0.431
SES						
Low	Ref		Ref		Ref	
High	−2.08 (−10.6, 6.41)	0.630	1.11 (−8.98, 11.2)	0.828	−0.578 (−6.55, 5.39)	0.849
Ethnicity						
NZ European	Ref		Ref		Ref	
Māori	1.07 (−4.79, 6.93)	0.720	1.39 (−4.59, 7.37)	0.647	−0.783 (−5.92, 4.35)	0.764
Pacific Islander	6.26 (0.728, 11.8)	0.027*	6.63 (0.755, 12.5)	0.027*	5.14 (0.157, 10.1)	0.043*
Asian	− 0.227 (−4.10, 3.65)	0.908	−0.236 (−4.21, 3.74)	0.907	1.44 (−2.15, 5.02)	0.431
Other	1.87 (−3.63, 7.37)	0.505	1.87 (−3.65, 7.39)	0.194	0.970 (−3.51, 5.44)	0.670
Older sibling						
Yes	Ref		Ref		Ref	
No	0.784 (−1.94, 3.51)	0.572	0.658 (−2.28, 3.59)	0.659	0.122 (−2.22, 2.47)	0.918
Psychological	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Feeling safe	0.381 (0.315, 0.446)	< 0.001***	0.194 (0.118, 0.270)	< 0.001***	0.173 (0.083, 0.263)	< 0.001***
Strength use and knowledge	0.453 (0.390, 0.516)	< 0.001***	0.172 (0.085, 0.260)	< 0.001***	0.114 (0.006, 0.221)	0.038*
Self-control	0.164 (0.104, 0.223)	< 0.001***	0.089 (0.037, 0.141)	< 0.001***	0.026 (−0.036, 0.089)	0.406
Self-efficacy	0.340 (0.268, 0.411)	< 0.001***	0.059 (−0.023, 0.140)	0.156	−0.001 (−0.099, 0.098)	0.992
Enjoyment	0.427 (0.356, 0.497)	< 0.001***	0.170 (0.083, 0.257)	< 0.001***	0.162 (0.060, 0.264)	0.002**
Being kind and helpful	0.288 (0.215, 0.362)	< 0.001***	−0.026 (−0.103, 0.051)	0.503	−0.050 (−0.146, 0.045)	0.301
Hobbies and leisure	0.228 (0.113, 0.344)	< 0.001***	0.027 (−0.069, 0.122)	0.581	−0.002 (−0.110, 0.107)	0.977
School	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Perceived teacher support	0.250 (0.199, 0.300)	< 0.001***	0.067 (0.007, 0.127)	0.028*	−0.081 (−0.154, −0.008)	0.029*
School belonging	0.347 (0.297, 0.397)	< 0.001***	0.292 (0.229, 0.356)	< 0.001***	0.102 (0.020, 0.185)	0.016*
Involvement in organized activities	0.119 (0.065, 0.173)	< 0.001***	0.089 (0.043, 0.135)	< 0.001***	0.047 (−0.003, 0.097)	0.067
Social	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Positive family relationships	0.304 (0.246, 0.362)	< 0.001***	0.184 (0.115, 0.253)	< 0.001***	0.098 (0.025, 0.171)	0.009**
Positive friendships	0.201 (0.146, 0.257)	< 0.001***	0.062 (−0.006, 0.130)	0.072	0.032 (−0.041, 0.105)	0.385
Around positive people	0.298 (0.237, 0.358)	< 0.001***	0.167 (0.089, 0.244)	< 0.001***	−0.038 (−0.125, 0.049)	0.394
Socializing activities frequency	0.107 (0.047, 0.167)	< 0.001***	0.001 (−0.056, 0.059)	0.960	−0.024 (−0.083, 0.036)	0.435
Pet ownership						
No	Ref		Ref		Ref	

Factors	Unadjusted		Partially adjusted		Fully adjusted	
Yes	1.25 (−1.49, 4.00)	0.370	1.14 (−1.35, 3.64)	0.368	1.24 (−1.39, 3.87)	0.354
Physical	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Sleep duration (week)	0.250 (−0.620, 1.12)	0.573	−0.198 (−1.11, 0.717)	0.671	−0.441 (−1.18, 0.299)	0.242
Sleep duration (weekend)	0.582 (−0.235, 1.40)	0.162	0.720 (−0.134, 1.57)	0.098	0.455 (−0.263, 1.17)	0.214
Physical activity	0.141 (0.077, 0.204)	< 0.001***	0.156 (0.087, 0.225)	< 0.001***	0.005 (−0.062, 0.072)	0.882
Healthy diet	0.144 (0.063, 0.225)	< 0.001***	0.094 (0.009, 0.178)	< 0.030*	0.031 (−0.045, 0.107)	0.426
Active transport (travel to school)						
Passive	Ref		Ref		Ref	
Mixed	2.43 (−2.98, 7.85)	0.380	0.907 (−4.94, 6.75)	0.760	−1.58 (−6.33, 3.17)	0.513
Active	−3.24 (−6.69, 0.201)	0.065	−2.95 (−7.39, 1.49)	0.192	0.421 (−3.30, 4.15)	0.824
Active transport (travel from school)						
Passive	Ref		Ref		Ref	
Mixed	1.38 (−3.33, 6.09)	0.565	−0.540 (−5.63, 4.55)	0.835	−1.57 (−4.91, 1.76)	0.354
Active	−1.83 (−4.98, 1.33)	0.256	−1.31 (−5.34, 2.73)	0.525	−0.071 (−4.12, 3.98)	0.972
Spiritual	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Nature	0.114 (0.055, 0.174)	< 0.001***	0. 018 (−0.037, 0.073)	0.523	−0.038 (−0.100, 0.023)	0.222
Spirituality	0.047 (0.007, 0.088)	< 0.021*	0.001 (−0.035, 0.037)	0.975	−0.017 (0.058, 0.024)	0.426
Mindfulness	0.228 (0.172, 0.285)	< 0.001***	0.165 (0.110, 0.220)	< 0.001***	0.070 (0.006, 0.133)	0.032*
Purpose	0.305 (0.248, 0.362)	< 0.001***	0.277 (0.214, 0.339)	< 0.001***	0.077 (−0.001, 0.156)	0.054

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; Ref, Reference against which analysis was performed for a categorical variable.

Table 5-3. Associations of factors with school wellbeing in unadjusted, partially adjusted and fully adjusted GLMM models

Factors	Unadjusted		Partially adjusted		Fully adjusted	
Demographic	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Gender						
Male	Ref		Ref		Ref	
Female	− 1.79 (−4.88, 1.29)	0.200	−1.88 (−4.99, 1.23)	0.235	−0.583 (−2.49, 1.33)	0.548
SES						
Low	Ref		Ref		Ref	
High	−1.10 (−8.72, 6.52)	0.776	2.01 (−6.34, 10.4)	0.637	−1.33 (−4.85, 2.19)	0.457
Ethnicity						
NZ European	Ref		Ref		Ref	
Māori	4.08 (−2.27, 10.4)	0.207	4.59 (−1.94, 11.2)	0.168	1.03 (−2.95, 5.01)	0.610
Pacific Islander	6.44 (0.671, 12.2)	0.029*	7.51 (1.15, 13.9)	0.021*	3.46 (−0.361, 7.29)	0.076
Asian	0.897 (−3.33, 5.12)	0.676	0.610 (−3.74, 4.96)	0.783	1.61 (−1.17, 4.40)	0.256
Other	1.26 (−4.78, 7.29)	0.683	1.13 (−4.91, 7.17)	0.713	−0.660 (−4.14, 2.82)	0.709
Older sibling						
Yes	Ref		Ref		Ref	
No	2.14 (−0.777, 5.05)	0.150	1.38 (−1.83, 4.59)	0.399	−0.26 (−2.08, 1.57)	0.782
Psychological	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Feeling safe	0.539 (0.477, 0.602)	< 0.001***	0.328 (0.260, 0.396)	< 0.001***	0.178 (0.108, 0.248)	< 0.001***
Strength use and knowledge	0.572 (0.511, 0.634)	< 0.001***	0.239 (0.161, 0.317)	< 0.001***	0.140 (0.056, 0.224)	< 0.001***
Self-control	0.197 (0.133, 0.260)	< 0.001***	0.089 (0. 043, 0.135)	< 0.001***	0.046 (−0.002, 0.095)	0.062
Self-efficacy	0.480 (0.409, 0.551)	< 0.001***	0.127 (0.055, 0.200)	< 0.001***	0.065 (−0.012, 0.141)	0.098
Enjoyment	0.532 (0.462, 0.602)	< 0.001***	0.163 (0.086, 0.240)	< 0.001***	0.039 (−0.041, 0.118)	0.341
Being kind and helpful	0.370 (0.292, 0.448)	< 0.001***	−0.058 (-0.127, 0.011)	0.098	−0.097 (−0.171, −0.022)	0.011*
Hobbies and leisure	0.192 (0.066, 0. 312)	0.003**	−0.070 (−0.155, 0.015)	0.107	−0.063 (−0.148, 0.021)	0.141
School	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Perceived teacher support	0.357 (0.308, 0.406)	< 0.001***	0.094 (0.041, 0.147)	< 0.001***	−0.015 (−0.072, 0.041)	0.597
School belonging	0.495 (0.451, 0.538)	< 0.001***	0.423 (0.367, 0.480)	< 0.001***	0.182 (0.117, 0.246)	< 0.001***
Involvement in organized activities	0. 106 (0.048, 0.165)	< 0.001***	0.057 (0.016, 0.098)	0.006**	0.050 (0.011, 0.089)	0.013*
Social	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Positive family relationships	0.327 (0.265, 0.389)	< 0.001***	0.079 (0.016, 0.142)	< 0.014*	−0.030 (−0.087, 0.027)	0.306
Positive friendships	0.318 (0.262, 0.375)	< 0.001***	0.065 (0.003, 0.127)	< 0.041*	0.053 (−0.004, 0.110)	0.066
Socializing activities frequency	0.150 (0.086, 0.215)	< 0.001***	0.004 (−0.049, 0.056)	0.883	0.011 (−0.035, 0.057)	0.637
Around positive people	0.517 (0.463, 0.570)	< 0.001***	0.434 (0.363, 0.505)	< 0.001***	0.205 (0.138, 0.273)	< 0.001***
Pet ownership						
No	Ref		Ref		Ref	

Factors	Unadjusted		Partially adjusted		Fully adjusted	
Yes	− 1.18 (−4.12, 1.77)	0.432	−1.35 (−3.61, 0.911)	0.242	−0.813 (−2.87, 1.24)	0.436
Physical	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Sleep duration (week)	0.068 (−0.263, 1.61)	0.158	0.426 (−0.555, 1.41)	0.394	0.256 (−0.321, 0.833)	0.384
Sleep duration (weekend)	−0.170 (−1.06, 0.719)	0.707	−0.296 (−1.21, 0.619)	0.525	−0.131 (−0.691, 0.429)	0.646
Physical activity	0.174 (0.105, 0.242)	< 0.001***	0.194 (0.120, 0.267)	< 0.001***	0.028 (−0.024, 0.080)	0.287
Healthy diet	0.220 (0.133, 0.307)	< 0.001***	0.151 (0.061, 0.240)	< 0.001***	0.042 (−0.017, 0.101)	0.165
Active transport (travel to school)						
Passive	Ref		Ref		Ref	
Mixed	2.22 (−3.70, 8.14)	0.462	0.582 (−5.68, 6.84)	0.855	−2.03 (−5.73, 1.67)	0.281
Active	−4.34 (−8.09, −0.591)	0.023*	−4.29 (−9.04, 0.464)	0.077	−0.542 (−3.43, 2.35)	0.712
Active transport (travel from school)						
Passive	Ref		Ref		Ref	
Mixed	1.22 (−3.95, 6.39)	0.643	0.815 (−4.63, 6.26)	0.769	1.59 (−1.56, 4.75)	0.321
Active	−1.87 (−5.33, 1.60)	0.290	−0.915 (−5.24, 3.41)	0.678	−1.59 (−4.19, 1.01)	0.229
Spiritual	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Nature	0.160 (0.096, 0.223)	< 0.001***	0.039 (−0.017, 0.094)	0.169	−0.066 (−0.114, −0.018)	0.007**
Spirituality	0.057 (0.015, 0.099)	0.01**	0.005 (−0.031, 0.040)	0.802	−0.026 (−0.058, 0.006)	0.117
Mindfulness	0.281 (0.222, 0.341)	< 0.001***	0.220 (0.164, 0.276)	< 0.001***	0.090 (0.041, 0.139)	< 0.001***
Purpose	0.375 (0.316, 0.434)	< 0.001***	0.315 (0.251, 0.379)	< 0.001***	0.026 (−0.035, 0.087)	0.410

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; Ref, Reference against which analysis was performed for a categorical variable.

Table 5-4. Associations of factors with domain-specific wellbeing in unadjusted, partially adjusted and fully adjusted GLMM models

Factors	Unadjusted		Partially adjusted		Fully adjusted	
Demographic	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Gender						
Male	Ref		Ref		Ref	
Female	2.33 (−0.275, 4.93)	0.079	2.12 (−0.516, 4.75)	0.115	2.65 (0.565, 4.73)	0.013*
SES						
Low	Ref		Ref		Ref	
High	−1.64 (−7.87, 4.59)	0.605	−0.030 (−7.28, 7.22)	0.994	−0.758 (−4.83, 3.32)	0.714
Ethnicity						
NZ European	Ref		Ref		Ref	
Māori	0.712 (−4.66, 6.08)	0.795	0.887 (−4.64, 6.42)	0.753	−1.24 (−5.58, 3.11)	0.576
Pacific Islander	3.55 (−1.33, 8.43)	0.154	3.47 (−1.93, 8.86)	0.207	1.10 (−3.09, 5.29)	0.605
Asian	−1.21 (−4.78, 2.37)	0.507	−0.934 (−4.61, 2.75)	0.618	0.422 (−2.62, 3.46)	0.785
Other	1.62 (−3.49, 6.73)	0.534	1.67 (−3.45, 6.78)	0.523	1.36 (−2.44, 5.16)	0.481
Older sibling						
Yes	Ref		Ref		Ref	
No	−0.170 (−2.67, 2.33)	0.894	0.467 (−2.25, 3.19)	0.736	−0.898 (−2.89, 1.09)	0.375
Psychological	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Feeling safe	0.387 (0.329, 0.446)	< 0.001***	0.144 (0.078, 0.211)	< 0.001***	0.126 (0.050, 0.203)	< 0.001***
Strength use and knowledge	0.442 (0.385, 0.498)	< 0.001***	0.205 (0.128, 0.282)	< 0.001***	0.165 (0.074, 0.256)	< 0.001***
Self-control	0.083 (0.027, 0.139)	0.004**	−0.006 (−0.051, 0.040)	0.809	−0.014 (−0.067, 0.040)	0.617
Self-efficacy	0.330 (0.265, 0.395)	< 0.001***	−0.003 (−0.074, 0.068)	0.935	−0.018 (−0.102, 0.065)	0.668
Enjoyment	0.414 (0.353, 0.476)	< 0.001***	0.120 (0.045, 0.195)	0.002**	0.062 (−0.025, 0.149)	0.161
Being kind and helpful	0.397 (0.335, 0.459)	< 0.001***	0.159 (0.092, 0.226)	< 0.001***	0.053 (−0.029, 0.134)	0.203
Hobbies and leisure	0.267 (0.161, 0.372)	< 0.001***	0.061 (−0.023, 0.145)	0.153	−0.015 (−0.107, 0.077)	0.752
School	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Perceived teacher support	0.244 (0.199, 0.289)	< 0.001***	0. 084 (0.029, 0.139)	0.003**	0.001 (−0.061, 0.063)	0.977
School belonging	0.320 (0.275, 0.365)	< 0.001***	0.257 (0.199, 0.316)	< 0.001***	−0.011 (−0.081, 0.059)	0.753
Involvement in organized activities	0.076 (0.026, 0.127)	0.003**	0.044 (0.002, 0.087)	0.050*	−0.011 (−0.053, 0.032)	0.625
Social	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Positive family relationships	0.319 (0.267, 0.370)	< 0.001	0.151 (0.094, 0.208)	< 0.001***	0.080 (0.018, 0.143)	0.012*
Positive friendships	0.304 (0.257, 0.351)	< 0.001	0.148 (0.092, 0.204)	< 0.001***	0.093 (0.031, 0.154)	0.003**
Socializing activities frequency	0.145 (0.091, 0.200)	< 0.001	0.018 (−0.030, 0.065)	0.464	−0.033 (−0.083, 0.017)	0.201
Around positive people	0.373 (0.322, 0.424)	< 0.001	0.203 (0.139, 0.267)	< 0.001***	0.069 (−0.005, 0.143)	0.066
Pet ownership						
No	Ref		Ref		Ref	

Factors	Unadjusted		Partially adjusted		Fully adjusted	
Yes	−0.571 (−0.3090, 1.947)	0.656	−0.624 (−2.67, 1.43)	0.550	−1.47 (−3.71, 0.764)	0.196
Physical	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Sleep duration (week)	0.187 (−0.618, 0.993)	0.648	0.013 (−0.793, 0.819)	0.975	−0.378 (−1.01, 0.251)	0.237
Sleep duration (weekend)	0.245 (−0.518, 1.01)	0.528	0.409 (−0.342, 1.16)	0.284	0.389 (−0.221, 0.999)	0.211
Physical activity	0.222 (0.166, 0.278)	< 0.001***	0.217 (0.156, 0.277)	< 0.001***	0.120 (0.063, 0.176)	< 0.001***
Healthy diet	0.215 (0.143, 0.287)	< 0.001***	0.150 (0.077, 0.224)	< 0.001***	0.051 (−0.013, 0.116)	0.117
Active transport (travel to school)						
Passive	Ref		Ref		Ref	
Mixed	3.40 (−1.64, 8.43)	0.186	1.73 (−3.41, 6.87)	0.509	−0.470 (−4.504, 3.565)	0.819
Active	−1.44 (−4.63, 1.75)	0.375	−2.34 (−6.24, 1.56)	0.238	0.724 (−2.429, 3.877)	0.652
Active transport (travel from school)						
Passive	Ref		Ref		Ref	
Mixed	0.365 (−4.03, 4.76)	0.870	−1.35 (−5.83, 3.12)	0.553	0.268 (−3.17, 3.71)	0.878
Active	−0.187 (−3.13, 2.76)	0.901	−1.02 (−4.57, 2.54)	0.575	−2.03 (−4.86, 0.803)	0.160
Spiritual	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Nature	0.190 (0.137, 0.242)	< 0.001***	0.102 (0.053, 0.151)	< 0.001***	−0.027 (−0.080, 0.025)	0.304
Spirituality	0.067 (0.032, 0.103)	< 0.001***	0.020 (−0.011, 0.050)	0.211	−0.019 (−0.054, 0.016)	0.284
Mindfulness	0.113 (0.058, 0.168)	< 0.001***	0.057 (0.008, 0.107)	0.023*	−0.012 (−0.066, 0.041)	0.649
Purpose	0.319 (0.268, 0.369)	< 0.001***	0.261 (0.205, 0.317)	< 0.001***	0.039 (−0.027, 0.106)	0.247

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; Ref, Reference against which analysis was performed for a categorical variable.

Table 5-5. Associations of factors with component wellbeing in unadjusted, partially adjusted and fully adjusted GLMM models

Factors	Unadjusted		Partially adjusted		Fully adjusted	
Demographic	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Gender						
Male	Ref		Ref		Ref	
Female	−1.76 (−4.79, 1.28)	0.255	−1.68 (−4.74, 1.40)	0.284	−0.826 (−3.00, 1.35)	0.455
SES						
Low	Ref		Ref		Ref	
High	2.10 (−3.95, 8.14)	0.496	3.04 (−4.54, 10.6)	0.431	2.92 (−0.721, 6.57)	0.115
Ethnicity						
NZ European	Ref		Ref		Ref	
Māori	3.89 (−2.34, 10.1)	0.220	4.61 (−1.81, 11.0)	0.159	0.876 (−3.66, 5.41)	0.704
Pacific Islander	1.09 (−4.57, 6.74)	0.705	2.53 (−3.73, 8.80)	0.427	1.46 (−2.91, 5.83)	0.512
Asian	−1.83 (−6.02, 2.36)	0.392	−1.92 (−6.23, 2.39)	0.381	−1.03 (−4.21, 2.16)	0.526
Other	1.17 (−4.76, 7.11)	0.698	1.12 (−4.82, 7.06)	0.711	−1.54 (−5.50, 2.42)	0.446
Older sibling						
Yes	Ref		Ref		Ref	
No	2.13 (−0.801, 5.05)	0.154	1.44 (−1.74, 4.61)	0.374	0.949 (−1.14, 3.04)	0.372
Psychological	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Feeling safe	0.427 (0.356, 0.498)	< 0.001***	0.122 (0.051, 0.192)	< 0.001***	0.055 (−0.027, 0.137)	0.186
Strength use and knowledge	0.555 (0.492, 0.618)	< 0.001***	0.202 (0.122, 0.282)	< 0.001***	0.056 (−0.040, 0.152)	0.252
Self-control	0.201 (0.136, 0.265)	< 0.001***	0.072 (0.024, 0.119)	0.003**	0.052 (−0.004, 0.108)	0.066
Self-efficacy	0.566 (0.501, 0.632)	< 0.001***	0.307 (0.232, 0.381)	< 0.001***	0.258 (0.171, 0.346)	< 0.001***
Enjoyment	0.482 (0.409, 0.555)	< 0.001***	0.102 (0.023, 0.181)	0.011*	0.056 (−0.034, 0.147)	0.221
Being kind and helpful	0.429 (0.355, 0.504)	< 0.001***	0.075 (0.005, 0.145)	0.037*	0.027 (−0.058, 0.113)	0.532
Hobbies and leisure	0.237 (0.113, 0.360)	< 0.001***	−0.025 (−0.112, 0.062)	0.575	−0.048 (−0.144, 0.048)	0.329
School	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Perceived teacher support	0.323 (0.270, 0.376)	< 0.001***	0.101 (0.040, 0.162)	< 0.001***	0.034 (−0.030, 0.099)	0.293
School belonging	0.429 (0.380, 0.479)	< 0.001***	0.353 (0.289, 0.417)	< 0.001***	0.103 (0.030, 0.176)	0.006**
Involvement in organized activities	0.117 (0.058, 0.177)	< 0.001***	0.078 (0.033, 0.124)	< 0.001***	−0.012 (−0.057, 0.033)	0.602
Social	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Positive family relationships	0.345 (0.283, 0.407)	< 0.001***	0.205 (0.135, 0.274)	< 0.001***	0.055 (−0.011, 0.120)	0.101
Positive friendships	0.296 (0.236, 0.356)	< 0.001***	0.100 (0.031, 0.169)	0.004**	0.050 (−0.015, 0.115)	0.131
Socializing activities frequency	0.136 (0.072, 0.200)	< 0.001***	0.007 (−0.051, 0.065)	0.815	−0.017 (−0.069, 0.036)	0.531
Around positive people	0.399 (0.338, 0.461)	< 0.001***	0.235 (0.157, 0.313)	< 0.001***	0.000 (−0.076, 0.077)	0.994
Pet ownership						
No	Ref		Ref		Ref	

Factors	Unadjusted		Partially adjusted		Fully adjusted	
Yes	1.13 (−1.83, 4.09)	0.452	1.34 (−1.19, 3.82)	0.301	−0.653 (−3.00, 1.69)	0.584
Physical	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Sleep duration (weekday)	0.538 (−0.389, 1.47)	0.255	0.433 (−0.482, 1.348)	0.353	0.119 (−0.540, 0.779)	0.722
Sleep duration (weekend)	−0.438 (−1.31, 0.436)	0.325	−0.452 (−1.30, 0.398)	0.296	−0.292 (−0.930, 0.347)	0.369
Physical activity	0.272 (0.207, 0.336)	< 0.001***	0.261 (0.193, 0.330)	< 0.001***	0.064 (0.005, 0.124)	0.035*
Healthy diet	0.239 (0.156, 0.321)	< 0.001***	0.148 (0.068, 0.229)	< 0.001***	0.038 (−0.032, 0.107)	0.286
Active transport (travel to school)						
Passive	Ref		Ref		Ref	
Mixed	3.80 (−2.05, 9.66)	0.203	1.43 (−4.38, 7.24)	0.628	−1.06 (−5.27, 3.15)	0.621
Active	0.655 (−3.05, 4.36)	0.728	−0.834 (−5.23, 3.56)	0.709	2.28 (−1.00, 5.56)	0.173
Active transport (travel from school)						
Passive	Ref		Ref		Ref	
Mixed	−1.81 (−6.85, 3.23)	0.480	−3.37 (−8.44, 1.70)	0.192	−2.12 (−5.71, 1.48)	0.248
Active	1.72 (−1.65, 5.09)	0.316	0.476 (−3.56, 4.51)	0.816	0.259 (−2.71, 3.23)	0.864
Spiritual	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*	Coefficient% (95% CI)	*p*
Nature	0.250 (0.191, 0.308)	< 0.001***	0.140 (0.087, 0.193)	< 0.001***	0.063 (0.008, 0.118)	0.024*
Spirituality	0.075 (0.032, 0.117)	< 0.001***	0.004 (−0.030, 0.038)	0.824	−0.010 (−0.047, 0.027)	0.590
Mindfulness	0.183 (0.120, 0.247)	< 0.001***	0.101 (0.047, 0.155)	< 0.001***	−0.013 (−0.070, 0.043)	0.646
Purpose	0.414 (0.358, 0.471)	< 0.001***	0.355 (0.294, 0.416)	< 0.001***	0.068 (−0.002, 0.138)	0.056

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; Ref, Reference against which analysis was performed for a categorical variable.

Discussion

This study implemented three novel approaches to examine the predictors of wellbeing in NZ Year 8 adolescents. First, we identified a broad range of factors relevant to the adolescents' lives and analyzed their association with wellbeing. The examination included physical factors that have been largely unexplored in adolescent wellbeing research. The analysis also included demographic factors, the outcomes of which have been inconclusive for adolescents in the existing literature. Furthermore, certain spiritual, psychological, and social factors that have had limited research but are essential for adolescents' wellbeing were also included. The inclusion of multiple predictor variables allowed us to adjust many factors to determine whether the effects on wellbeing were independent or dependent. Second, this study examined the predictors of four specific dimensions of wellbeing: global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing. Lastly, the study sample was diverse and the context in which the study was conducted was new. To our knowledge, no study in NZ has explored the psychological, spiritual, and physical predictors of wellbeing in adolescents. Therefore, this investigation may provide a platform for conducting future research, as well as fill gaps in the scant knowledge base regarding adolescent wellbeing.

The finding that the present study sample typically evaluated their global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing positively was expected and concurs with earlier research (Gilman & Huebner, 2003; Lampropoulou, 2018). As an important percentage of these adolescents experienced worries (18.0%) and were uncertain about whether they were resilient (16.0%), schools must work toward improving the global wellbeing and component wellbeing of adolescents. The study's findings that approximately 40 adolescents in the sample had experienced some sort of bullying in school and almost double that number (n = 80) indicated feeling sick at school suggested the need for strengthening focus on fostering overall school wellbeing. Additionally, an attempt should be made to bridge the domain importance–satisfaction gap by increasing efforts to improve domain-specific wellbeing. To a small extent, the second hypothesis of this study was also supported, as NZ female adolescents were less satisfied with their health and lifestyle than males, which concurs with the findings of previous research (Meade & Dowswell, 2016). Similarly, Ben-Zur (2003) found that university-going female adolescents experience more negative affect than males. A possible explanation is that females are more conscious and worried about their health and lifestyle than males, as found in a previous NZ survey with secondary school adolescents (Maddison, Turley, Legge, & Mitchelhill, 2010).

Demographic factors

The findings from this study underscored the significance of a variety of psychological, social, school, physical, spiritual, and demographic factors for adolescent wellbeing for the first time. In

relation to demographics, there were insignificant associations of SES and having an older sibling with the dimensions of wellbeing; the finding regarding SES was congruent with a previous study (Dinisman & Ben-Arieh, 2016), whereas the finding regarding having an older sibling contradicted longstanding evidence (Fullerton et al., 1989). No associations between gender and wellbeing were found at an individual or demographic level, which agrees with other research with adolescents and NZ adults (Ben-Zur, 2003; Prendergast et al., 2016); however, it was surprising that the females in this sample were found to experience significantly higher domain-specific wellbeing than the males, after adjusting for all factors. This unique finding implies that a) girls perceive life domains as more important and are apparently more satisfied with them than boys are, and b) the association between gender and wellbeing is indirect, and factors other than demographics need to be controlled for this outcome. Additional research is required to illuminate the mediating factors influencing the gender-wellbeing relationship that may help explain this finding. Further, higher global wellbeing and school wellbeing were evident in Pacific adolescents, compared to those who identified as European or Māori, which substantiated NZ research with adults (Prendergast et al., 2016). One reason for the low effect of demographics could be that these factors were contingent on the personalities of the individuals studied (Diener et al., 1999).

Psychological factors

As anticipated, the psychological factors feeling safe, enjoyment, self-control, self-efficacy, and strength use and current knowledge independently but differentially predicted dimensions of wellbeing, which corroborated previous research establishing the associations of some of these components with either life satisfaction, positive affect, or both (Caroli & Sagone, 2014; Ronen et al., 2016; Shoshani & Slone, 2013). Considering the power of these components, some of the recommendations arising from this study for policy development and interventions include providing adolescents with enough opportunities for having fun (e.g., making learning enjoyable), training them to become self-controlled, instilling a belief in their abilities, encouraging identification and usage of strengths, and most importantly, creating a safe environment. Some of these recommendations (such as feeling safe) have also been highlighted by the national government as desired outcomes for adolescent wellbeing (Education Review Office, 2015b). An unexpected finding that being kind and helpful was positively related to school wellbeing in the unadjusted model, but negatively related to school wellbeing in the fully adjusted model, may be attributed to the influence of other factors on this component that when adjusted for, yielded a negative correlation. One possibility is that the adolescents who perceived themselves to be more kind and helpful in school had a desire for a greater teacher or peer approval. Further research is warranted to understand this relationship.

School factors

After controlling for school factors, higher wellbeing across all four wellbeing dimensions was evident in this research, with the adolescents reporting a stronger sense of belonging to school and a higher amount of teacher support; this was consistent with prior research that identified links between these variables and a single dimension of wellbeing (Jose & Pryor, 2010; Suldo et al., 2009). Similarly, greater involvement in organized activities was independently related to each wellbeing dimension, concurring with other studies that have identified links between organized activity involvement and life satisfaction (Badura et al., 2015); thus literary, sport, vocational, or performance-based activities should be part of a normal school day for adolescents. Since school belonging, among other school factors, was a robust predictor of this study participants' school wellbeing, it is recommended that the usual school orientation programs for increasing a sense of belonging should be supplemented with creating meaningful connections and a caring environment in the school (Lampropoulou, 2018; McGee et al., 2004).

As perceived teacher support independently and positively predicted each wellbeing dimension when school factors were adjusted, it was somewhat surprising that a negative correlation emerged between perceived teacher support and global wellbeing, after controlling for each factor. It is possible that the direction of association of teacher support could be confounded or mediated by another unknown variable. A second tentative explanation is that adolescents who perceive they received more support from teachers may also be either less or more academically oriented than their peers, causing them to perceive less satisfaction and happiness with life in general (Lei, Cui, & Chiu, 2018). Future research should investigate this relationship more closely.

Social factors

The findings regarding social factors have potential implications for families and schools for fostering adolescent wellbeing. In contrast to other studies (Lampropoulou, 2018; Moore et al., 2018), in this study there were weak associations of positive family relationships and positive friendships with wellbeing relative to other factors. However, the adolescents in this sample placed immense value on the behavior of the people around them. Being around people who are respectful, encouraging, and positive was the strongest predictor of school wellbeing; this was one of the most important findings. Therefore, schools should include parents in wellbeing programs and implement strategies for improving parent and peer relationships, particularly training the staff and parents to be more respectful and encouraging in their interactions with adolescents. While owning a pet was not significantly associated with wellbeing in this study, higher pet attachment has been shown to positively correlate with quality of life in other studies (Marsa-Sambola et al., 2016). Lastly, the frequency of socializing activities was positively related to wellbeing in only unadjusted models, suggesting its reliance on, or connection with, other social

factors for altering wellbeing; this component should not be of primary importance in wellbeing promotion.

Physical factors

Among the physical factors, a healthy diet and high frequency of physical activity independently predicted adolescent wellbeing, similar to prior investigations with adolescents (Kulkarni et al., 2015) and NZ adults (Prendergast et al., 2016). Therefore, school principals, counselors, and educators should create more opportunities for adolescents to participate in physical activities (including sport) and conduct regular workshops for parents and adolescents to promote a healthy diet that contains fruits and vegetables. Physical activity elevated adolescents' wellbeing more than a healthy diet, consistent with the findings of a national survey (Maddison et al., 2010). Hours of sleep during the weekday and weekend and active commuting from school were not significantly related to adolescent wellbeing in this study, which challenged existing evidence that has shown significant associations of these factors with psychological wellbeing (Kalak et al., 2014; Sun et al., 2015). Either these factors were not essential for the wellbeing of this study sample, or the variables were not assessed appropriately by objective measures. Nevertheless, new efforts are needed to explain and validate these findings utilizing more sophisticated measures.

Spiritual factors

The results of this study verified the significant association between wellbeing and spiritual factors, namely mindfulness, spirituality, purpose, and nature, corroborating previous research with parallel outcomes (Bluth & Blanton, 2014; Schulenberg et al., 2016; Smith, Webber, & DeFrain, 2013; Tillmann et al., 2018). However, spirituality was found to lead to a minor change in adolescent wellbeing, probably due to commonality among spiritual factors; this finding challenged the value of focusing on spirituality for adolescent wellbeing promotion, which is inconsistent with previous NZ research (O'brien et al., 2013). In contrast, mindfulness and purpose were independent predictors of different wellbeing dimensions, although the role of mindfulness was particularly significant in the school context. Thus, educational programs that encourage adolescents to be mindful and motivate them to have a greater purpose in life may be warranted. Perceptions of higher connection with nature elevated component wellbeing, after all factors were adjusted, which is in line with previous research that has shown links between nature and resilience, an aspect of component wellbeing (Tillmann et al., 2018). The finding that nature had a significant small negative association with school wellbeing was surprising, as the existing evidence has suggested a non-significant relationship of depression with nature (Bezold et al., 2018), and the association of "greenness" with reduced odds of higher depressive symptoms (Tillmann et al., 2018). We can only speculate that a confounding variable influenced this outcome. Additional research is needed to investigate this relationship further; one could ask, "why do positive perceptions of nature have a negative effect on school wellbeing?"

Implications and limitations

The current study extends existing international knowledge and limited NZ research to show that the components self-efficacy, being around positive people, school belonging, feeling safe, strength use and knowledge, enjoyment, physical activity, positive family relationships, positive friendships, mindfulness, purpose, and healthy diet, as well as ethnicity and gender, all have independent associations with different dimensions of wellbeing after adjusting for many factors. No study to date has adjusted factors on a large scale, as depicted in this study, and determined their definite significance to adolescent wellbeing. These findings indicate that holistic programs or interventions that integrate physical, social, psychological, school, spiritual, and demographic factors may be required for the effective promotion of adolescent overall wellbeing.

The limitations of this study should be kept in mind when interpreting the findings. First, the current study relied on self-report surveys to gather the data; the responses may have been susceptible to social desirability bias or the respondents' level of honesty or understanding. Second, the correlational nature of the data prevented us from drawing causal inferences; a longitudinal investigation would be required to explore the temporal relationships between the predictors and dimensions of wellbeing. Third, components that may be associated with adolescent wellbeing, such as personality (Diener et al., 1999; Lampropoulou, 2018), were not examined in the current study. Lastly, the predictive strength of some components could have suffered because of the lack of appropriate measurement; for example, physical factors were not measured with an accelerometer. As the focus of this study was on achieving a broad perspective, the predictors were not evaluated categorically. This precluded the determination of the level at which a predictor (e.g., physical activity) was related to wellbeing, which could have caused a bias in the results. Notwithstanding these limitations, this is one of the few studies that contribute to a better understanding of a comprehensive array of predictors of multiple dimensions of wellbeing in Year 8 adolescents at NZ intermediate schools. This study is only an initial step toward devising comprehensive interventions or programs aimed at enabling adolescent wellbeing, thereby facilitating a positive transition. It is hoped that the findings from this study will stimulate further longitudinal research to study changes over time.

Conclusion

While most of the Year 8 adolescents at NZ intermediate schools evaluated their lives positively, a considerable number of them reported experiencing low global, school, domain-specific, and component wellbeing. There were no significant differences in wellbeing by gender, except that the female adolescents reported less satisfaction with their health and lifestyle than the male adolescents. We conclude that there are complex associations of predictor variables with overall wellbeing and a variety of demographic, psychological, school, social, physical, and spiritual factors differentially predict global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing.

CHAPTER 6: A LONGITUDINAL STUDY OF FACTORS PREDICTING WELLBEING DURING THE TRANSITION BETWEEN INTERMEDIATE AND SECONDARY SCHOOLS

Preface

Understanding how adolescents experience wellbeing during the transition from intermediate to secondary school is essential for guiding the development of wellbeing promotion strategies and school transition programs for this population. Although there are studies on predictors of adolescent wellbeing, few, if any, have focused on the associations around the transition from intermediate to secondary school. After adjusting for 27 factors, the previous chapter revealed 19 demographic, psychological, school, social, physical, and spiritual factors that independently but differentially predicted global, school, domain-specific and component wellbeing in Year 8 NZ intermediate school adolescents. These predictor variables included feeling safe, strength use and knowledge, self-control, self-efficacy, enjoyment, being kind and helpful (six psychological factors); physical activity, healthy diet (two physical factors); nature, mindfulness, purpose (three spiritual factors); perceived teacher support, organized activities involvement, school belonging (three school factors); positive family relationships, positive friendships, being around positive people (three social factors); and gender and ethnicity (two demographic factors).

This chapter addresses the overarching question of this thesis and demonstrates the associations of these predictor variables with changes in global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing during the transition from intermediate to secondary school. For data management and analyses purposes, predictor variables that showed dependent or no associations with each dimension of wellbeing in the cross-sectional study (e.g., socializing activities and pet ownership, respectively) were not included in this longitudinal study. In addition, this chapter documents changes in the four wellbeing dimensions and predictor variables over the course of the transition from intermediate to secondary school. The working definition of positive school transition was revised at this stage of the research, based on the findings of the earlier work. This chapter comprises a paper that is under preparation for journal submission.

Abstract

Utilizing perceived wellbeing as an indicator of positive transition, this study aimed to examine changes in wellbeing across the transition from intermediate school to secondary school in 191 NZ adolescents aged 12 to 14 years. In addition, it investigated the temporal trends in, and associations of, a range of psycho-socio-spiritual, physical, school, and demographic factors with global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing across the transition to secondary school. The data were gathered using self-report questionnaires during intermediate school Year 8 and six months later, during secondary school Year 9. We observed a significant medium decline in global wellbeing and small increases in school and component wellbeing (including resilience) across the secondary school transition. Certain predictor variables, including positive family relationships and school belonging, showed significant small improvements after the transition. Further, Univariate General Linear Models revealed that pretransition perceptions of feeling safe, school belonging, self-control, purpose, strength use and knowledge, being around positive people, enjoyment, and mindfulness were significantly and differentially associated with improved global, school, component, and domain-specific wellbeing after the transition to secondary school. In contrast, change in self-efficacy predicted transition-related changes in all wellbeing dimensions. Some of the associations were stronger in females than in males. Females who perceived high levels of pretransition physical activity tended to show improvements in global wellbeing post transition. For building overall adolescent wellbeing and ensuring positive transitions, these findings suggest the need for devising holistic interventions in both intermediate and secondary schools considering several psycho-socio-spiritual, school, and physical factors.

Introduction

A difficult transition to secondary school is associated with adverse outcomes for adolescents such as discipline problems (Donegan, 2008), school dropout, and failure (McGee et al., 2004; Ministry of Education, 2008). Research has also demonstrated declines in school belonging, academic achievement, and learning (Cox & Kennedy, 2008; Ministry of Education, 2008; Newman et al., 2007) and increases in depression, anxiety, and loneliness following the transition to secondary school (Benner & Graham, 2009; Newman et al., 2007; Rueger, Chen, Jenkins, & Choe, 2014).

Transition-related difficulties have a direct bearing on adolescents, as they experience school transitions at the same time as they are going through pubertal transitions (Anderson et al., 2000). For example, school transitions are often unpredictable, due to a mismatch between school environments; adolescents have to adjust to a new environment that is larger, more academically demanding, and more impersonal than their previous school (Akos & Galassi, 2004b; Education Review Office, 2012a). Likewise, developmental changes present adolescents with significant mental health and academic challenges (Brooks et al., 2002; Swahn & Bossarte, 2007). The combined effects of these shifts is especially significant for NZ adolescents, who make two school transitions in two years (Hawk & Hill, 2004; McGee et al., 2004). Alspaugh (1998) indicated that the number of school transitions adolescents must negotiate is directly proportional to the disruptions in behavior and achievement that arise. Therefore, examining ways to improve the transition from intermediate to secondary school for adolescents is critically important.

Given the negative consequences of difficult transitions, there is an emerging research interest in understanding positive school transition (Ng-Knight et al., 2016; Rice, Frederickson, Shelton, et al., 2011; Shoshani & Slone, 2013). To assess how adeptly adolescents transition to another school, researchers have recently paid attention to adolescent wellbeing (Lester & Cross, 2015; Shoshani & Slone, 2013). Research suggests that wellbeing is positively correlated with favorable school outcomes such as academic performance, academic achievement (Dix et al., 2012; Suldo et al., 2011), and engagement (Lyons, Huebner, & Hills, 2013). Adolescent wellbeing is considered integral for positive transitions in NZ (Education Review Office, 2012a, 2013, 2015c, 2016a). The current study conceptualizes positive school transition as comprising psychological, social, schooling, physical, spiritual, and demographic factors that enable adolescents to experience wellbeing while moving from intermediate to secondary school.

A wide range of demographic, psychological, school, social, physical, and spiritual factors are likely to influence positive transitions and be essential for adolescents' conceptualizations of wellbeing (Bharara, 2019; Bharara, Duncan, Jarden, et al., 2019). Prior research has demonstrated that demographic, psychological, and school factors influencing mental health and academic

outcomes (e.g., academic achievement) may include, as separate units, gender, ethnicity, self-efficacy, self-control, strength use and knowledge, feeling safe, enjoyment, being kind and helpful, perceived teacher support, school connectedness, and involvement in organized activities (Akos & Galassi, 2004a; Ben-Zur, 2003; Bharara, Duncan, & Jarden, 2019; Longobardi et al., 2016; Madjar & Chohat, 2017; Roosa et al., 2012; Schwartz et al., 2015; Shoshani & Slone, 2013; Xia et al., 2016). Cross-sectional studies have highlighted the role of social factors such as positive family relationships, positive friendships, and being around positive people in contributing to wellbeing (Bharara, Duncan, & Jarden, 2019; Lampropoulou, 2018; Moore et al., 2018). There is a relative dearth of literature on the influence of physical and spiritual factors on adolescent psychological health, such as healthy diet, physical activity, purpose, mindfulness, and connection with nature (Bharara, Duncan, & Jarden, 2019; Bluth & Blanton, 2014; Kulkarni et al., 2015; Schulenberg et al., 2016; Tillmann et al., 2018). Prior research has shown that certain predictors of depression and wellbeing, such as perceived support from family and school belonging, are altered during school transitions (Newman et al., 2007; Virtanen, Vasalampi, Torppa, Lerkkanen, & Nurmi, 2019). Whether these factors are longitudinally associated with wellbeing over the transition from intermediate to secondary school requires empirical investigation.

Adolescent wellbeing is viewed as a broad concept including many dimensions, such as subjective wellbeing, school wellbeing, domain-specific wellbeing (e.g., of life areas such as education) (Ben-Arieh et al., 2014; Lampropoulou, 2018), and wellbeing on components (e.g., resilience). However, most studies have presented a unidimensional perspective of wellbeing and transition (Owen et al., 2018; Waters et al., 2014), failing to recognize the synergy between these concepts (Bharara, 2019). While the majority of research has focused on evaluating the relationship of separate factors (e.g., social or school factors) with academic indicators of positive transitions (Benner et al., 2017; Kingery & Erdley, 2007), no study has examined the associations of several holistic factors together with multiple dimensions of wellbeing over the transition from intermediate to secondary school. In particular, little is known about changes that occur in wellbeing between different school settings and how factors relevant to adolescents' lives may alter and predict adolescent wellbeing through this transition, especially in NZ. This knowledge is critical to informing the development and implementation of interventions aimed at promoting wellbeing and enhancing positive transitions from intermediate to secondary schools (Bharara, 2019).

Utilizing a broad perspective, the first aim of this study was to determine changes in global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing during the intermediate to secondary school transition in NZ. It was hypothesized that wellbeing would decline from Year 8 (intermediate school) to Year 9 (secondary school). The second aim was to examine the way several psychological, social, school, physical, spiritual, and demographic

factors change during this transition; however, given the lack of longitudinal research on several of the predictor variables used in this study (e.g., purpose in life and mindfulness), further results were not hypothesized. The third aim of this study was to examine the pretransition factors that predict changes in adolescent global wellbeing, school wellbeing, component wellbeing, and domain-specific wellbeing over the transition from intermediate to secondary school. Considering previous findings (Longobardi et al., 2016; Newman et al., 2007), the fourth aim was to investigate whether changes in psycho-socio-spiritual, physical, demographic, and school factors predict changes in global, school, domain-specific and component wellbeing across the secondary school transition. Although it was not an objective of this study, gender-based interactions were evaluated for these temporal associations, based on prior evidence (Ben-Zur, 2003). Durie's model of wellbeing (Durie, 1985) was adapted and the findings were categorized into demographic, psychological, school, social, physical, and spiritual factors. The predictor variables of this study were informed by a systematic review of the positive transition literature and an empirical study of adolescent conceptualizations of wellbeing (Bharara, 2019; Bharara, Duncan, Jarden, et al., 2019). The predictor variables used in this study had been found to be independently related with wellbeing in an earlier cross-sectional study (Chapter 5), using a sample of Year 8 NZ intermediate school adolescents (Bharara, Duncan, & Jarden, 2019).

Methods

Study design and participants

The present study comprised a prospective cohort design of two time points separated by a six-month interval. A request to participate in the study was sent to all intermediate schools in NZ. Baseline data (Time 1, T1; Wave 1) were collected when participants were in Year 8 of intermediate school (Terms 3–4; September–November 2017). Follow-up data (Time 2, T2; Wave 2) were collected six months later when the participants were in Year 9 of secondary school (Term 2; May–June 2018). Since the data collection dates were based on the schools' priorities within this study's deadlines, the data collection was staggered across schools at baseline. There was no involvement of schools in the follow-up study.

A modified convenience sampling approach was utilized; that is, schools were sent emails as per convenience but preference was given to the school type (intermediate), location, and SES. Of the eligible 117 schools, 7% (8) agreed to participate. Four schools were high SES (Deciles 9 and 10), two were middle SES (Deciles 4 and 7), and two were low SES (Decile 1). The remaining schools either did not respond or declined the invitation because of academic priorities. All Year 8 students from the agreed schools were eligible to participate and those who provided the consent of their parents were included in the study. Students who participated at baseline were invited to participate in the follow-up study. Figure 6-1 describes the recruitment process.

At baseline, the participants included 471 NZ Year 8 adolescents across eight intermediate schools located in Auckland, Nelson, and Wellington. The retention rate was approximately 41% at Wave 2, with 191 adolescents completing the surveys in Year 9 in secondary schools. For inclusion in the final sample, adolescents were required to complete surveys for each of the two waves. The final study sample comprised 105 females (55%) and 86 males (45%).

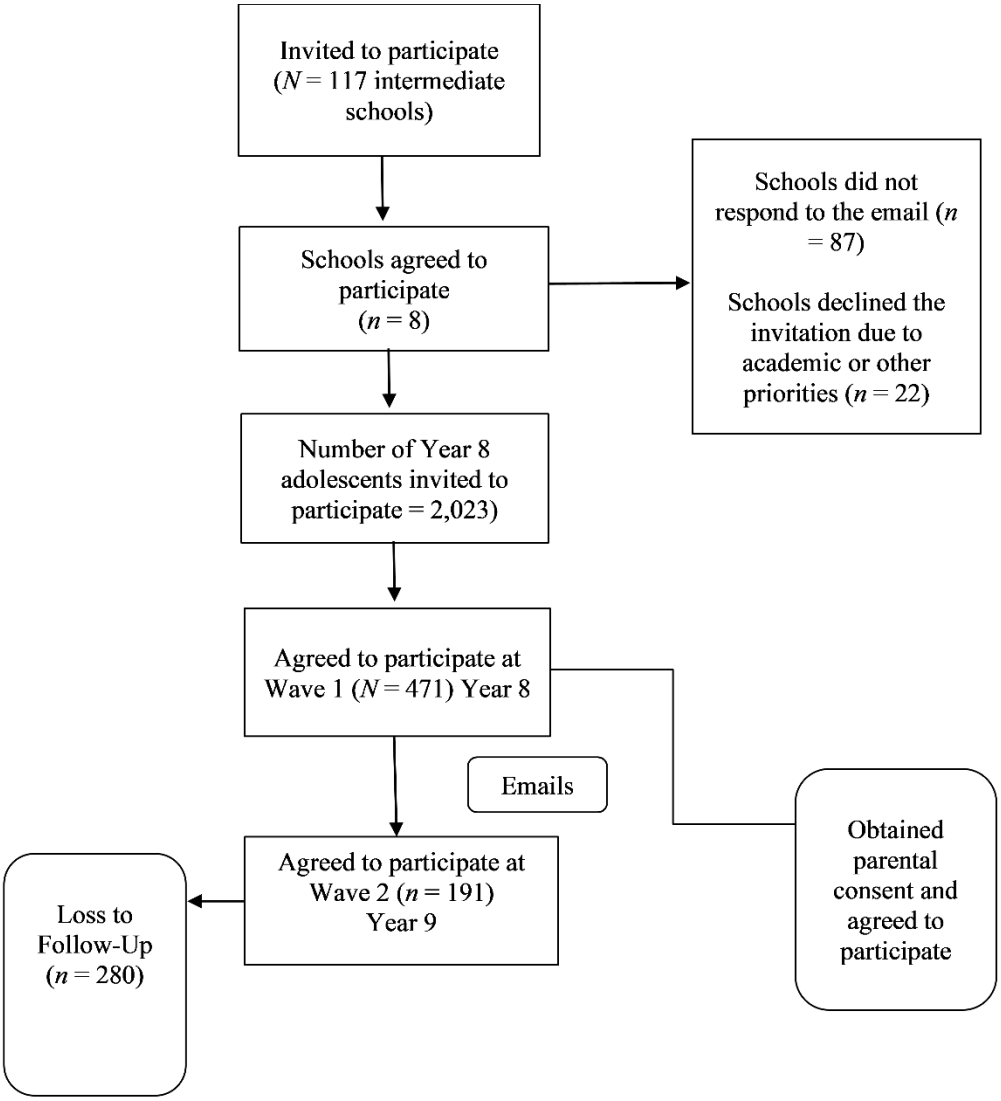


Figure 6-1. Recruitment process

Measures

Wellbeing

Wellbeing was assessed using an online survey (Bott et al., 2017; Jarden et al., 2015) that is currently being utilized in more than 35 schools worldwide. The participants answered 27 questions that measured global wellbeing (five questions, e.g., "Overall, how satisfied are you with life as a whole these days?"); domain-specific wellbeing (five questions, e.g., "How important is family domain for you?"); school wellbeing (eight questions, e.g., "I feel sad at school"); and component wellbeing (nine questions, e.g., "I tend to bounce back quickly after hard times") on a 0 to 10 scale. Global wellbeing measured elements of happiness, life satisfaction, and affect balance. School wellbeing assessed personal and social aspects (e.g., satisfaction with physical appearance and relationships) relevant to the school context. Domain-specific wellbeing measured the perceived importance of, and satisfaction with, five areas of life: education, physical health, family, social life, and leisure. Component wellbeing evaluated the degree of total perceived resilience and satisfaction with health and lifestyle behaviors, as well as the individual's and the school's role in wellbeing enablement (Jarden et al., 2015). Each item had 11 rating options (scale range: 0–11), with higher scores on each dimension indicating higher levels of wellbeing. The internal consistency reliability of the scale in the current sample was excellent ($\alpha = 0.927$ and 0.906 for Waves 1 and 2, respectively). See Appendix G for the wellbeing assessment.

Predictor variables

An online survey with several brief scales was devised, using a multi-step design to measure the predictor variables (Bharara & Duncan, 2019). The following 17 predictor variables were assessed:

- Psychological factors: feeling safe, strength use and knowledge, self-control, self-efficacy, enjoyment, being kind and helpful
- Physical factors: physical activity, healthy diet
- School factors: perceived teacher support, organized activities involvement, school belonging
- Social factors: positive family relationships, positive friendships, being around positive people
- Spiritual factors: nature, mindfulness, and purpose.

Each scale had two to six items typically rated on an 11-point scale (e.g., 0 = Do not at all agree, 10 = Completely agree), with higher total scores indicating the higher presence of component measured. An example item in the feeling safe scale was "I feel safe in the school." Cronbach's alpha for the survey was 0.943 and test–retest reliability was 0.866. Each subscale showed negative correlations with anxiety. Participants took about 16 minutes to finish the entire survey. Participants self-reported their gender and ethnicity by ticking an appropriate option.

Procedure

The university ethics committee granted approval for this study (see Appendix D). Parents provided informed written or electronic consent for each wave of the study, along with their contact details. At T1, adolescents with parental consent in five Auckland intermediate schools completed electronic surveys in schools in the presence of the primary researcher, who used a structured verbal and procedural protocol to administer the survey. In the remaining three schools located outside Auckland, the adolescents completed the survey in class with the assistance of school staff. The Year 8 adolescents provided electronic assent before completing the surveys. Participation in the surveys was voluntary and the adolescents could withdraw from the study at any time. Confidentiality of respondents was maintained by keeping identifiable details anonymous.

Baseline participants with parental consent who indicated they wanted to participate in a future wave of the study were invited to complete the Wave 2 online survey in 2018 via email, six months after the Wave 1 survey. Measures undertaken to increase retention included a) electronically informing the parents of participants of the Wave 1 survey about the email invitations sent to their children for participating in the follow-up study, and b) giving $10 and $25 incentive coupons to 10 random participants of Waves 1 and 2, respectively.

Analyses

Total raw scores were computed along with changes in predictor scores (predictor change, Δ) by subtracting Year 8 scores from Year 9 scores (predictor T2 − predictor T1). For ease of interpretation, school SES was categorized into two groups: 1 to 5 and 6 to 10, representing low and high school deciles, respectively. Ethnicity was categorized into five groups: NZ European, Māori, Pacific Island, Asian, and Other. Analyses were conducted using SPSS version 25 software (IBM, 2017). Descriptive statistics and Shapiro-Wilk Normality tests showed that the data distribution of wellbeing outcomes and predictor variables was non-normal. Herman's single-factor test revealed that the responses were not affected by common method bias, as the single-factor variance was 33.0% (< 50.0%). Based on the four outcomes (global wellbeing, domain-specific wellbeing, school wellbeing, and component wellbeing) and 19 predictor variables, Little's MCAR test indicated that the data were MCAR at baseline (χ^2 = 315, *df* = 298, *p* = 0.227) and follow-up (χ^2 = 191, *df* = 192, *p* = 0.489). The data were not imputed and analyzed in the original form, as the comparisons between original and imputed data revealed no changes in relationships and the parameter estimates were optimal under MCAR (Schafer & Graham, 2002). Most missing data were due to participant attrition in the follow-up study (approx. 59%); at T1, complete data were available for 77% of participants and 78% of predictor variables.

Mann-Whitney *U* tests revealed there were no significant differences in complete participants (i.e., those who completed surveys at both time points) versus incomplete participants (i.e., those

who completed surveys at only baseline) in terms of their baseline levels of global wellbeing ($z = -0.965$, $p = 0.335$) component wellbeing ($z = -0.752$, $p = 0.452$), and domain-specific wellbeing ($z = -1.26$, $p = 0.209$). However, school wellbeing baseline levels of complete participants ($Md = 59$, $n = 191$) were significantly lower than for incomplete participants ($Md = 62$, $n = 280$) with a very small effect, $z = -2.26$, $p = 0.024$, $r = 0.088$. Chi-square tests for independence indicated no significant association between gender and completion of the surveys (χ^2 (1, $n = 397$) = 0.371, $p = 0.542$, $phi = 0.036$), with Yates Continuity Correction, and significant associations between ethnicity and completion (χ^2 (4, $n = 397$) = 28.8, $p < 0.001$, $phi = 0.269$). NZ Europeans were more likely to complete the assessments (58.9%) than the remaining ethnicities: Māori (27.6%), Pacific Island (27.6%), and Asian (37.8%). Likewise, a significant association was observed between school socioeconomic group at T1 (1–5, low and 6–10, high) and completion, with Yates Continuity Correction (χ^2 (1, $N = 471$) = 19.2, $p < 0.001$, $phi = 0.207$). For the high-decile group, 46.0% completed the assessments and 54.0% had incomplete assessments. For the low-decile group, 21.7% completed the assessments and 78.3% did not complete them.

Wilcoxon Signed Rank Tests were performed to examine changes in four wellbeing dimensions (global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing) and predictor variables across the transition from intermediate to secondary school. General Linear Models were used to determine whether selected factors and changes in factors predicted transitional changes in global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing. All predictors at T1 were placed in 12 distinct multiple linear regression models for global, domain-specific, school and component wellbeing. To control potential collinearity, any predictor variables, from a particular factor group (e.g., psychological), with correlation coefficients greater than 0.4 were entered into separate models. The predictor variables that correlated less than 0.4, in a particular factor group, were entered into the same model. Physical factors were entered together in one model as the predictor variables in this group correlated < 0.4. Similarly, one model each was used for spiritual and demographic factors. There were four models for psychological factors, two for social factors, and three for school factors. The regressions for predictor Δ mirrored the above analyses. In all models, covariates were gender and ethnicity (Akos & Galassi, 2004b; Ben-Zur, 2003; Bharara, Duncan, & Jarden, 2019) and wellbeing at T1. We controlled for wellbeing at T1 to determine whether wellbeing at T2 improved relative to T1. In addition, each model controlled for predictors that correlated less than 0.4 in a group. After running the main effects models, a two-way interaction term was included in models to evaluate the combined effect of predictor variables and gender on wellbeing outcomes. Significant interactions were noted, along with the fixed factor and gender coefficients.

Results

The average age of T1 participants (Year 8) was 12.5 (*SD* = 0.515); school SES levels were high (47.5%, Deciles 9 and 10), middle (33.7%, Deciles 4 and 7), and low (18.8%, Decile 1). The sample comprised 45.2% females (*n* = 213), 39.1% males (*n* = 184), and the remaining 15.7% (*n* = 74) did not provide identifiable details. Ethnicity was NZ European (43.7%, *n* = 206), Asian (15.7%, *n* = 74), Pacific Island (12.5%, *n* = 59), Māori (5.94%, *n* = 28), African (2.76%, *n* = 13), Middle Eastern (1.49%, *n* = 7), and Other (2.12%, *n* = 10).

Participants at T2 (Year 9) were aged 12, 13, and 14 years, with average age being 13.1 years (*SD* = 0.325). The ethnicity of this sample was NZ European (63.9%, *n* = 122), Asian (16.8%, *n* = 32), Pacific Islander (6.32%, *n* = 12), Māori (4.74%, *n* = 9), Middle Eastern (4.20%, *n* = 8), African (3.10%, *n* = 6), and Other (1.00%, *n* = 2). The school SES levels were high (Deciles 8–10; *n* = 127, 66.5%), middle (Deciles 4–7; *n* = 39, 20.4%), and low (Deciles 1–3; *n* = 25, 13.1%).

Table 6-1 shows a statistically significant decrease in global wellbeing following the transition to secondary school ($z = -9.37$, $p < 0.001$) with a medium effect size ($r = 0.364$). In contrast, based on negative ranks, there were statistically significant increases with small effect sizes in school wellbeing ($z = -5.12$, $p < 0.001$, $r = 0.199$) and component wellbeing ($z = -2.99$, $p < 0.01$, $r = 0.121$). There was no statistically significant change in domain-specific wellbeing from T1 to T2. Figure 6-2 illustrates the change in wellbeing score percentage across dimensions.

Eight predictors showed significant but small improvements after transition to secondary school: feeling safe ($z = -2.74$, $p < 0.01$, $r = 0.111$), self-efficacy ($z = -3.32$, $p < 0.01$, $r = 130$), being kind and helpful ($z = -2.89$, $p < 0.01$, $r = 0.118$), perceived teacher support ($z = -4.13$, $p < 0.001$, $r = 0.162$), school belonging ($z = -4.86$, $p < 0.001$, $r = 0.190$), positive family relationships ($z = -2.94$, $p < 0.01$, $r = 0.115$), positive friendships ($z = -2.17$, $p < 0.05$, $r = 0.086$), and being around positive people ($z = -4.64$, $p < 0.001$, $r = 0.189$).

Table 6-1. Results from Wilcoxon signed rank tests regarding changes in wellbeing and predictors

Outcomes	T1/ T2	*N*	*Md* (25th, 75th %ile)	*z*	*p*	*r*
Global wellbeing	T1	471	35.0 (30.0, 39.0)	−9.37	< 0.001***	0.364
	T2	191	27.0 (25.0, 29.0)			
Domain-specific wellbeing	T1	471	87.0 (78.0, 94.0)	−0.178	0.859	0.007
	T2	191	84.0 (76.0, 93.0)			
School wellbeing	T1	471	61.0 (50.0, 68.0)	−5.12	< 0.001***	0.199
	T2	191	63.0 (54.0, 70.0)			
Component wellbeing	T1	430	61.0 (51.0, 69.3)	−2.99	0.003**	0.121
	T2	185	64.0 (53.0, 71.0)			
Predictors						
Feeling safe	T1	420	17.0 (15.0, 19.0)	−2.74	0.006**	0.111
	T2	185	18.0 (15.0, 20.0)			
Self-efficacy	T1	463	21.0 (17.0, 24.0)	−3.32	0.001***	0.130
	T2	190	22.0 (18.0, 25.0)			
Self-control	T1	471	15.0 (10.0, 19.0)	−1.40	0.163	0.054
	T2	191	14.0 (10.0, 20.0)			
Strength use and knowledge	T1	471	47.0 (38.0, 53.0)	−0.994	0.320	0.039
	T2	191	45.0 (39.0, 51.0)			
Enjoyment	T1	418	23.0 (19.0 26.0)	−1.52	0.127	0.062
	T2	185	23.0 (19.5, 26.0)			
Being kind and helpful	T1	415	48.0 (41.0, 56.0)	−2.89	0.004**	0.118
	T2	184	49.0 (43.0, 55.0)			
Perceived teacher support	T1	463	22.0 (16.0, 27.0)	−4.13	<0.001***	0.162
	T2	188	24.0 (20.0, 27.0)			
School belonging	T1	463	20.0 (15.0, 25.0)	−4.86	<0.001***	0.190
	T2	190	21.0 (17.0, 25.0)			
Organized activities involvement	T1	463	27.0 (20.0, 33.0)	−0.964	0.335	0.038
	T2	190	28.0 (20.0, 35.0)			
Positive family relationships	T1	460	45.0 (35.0, 52.0)	−2.94	0.003**	0.115
	T2	189	46.0 (36.0, 53.5)			
Positive friendships	T1	453	45.0 (33.0, 54.0)	−2.17	0.03*	0.086
	T2	186	46.0 (35.0, 53.3)			
Around positive people	T1	415	30.0 (23.0, 34.0)	−4.64	<0.001***	0.189
	T2	185	30.0 (26.5, 35.0)			
Physical activity	T1	420	7.0 (5.0, 9.0)	−1.57	0.117	0.064
	T2	185	7.0 (6.0, 8.0)			
Healthy diet	T1	394	19.0 (15.0, 21.0)	−1.78	0.076	0.074
	T2	182	20.0 (17.0, 21.0)			
Nature	T1	430	20.0 (15.0, 25.0)	−0.454	0.65	0.018
	T2	184	20.0 (15.0, 24.0)			
Purpose	T1	461	20.0 (15.0, 24.0)	−0.772	0.44	0.030
	T2	190	18.0 (14.0, 23.0)			
Mindfulness	T1	463	19.0 (14.0, 24.0)	−0.265	0.791	0.010
	T2	190	18.5 (14.0, 25.0)			

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

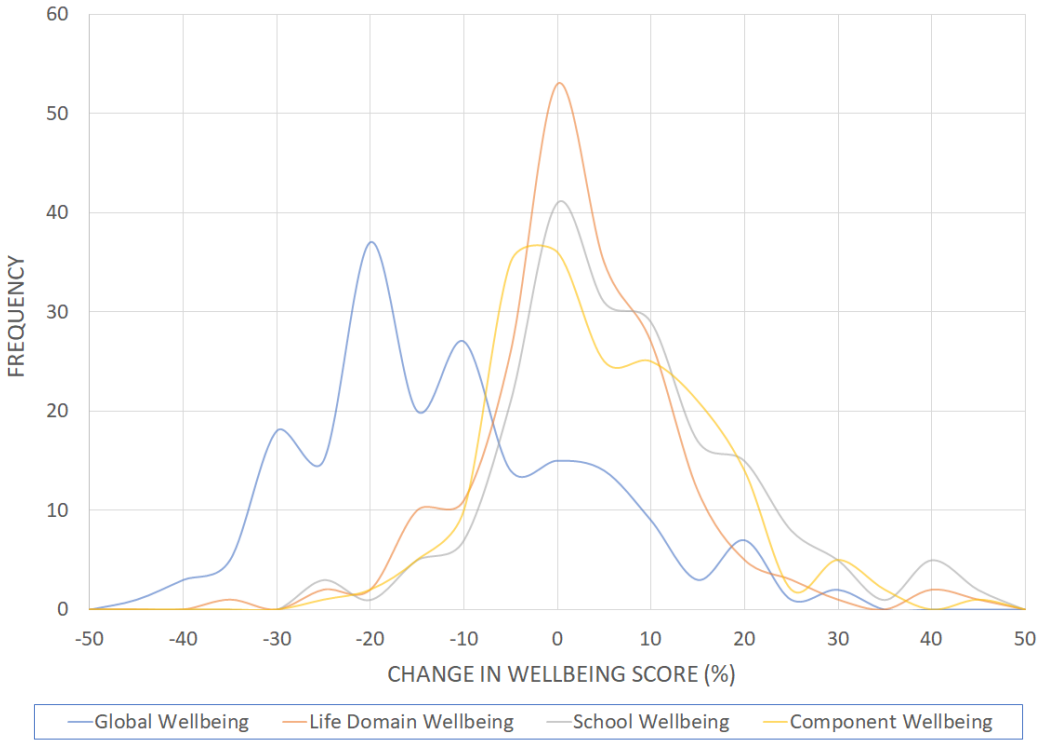


Figure 6-2. Distribution of the change in scores for each of the four wellbeing dimensions

The longitudinal associations between predictor variables at T1 and post-transition wellbeing dimensions (after adjustment for baseline values) are reported in Table 6-2, Table 6-3, Table 6-4, and Table 6-5. Controlling for gender, ethnicity, T1 wellbeing, and variables that exhibited a correlation coefficient less than 0.4 with each other in a group, 9 pretransition variables (out of 19) differentially predicted changes in dimensions of wellbeing during the transition from intermediate to secondary school. Enjoyment, being around positive people, and strength use and current knowledge showed statistically significant associations with changes in *global wellbeing*. Pretransition predictors of changes in *school wellbeing* were school belonging ($\beta = 0.326$, $p < 0.05$), self-control ($\beta = 0.307$, $p < 0.01$), purpose ($\beta = 0.299$, $p < 0.05$), and strength use and current knowledge ($\beta = 0.285$, $p < 0.01$). Feeling safe ($\beta = 0.581$, $p < 0.05$) and being around positive people ($\beta = 0.228$, $p < 0.05$) predicted changes in *domain-specific wellbeing* over the intermediate to secondary school transition. The association between mindfulness at T1 and *component wellbeing* at T2 approached statistical significance ($p = 0.051$).

While the frequency of physical activity at T1 did not predict transition-related changes in global wellbeing, the interaction between physical activity and gender was positive and significant ($\beta = 0.663$, $p < 0.05$). Females were observed to experience low global wellbeing at T2 relative to T1, when they perceived high levels of connection with nature before transition ($\beta = -0.198$, $p < 0.05$). Further, perceptions of purpose in females before the transition were significantly associated with improved component wellbeing after the transition as compared to baseline ($\beta = 0.481$, $p < 0.05$). Pretransition female self-control was also significantly and positively linked with changes in component wellbeing across the transition to secondary school ($\beta = 0.474$, $p < 0.05$). Although female adolescents experienced lower wellbeing than male adolescents did across this transition, associations between gender and wellbeing changes were not significant. Associations of 10 predictor variables at T1, including positive family relationships, positive friendships, perceived teacher support, and ethnicity, with dimensions of adolescent wellbeing were not significant. Overall, the following pretransition factors predicted changes in varied dimensions of wellbeing, as per descending order of beta coefficients: physical activity in females (interaction between physical activity and gender), feeling safe, school belonging, self-control, purpose, strength use and knowledge, being around positive people, enjoyment, and mindfulness.

The longitudinal associations between change in predictors and changes in wellbeing dimensions during the intermediate to secondary school transition are reported in Table 6-2, Table 6-3,Table 6-4, and Table 6-5. Changes in several psychological (self-efficacy, feeling safe, strength use and current knowledge, enjoyment, being kind and helpful), social (positive family relationships, positive friendships, being around positive people), school (perceived teacher support, school belonging), and spiritual (nature, purpose, mindfulness) factors in the study predicted changes in school wellbeing, component wellbeing, and domain-specific wellbeing across the transition from intermediate to secondary school. In addition to predicting changes in these three dimensions of

school, component and domain-specific wellbeing, change in self-efficacy also predicted transition-related change in global wellbeing ($\beta = 0.188$, $p < 0.01$). Regarding physical factors, change in diet showed temporal associations with change in component and school dimensions of wellbeing. Additionally, change in the frequency of physical activity accounted for the highest variance in component wellbeing change ($\beta = 0.893$, $p < 0.05$). Change in involvement in organized activities did not show significant temporal associations with any dimension of wellbeing post transition relative to pretransition. Gender-based interactions were also evident: female adolescents who experienced increases in perceived safety, enjoyment, school belonging, and positive friendships showed higher improvements in school wellbeing than males who experienced the same factor changes. In contrast, with increased changes in female self-control levels, post-transition school wellbeing dropped by 0.553 ($p < 0.01$).

Table 6-2. Associations among selected factors (pretransition and pre-post change) with global wellbeing outcomes post-transition (after adjustment for baseline values)

Factors	Predictor T1				Predictor Δ			
Demographic	Beta Coefficient (95% CI)	SE	*t*	*p*	Beta Coefficient (95% CI)	SE	*t*	*p*
MODEL 1								
Gender								
Male	Ref							
Female	−0.248 (−1.368, 0.872)	0.568	0.437	0. 663				
Ethnicity								
NZ European	Ref							
Māori	0.672 (−2.05,3.39)	1.38	0.488	0. 626				
Pacific Island	−1.30 (−3.30, 0.702)	1.01	−1.28	0.202				
Asian	−1.14 (−2.72, 0.440)	0.801	−1.42	0.156				
Other	0.102 (−1. 841, 2.05)	0.985	1.04	0.917				
Psychological								
MODEL 2								
Feeling safe	0.109 (−0.068, 0.286)	0.090	1.22	0.225	−0.075 (−0.234, 0.084)	0.081	−0.936	0.350
Self-efficacy	−0.033 (−0.166, 0.100)	0.067	−0.493	0.623	0.188 (0.056, 0.320)	0.067	2.81	0.006**
Self-control	0.016 (−0.080, 0.111)	0.048	0.325	0.745	−0.037 (−0.121, 0.046)	0.042	−0.875	0.383
MODEL 3								
Strength use and knowledge	0.070 (0.001, 0.139)	0.035	1.99	0.048*	0.055 (−0.008, 0.119)	0.032	1.71	0.089
MODEL 4								
Enjoyment	0.178 (0.047, 0.310)	0.067	2.67	0.008**	0.014 (−0.105, 0.133)	0.060	0.228	0.820
MODEL 5								
Being kind and helpful	0.001 (−0.059, 0.061)	0.030	0.026	0.980	0.032 (−0.039, 0.103)	0.036	0.899	0.370
School								
MODEL 6								
Perceived teacher support	0.029 (−0.053, 0.111)	0.042	0.700	0.485	0.015 (−0.067, 0.097)	0.042	0.367	0.714
MODEL 7								
School belonging	0.096 (−0.006, 0.199)	0.052	1.86	0.065	0.066 (−0.033, 0.164)	0.050	1.32	0.189
MODEL 8								
Organized activities involvement	0.001 (−0.061, 0.064)	0.032	0.044	0.965	0.007 (−0.051, 0.066)	0.030	0.252	0.802
Social								
MODEL 9								
Positive family relationships	0.035 (−0.015, 0.086)	0.026	1.37	0.173	0.023 (−0.033, 0.079)	0.028	0.801	0.424
Positive friendships	0.017 (−0.030, 0.064)	0.024	0.718	0.473	0.008 (−0.036, 0.052)	0.022	0.361	0.719
MODEL 10								
Around positive people	0.149 (0.072, 0.226)	0.039	3.81	<0.001***	0.013 (−0.063, 0.089)	0.039	0.336	0.737
Physical								

Factors	Predictor T1				Predictor Δ			
MODEL 11								
Physical activity	0.004 (−0.279, 0.287)	0.143	0.029	0.977	0.173 (−0.136, 0.482)	0.156	1.103	0.271
Healthy diet	0.083 (−0.086, 0.251)	0.085	0.967	0.335	0.034 (−0.198, 0.265)	0.117	0.287	0.774
Spiritual								
MODEL 12								
Nature	0.079 (−0.008, 0.167)	0.044	1.788	0.075	0.037 (−0.073, 0.148)	0.056	0.667	0.505
Purpose	0.041 (−0.067, 0.149)	0.055	0.751	0.454	0.088 (−0.023, 0.200)	0.056	1.56	0.120
Mindfulness	−0.003 (−0.095, 0.089)	0.047	−0.068	0.945	0.067 (−0.019, 0.154)	0.044	1.53	0.127
INTERACTION MODELS								
Physical activity	−0.368 (−0.791, 0.055)	0.214	−1.72	0.088				
Gender (female)	−0.289 (−6.59, 6.02)	3.20	−0.090	0.928				
Physical activity*Gender (Ref male)	0.663 (0.102, 1.22)	0.284	2.33	0.021*				
Nature	0.182 (0.057, 0.308)	0.064	2.86	0.005*				
Gender (female)	1.77 (−3.69, 7.24)	2.77	0.640	0.523				
Nature*Gender (Ref male)	−0.198 (−0.371, −0.024)	0.088	−2.25	0.026*				

Notes: Separate models were run with covariates (i.e., gender, ethnicity, and outcome at T1). In addition, based on correlations (< 0.4) Models 3–5 controlled for self-control and Models 6 and 7 for organized activities involvement. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; Ref, Reference against which analysis was performed for a categorical variable.

Table 6-3. Associations among selected factors (pretransition and pre-post change) with school wellbeing outcomes post-transition (after adjustment for baseline values)

Factors	Predictor T1				Predictor Δ			
Demographic	Beta coefficient (95% CI)	SE	*t*	*p*	Beta coefficient (95% CI)	SE	*t*	*p*
MODEL 1								
Gender								
Male	Ref							
Female	−2.56 (−5.24, 0.115)	1.36	−1.89	0.061				
Ethnicity								
NZ European	Ref							
Māori	−2.66 (−9.15, 3.83)	3.29	−0.808	0.420				
Pacific Island	1.28 (−3.50, 6.06)	2.42	0.529	0.598				
Asian	0.069 (−3.71, 3.85)	1.92	0.036	0.971				
Other	−0.925 (−5.57, 3.72)	2.36	−0.393	0.695				
Psychological								
MODEL 2								
Feeling safe	0.375 (−0.083, 0.833)	0.232	1.61	0.108	0.860 (0.484, 1.24)	0.190	4.52	<0.001***
Self-efficacy	0.223 (−0.104, 0.550)	0.166	1.34	0.181	0.429 (0.127, 0.730)	0.153	2.81	0.006**
Self-control	0.307 (0.083, 0.531)	0.113	2.71	0.007**	0.044 (−0.149, 0.237)	0.098	0.449	0.654
MODEL 3								
Strength use and knowledge	0.285 (0.108, 0.463)	0.090	3.17	0.002**	0.337 (0.189, 0.485)	0.075	4.50	<0.001***
MODEL 4								
Enjoyment	0.244 (−0.081, 0.569)	0.165	1.48	0.140	0.721 (0.451, 0.991)	0.137	5.27	<0.001***
MODEL 5								
Being kind and helpful	0.018 (−0.126, 0.163)	0.073	0.251	0.802	0.243 (0.070, 0.415)	0.087	2.78	0.006**
School								
MODEL 6								
Perceived teacher support	0.113 (−0.094, 0.321)	0.105	1.08	0.284	0.423 (0.229, 0.617)	0.098	4.31	<0.001***
MODEL 7								
School belonging	0.326 (0.059, 0.594)	0.136	2.41	0.017*	0.646 (0.423, 0.869)	0.113	5.71	<0.001***
MODEL 8								
Involvement in organized activities	−0.005 (−0.153, 0.143)	0.075	−0.071	0.944	0.010 (−0.043, 0.242)	0.072	1.38	0.170
Social								
MODEL 9								
Positive family relationships	0.100 (−0.020, 0.220)	0.061	1.649	0.101	0.174 (0.078, 0.271)	0.049	3.57	0.001***
Positive friendships	−0.015 (−0.131, 0.102)	0.059	−0.249	0.804	0.276 (0.153, 0.400)	0.062	4.42	<0.001***
MODEL 10								
Around positive people	0.184 (−0.041, 0.410)	0.114	1.614	0.108	0.530 (0.358, 0.702)	0.087	6.07	<0.001***

Factors	Predictor T1				Predictor Δ			
Physical								
MODEL 11								
Physical activity	0.602 (−0.046, 1.25)	0.328	1.832	0.069	0.240 (−0.473, 0.953)	0.361	0.664	0.508
Healthy diet	0.263 (−0.129, 0.656)	0.199	1.323	0.187	0.550 (0.014, 1.09)	0.272	2.02	0.044*
Spiritual								
MODEL 12								
Nature	0.129 (−0.076, 0.335)	0.104	1.24	0.216	0.264 (0.013, 0.515)	0.127	2.07	0.040*
Purpose	0.299 (0.039, 0.560)	0.132	2.27	0.024*	0.265 (0.010, 0.519)	0.129	2.05	0.042*
Mindfulness	0.123 (−0.103, 0.350)	0.115	1.08	0.284	0.338 (0.142, 0.534)	0.099	3.40	0.001***
INTERACTION MODELS								
Feeling safe					0.546 (0.084, 1.01)	0.234	2.33	0.021*
Gender (female)					−1.71 (−4.20, 0.783)	1.26	−1.35	0.177
Feeling safe*gender (Ref male)					0.708 (0.007, 1.41)	0.355	1.99	0.048*
Self-control					0.326 (0.066, 0.587)	0.132	2.47	0.015*
Gender (female)					−1.71 (−4.20, 0.783)	1.26	−1.35	0.177
Self-control*gender (Ref male)					−0.553 (−0.929, −0.178)	0.190	−2.91	0.004**
Enjoyment					0.436 (0.049, 0.823)	0.196	2.22	0.028*
Gender (female)					−2.52 (−4.98, −0.061)	1.25	−2.02	0.045*
Enjoyment*gender (Ref male)					0.534 (0.010, 1.06)	0.266	2.01	0.046*
School belonging					0.341 (0.001, 0.680)	0.172	1.98	0.049
Gender (female)					−2.89 (−5.51, −0.271)	1.33	−2.18	0.031*
School belonging*gender (Ref male)					0.515 (0.080, 0.951)	0.221	2.33	0.021*
Positive friendships					0.042 (−0.111, 0.194)	0.077	0.537	0.592
Gender (female)					−3.06 (−5.57, −0.549)	1.27	−2.41	0.017*
Positive friendships*gender (Ref male)					0.217 (0.025, 0.410)	0.098	2.23	0.027*

Notes: Separate models were run with covariates (i.e., gender, ethnicity, and outcome at T1). In addition, based on correlations (< 0.4) Models 3–5 controlled for self-control and Models 6 and 7 for organized activities involvement. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; Ref, Reference against which analysis was performed for a categorical variable.

Table 6-4. Associations among selected factors (pretransition and pre-post change) with domain-specific wellbeing outcomes post-transition (after adjustment for baseline values)

Factors	Predictor T1				Predictor Δ			
Demographic	Beta coefficient (95% CI)	SE	*t*	*p*	Beta coefficient (95% CI)	SE	*t*	*p*
MODEL 1								
Gender								
Male	Ref							
Female	−0.975 (−3.80, 1.849)	1.43	−0.681	0.496				
Ethnicity								
NZ European	Ref							
Māori	−1.70 (−8.50, 5.10)	3.45	−0.494	0.622				
Pacific Island	−0.435 (−5.44, 4.57)	2.54	−0.172	0.864				
Asian	−1.95 (−5.91, 2.01)	2.01	−0.970	0.334				
Other	−2.23 (−7.19, 2.65)	2.47	−0.901	0.369				
Psychological								
MODEL 2								
Feeling safe	0.581 (0.129, 1.03)	0.229	2.54	0.012*	0.568 (0.176, 0.960)	0.199	2.86	0.005**
Self-control	0.089 (−0.140, 0.317)	0.116	0.764	0.446	−0.096 (−0.303, 0.111)	0.105	−0.913	0.362
Self-efficacy	0.086 (−0.240, 0.412)	0.165	0.520	0.604	0.682 (0.357, 1.01)	0.164	4.14	<0.001***
MODEL 3								
Strength use and knowledge	0.050 (−0.135, 0.234)	0.094	0.532	0.595	0.446 (0.297,0.595)	0.075	5.92	<0.001***
MODEL 4								
Enjoyment	0.315 (−0.011, 0.641)	0.165	1.91	0.058	0.527 (0.232, 0.822)	0.150	3.52	0.001***
MODEL 5								
Being kind and helpful	0.034 (−0.129, 0.197)	0.083	0.415	0.679	0.338 (0.156, 0.519)	0.092	3.67	<0.001***
School								
MODEL 6								
Perceived teacher support	0.016 (−0.198, 0.231)	0.109	0.152	0.880	0.347 (0.142, 0.552)	0.104	3.34	0.001***
MODEL 7								
School belonging	0.096 (−0.161, 0.354)	0.130	0.738	0.461	0.561(0.323, 0.800)	0.121	4.64	<0.001***
MODEL 8								
Involvement in organized activities	0.059 (−0.093, 0.211)	0.077	0.770	0.442	0.100 (−0.048, 0.249)	0.075	1.34	0.183
Social								
MODEL 9								
Positive family relationships	0.048 (−0.085, 0.181)	0.067	0.717	0.475	0.284 (0.154, 0.415)	0.066	4.31	<0.001***
Positive friendships	0.012 (−0.112, 0.135)	0.063	0.184	0.854	0.159 (0.057, 0.261)	0.051	3.09	0.002**
MODEL 10								
Around positive people	0.228 (0.001, 0.454)	0.115	1.98	0.049*	0.406 (0.212, 0.600)	0.098	4.14	<0.001***

Factors	Predictor T1				Predictor Δ			
Physical								
MODEL 11								
Physical activity	0.451 (−0.264, 1.166)	0.362	1.25	0.215	0.907 (0.140, 1.673)	0.389	2.33	0.021*
Healthy diet	0.369 (−0.042, 0.779)	0.208	1.77	0.078	0.430 (−0.143, 1.003)	0.290	1.48	0.140
Spiritual								
MODEL 12								
Nature	0.105 (−0.114, 0.324)	0.111	0.944	0.347	0.274 (0.013, 0.534)	0.132	2.07	0.040*
Purpose	0.110 (−0.152, 0.372)	0.133	0.830	0.408	0.383 (0.118, 0.647)	0.134	2.86	0.005**
Mindfulness	0.055 (−0.167, 0.277)	0.112	0.491	0.624	0.263 (0.058, 0.468)	0.104	2.53	0.012*

Notes: Separate models were run with covariates (i.e., gender, ethnicity, and outcome at T1). In addition, based on correlations (< 0.4) Models 3–5 controlled for self-control and Models 6 and 7 for organized activities involvement. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; Ref, Reference against which analysis was performed for a categorical variable.

Table 6-5. Associations among selected factors (pretransition and pre-post change) with component wellbeing outcomes post-transition (after adjustment for baseline values)

Factors	Predictor T1				Predictor Δ			
Demographic	Beta coefficient (95% CI)	SE	*t*	*p*	Beta coefficient (95% CI)	SE	*t*	*p*
MODEL 1								
Gender								
Male	Ref							
Female	−2.53 (−5.43, 0.368)	1.47	−1.72	0.087				
Ethnicity								
NZ European	Ref							
Māori	0.214 (−6.69, 7.12)	3.50	0.061	0.951				
Pacific Island	−4.54 (−10.1, 1.03)	2.82	−1.61	0.110				
Asian	−0.127 (−4.21, 3.96)	2.07	−0.061	0.951				
Other	1.11 (−3.84, 6.05)	2.51	0.441	0.660				
Psychological								
MODEL 2								
Feeling safe	0.300 (−0.255, 0.675)	0.236	0.891	0.374	0.775 (0.374, 1.176)	0.203	3.82	<0.001***
Self-control	0.117 (−0.129, 0.364)	0.125	0.942	0.347	0.136 (−0.070, 0.342)	0.104	1.31	0.194
Self-efficacy	0.163 (−0.250, 0.575)	0.209	0.778	0.438	0.824 (0.497, 1.152)	0.166	4.97	<0.001***
MODEL 3								
Strength use and knowledge	0.057 (−0.147, 0.261)	0.103	0.553	0.581	0.458 (0.306, 0.610)	0.077	5.95	<0.001***
MODEL 4								
Enjoyment	0.111 (−0.242, 0.465)	0.179	0.622	0.535	0.770 (0.475, 1.064)	0.149	5.16	<0.001***
MODEL 5								
Being kind and helpful	−0.017 (−0.182, 0.148)	0.084	−0.205	0.838	0.560 (0.380, 0.740)	0.091	6.14	<0.001***
School								
MODEL 6								
Perceived teacher support	−0.020 (−0.242, 0.202)	0.113	−0.179	0.858	0.392 (0.176, 0.608)	0.110	3.58	<0.001***
MODEL 7								
School belonging	−0.004 (−0.305, 0.298)	0.153	−0.024	0.981	0.806 (0.573, 1.04)	0.118	6.81	<0.001***
MODEL 8								
Involvement in organized activities	0.021 (−0.141, 0.183)	0.082	0.252	0.801	0.144 (−0.015, 0.303)	0.080	1.79	0.076
Social								
MODEL 9								
Positive family relationships	−0.115 (−0.239, 0.010)	0.063	−1.81	0.072	0.218 (0.119, 0.316)	0.050	4.37	<0.001***
Positive friendships	−0.056 (−0.174, 0.063)	0.060	−0.931	0.353	0.331 (0.197, 0.466)	0.068	4.87	<0.001***
MODEL 10								
Around positive people	−0.033 (−0.247, 0.181)	0.108	−0.305	0.761	0.523 (0.335, 0.711)	0.095	5.50	<0.001***

Factors	Predictor T1				Predictor Δ			
Physical								
MODEL 11								
Physical activity	0.067 (−0.695, 0.828)	0.386	0.173	0.863	0.893 (0.087, 1.70)	0.408	2.19	0.030*
Healthy diet	0.154 (−0.271, 0.578)	0.215	0.715	0.476	0.743 (0.142, 1.34)	0.304	2.44	0.016*
Spiritual								
MODEL 12								
Nature	−0.010 (−0.238, 0.219)	0.116	−0.083	0.934	0.339 (0.069, 0.609)	0.137	2.48	0.014*
Purpose	0.192 (−0.092, 0.476)	0.144	1.34	0.183	0.414 (0.141, 0.687)	0.138	2.99	0.003**
Mindfulness	0.231 (-0.001, 0.464)	0.118	1.96	0.051*	0.246 (0.033, 0.458)	0.108	2.28	0.024*
INTERACTION MODELS								
Self-control	−0.134 (−0.492, 0.225)	0.182	−0.737	0.462				
Gender (female)	−0.492 (−17.1, 16.2)	8.43	−0.058	0.954				
Self-control*gender (Ref male)	0.474 (0.002, 0.947)	0.239	1.98	0.049*				
Purpose	−0.084 (−0.476, 0.308)	0.198	−0.423	0.673				
Gender (female)	−8.75 (−22.16, 4.67)	6.79	−1.29	0.200				
Purpose*gender (Ref male)	0.481 (0.008, 0.953)	0.239	2.01	0.046*				

Notes: Separate models were run with covariates (i.e., gender, ethnicity, and outcome at T1). In addition, based on correlations (< 0.4) Models 3–5 controlled for self-control and Models 6 and 7 for organized activities involvement. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; Ref, Reference against which analysis was performed for a categorical variable.

Discussion

It is well documented that the transition from intermediate to secondary school can be difficult for adolescents (Newman et al., 2007). Whether or not different dimensions of wellbeing and their predictors change across this transition in NZ has not been thoroughly researched in the existing literature. Further, factors that foster adolescent wellbeing during this transition have not been explored collectively and comprehensively. This study has addressed these aims and examined changes in wellbeing and its predictors through the transition to secondary school in NZ.

The findings from the current study are unique because the conceptualization of positive transition was aligned with wellbeing, and wellbeing and its predictors were examined comprehensively. A cohort design allowed us to study patterns of change in wellbeing and its predictors across the transition. This is one of the first studies to demonstrate temporal associations between several predictors and dimensions of wellbeing over the intermediate to secondary school transition. Finally, the predictors depicted in this study were informed by adolescents' perspectives of their own wellbeing as well as a systematic review of the positive transition literature, and they were related cross-sectionally and independently to NZ Year 8 intermediate school adolescents' wellbeing.

The key findings were significant moderate decreases in global wellbeing and significant small increases in both school and component wellbeing across the transition, whereas there were no significant changes in domain-specific wellbeing. Therefore, this study's hypothesis regarding the decrease in wellbeing from Year 8 at intermediate school to Year 9 at secondary school was only partially supported. The finding concerning declines in global wellbeing suggests that adolescents felt more anxious and less satisfied with life following the transition from intermediate to secondary school. This is consistent with prior national and international secondary school transition research that has demonstrated greater experience of depression and more negative attitudes toward school and learning across secondary school transition (Benner & Graham, 2009; Cox & Kennedy, 2008; Ministry of Education, 2010; Newman et al., 2007; Waters et al., 2012; World Health Organization, 2016). Almeida and Wong (2009) noted that transitions deplete resources and require adaptation causing stress and prolonged arousal which may take a toll on individual wellbeing. In addition, Akos and Galassi (2004b) reported that adolescents were concerned about the greater academic workload and pressure and the more formal structure at secondary schools, relative to intermediate schools.

It is noteworthy that this is one of the first studies to demonstrate an increasing trend in adolescent school wellbeing and component wellbeing across the transition from intermediate to secondary school, a finding that was unexpected. These results contrast with UK and Australian findings regarding the transition from primary to secondary school (Department of Education and

Training, 2016; McLellan & Galton, 2015). Akos and Galassi (2004b) found that starting a new school is exciting for some adolescents, as they see the opportunity to experience more freedom and make new friends. However, this study's finding of stability in adolescents' perceptions of life domains (including family and friends) over an interval of six months is consistent with the primary–secondary school transition research in NZ (Cox & Kennedy, 2008). Overall, on a surface level and to a small degree, the adolescents in this current study were satisfied with the personal and social aspects of their new schools and slightly positive about coping with the problems appearing in secondary schools following the transition. However, at a deeper level, they experienced fairly intense declines in the emotional and psychological states of happiness, worth, and life satisfaction. Therefore, it is essential for schools to promote adolescent overall wellbeing during the transition between intermediate and secondary school.

Certain predictors showed a similar trajectory pattern to that of school and component wellbeing and increased from intermediate to secondary school. There were significant (but small) increases in perceived feelings of safety, self-efficacy, being kind and helpful, teacher support, school belonging, positive family relationships, positive friendships, and perceptions of being around positive people following the transition to secondary school. This finding is inconsistent with previous research which has shown significant reductions in some of these variables, including school belonging (Newman et al., 2007), feelings of safety and positive relationships (Department of Education and Training, 2016) across the transition to secondary school. It is likely that the adolescents in this study found transition somewhat exciting (Benner, 2011) and had support mechanisms that eased their transition (Benner et al., 2017; Schneider et al., 2008), facilitating an increase in school and component wellbeing in Term 2 in secondary school. The findings of the current study also partially and indirectly suggest that schools and parents in NZ were aware of the transition-related difficulties and some mechanisms had been set in place to help adolescents cope with the demands of transition. However, since there were only superficial increases in certain predictors, more elaborate and focused wellbeing programs and interventions should be developed and implemented to enable positive transition between intermediate and secondary school.

This study revealed the potential role of demographic, psychological, social, school, physical, and spiritual factors in influencing changes in adolescents' global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing over time. Some prior research has shown that elevated levels of some of these predictors are associated with positive school outcomes, such as engagement, academic performance, and mental health, during several types of school transition (Benner et al., 2017; Lester & Cross, 2015; Shoshani & Slone, 2013; Xia et al., 2016). In this study, there was no pretransition factor that predicted changes in all four dimensions of wellbeing; however, pretransition perceptions of strength use and knowledge and being around positive people significantly predicted transition-related changes in at least two dimensions of

wellbeing (global wellbeing and school wellbeing, and global wellbeing and life domain wellbeing, respectively). Other important pretransition predictors were enjoyment, school belonging, self-control, purpose, feeling safe, and mindfulness. It is noteworthy that the association of pretransition frequency of physical activity with global wellbeing change varied as a function of gender (being a female), and that this association was the strongest among other pretransition predictors connected with changes in wellbeing. This means that the effect of pretransition physical activity on wellbeing was not a simple main effect and it was beneficial for the wellbeing of female adolescents. Overall, it has been found that male adolescents engage in more physical activity than females do (Sherar, Esliger, Baxter-Jones, & Tremblay, 2007); therefore, it is possible that they are more likely to reach a plateau period where the gains of physical activity for wellbeing are not effective. Surprisingly, higher perception of connection with nature before the secondary school transition led to slight decreases in global wellbeing for the female adolescents after the transition to secondary school. The finding that pre-post transitional changes in self-control reduced the female adolescents' school wellbeing across the secondary school transition may indirectly signify that females perceive greater pressure to perform in academics in the secondary school setting (Akos & Galassi, 2004b). Future research is warranted to explain these findings.

Further longitudinal analyses confirmed these findings and added to this picture by revealing that changes in the pretransition predictors (enjoyment, being around positive people, strength use and current knowledge, school belonging, purpose, feeling safe, and mindfulness) across the move from intermediate to secondary school also contributed to transitional changes in distinct wellbeing dimensions. Additional predictor variables that were consistent with associations with wellbeing across the secondary school transition were changes in self-efficacy, being kind and helpful, perceived teacher support, positive family relationships, positive friendships, healthy diet, physical activity, and nature. Similarly, prior studies have found that increased perceived peer and family support across the secondary school transition can reduce depression (Newman et al., 2007) and perceived teacher closeness improves academic achievement (Longobardi et al., 2016). The results from this current study suggest that changes in predictors over the course of the transition from intermediate to secondary school are more meaningful for fostering wellbeing than the state of the predictor prior to the move to secondary school. One potential implication of this finding is that transition programs in intermediate schools must be preliminary and introductory, while post-transition programs in secondary schools must be extensive and intensive; therefore, intermediate and secondary schools should work together in developing their programs to support transition and promote wellbeing.

Lastly, the NZ female adolescents in this study experienced greater school wellbeing than the male adolescents when they experienced changes in feeling safe, positive friendships, enjoyment, and school belonging over the transition from intermediate to secondary schools. This is a new

finding and it indicates that the main effects of the demographic variables such as gender (and ethnicity) have no direct effect on adolescent wellbeing over the transition from intermediate to secondary school, but the interaction between changes in certain psychological, social, and school predictors and gender have a collective influence on changes in dimensions of wellbeing. This study contradicts the findings of a previous cross-sectional study in Chapter 5, which showed the influence of gender and ethnicity on adolescent wellbeing (Bharara, Duncan, & Jarden, 2019).

This study has several limitations. The first is the high loss to follow-up (> 50%). Owing to time and financial constraints, the baseline participants were contacted only via email after school transition and many of their addresses were not accessible; some participants did not provide emails. It is possible that the adolescents who did not complete Survey 2 did not have access to a personal computer or the internet, as many of these participants were from low-SES schools. A second limitation is that although the follow-up sample (n = 191) included all ethnicities and SES groups, as represented in the NZ Year 9 secondary school demographic, a convenience sample was recruited and Māori and middle-SES school participants (Deciles 4 to 7) were underrepresented at follow-up. For example, 20% fewer Year 9 adolescents from middle-SES schools participated in the follow-up study than were represented in the total roll percentage of Māori in Year 9 secondary schools (Education Counts, 2019). Thus, future research could investigate whether these results could be generalized to Māori and adolescents from mid-decile schools. The third limitation of this study is the use of self-report instruments to collect data, which may lead to social desirability bias. Future research would benefit from employing objective measures for physical factors such as physical activity and/or collecting data from secondary sources. In addition, some key putative predictors (e.g., personality) were excluded, even with the large number of variables that were studied. New research efforts could investigate whether personality confounds the association between predictors and wellbeing and/or interacts with other variables to influence adolescent wellbeing across the school transition. Further, with only two data-collecting waves in this study, changes in adolescent wellbeing within semesters after the transition could not be evaluated. Longer longitudinal studies could address this issue by comparing changes in wellbeing through the initial and final terms. Finally, while the previous study documented in Chapter 5 demonstrated cross-sectional predictors of wellbeing in Year 8 adolescents in intermediate schools (Bharara, Duncan, & Jarden, 2019), the current study illustrated only temporal predictors of wellbeing and did not disentangle variables that were cross-sectionally related to wellbeing after moving to secondary school. This would be a fruitful avenue for future transition inquiries, as a previous study concluded that combining cross-sectional and longitudinal approaches could provide valuable insights into the data (Newman et al., 2007).

While acknowledging these limitations, this study advances the extant transition work by highlighting, for the first time in NZ, changes in several dimensions and predictors of wellbeing, as well as the longitudinal nature of wide-ranging predictors of overall adolescent wellbeing

through the transition from intermediate to secondary school. This study complements an emerging body of research that focuses on the predictors of adolescent wellbeing and positive transition from a multidimensional perspective (Lampropoulou, 2018; Moore et al., 2018; Rice, Frederickson, Shelton, et al., 2011). Further, it has demonstrated for the first time that changes in self-efficacy are associated with changes in all four dimensions of wellbeing (global, school, domain-specific, and component) over the transition from intermediate to secondary school. However, it found that a single pretransition variable is not sufficient to improve overall wellbeing; many components are needed in interventions at intermediate schools to enable positive transitions from intermediate to secondary school. Finally, while the main effect of gender on positive transition was not significant, gender interacted with certain variables to predict higher levels of change in wellbeing over the transition.

These findings have significant implications for policy and practice, underlining the importance of developing comprehensive school transition programs that include psychological, school, social, physical, and spiritual factors, which not only provide support but also prepare adolescents to flourish. The effect of certain variables on wellbeing (e.g., physical activity) was not a simple main effect and it depended on whether the participant was male or female. Therefore, adolescent gender should also be taken into account when delivering positive transition programs. The findings underscore the urgent need to recognize school transition as an ongoing process, rather than an event (Education Review Office, 2012a), and to position transition programs at the start of both intermediate schools and secondary schools.

Recommendations for future research include teasing out specific mechanisms by which these predictors, and changes in these predictors, boost wellbeing changes during the transition. Examining the interaction between ethnicity and psychospiritual social, school, and physical predictors of wellbeing shown in this study could be an avenue for future research. Further studies could focus on revealing the most definite predictors of adolescent overall wellbeing associated with the transition. Future research and practice should also focus on outlining and trialing key strategies for policymakers, parents, educators, school psychologists, and counselors in nurturing positive transition from intermediate to secondary school.

Summary and Conclusion

This study has shown that the global wellbeing of adolescents is compromised during the transition from intermediate to secondary school, and there are superficial increases in school and component wellbeing. There are no significant changes in domain-specific wellbeing and it remains stable across this transition. The good news is that, in contrast to the predictions of the international literature (Newman et al., 2007), this study revealed no disruptions in perceptions of social and school support in NZ adolescents during this period. Instead, there were

improvements (even though very small) in their perceptions of positive family relationships, positive friendships, being around positive people, teacher support, school belonging, being kind and helpful, self-efficacy, and feeling safe in secondary schools, as compared with when they were in Year 8 in intermediate school. These findings indicate that school transition programs in NZ are, to a small extent, focusing on the support side of transition. However, there is still scant focus on implementing comprehensive programs for this school transition, and on preparing adolescents so they can flourish in a holistic manner and excel in each dimension of wellbeing.

Pretransition perceptions of school belonging (school factor), purpose, mindfulness (spiritual factor) being around positive people (social factor), feeling safe, self-control, enjoyment, strength use and knowledge (psychological factors), and physical activity in females (physical factor*gender) diversely foster changes in dimensions of wellbeing across the transition from intermediate to secondary school. Further, pre-post transition changes in enjoyment, strength use and current knowledge, feeling safe, being kind and helpful (psychological factors), school belonging, perceived teacher support (school factors), positive family relationships, positive friendships, being around positive people (social factors), physical activity, diet (physical factors), purpose, mindfulness, and connection with nature (spiritual factors) differentially predict transitional changes in dimensions of wellbeing.

This study concludes that a combination of many psychological, social, school, physical, and spiritual factors predict changes in multidimensional wellbeing during the transition from intermediate to secondary school. The review of the positive school transition literature in Chapter 2 showed that research has lacked an emphasis on psychological factors that may help prepare adolescents for secondary school transition (Bharara, 2019); however, this study has shown that many psychological factors are implicated in wellbeing change during this transition. While this study found no pretransition predictor variable that was associated with transition-related changes in different dimensions of wellbeing, changes in self-efficacy predicted changes in global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing through this transition. Pre-post transition changes in predictors were found to be more meaningful than the pretransition predictors for improving different dimensions of wellbeing. Demographic variable, gender, did not have a direct effect on changes in wellbeing, but interacted with other factors to improve wellbeing over the secondary school transition.

While McGee et al. (2004) concluded that interventions are needed prior to the secondary school transition, the evidence from the current study suggests that both intermediate and secondary schools should develop and deliver comprehensive positive transition programs and interventions. These programs/interventions should not only support adolescents by applying social and school components but also prepare them to cope with the transition by taking into account physical, spiritual, and wide psychological factors linked with changes in adolescent wellbeing associated

with the transition. Positive transition programs in secondary schools must be more extensive and intensive than those in intermediate schools; therefore, ongoing communication and partnership between intermediate and secondary schools is necessary.

CHAPTER 7: GENERAL DISCUSSION

> *With gleaming eyes at this tender age, they have on their shoulders a huge responsibility to contribute to society when they transition into adulthood. They not only have exceptional zeal but also an extraordinary potential for uplifting a nation*. (Thesis author)

Adolescents are often excited about moving to secondary school and gaining new social status and connections; however, they also undergo stress and turmoil because of the disruptions in their environment (Cox & Kennedy, 2008). More than 30% of Australian adolescents experience a difficult or somewhat difficult transition to their new school (Waters et al., 2012) and 55% of adolescents in NZ feel anxious, frightened, or unhappy about moving to secondary school (Cox & Kennedy, 2008). In general, the transition to secondary school is unsettling for adolescents (Ministry of Education, 2010). Failing to cope with the demands of this progression to secondary school has been associated with several life-altering mental health and academic consequences (Benner, 2011; Cox & Kennedy, 2008; Hanewald, 2013; McGee et al., 2004) and the change alone can have a profound effect on the way adolescents evaluate their wellbeing (Symonds, 2015). Despite this, most secondary school transition research has focused almost exclusively on the risk or protective factors of unsuccessful transitions and has barely considered the factors that enable adolescents to experience a positive transition and wellbeing across the change from intermediate to secondary school. While addressing the negative factors is warranted, to diagnose and tackle ill-being, it is important to focus on optimizing the positive factors so that adolescents can flourish and realize their full potential (Lippman et al., 2014).

Even though learning is closely intertwined with wellbeing (Bott et al., 2017), the limited existing international evidence base has mostly measured positive transitions by academic criteria (e.g., academic success). The few studies that exist on the determinants of adolescent wellbeing across transitions have not jointly considered the issues of a) the transition from intermediate to secondary school (Bharara, 2019); b) wellbeing as an indicator of positive school transition; c) adolescent wellbeing in a multidimensional manner; and d) comprehensive factors relevant to adolescent life. A search in the PsycINFO database on 25th May 2019 with keywords "wellbeing" OR "well-being", "successful transition" OR "positive transition" AND "school" revealed only 14 results, with no studies on the factors that predict wellbeing over the transition from intermediate to secondary school. Despite the growing attention of national government on adolescent wellbeing (Education Review Office, 2012a, 2013, 2015c, 2016a), there remains a dearth of quantitative transition research data in NZ and most of the information available on transitions is anecdotal (Hawk & Hill, 2004; McGee et al., 2004). Most government reports about transitions are reviews of literature, or employ qualitative approaches focusing on the transition

from full-primary to secondary school than intermediate to secondary school (Cox & Kennedy, 2008; Education Review Office, 2012a). Similarly, in relation to adolescent wellbeing, much more information is available with regard to full-primary schools than intermediate schools (Education Review Office, 2015a). The government documents on adolescent wellbeing are often descriptive and include commentaries. Indeed, much work on wellbeing is nominal and not supported by empirical evidence (Hone, 2015).

The main purpose of this doctoral thesis was to explore the predictors of positive transition from intermediate to secondary school as measured by wellbeing. This was achieved in two phases. Part A of the preparatory phase threw light on the concepts of positive school transition and wellbeing and aided in selecting predictor variables based on two separate studies (see Chapters 2 and 3). In consideration of the participation burden, Part B of the preparatory phase involved devising and validating a survey to assess predictor variables (see Chapter 4). The exploratory phase comprised two studies that examined cross-sectional (see Chapter 5) and temporal associations of predictor variables with wellbeing, with the final study in the sequence addressing the overarching aim of the thesis (see Chapter 6). Specifically, Chapters 2 to 6 have presented a sequence of studies that have informed, measured, and investigated the factors that predict positive transition.

Research Summary

Chapter 2 utilized a positive education perspective to elucidate the concept of positive school transition, document the conceptual framework of this thesis, and systematically review the factors that facilitate a positive transition to secondary school. This chapter revealed significant gaps in the transition literature concerning predictors of wellbeing over the transition from intermediate to secondary school. The extant research reports differed in their criteria for measuring positive school transition and focused mainly on school-related indicators (e.g., academic achievement, school adjustment) rather than on wellbeing. For instance, the number of studies showing predictors of academic outcomes (n = 20) substantially outweighed the number of studies measuring wellbeing (n = 2) during school transitions. This chapter revealed a substantial number of demographic, psychological, spiritual, school, physical, and spiritual factors that are integral to positive transition, and informed the 14 predictor variables chosen for examination in this thesis: gender, older sibling, SES, self-control, self-efficacy, strength use and knowledge, feeling safe, perceived teacher support, school belonging, organized activities involvement, positive family relationships, positive friendships, spirituality, and purpose.

Chapter 3 demonstrated the meaning of wellbeing and the factors that promote wellbeing according to the perspectives of NZ adolescents (N = 361) from two intermediate schools located in South (Decile 1) and North Auckland (Decile 10). The identification of adolescents'

perspectives was necessary as there is no consensus in the academic definition of wellbeing and there were gaps in knowledge regarding predictors of wellbeing during the secondary school transition, as depicted in Chapter 2. Further, an important criterion of this thesis's working definition of positive transition was adolescent wellbeing; therefore, assimilating adolescents' perspectives was critical for providing insights into the research on predictors, assessment measures, and perhaps any future interventions aimed at transition-related wellbeing. Three studies collectively proved that wellbeing is prototypically organized. Adolescents thought that feeling safe, enjoyment/having fun, being happy, and feeling good were central components of wellbeing. This finding indicated that adolescents have a broader understanding of wellbeing than experts and current academic models do not fully address their conceptions. The adolescents from low-SES regarded the components comfort/being wealthy, success/achievements, being focused, good physical health, and good values as more important to their understanding of wellbeing than the adolescents from high-SES. The three most endorsed pathways to wellbeing were positive family relationships, positive friendships, and physical activity/sport. This chapter identified nine predictor variables of this thesis, including pet ownership, being around positive people, connection with nature, and healthy diet.

Chapter 4 was conceived by recognizing that the existing measures of predictor variables were lengthy, and concise measures were needed for collectively assessing several predictors, to mitigate respondent fatigue and biases. Most school transition instruments aimed to measure concerns and anxiety related to the school change. Therefore, this chapter made pragmatic use of the components gathered in the first two studies and developed and validated the PSTRS to assess transition readiness. A pilot study (N = 11) evaluated the feasibility of the survey by obtaining adolescent feedback. The validation process included tests of internal consistency, a PCA with a sample of NZ adolescents (N = 471) from different schools and cities, and analysis of test–retest reliability with a subsample of 121 adolescents. This chapter concluded that the full PSTRS, including its subscales for predictor variables, was reliable and valid.

Chapter 5 used a cross-sectional design to characterize global, school, component, and domain-specific dimensions of wellbeing, and examine differences in these dimensions by gender in adolescents in Year 8 at intermediate schools (N = 471). Using the PSTRS developed in Chapter 4, it surveyed the adolescents regarding the predictor variables determined in Part A of the preparatory phase (see Chapters 2 and 3) and further studied the associations of the predictor variables with self-reported global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing on a comprehensive basis. This chapter showed that adolescents typically had positive perceptions regarding their global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing; however, an important number of adolescents reported reduced resilience and happiness after the transition to secondary school and felt sick at school. In addition, adolescents' perceived satisfaction with various life domains (e.g., family and friends)

was noticeably lower than their perceived importance of these domains. This chapter also revealed that female adolescents experienced lesser satisfaction with their health and lifestyle than male adolescents. After controlling for 27 predictor variables, Chapter 5 concluded that several demographic, psychological, school, spiritual, physical, and social factors independently and differentially predicted global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing in Year 8 adolescents at intermediate schools. This chapter underscored the need for enhancing Year 8 adolescents' overall wellbeing by devising comprehensive programs that integrate demographic, psychological, school, social, physical, and spiritual factors.

Chapter 6 studied temporal trends in wellbeing and reported significant declines in global wellbeing and increases in school and component wellbeing across the transition from intermediate to secondary school. It revealed improvements in certain predictor variables (including school belonging and perceived teacher support) during the secondary school transition. This chapter concluded that the pretransition perceptions of psychological, social, school, physical, and spiritual factors were differentially associated with higher global, school, domain-specific, and component wellbeing in secondary schools relative to intermediate schools. Change in self-efficacy predicted higher wellbeing in each dimension after the transition to secondary school as compared to while in intermediate school. This chapter also indicated that changes in perceptions of predictor variables were more meaningful for fostering changes in overall adolescent wellbeing during the secondary school transition than pretransition perceptions of the predictor variables. Lastly, this chapter noted that while gender has no direct effect on wellbeing, it interacts with certain predictor variables to influence wellbeing associated with the transition.

Main Contributions, Implications, and Recommendations

This is one of the first studies to explore the predictors of wellbeing across the transition from intermediate to secondary school using an NZ sample. This body of work makes many original contributions to the fields of wellbeing and positive school transition, with the main contribution of identifying predictors of positive school transition on a comprehensive basis (see Chapter 6) and a holistic model of positive school transition (see Figure 7-1). The following points summarize the uniqueness of these predictors and the reasons for these predictors being useful components of positive transition implementation science and programs targeting overall wellbeing:

- Most predictors are also associated with positive academic outcomes (see Chapter 2).
- The predictors comprise adolescent perspectives of factors that enhance their wellbeing (see Chapter 3).
- Adolescent appraisals of these predictors are obtainable with the PSTRS (see Chapter 4).

- The predictors are independently associated with the wellbeing of Year 8 adolescents before the transition to secondary school (see Chapter 5).
- The predictors are comprehensive and relate to demographic, psychological, social, physical, school, and spiritual areas relevant to adolescent lives. This thesis has revealed predictors of changes in multiple dimensions of adolescent wellbeing (namely global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing) during the transition from intermediate to secondary school (see Chapter 6).

To ensure proper representation of the NZ intermediate school adolescent population in this thesis, extensive efforts were made throughout this research to recruit adolescents from diverse areas and school deciles. Some of these efforts included sending email invitations, following up on those email invitations, school visits and meetings, advertising the study in schools, providing incentives, and in-person data collection in Studies 2, 3, and 4. These efforts secured participation from low-, medium-, and high-decile schools, which is one of the general strengths of this thesis. Table 7-1 shows the main contributions specific to each of the five studies in this thesis and their corresponding implications for research and practice. The contributions from these studies are discussed below and broken into six broad areas: the understanding of positive transition and adolescent perspectives of wellbeing; integration of schooling and wellbeing factors for capturing positive school transitions; survey development and validation; dimensions of wellbeing; changes in wellbeing dimensions and predictors; and cross-sectional and temporal predictors of wellbeing.

Table 7-1. Contributions and implications of each study in the thesis

Study	Study-specific key contributions	Implications
Chapter 2 Factors facilitating a positive transition to secondary school: A systematic literature review	• First peer-reviewed published evidence to present a working definition and novel conceptual framework of positive school transition • First peer-reviewed published study to use a positive education approach to review positive factors that facilitate the secondary school transition • Comprehensive identification of demographic-psychosocial-spiritual-physical-school determinants of positive school outcomes and wellbeing during the secondary school transition	• The conceptual framework of positive school transition can guide transition research and assessment, and inform the selection, organization, and interpretation of predictors of positive transitions • Informs global transition research • Emphasizes the need to focus on the transition from intermediate to secondary school and wellbeing, particularly in NZ
Chapter 3 A prototype analysis of NZ adolescents' conceptualizations of wellbeing	• First study to utilize prototype analysis to examine adolescents' wellbeing conceptualizations • Establishes that wellbeing is prototypically organized in adolescents • Identifies NZ adolescent's awareness of the concept of wellbeing and the meaning of wellbeing: being happy, enjoyment/having fun, feeling good, and feeling safe • First NZ study to identify differences in the perceptions of adolescents from low- and high-decile schools about the importance of wellbeing components • First study in NZ to identify adolescents' pathways to wellbeing • Outlines similarities and differences between adolescents'/NZ adults'/academics' conceptualizations of wellbeing	• Academic models of wellbeing should reflect adolescents' conceptions • Wellbeing assessments and positive education programs should incorporate adolescents' conceptualizations • Diagnosis of wellbeing should not occur with an all-or-none phenomenon • Wellbeing research, assessments, interventions, and policies for adolescents with low SES must accommodate the components comfort/being wealthy, good physical health, good values, success/achievements, and being focused • Researchers should establish the external validity of these findings and make cross-cultural and cross-country comparisons
Chapter 4 Initial development and validation of the Positive School Transition Readiness Survey (PSTRS)	• Develops and pilots a broad survey to assess transition readiness for the first time • Proves the reliability and validity of the subscales and the PSTRS • Explores the factor structure of the components and explains readiness to positive transition by positive connections/support and psychospiritual readiness, lifestyle, and self-control and mindfulness • Incorporates a new subscale on being around positive people	• Future research should revise the PSTRS as per the final findings of this thesis and accrue more evidence regarding its psychometric properties in NZ and other countries • Documenting validation and scoring and interpretation of the three PCs • Future researchers should conduct exploratory, confirmatory and Rasch analyses on the PSTRS • Intermediate and secondary schools should use the PSTRS regularly to assess adolescents' readiness to transition and use the rich data to communicate information, adapt strategies, and review the effectiveness of interventions • Establishes the need to demonstrate individually the external validity of the being around positive people scale

Study	Study-specific key contributions	Implications
Chapter 5 Exploring predictors of wellbeing in NZ adolescents: A cross-sectional study	• Characterizes global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing for the first time in NZ Year 8 intermediate school adolescents • Shows that Year 8 female adolescents in NZ experience significantly lower satisfaction with their health and lifestyle behaviors than males do • An original study that adjusts for 27 factors and identifies the most definite and independent predictors of global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing • First study to identify independent predictors of wellbeing in Year 8 adolescent within each group • First study to examine both wellbeing and its predictors on a comprehensive basis in Year 8 adolescents at NZ intermediate schools	• Intermediate schools should focus on promoting adolescent global, school, domain-specific, and component wellbeing • Schools should particularly attend to increasing female adolescents' satisfaction with health and lifestyle • Promotional initiatives must be comprehensive and contain a variety of psychological, social, school, physical, spiritual, and demographic factors • Replication studies should demonstrate the validity of these findings across schools, countries, and cultures
Chapter 6 A longitudinal study of factors predicting wellbeing during the transition between intermediate and secondary schools	• Demonstrates changes in global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing during the transition from intermediate to secondary school in NZ for the first time • Demonstrates changes in multifarious psycho-socio-spiritual, physical, and school factors during the secondary school transition, particularly showing increasing trends in several psychological, school, and social factors across the secondary school transition • Identifies pretransition psycho-socio-spiritual, physical, and school factors that predict changes in distinct dimensions of wellbeing during the secondary school transition • Demonstrates changes in psycho-socio-spiritual, physical, and school factors that predict changes in distinct dimensions of wellbeing during the intermediate- to secondary school transition • Identifies the influence of the interaction between gender and pretransition predictor variables on changes in wellbeing dimensions during the NZ intermediate to secondary school transition • Identifies the effects of the interaction between gender and changes in predictor variables on changes in wellbeing dimensions during the NZ intermediate to secondary school transition	• Policymakers, school administrators, and practitioners should urgently prioritize fostering the wellbeing of adolescents throughout the intermediate schools and early secondary school years using a whole-school approach • Pretransition programs should incorporate the following components: strength use and knowledge, enjoyment, school belonging, purpose, feeling safe, self-control, being around positive people, and mindfulness • Increasing physical activity in females in intermediate schools is imperative for enabling higher overall wellbeing in secondary school relative to intermediate school • Post-transition programs should seek to promote the following components more than the programs for intermediate schools: strength use and knowledge, enjoyment, school belonging, purpose, feeling safe, being around positive people, mindfulness, physical activity, healthy diet, positive family relationships, positive friendships, self-efficacy, being kind and helpful, perceived teacher support, and connection with nature • Although they are essential for all adolescents, attending more intensively to the components feeling safe, enjoyment, school belonging, and positive friendships for females is more significant for their school wellbeing in secondary school than in intermediate school • Positive transition programs at secondary schools should be more extensive and intensive than those at intermediate schools

Study	Study-specific key contributions	Implications
	• Identifies changes in self-efficacy as a consistent predictor of higher global, school, component, and domain-specific wellbeing in secondary schools relative to intermediate schools	• Longer longitudinal studies are required to establish links between predictors in this thesis with wellbeing through secondary school transition, particularly over the third and fourth terms of the first year at secondary school • Future studies should adjust for more confounders to demonstrate the most definite temporal predictors of transitional changes in wellbeing, to further consolidate these factors • Future investigations could highlight the significance and interplay of the links of psycho-socio-spiritual, physical, and school factors with changes in wellbeing during the transition • New research efforts must trial wellbeing promotion interventions during the transition, based on the evidence generated in this study

Understanding of positive transition and adolescent perspectives of wellbeing

Guided by the paradigms of positive psychology and positive education, Chapter 2 of this thesis has provided a tentative definition of the concept of positive transition as knowledge and factors that enable adolescents to thrive during the move from one school to another (Bharara, 2019). Although research has previously understood positive school transition from a positive perspective (Shoshani & Slone, 2013), this was the first peer-reviewed published attempt (as of June 2019) to define positive school transition as a period where adolescents experience wellbeing, representing a synergy between positive school transitions and wellbeing. This definition was revised in subsequent work in this thesis (see Chapter 6) as psychological, social, school, physical, spiritual, and demographic factors that enable adolescents to experience heightened levels of wellbeing in secondary school relative to intermediate school. Further, Durie's model of wellbeing was adapted to develop a comprehensive conceptual framework of positive transition, which aided in organizing the results of this thesis into demographic, psychological, social, school, physical, and spiritual factors (Durie, 1985).

Education Review Office (2012a) stated that adolescents need to make "positive adjustments to their new school and classes so that their wellbeing is maintained, and their learning is coherent and continuous (p. 6)." Given the continuing emphasis by the NZ government upon maintaining wellbeing across school transitions, the working definition of positive transition presented in this thesis and the conceptual framework has significant implications for researchers and professionals. First, it may provide direction to research and assist scholars worldwide in selecting, categorizing, and interpreting factors related to positive school transitions. Second, educators, researchers, and school professionals can utilize this framework in developing assessment measures related to transition processes and in classifying wellbeing interventions. Third, this conceptual framework allows scope to comprehensively assess and adjust for factors that influence school transition success in other countries.

The examination of NZ adolescents' conceptualizations of wellbeing complements the emerging work in other developed countries (Chaplin, 2009; Fattore et al., 2009), and is a novel contribution to knowledge, particularly in the methodology realm. No previous study has utilized prototype analysis (Rosch, 1975) to show that adolescents recognize that some components, including being happy, enjoyment/having fun, feeling good, and being kind/helpful, are more central to the concept of wellbeing than other components, such as sense of satisfaction. The finding that wellbeing is prototypically organized in adolescents is also new and it suggests that the diagnosis of wellbeing may require the presence of central components rather than all passable components. Discrepancies between adolescents' central components of wellbeing and NZ lay adults' and academic models of wellbeing were highlighted for the first time, particularly regarding enjoyment, feeling safe, being kind and helpful. Consequently, a separate and a broader definition of adolescent wellbeing is now required, reflecting these components, including those that are

consistent among these conceptualizations (e.g., being happy and good mental health). Positive education programs should assimilate adolescents' central components of wellbeing, as well as their most listed pathways to wellbeing, including positive family relationships, positive friendships, and physical activity.

Another valuable contribution is that the adolescents in a low-decile school considered comfort/being wealthy, physical health, success/achievements, being focused, and good values more important for their wellbeing than the adolescents in a high-decile school did. Therefore, researchers, school practitioners, and policymakers need to incorporate these components in wellbeing research, theories, assessments, interventions, or policies for adolescents from low-decile schools. Given the variability in adolescents' overall perceptions of wellbeing, leaders and educators should also acknowledge the need to deliver and tailor wellbeing interventions as per adolescents' unique needs, rather than treating them alike and applying similar interventions. Researchers should now demonstrate the external validity of these findings and make cross-national comparisons.

Integrating schooling and wellbeing factors for capturing positive transitions

The systematic review of factors that facilitate a positive transition to secondary school is significant for research in this field. While previous reviews have delineated factors that may be associated with successful secondary school transition (Hanewald, 2013; Rens et al., 2017), this study was the first to include the keyword "factor" in the search and to review them from a positive education perspective; only the factors that enhance the school transition experience were included in results. The findings of this research highlighted the need for researchers to focus on the transition from intermediate to secondary school, especially in NZ. They revealed many factors that were associated with academic or school-specific outcomes as well. For example, transition-related academic success was predicted by physical fitness, perceived closeness to teacher, strengths, spirituality, gender, and self-control. Academic performance across the transition was predicted by organized activity involvement and positive parent relationships; parental and sibling support predicted academic motivation and school commitment, respectively. Further, higher peer acceptance, peer support, and school belonging were associated with positive transition adjustment. In addition to delineating factors that are associated with positive secondary school transition in Study 1, this thesis identified NZ adolescents' pathways to wellbeing in Study 2.

To achieve positive school transitions, the Education Review Office (2012a) recommended that schools should be coherent in their learning and wellbeing approaches. In this thesis, this coherence was achieved, in part, by combining determinants of school-specific positive outcomes following transition and adolescents' conceptions of wellbeing. The implications of this integration pertain to the potential effectiveness and acceptability of positive transition

intervention programs aimed at developing skills that foster adolescent wellbeing. In other words, it is conceivable that positive transition programs/interventions that reflect underlying predictors of wellbeing (as depicted in this thesis) may also boost positive academic outcomes and be well received by adolescents, since the predictors align with their concepts of wellbeing. Although addressing the perspectives of adolescents is a fundamental step in handling disparities that exist in education systems, most NZ secondary schools do not execute coherent processes for achieving better transitions (Education Review Office, 2012a). The Education Review Office (2015c) found that secondary schools that effectively promoted adolescent wellbeing focused on balancing wellbeing and learning, and actively encouraged the adolescent voice, as well as supporting them and creating a positive culture. Nevertheless, there is no recent descriptive data from the Education Review Office to reveal what schools are doing to improve adolescents' wellbeing during the critical period of transition from intermediate to secondary schools. The Education Review Office (2015c) recommended that school leaders and educators should implement actions and processes that promote adolescents' wellbeing. Accordingly, greater efforts, based on the findings in this thesis, are required from school deans, teachers, and practitioners to develop and implement positive transition programs and make positive transitions a reality.

Survey development and validation

The assessment of transition adaptation and progress is haphazard in NZ, owing to the lack of a reliable and valid measure of positive transition readiness. While secondary schools have sought information about adolescents from intermediate schools following the transition, the information they have received has been unreliable and limited, with most of it referring to academic performance and attendance (Education Review Office, 2012a). It has been shown that the application of transition assessment information in about 91% of NZ secondary schools (n = 68) has been partial, minimal, or nil (Education Review Office, 2012b). The Education Review Office's research is limited to reveal whether the use of transition evaluation data has improved in recent years. Consequently, it seems that NZ adolescents are not supported and prepared for the transition in an effective and timely manner. Following on from the findings of Part A of the preparatory phase, the PSTRS was developed and validated to determine adolescents' readiness for a positive transition. The index of overall readiness was presented in Chapter 4. Items were created for the subscale being around positive people, which is a useful contribution for assessing how encouraging and helpful people are around adolescents. This subscale also demonstrated excellent psychometric properties.

The PSTRS provides access to a broad range of sound and trustworthy data. The provision of such data fulfils the Education Review Office's (2012a) recommendations for intermediate and secondary schools regarding transition process inquiry such as focus inquiry, teaching inquiry, and learning inquiry. By providing rich data regarding various components that are essential for positive transition and wellbeing, the PSTRS can help to identify vulnerable adolescents and

ascertain whether they are adequately prepared and supported for the transition. Knowing about individual strengths and areas that require improvement in a timely fashion could help schools in devising and implementing relevant strategies for easing the transition. The effectiveness of these intervention efforts could be reviewed by observing changes in the PSTRS information. Of further value is that schools will have an aggregate broad idea about three PCs of the PSTRS. Schools can learn whether adolescents have positive and supportive connections, a suitable lifestyle, and whether they are mentally and spiritually prepared to transition to a new school and are sufficiently self-controlled and mindful in the demanding time of secondary school transition. The PSTRS could be utilized by adolescents for self-introspection and by researchers for gathering information in their transition and wellbeing studies. However, future research is required to revise this survey according to the findings of this current study and accrue more evidence regarding its psychometric properties.

The Education Review Office (2012a) has recommended that intermediate schools should assess adolescent readiness before the transition so that secondary schools have a reference point against which they can evaluate progress. In addition, transition assessment should be a constant process. Early identification of adolescents who are likely to need support is crucial for the timely prevention of the morbidity associated with transitions and the promotion of wellbeing. Intermediate schools could benefit from implementing the entire survey to gather initial information, which should be transferred to secondary schools to track adolescent progress. The findings from both school levels should be reflected in their respective positive transition programs and the effectiveness of these programs should be reviewed regularly. With a web survey such as the PSTRS, regular assessment is convenient and quick (Lefever, Dal, & Matthíasdóttir, 2007). Schools can make the survey visually attractive by adding images to make it less burdensome and more enjoyable for adolescents than the text-only surveys (Mavletova, 2015). Overall, PSTRS and its subscales are useful additions to the literature.

Dimensions of wellbeing

This is one of the first studies in NZ to characterize several dimensions of wellbeing, namely global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing in Year 8 adolescents at intermediate schools. Previous studies of wellbeing have focused on only one or two dimensions of wellbeing and there is a shortage of such evidence in NZ. On average, Year 8 adolescents in NZ intermediate schools had positive perceptions with regard to their global, school, domain-specific, and component wellbeing, which concurred with prior evidence from a sample of adolescents in secondary schools (Clark et al., 2013; Education Review Office, 2015c). While these findings were encouraging, these adolescents also indicated relatively lower levels of resilience, happiness, and satisfaction with their life domains such as family, friends, and education. Further, more than 35 adolescents reported being bullied and more than 65 specified feeling unhappy and sick at school.

Considering the negative repercussions of compromising on adolescent wellbeing, these findings imply that intermediate schools should take wellbeing promotion seriously and educate adolescents on ways to be more resilient, happy, and satisfied with life and school. This means that focusing on improving global, domain-specific, component and school wellbeing is critical. There were no differences in wellbeing dimensions by gender, except that the female adolescents perceived significantly lower satisfaction with health and lifestyle behaviors than the males did, which concurred with a piece of related evidence (Maddison et al., 2010). This finding, in part, is indicative of potential body satisfaction issues that can preoccupy females of this age, which might need to be addressed at intermediate school.

Changes in dimensions of wellbeing and predictors

Both national and international research has shown negative patterns in academic performance, attitudes toward certain subjects, resilience, and school and psychological wellbeing during the secondary school transition (Cox & Kennedy, 2008; Department of Education and Training, 2016; McLellan & Galton, 2015; World Health Organization, 2016). An improvement in achievement was evident as adolescents completed Year 9 (Cox & Kennedy, 2008). These findings pertained to the transition from full-primary school to secondary school; the findings in this thesis regarding changes in dimensions of wellbeing during the transition from intermediate to secondary school are therefore unique. As noted earlier, the transition from intermediate to secondary school is relatively more difficult for adolescents than the transition from full-primary to secondary school, as adolescents in intermediate schools make two transitions in two years (McGee et al., 2004). As well as showing a drop in global wellbeing and stability in domain-specific wellbeing after the completion of the first term in Year 9, this is likely the first study to show upward trends in aggregate personal and social school wellbeing and component wellbeing (including health and lifestyle satisfaction, resilience, and wellbeing enablement) through this transition in NZ.

Improving trends were also apparent in the predictor variables feeling safe, self-efficacy, being kind and helpful, perceived teacher support, school belonging, positive family relationships, positive friendships, and being around positive people following the transition from intermediate to secondary school, akin to the trends in school and component wellbeing. Interestingly, some of these variables were also revealed to be significant predictors of the respective dimensions of wellbeing and potentially, progressions in these predictors may have triggered similar changes in wellbeing dimensions. For example, school belonging was an important predictor of school wellbeing.

Although a substantial amount of overseas research has shown diminishing trends in some of these predictors (e.g., school belonging), the little research conducted in NZ has suggested that adolescents in secondary schools—following their transition from primary schools—continue to have positive attitudes about their family and teachers (Cox & Kennedy, 2008). This NZ evidence

was supported by the findings of this thesis regarding the enduring nature of domain-specific wellbeing. More specifically, these adolescents' overall perceptions of the significant life domains of family, friends, education, physical health, and fun and leisure showed no significant changes through the transition from intermediate to secondary school. It seems that schools and parents in NZ are aware of what the transition entails and their care for adolescents may have effected improvements in predictors and wellbeing dimensions across the secondary school transition. This reflection is contrary to the findings that addressing wellbeing concerns and the provision of necessary support was unsatisfactory in approximately 27% of 68 NZ secondary schools in Term 1, 2014 (Education Review Office, 2015c).

The above findings and interpretations should be judged in light of the fact that in the current research, there were only superficial improvements in certain predictors and school and component wellbeing dimensions, and medium declines in global wellbeing. It seemed that while everything appeared to be fine on the surface following transition, the adolescents experienced deeper-level issues with their overall affect, happiness, and satisfaction with life. Therefore, policymakers, schools, and educators are urgently required to make wellbeing promotion a priority among adolescents, to ensure they flourish over time, particularly by implementing ways to foster adolescent global wellbeing, school wellbeing, domain-specific wellbeing, and component wellbeing before they navigate the transition and progress through the secondary school.

Cross-sectional and temporal predictors of positive school transition

In the cross-sectional study, a whole gamut of predictor variables was established with four dimensions of wellbeing. No study has adjusted for so many variables together and revealed the most definite predictors of global, school, domain-specific and component wellbeing. While the three most definite and independent predictors of global wellbeing in Year 8 adolescents at intermediate schools were being a Pacific Islander, feeling safe, and enjoyment, the component wellbeing was strongly predicted by higher self-efficacy, school belonging, and physical activity. The most salient predictors of domain-specific wellbeing at baseline were being a female, strength use and knowledge, and feeling safe; for school wellbeing, they were being around positive people, school belonging, and feeling safe. It is significant that these predictors were informed by both adolescent perspectives and a literature review.

This study is the first time that the temporal relationships between a variety of predictor variables have been examined with changes in the dimensions of wellbeing for NZ adolescents over the transition from intermediate to secondary school. While the findings from the cross-sectional study may be essential for those who are engaged in wellbeing research and promotion, the findings from the longitudinal study have a wider scope and may hold greater importance for transition and wellbeing researchers, practitioners, and policymakers. Focusing on the factors that

boost adolescents' wellbeing in Year 9 relative to Year 8 is certainly more worthwhile than focusing on the factors that foster wellbeing at the same time. For example, a wellbeing intervention that consists of components that lead to short-term increases in wellbeing through the transition could potentially be more successful than an intervention that shows increases in wellbeing only before the transition.

Some unique findings connected with cross-sectional and longitudinal studies have been discussed. Since the intention was to reveal the positive factors related to wellbeing, the factors that did not predict wellbeing have been discussed only sparingly; predictor variables that unexpectedly showed negative associations with wellbeing have been discussed in the respective chapters. The findings from the cross-sectional and longitudinal studies combined showed that a single factor was not sufficient in predicting all dimensions of adolescents' wellbeing before the secondary school transition; rather, a variety of social, school, psychological, physical, and spiritual factors predicted their overall wellbeing. However, it is remarkable that among the many variables, pre-post transition changes in self-efficacy predicted higher global, school, component, and domain-specific wellbeing post transition. Therefore, incorporating this component into secondary school transition programs is crucial. These two studies made it clear that predictors of positive transitions, as indicated by wellbeing, are complex. There were more significant temporal associations between changes in predictors and transitional changes in wellbeing than between pretransition perceptions of predictor variables and pre-post transition changes wellbeing. This finding suggests that change in the perceptions regarding predictor variables across schools is even more crucial for enhancing wellbeing over time than the pretransition perceptions of these predictors. For example, while feelings of safety in intermediate schools were related positively and significantly to changes in domain-specific wellbeing post transition, these adolescents also needed to feel safer in secondary schools, as compared to intermediate schools, to continue to experience higher levels of domain-specific wellbeing in secondary schools.

Although there were many similarities in the cross-sectional and temporal predictors of respective dimensions of wellbeing, there were also certain inconsistencies. Although they were related to wellbeing at the same time, involvement in organized activities, gender, and ethnicity factors were not temporally related to transitional changes in the wellbeing dimensions. Some factors did not predict wellbeing; for example, SES, pet ownership, active transport, having an older sibling, and sleep duration did not predict wellbeing before the transition to secondary school. However, spirituality had a dependent association with wellbeing in the Year 8 adolescents. Likewise, associations of two adolescent pathways to wellbeing—hobbies and leisure activities and frequency of socializing activities—with wellbeing in these Year 8 adolescents at intermediate schools were dependent on corresponding psychological and social factors. Therefore, incorporating these components into temporary wellbeing interventions and positive education programs within the school context may potentially be less effective in fostering wellbeing over

time. While gender had no direct bearing on wellbeing over time in this study, it interacted with several predictors and yielded significant influence on wellbeing dimensions. Many of these gender-predictor interactions favored female adolescents rather than male adolescents.

Interestingly, there were some strong and independent cross-sectional predictors of distinct dimensions of wellbeing in Year 8 adolescents that also associated with wellbeing in Year 9 after controlling for wellbeing in Year 8. In addition, changes in these predictors showed temporal associations with changes in different dimensions of wellbeing over the transition from intermediate to secondary school. These predictor variables included feeling safe, school belonging, strength use and knowledge, being around positive people, enjoyment, mindfulness, and physical activity. Novel additions to the existing positive transition literature are mindfulness, being around positive people, changes in self-efficacy, being kind and helpful, healthy diet, and connection with nature across the secondary school transition. Based on my professional experience as a school counseling psychologist, I would like to stress the importance of the component being around positive people for adolescent wellbeing. Valuing positive aspects in adolescents and respectfully encouraging them to be responsible to achieve their goals was indeed effective in helping them realize their potential in my practice.

This section has discussed the uniqueness of the findings from the exploratory phase as well as the way the findings from the cross-sectional study aligned with the findings from the longitudinal study. The next section presents a model of positive school transition and guiding principles to implement this model, primarily based on the findings from the final study of this thesis.

A Comprehensive Model of Positive School Transition

Based on the findings of Chapter 6, Figure 7-1 illustrates a comprehensive model that will be useful for future research on positive school transitions and the development of interventions to enhance wellbeing during secondary school transitions. This research has shown that for experiencing improved *global* wellbeing post transition, adolescents in intermediate schools need to have positive perceptions of enjoyment, being around positive people, and strength use and knowledge before the secondary school transition. Perceiving themselves as being mindful before the transition significantly improves *component* wellbeing in adolescents in secondary schools relative to intermediate schools, whereas perceptions of feeling safe and being around positive people in adolescents in intermediate schools increases their *domain-specific* wellbeing after the transition. Similarly, for adolescents in intermediate schools to experience improved *school* wellbeing post transition, their pretransition perceptions of school belonging, purpose, strength use and knowledge, and self-control need to be positive. To experience heightened levels of *overall* wellbeing in secondary school, adolescents also need to have positive perceptions about the above factors, as well as various other psycho-socio-spiritual, school, and physical factors (including positive family relationships and positive friendships), after the transition to secondary

school, as compared to before the transition. The most noteworthy implication of these findings is that positive transition programs/interventions need to be comprehensive and integrate wide-ranging psychological, physical, social, school, and spiritual factors.

Guiding principles to implement the model of positive school transition in schools are as follows:

- Intermediate and secondary schools should both support and prepare adolescents for positive transitions by incorporating into their transition programs social, school, psychological, spiritual, and physical factors, as illustrated in the model.
- Incorporating the illustrated factors into school transition programs will enable adolescents to experience wellbeing in global, school, domain-specific, and component dimensions across the secondary school transition.
- As changes in the factors were important in predicting higher wellbeing post transition as compared to pretransition, school principals, practitioners, and policymakers must realize that transition programs in secondary schools should be more intensive and elaborate than those in intermediate schools.
- For this to occur, it is critical that where possible, intermediate and secondary schools work together to develop their transition plans and programs. There is evidence that disregarding information from the previous school and starting fresh in the new school may prove inefficient; therefore, linkages between intermediate and secondary schools during school transitions are vital for effective transition strategies (Cox & Kennedy, 2008; McGee et al., 2004).
- Intermediate schools should devise foundational positive transition programs that include introductory activities and exercises. For instance, explaining the constructs of mindfulness and safety, and conducting preliminary activities to illustrate how to achieve these, should suffice in intermediate schools.
- For plans, programs, and policies for low-decile schools, school leaders, practitioners, and policymakers should remember that adolescents from low-decile schools consider comfort/being wealthy, good values, success/achievements, good physical health, and being focused more important for their wellbeing than do adolescents from high-decile schools.

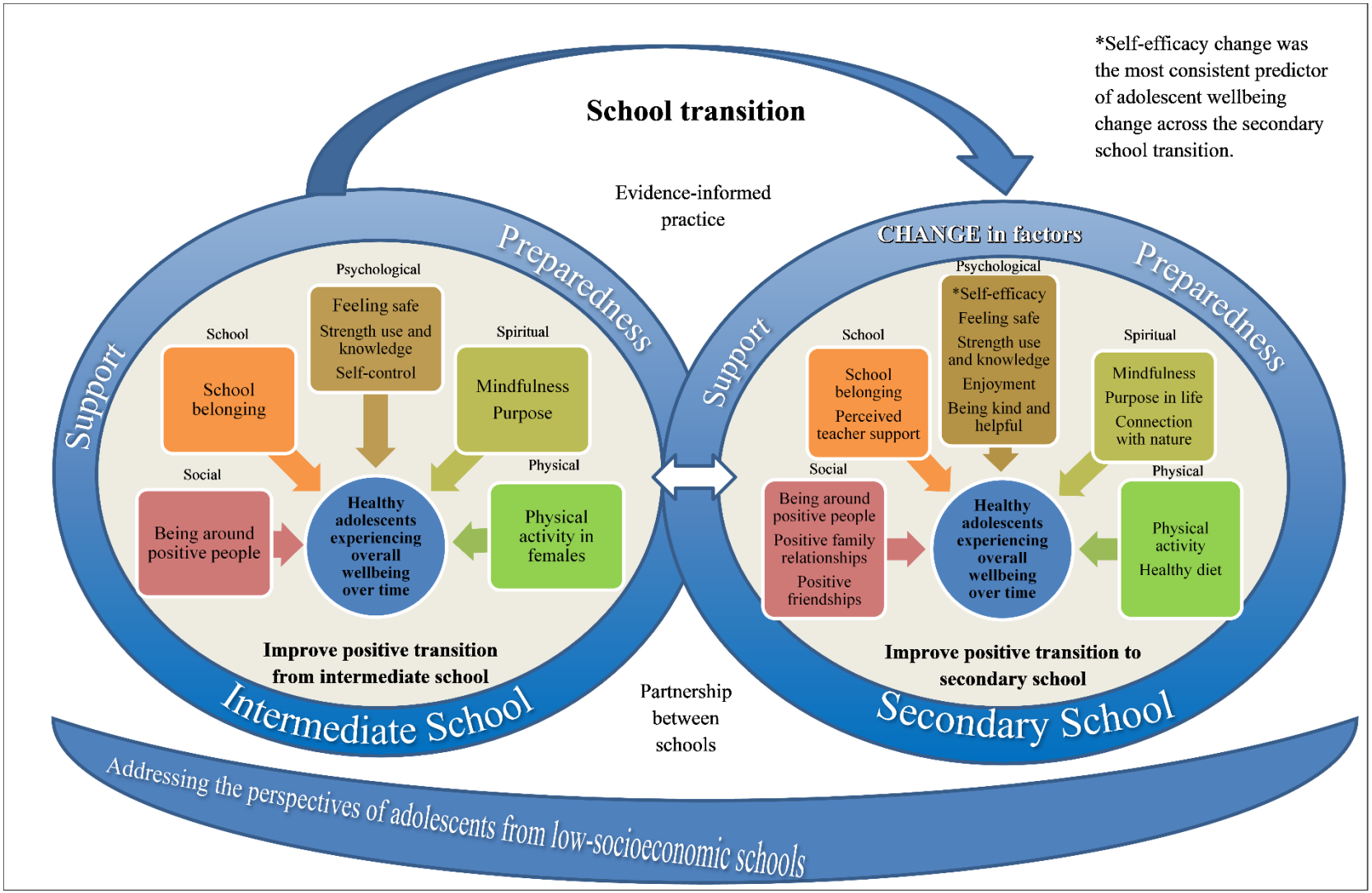


Figure 7-1. A comprehensive model of positive school transition

Pretransition programs/interventions at intermediate schools should incorporate the following components/recommendations to ensure adolescents experience higher wellbeing after the transition to secondary school relative to pretransition:

- Help adolescents identify their strengths and teach them to make appropriate use of them in the practical world.
- Parents and educators should give adolescents ample opportunities to have fun and ensure that academic activities and learning are enjoyable.
- Ensure that adolescents feel they belong to their school. If they feel connected to their intermediate school, they may have positive expectations regarding their new secondary school.
- Help adolescents discover a sense of purpose, to help them find meaning in the transition to secondary school, thereby making them more capable of dealing with any setbacks.
- Ensure they feel safe, both physically and psychologically.
- Teach and motivate adolescents to be self-controlled. Helping them to regulate their behavior, impulses, and emotions may instill discipline and indirectly facilitate the learning of skills that will help them reach their goals and enhance their transition experiences.
- It is imperative that intermediate schools teach and train the people around adolescents (whether educators, counselors, parents, and/or peers) to be actively encouraging, motivating, kind, and respectful. Simply providing emotional support (e.g., listening and helping) while adolescents are in intermediate school does not help them with wellbeing through transitions; however, embedding positive people at all levels of their school and social system may increase their confidence in dealing with the transition process.
- Incorporate regular mindfulness training to make adolescents more mindful and aware of their lives and the forthcoming changes.
- Encourage female adolescents to participate in physical activities. This is a powerful way to ensure they experience wellbeing across the secondary school transition.

Post-transition programs/interventions at secondary schools should address changes in the following components to ensure adolescents experience improved overall wellbeing across the transition to secondary school:

- Changes in strength use and knowledge: Adolescents should perceive higher knowledge and usage of strengths in secondary schools as compared to intermediate schools.
- Changes in enjoyment: Adolescents should experience greater enjoyment and fun in leisure activities, learning, and interacting, or being with peers post transition than pretransition.
- Changes in school belonging: Adolescents should feel a greater sense of belonging at secondary school than at intermediate school. The usual school orientation programs or

prior visits for increasing a sense of belonging must be supplemented with creating a caring environment.

- Changes in purpose: Secondary schools should help adolescents realize clear goals and aims, decipher ways to achieve set targets, and inculcate a more focused sense of purpose in adolescents as compared to intermediate schools.
- Changes in feelings of safety: Adolescents should feel safer and more secure in secondary schools and feel they are surrounded by more positive people than in intermediate schools.
- Changes in mindfulness: Adolescents in Year 9 should perceive themselves as being more attentive and aware of the things they are doing and more focused on what is happening in the present moment than they did in Year 8.
- Changes in physical activity: More opportunities should be given to adolescents to play sport and engage in physical activities in secondary schools as compared to intermediate schools.
- Changes in a healthy diet: Organize counseling or development programs for parents and adolescents to educate them about eating a healthy diet containing fresh fruits and vegetables.
- Changes in positive family relationships and positive friendships: Implement strategies for improving parent and peer relationships so that families and peers are willing to help and provide support to adolescents when needed, as well as discuss their problems and share their joys.
- Changes in self-efficacy: In secondary schools, adolescents should be helped to believe in their abilities to solve difficult problems and perceive themselves to be resourceful, calm, and capable of handling unexpected and difficult situations.
- Changes in being kind and helpful: Engage adolescents in activities to teach them to be kind and helpful toward those in need.
- Changes in perceived teacher support: Secondary school teachers should ensure they are friendlier than intermediate school teachers are, as well as impartial and able to provide additional support to adolescents when needed.
- Changes in connection with nature: Greater opportunities to spend time in nature are needed in secondary schools more than in intermediate schools. Letting adolescents be outside and engaging them in nature-related activities, such as bushwalks and hiking, may be significant for promoting their component wellbeing.
- Although important for all adolescents, attending to the changes in feeling safe, positive friendships, purpose, enjoyment, and school belonging in female adolescents may promote their wellbeing even further as they progress through secondary school.

Overall, this thesis has made novel contributions to the fields of positive school transition and wellbeing; nevertheless, there are several broad limitations of this research that must be acknowledged, besides the limitations that have been discussed in each study.

Limitations and Future Directions

First, this research utilized self-report measures to collect the data solely from adolescents. Utilizing subjective measures from a single informant to assess multiple variables can increase the likelihood of spurious method variance, which can influence estimates of the obtained relationships between variables (Podsakoff, MacKenzie, & Podsakoff, 2012; Schaller, Patil, & Malhotra, 2015). The most robust evidence is obtained from experimental measures that credibly assess actual behavior (Ng-Knight, 2015). However, conducting individual experiments with multiple constructs in the real world is challenging and unfeasible, and was beyond the scope of the current research. Since this research focused on adolescents' opinions, self-report surveys were the most practical way of collecting data.

Although obtaining data from secondary sources (e.g., parents and teachers) reduces or eliminates the influence of social desirability bias (Podsakoff et al., 2012), this procedure was not appropriate for this research, as both the outcome and predictors were capturing perceptions and feelings, and other people's perceptions may have obscured the adolescents' perceptions. Likewise, where the self-report survey was assessing physical activity, diet, and sleep components, the data from parents and teachers would have complicated the analysis. For instance, there was no certainty that secondary informants would have accurately inferred or observed adolescent behaviors and it was possible that their responses could be affected by biases and dispositional moods (Podsakoff et al., 2012). While previous studies have collected data from other informants regarding certain isolated components, such as self-control (Ng-Knight et al., 2016), it was not possible in this comprehensive study. Future researchers interested in studying the in-depth influence of one or two predictors on wellbeing could supplement adolescent perceptions with reports from parents and teachers.

Secondly, the psychometric properties of the wellbeing assessment, AWE, are not empirically established elsewhere. This measure was deemed adequate for the current research from a practical sense, as this assessment covered multiple dimensions of wellbeing, was currently being utilized in many schools in NZ and Australia to assess wellbeing, and was a short measure compiling items from empirically validated instruments. There is substantial data associated with this assessment (Jarden et al., 2015). The wellbeing measure also showed reliable properties in this research sample (see Chapters 4, 5, and 6). The total mean score of each wellbeing dimension and total AWE score also showed significant correlation ($p \leq 0.010$) with theoretically related constructs of mindfulness and self-efficacy at the same time and after six months, which may

indicate the concurrent and predictive validity of this scale; however, further studies need to present definite psychometric estimates using previously valid instruments.

Chapter 4 has presented the development and validation of the PSTRS that was warranted for assessing several predictor variables together and could be beneficial for improving school transitions in NZ. However, further psychometric work is required to revise this survey, as per the final study findings in this thesis (see Chapter 6) and to accumulate more evidence regarding its validity in NZ and overseas. For instance, organized activities involvement, and hobbies and leisure activities, showed no significant temporal associations with transitional changes in wellbeing. Although certain subscales in the PSTRS represent components that were not cross-sectional or temporal predictors of positive transition for this thesis sample of adolescents, these components were based on empirical research and they can still provide additional information for educators and school principals until revisions of the survey have taken place. In addition, it must be acknowledged that the subscales of this survey were devised considering the goal of this research, which was to cover, broadly but succinctly, the variables of interest; for an in-depth view of the components, longer scales would be more useful.

In this research, steps were taken to control the common method bias, as per Podsakoff's (2012) recommendations. Every effort was made throughout the survey to ensure the items were simple, specific, and non-ambiguous. Complicated terms were defined and reverse-coded items were added to reduce satisficing. To reduce the respondent burden and maintain uniformity in the assessment, a similar response format (11-point) was applied where possible. The criteria and predictor measures were randomly embedded, so they appeared less prominent to respondents and any connection between them was de-emphasized. These procedural precautions helped in diminishing the common method bias which, the statistical analysis revealed, did not affect the data.

Third, it should be noted that owing to constraints of time and funding, the longitudinal study represents only short-term predictors of wellbeing; the way wellbeing may change as the adolescents progressed through Terms 3 and 4 of secondary school was not examined. Considering prior research on academic achievement in NZ primary and secondary schools (Cox & Kennedy, 2008; Education Review Office, 2012a), it is speculated that there will be variability in the development trajectory trends of wellbeing across academic terms in Year 9. Future studies could examine these patterns in wellbeing in NZ and abroad, and determine whether psychological, social, school, physical, and spiritual factors that predict wellbeing in Term 2 of secondary school are also linked with positive transitions/wellbeing in the remaining terms. Further, exploring the most definite long-term predictors of positive transitions would be a logical progression of this work.

Fourth, since longitudinal studies are observational in nature, associations found in this thesis can make inferences about causation to a limited extent, as compared with experiments. Nevertheless, the prospective cohort design of the longitudinal study in this thesis satisfied certain criteria that are necessary to assume causality. These were temporal order of events, which means predictor variables preceded the dependent variable in time; controlling confounders (non-spuriousness); covariation (i.e., statistically significant associations between the predictor variables and the outcome); and controlling for the outcome at baseline (Coolican, 2018; Cooper et al., 2012). Future intervention studies should validate the causality of the associations found in this thesis by manipulating the predictors of positive school transitions and ascertaining their direct effect on wellbeing.

Another limitation is that the categorization of predictors based on the conceptual framework was subjective. This categorization influenced the composition of the regression models, as well as the covariates that were controlled in the models, which may influence comparisons of the results across studies. For instance, in line with previous work, mindfulness and purpose were classified as spiritual factors (Norrish, 2015); however, these factors have also been measured under the psychological realm (Brown, Bravo, Roos, & Pearson, 2015; Tomioka, Kurumatani, & Hosoi, 2016). While in this research, psychological factors consisted of behaviors, feelings, and thoughts, some researchers have separated actions and feelings from psychological factors and have specified hobbies as a behavioral factor (Tomioka et al., 2016), or combined safety with physical health and development (Lippman et al., 2014). Despite differences in categorization, this study clearly demonstrated the individual and aggregate associations between predictors and wellbeing (see Chapter 5) and how each predictor related to changes in wellbeing over time after controlling for confounders (see Chapter 6). This information goes some way toward bridging these multifarious factors and holds considerable potential for further elucidating the relative importance and interplay of these factors for positive transitions and wellbeing (Lippman et al., 2014; Ng-Knight, 2015). As noted in previous chapters, the personality component was excluded from these analyses; therefore, future research could examine the way personality associates with wellbeing across the transition from intermediate to secondary school, after controlling for psychological factors as reported in this research.

Sixth, while the organization of predictor variables was subjective, predictors were measured as continuous variables, as is common in most psychological and educational research (Lester & Cross, 2015; Longobardi et al., 2016; Madjar & Chohat, 2017; Shoshani & Slone, 2013; Xia et al., 2016). Owing to the absence of categorical levels of the predictors, it was not possible to establish the proportion of the predictor that was associated with the outcome (National Heart Lung and Blood Institute, 2014). For example, how frequently adolescents should be physically active was not revealed by the findings of this research. Therefore, future investigations should

represent the level at which predictors, such as physical activity, promote wellbeing across the secondary school transition.

Seventh, there was a substantial loss to follow-up data (approx. 59%); that is, the nonresponse rate at Wave 2 was high. Nonetheless, longitudinal research has often reported an attrition rate of 30% to 80% (Bohnert et al., 2013; Goodman & Blum, 1996; Longobardi et al., 2016), with better retention reported in studies that utilized in-person and telephone methods of retention among cohorts (Booker, Harding, & Benzeval, 2011). While loss to follow-up was expected, certain strategies were used to improve retention (Cooper et al., 2012). For example, the contact information of parents was collected along with that of adolescents, parents were cc'd in the emails, monetary incentives were provided, a visually attractive web survey was created, and parents and adolescents were notified about the follow-up survey two weeks before the commencement.

In this research, it was only feasible to collect the follow-up data online, which led to high nonresponse rates, perhaps due to the unreliability of email addresses, unmonitored email addresses, unwillingness on the part of adolescents to participate again, and/or participants simply choosing to opt out (Lefever et al., 2007). My in-person data collection experience at baseline indicated that the range of data at follow-up might have been affected by server interruptions and website maintenance. At one point, the web portal on which participants were filling in surveys, SurveyMonkey, crashed and baseline participants' responses on earlier pages of the survey were erased when they attempted to move to a next page or submit the survey. This data loss is a potential reason for missing identifiable information for many participants at baseline, since personal information was asked at the end of the survey. Another possible factor is the absence of the involvement of schools at follow-up, which may have prompted the baseline participants to have a casual attitude toward the survey.

Comparisons between complete and incomplete participants (see Chapter 6) pointed to the possibility that the adolescents' lack of response was due to limited or no access to a personal computer or internet; a considerable percentage of the adolescents (approx.78%) dropped out from school Decile group 1 to 5 (as compared to the Decile group 6–10), as noted in Chapter 6. Further, NZ Europeans were more likely to remain in both the surveys; they are considerably more likely to be in high-decile schools than in low-decile schools (Ministry of Education, 2018b). Although this difference may have seemed to cause a slight bias in the findings of the final study, the data were MCAR; at baseline, most participants were from high-decile schools and were NZ Europeans. In addition, there were few or no differences regarding the outcome and gender pre and post transition, which fortunately rules out the presence of attrition bias in this research (Goodman & Blum, 1996; Graham, 2009). Future longitudinal investigations would need to use alternative methods of retention and collect data in-person throughout the timeframe of the

study, particularly in low-decile and lower-middle-decile schools. This would require sufficient time and fiscal resources.

The evidence suggests that in long-term longitudinal studies, participants who complete the follow-up assessments and those who drop out do not differ in terms of psychological and social variables, and that even substantial attrition rates do not affect the relationships between protective/risk factors and health outcomes (Gustavson, von Soest, Karevold, & Røysamb, 2012). Since the data were MCAR in this research, the parameter estimates in this thesis remained unbiased (Graham, 2009). It is important to point out that in reality, a pure form of MCAR rarely exists (Graham, 2009) and it can be said that missing data in this research existed on a continuum of MCAR and MAR; a slight departure from MCAR was apparent due to the mean differences in SES and ethnicity.

Missing data were also adequately dealt with within the cross-sectional study, as modeling was conducted by Maximum Likelihood Estimation. In the final study, individuals with missing values were not removed from the analyses but a large number of individual cases (n = 280) across many variables were not statistically corrected (or imputed) for missingness, in agreement with previous research with a high loss to follow-up (Bohnert et al., 2013; Longobardi et al., 2016). However, the results from multiple imputations were compared to results with original data. As there were no changes in relationships (i.e., the effects of the independent variables on dependent variables were the same), the data were evaluated in their pure form and the results with original data based on a default in-built listwise deletion in General Linear Models was retained. It is noteworthy that studies with high amounts of nonresponse have found no difference in the results between listwise deletion approaches and Full Information Maximum Likelihood (Ng-Knight, 2015), which is the preferred method of handling missing data (Graham, 2009), equivalent to what was indicated in Chapter 4 regarding the similarity of imputed and original values.

Eighth, many of the significant beta coefficients that are stated throughout this research are modest (e.g., 0.06 or 0.15); nevertheless, this does not mean the associations between predictors and wellbeing should be considered less powerful. Positive transition and wellbeing studies have often reported similar sizes of coefficients (Madjar & Chohat, 2017; Shoshani & Slone, 2013; Waters et al., 2010). It should also be noted that these associations resulted from controlling many covariates in regression models; therefore, the predictors of wellbeing here should be recognized as robust. Recommendations for future studies include explicating reasons behind associations between these predictors and wellbeing during the transition.

Ninth, the generalizability of the findings of this research depends on various factors. While the baseline sample adequately represented NZ Europeans, Asians, Pacific Islanders, and other ethnicities in Year 8 at NZ intermediate schools, Māori were underrepresented at baseline and

follow-up, which limits the generalizability of the findings to this group. For example, as compared to the respective ethnic demographics of Year 8 adolescents at intermediate schools and Year 9 adolescents at secondary schools (Education Counts, 2019), about 20% fewer Māori participated at both baseline and follow-up, while NZ European and Asian were overrepresented only at follow-up. Further, relative to the Year 9 secondary school socioeconomic demographic in NZ (Education Counts, 2019), on average only 6% fewer Year 9 adolescents participated from low-SES schools while 20% fewer Year 9 adolescents participated from middle-decile schools in both baseline and follow-up studies. Therefore, future researchers particularly need to replicate the findings of this thesis with represented populations of Māori and adolescents in middle-decile schools. Overall, there was a good representation of NZ Europeans, Asians, and Pacific Islanders from both high- and low-decile schools; therefore, the findings can be generalized to these populations. It should also be noted that the participants were located in the urban areas of Auckland, Nelson, and Wellington, with wider data coming from Auckland, which is an ideal city for research considering its diversity and population size. However, the perceptions and experiences of adolescents regarding wellbeing in rural areas may differ. In addition, there was no data from special-needs adolescents. Therefore, future studies should replicate the findings presented here with rural populations and groups with special needs. In general, the data were collected from state intermediate schools and follow-up data were collected across the transition from intermediate to secondary school; therefore, future research could examine whether the findings from this study apply to adolescents in full-primary schools or those transitioning from full-primary schools to secondary schools.

While there are some situations in which the external validity of the findings must be tested by future research, attention is drawn to the fact that in these results, gender and ethnicity was found to have no main effect on wellbeing over time, corresponding to the findings of previous studies (Dinisman & Ben-Arieh, 2016). However, this current research showed that interactions between gender and certain predictor variables were essential in enhancing overall wellbeing across the transition. Future research could examine the way ethnicity interacts with predictors displayed in this thesis to affect wellbeing. SES had no significant impact on wellbeing in the cross-sectional study. However, the mixed-study revealed that adolescents from socioeconomically different schools had significant differences in their perceptions about the centrality of five components of wellbeing (including comfort/being wealthy), and there were no significant differences between perceptions with regard to 21 components. While the significant perceptions of adolescents from low-SES school must be addressed, future researchers could study the influence of these five components, including success/achievements and SES, on the wellbeing of adolescents from low-SES schools.

It should be emphasized that this research is a first in presenting temporal associations between a host of factors and changes in global, school, domain-specific, and component wellbeing across

the transition from intermediate to secondary school. It is also a first in examining shifts in adolescent wellbeing and its predictors through this transition and providing preliminary evidence of the most definite predictors of dimensions of wellbeing in NZ Year 8 adolescents. The findings in this thesis enrich the limited database regarding adolescent wellbeing during school transitions and provides impetus for researching in-depth a specific predictor or dimension. As the findings of this research were based on both adolescents' perspectives and a systematic review of the positive school transition literature, they are critical for informing and guiding policy in this area. Future research and practice should conduct intervention trials, based on these findings, to delineate key strategies for policymakers, parents, educators, school psychologists, and counselors. This evidence is a vital prerequisite for promoting adolescent wellbeing and positive transitions.

The findings presented in this thesis, by themselves, are only a small contribution to improving adolescent wellbeing and thereby, facilitating positive transitions from intermediate to secondary schools. The next step is to translate these findings into practice and enhance the accountability of stakeholders in fostering adolescent wellbeing during the transition from intermediate to secondary school. School leaders and educators need to deal with school transition as a constant process, rather than as a mere episode of tension and stress. Adolescents vary in their perceptions and experiences, which may affect how fast or gradually they adapt to new schools (Education Review Office, 2012a). While the transition from intermediate to secondary school is a disruptive period in adolescents' lives owing to coinciding pubertal changes, it is also the time when adolescents are maturing and understand deeper aspects of life (such as being kind and helpful and the significance of connecting with nature). Therefore, it is imperative to realize that the undesirable by-products of transition are avoidable and could be overcome with targeted, evidence-informed practices at the key point of transition from intermediate to secondary school. According to the positive education approach, the disruption of this transition can be transformed into adolescents' advantage with effective and positive pre- and post-transition programs that are part of a school's curriculum. Qualified practitioners and educators are well placed to deliver these programs; however, concerted action and efforts are required by policymakers and schools in the development and application of evidence-based positive transition programs.

Unfortunately, at present most schools are focused only on making this transition more predictable, via orientation programs and prior school visits, along with rendering a little additional support across the transition (McGee et al., 2004). Few intermediate and secondary schools work together to systematically prepare adolescents to cope with the impending change and educate them to flourish, which is the need of the hour. Most schools must realize the significance of educating adolescents about wellbeing during the critical period of transition, as it is this knowledge that determines the way their lives unfold when circumstances do not work in their favor or as expected. In addition, policymakers need to urgently recognize the need to

give equal attention and funding to fostering wellbeing as they are giving on remedying mental ill-being (Hone, 2015). Many wellbeing policies and legislations are deficit-focused and target mostly those with special needs or at risk, rather than help the normal adolescent population to attain their full potential. Attempts at improving wellbeing have failed to realize that wellbeing is not only the absence of pathology but also the presence of positive states. For instance, NZ's wellbeing budget introduced in May 2019 seemed to be an optimistic indication of an intention to improve child wellbeing; however, in essence, it focused on reducing risk factors such as poverty and family violence, rather than improving positive states of wellbeing among adolescents in practical ways (Government of New Zealand, 2019). Although these emphases are critical, the tremendous potential in adolescents without morbidity could be capitalized if policymakers and schools could bring the level of zeal they have for academic and ill-being factors to working on promoting positive states of wellbeing in adolescents.

Holistic positive transition programs incorporating psycho-socio-spiritual, physical, and spiritual factors aimed at enabling wellbeing before and after the secondary school transition could result in flourishing adolescents who make contributions to society and healthy transitions to adulthood, as well as experiencing improved mental health (Bott et al., 2017; World Health Organization, 2016). Instead of applying momentary interventions, wellbeing education could make adolescents independent in enhancing their own wellbeing in the long term (Oades & Johnston, 2017), particularly during transitions. This investment and initiative could pay dividends in the future as adolescents take their place as productive citizens of society, with reduced national expenditure on the treatment of mental ill-being in the future. Some schools have recognized the value of promoting wellbeing, embracing positive education by incorporating it into their curriculum along with academic education; Geelong Grammar School in Australia is one such prominent example (Bott et al., 2017). While the NZ government has shown commendable initiatives in voicing the importance of promoting adolescent wellbeing (Education Review Office, 2013, 2016a) and improving school transitions (Education Review Office, 2012a, 2012b, 2015c), it is time for this rhetoric to become a reality. Through utilizing a comprehensive approach, actions must be undertaken by schools and policymakers now, to teach adolescents in intermediate and secondary schools the necessary skills, as revealed in this thesis, for becoming flourishing individuals who can handle transitions effectively.

Conclusion

Influenced by the approach of positive education, this thesis has demonstrated predictors of positive transitions from intermediate to secondary school as indicated by changes in wellbeing from a comprehensive perspective. Positive school transition has been defined as being influenced by psychological, social, school, physical, spiritual, and demographic factors that enable adolescents to experience wellbeing during the transition from intermediate to secondary school

in NZ. The essence of this thesis was merging the findings from a systematic review of factors that have facilitated popular indicators of positive transitions and empirical research on the perspectives of adolescents with regard to wellbeing. This integration helped in selecting the predictor variables of this research in Part A of the preparatory phase. Using a multi-step design, the PSTRS was developed in Part B of the preparatory phase and it was found to be a reliable and valid measure for assessing adolescents' overall readiness to transition and the predictor variables of this research. The findings from the exploratory phase underlined the need to attend to adolescent global, school, component, and domain-specific wellbeing during the critical period of transition from intermediate to secondary school, with special emphasis on improving Year 8 female adolescents' satisfaction with their health and lifestyle behaviors. Several psychological, social, school, physical, demographic, and spiritual factors were found to be differentially associated with global, school, domain-specific, and component wellbeing in the Year 8 intermediate school adolescents. Both pretransition and pre-post transition changes in perceptions of a range of psycho-socio-spiritual, physical, and school factors were found to predict positive transition to secondary school; the associations of these predictors with wellbeing were complex and occasionally involved interactions with gender. A single pretransition factor did not predict each dimension of wellbeing; however, changes in self-efficacy showed a consistent association with improved global, school, domain-specific, and component wellbeing across the secondary school transition. It is hoped the original information contained within this thesis will reinforce further positive transition and wellbeing research in NZ and overseas, and help to inform the development of comprehensive positive transition programs in intermediate and secondary schools.

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Appendices

Appendix A. AUTEC approval for Study 2

AUTEC Secretariat

Auckland University of Technology
D-88, WU406 Level 4 WU Building City Campus
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

30 March 2017
Scott Duncan
Faculty of Health and Environmental Sciences

Dear Scott

Re Ethics Application: **17/60 Towards successful school transitions for all Kiwi kids: A study of wellbeing in intermediate and secondary school children**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).

Your ethics application has been approved for three years until 30 March 2020.

As part of the ethics approval process, you are required to submit the following to AUTEC:

- A brief annual progress report using form EA2, which is available online through http://www.aut.ac.nz/researchethics. When necessary this form may also be used to request an extension of the approval at least one month prior to its expiry on 30 March 2020;
- A brief report on the status of the project using form EA3, which is available online through http://www.aut.ac.nz/researchethics. This report is to be submitted either when the approval expires on 30 March 2020 or on completion of the project.

It is a condition of approval that AUTEC is notified of any adverse events or if the research does not commence. AUTEC approval needs to be sought for any alteration to the research, including any alteration of or addition to any documents that are provided to participants. You are responsible for ensuring that research undertaken under this approval occurs within the parameters outlined in the approved application.

AUTEC grants ethical approval only. If you require management approval from an institution or organisation for your research, then you will need to obtain this. If your research is undertaken within a jurisdiction outside New Zealand, you will need to make the arrangements necessary to meet the legal and ethical requirements that apply there.

To enable us to provide you with efficient service, please use the application number and study title in all correspondence with us. If you have any enquiries about this application, or anything else, please do contact us at ethics@aut.ac.nz.

All the very best with your research,

Kate O'Connor
Executive Secretary
Auckland University of Technology Ethics Committee

Cc: gkaur@aut.ac.nz; gazal_aquarian@yahoo.com; aaron@jarden.co.nz

Appendix B. AUTEC approval for the Survey 2 amendment in Study 2

AUTEC Secretariat

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E: ethics@aut.ac.nz
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19 June 2017
Scott Duncan
Faculty of Health and Environmental Sciences

Dear Scott

Re: Ethics Application: **17/60 Towards successful school transitions for all Kiwi kids: A study of wellbeing in intermediate and secondary school children**

Thank you for your request for approval of amendments to your ethics application.

The amendment to the data collection protocols, which comprises the wellbeing components generated in survey 1 to be added into survey 2, is approved.

I remind you of the Standard Conditions of Approval.

1. A progress report is due annually on the anniversary of the approval date, using form EA2, which is available online through http://www.aut.ac.nz/researchethics.
2. A final report is due at the expiration of the approval period, or, upon completion of project, using form EA3, which is available online through http://www.aut.ac.nz/researchethics.
3. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form: http://www.aut.ac.nz/researchethics.
4. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.

Please quote the application number and title on all future correspondence related to this project.

AUTEC grants ethical approval only. If you require management approval for access for your research from another institution or organisation then you are responsible for obtaining it. If the research is undertaken outside New Zealand, you need to meet all locality legal and ethical obligations and requirements.

For any enquiries, please contact ethics@aut.ac.nz

Yours sincerely,

Kate O'Connor
Executive Manager
Auckland University of Technology Ethics Committee

Cc: gkaur@aut.ac.nz; gazal_aquarian@yahoo.com; aaron@jarden.co.nz

Appendix C. AUTEC approval for the Survey 3 amendment in Study 2

AUTEC Secretariat

Auckland University of Technology
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T: +64 9 921 9999 ext. 8316
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11 July 2017
Scott Duncan
Faculty of Health and Environmental Sciences

Dear Scott

Re: Ethics Application: **17/60 Towards successful school transitions for all Kiwi kids: A study of wellbeing in intermediate and secondary school children**

Thank you for your request for approval of amendments to your ethics application.

The amendment to the data collection protocols, the components generated in survey b to be added to survey, is approved.

I remind you of the Standard Conditions of Approval.

1. A progress report is due annually on the anniversary of the approval date, using form EA2, which is available online through http://www.aut.ac.nz/researchethics.
2. A final report is due at the expiration of the approval period, or, upon completion of project, using form EA3, which is available online through http://www.aut.ac.nz/researchethics.
3. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form: http://www.aut.ac.nz/researchethics.
4. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.

Please quote the application number and title on all future correspondence related to this project.

AUTEC grants ethical approval only. If you require management approval for access for your research from another institution or organisation then you are responsible for obtaining it.

For any enquiries please contact ethics@aut.ac.nz

Yours sincerely,

Kate O'Connor
Executive Manager
Auckland University of Technology Ethics Committee

Cc: gkaur@aut.ac.nz; gazal_aquarian@yahoo.com; aaron@jarden.co.nz

Appendix D. AUTEC approval for Part B of the preparatory phase and exploratory phase of this research

AUTEC Secretariat

Auckland University of Technology
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www.aut.ac.nz/researchethics

14 August 2017
Scott Duncan
Faculty of Health and Environmental Sciences

Dear Scott

Re Ethics Application: **17/251 Towards successful school transitions for all Kiwi kids: A study of wellbeing in intermediate and secondary school children**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).

Your ethics application has been approved for three years until 14 August 2020.

Standard Conditions of Approval

1. A progress report is due annually on the anniversary of the approval date, using form EA2, which is available online through http://www.aut.ac.nz/researchethics.
2. A final report is due at the expiration of the approval period, or, upon completion of project, using form EA3, which is available online through http://www.aut.ac.nz/researchethics.
3. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form: http://www.aut.ac.nz/researchethics.
4. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.

Please quote the application number and title on all future correspondence related to this project.

AUTEC grants ethical approval only. If you require management approval for access for your research from another institution or organisation then you are responsible for obtaining it. You are reminded that it is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.

For any enquiries, please contact ethics@aut.ac.nz

Yours sincerely,

Kate O'Connor
Executive Manager
Auckland University of Technology Ethics Committee

Cc: gkaur@aut.ac.nz; gazal_aquarian@yahoo.com; Erica Hinckson

Appendix E. AUTEC approval for the retest survey in the preparatory phase (Part B)

AUTEC Secretariat

Auckland University of Technology
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T: +64 9 921 9999 ext. 8316
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22 August 2017
Scott Duncan
Faculty of Health and Environmental Sciences

Dear Scott

Re: Ethics Application: **17/251 Towards successful school transitions for all Kiwi kids: A study of wellbeing in intermediate and secondary school children**

Thank you for providing evidence for the point raised.

The amendment for the inclusion of an additional data collection point is approved.

I remind you of the Standard Conditions of Approval.

1. A progress report is due annually on the anniversary of the approval date, using form EA2, which is available online through http://www.aut.ac.nz/researchethics.
2. A final report is due at the expiration of the approval period, or, upon completion of project, using form EA3, which is available online through http://www.aut.ac.nz/researchethics.
3. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form: http://www.aut.ac.nz/researchethics.
4. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.

Please quote the application number and title on all future correspondence related to this project.

AUTEC grants ethical approval only. If you require management approval for access for your research from another institution or organisation then you are responsible for obtaining it. If the research is undertaken outside New Zealand, you need to meet all locality legal and ethical obligations and requirements.

For any enquiries please contact ethics@aut.ac.nz

Yours sincerely,

Kate O'Connor
Executive Manager
Auckland University of Technology Ethics Committee

Cc: gkaur@aut.ac.nz; gazal_aquarian@yahoo.com; Erica Hinckson

Appendix F. PSTRS and questions asked to the participants for measuring predictor variables

Thank you for taking the time to answer these questions. This is NOT A TEST. There are no right or wrong answers. For all the questions below you should imagine a ladder with steps numbered from 0 at the bottom and 10 at the top and mark the box that best describes you. Please be honest when answering the questions. Your answers will be kept confidential. Your honest answers will help your school do a better job to improve your wellbeing and help you learn!

The following 6 statements ask you about your strengths, that is, the things that you are able to do well or do best. Choose from 0 to 10 where 0 means that you do not at all agree with the statement and 10 means that you strongly agree.

		Do not at all agree										Strongly agree
1.	I know my strengths well.	0	1	2	3	4	5	6	7	8	9	10
2.	I am able to use my strengths in lots of different ways.	0	1	2	3	4	5	6	7	8	9	10
3.	I know the things I am good at doing.	0	1	2	3	4	5	6	7	8	9	10
4.	I achieve what I want by using my strengths.	0	1	2	3	4	5	6	7	8	9	10
5.	I know when I am at my best.	0	1	2	3	4	5	6	7	8	9	10
6.	I am regularly able to do what I do best.	0	1	2	3	4	5	6	7	8	9	10

For the following three statements, indicate on a scale of 0 to 10 that best represent you. Zero means “not at all like me” and 10 means “very much like me”.

		Not at all like me										Very much like me
7.	Pleasure and fun sometimes keep me from getting work done. (R)	0	1	2	3	4	5	6	7	8	9	10
8.	I wish I had more self-discipline. (R)	0	1	2	3	4	5	6	7	8	9	10
9.	I am lazy. (R)	0	1	2	3	4	5	6	7	8	9	10

Choose the number for each of the following 6 statements that is most true of you. Zero means “not at all true of me” and 10 means “completely true of me”.

		Not at all true of me										Completely true of me
10.	In life, I have clear goals and aims.	0	1	2	3	4	5	6	7	8	9	10
11.	In achieving life goals, I’ve progressed to complete fulfilment.	0	1	2	3	4	5	6	7	8	9	10
12.	I have discovered a satisfying life purpose.	0	1	2	3	4	5	6	7	8	9	10

13.	Thanks to my resourcefulness, I know how to handle unforeseen situations.	0	1	2	3	4	5	6	7	8	9	10
14.	I can solve most problems if I invest the necessary effort.	0	1	2	3	4	5	6	7	8	9	10
15.	I can remain calm when facing difficulties because I can rely on my coping abilities.	0	1	2	3	4	5	6	7	8	9	10

Read each statement carefully below and indicate how you feel on a scale of 0 to 10. Zero means you "never" feel like this and 10 means you "always" feel like this.

		Never										Always
16.	It seems I am "running on automatic," without much awareness of what I am doing. (R)	0	1	2	3	4	5	6	7	8	9	10
17.	I find myself doing things without paying attention. (R)	0	1	2	3	4	5	6	7	8	9	10
18.	I find it difficult to stay focused on what is happening in the present. (R)	0	1	2	3	4	5	6	7	8	9	10

For the questions below, indicate on a scale of 0 to 10 how often you directly have this experience, and try to disregard whether you feel you should or should not have these experiences. If you are not comfortable with the word God, you can substitute it with any other idea that is divine or holy for you.

		Never										Always
19.	I feel guided by God in the midst of daily activities.	0	1	2	3	4	5	6	7	8	9	10
20.	I feel God's love for me directly.	0	1	2	3	4	5	6	7	8	9	10
21.	I feel God's presence.	0	1	2	3	4	5	6	7	8	9	10

The following statements are about your family, friends, and teachers. Please indicate how true each statement is for you. Zero means "not at all true" and 10 means "extremely true".

		Not at all true										Extremely true
22.	I get the emotional help and support I need from my family.	0	1	2	3	4	5	6	7	8	9	10
23.	I can talk about my problems with my family.	0	1	2	3	4	5	6	7	8	9	10
24.	My family is willing to help me make decisions.	0	1	2	3	4	5	6	7	8	9	10
25.	In our family, there is a feeling of togetherness.	0	1	2	3	4	5	6	7	8	9	10
26.	In our family, we sometimes tell each other about our problems.	0	1	2	3	4	5	6	7	8	9	10
27.	In our family, we lose our tempers a lot. (R)	0	1	2	3	4	5	6	7	8	9	10

28.	My friends really try to help me.	0	1	2	3	4	5	6	7	8	9	10
29.	I can count on my friends when things go wrong.	0	1	2	3	4	5	6	7	8	9	10
30.	I have friends with whom I can share my joys and sorrows.	0	1	2	3	4	5	6	7	8	9	10
31.	Sometimes my friend and I just sit around and talk about things like study, work, and things we like.	0	1	2	3	4	5	6	7	8	9	10
32.	If I have a problem at school or at home, I can talk to my friend about it.	0	1	2	3	4	5	6	7	8	9	10
33.	When I do a good job at something, my friend is happy for me.	0	1	2	3	4	5	6	7	8	9	10
34.	Our teachers are nice and friendly.	0	1	2	3	4	5	6	7	8	9	10
35.	When I need extra help, I can get it.	0	1	2	3	4	5	6	7	8	9	10
36.	Our teachers treat us fairly.	0	1	2	3	4	5	6	7	8	9	10

The next questions are about your school and your involvement in the curricular activities. Check the box that best describes you. Zero means “not at all true” and 10 means “completely true”.

		Not at all true										Completely true
37.	I feel proud of belonging to this school.	0	1	2	3	4	5	6	7	8	9	10
38.	Most teachers at this school are interested in me.	0	1	2	3	4	5	6	7	8	9	10
39.	I can really be myself at this school.	0	1	2	3	4	5	6	7	8	9	10
40.	I did not participate in any academic/literary/leadership activity in last two years. (R)	0	1	2	3	4	5	6	7	8	9	10
41.	I did not participate in performance/fine arts in the last two years. (R)	0	1	2	3	4	5	6	7	8	9	10
42.	I did not participate in sport activities other than physical education in school in the last two years. (R)	0	1	2	3	4	5	6	7	8	9	10
43.	I did not participate in any community organizations or vocational clubs during the last two years. (R)	0	1	2	3	4	5	6	7	8	9	10

The following three questions are about your relationship with nature. Please rate the extent to which you agree with each statement below using the scale from 0 to 10. Zero means “do not at all agree” and 10 means “completely agree”.

		Do not at all agree										Completely agree
44.	I love spending time outside in nature. (Nature includes plants, animals, and water bodies).	0	1	2	3	4	5	6	7	8	9	10
45.	My relationship to nature is an important part of who I am.	0	1	2	3	4	5	6	7	8	9	10
46.	My ideal vacation spot would be a remote, wilderness (neglected area with bushes) area.	0	1	2	3	4	5	6	7	8	9	10

The following questions are about how you behave or feel towards others in the stated manner. Read the statements carefully and indicate how these statements represent you. Zero means “not at all like me” and 10 means “completely like me”.

		Not at all like me										Completely like me
47.	If I see someone going through a difficult time, I try to be caring toward that person.	0	1	2	3	4	5	6	7	8	9	10
48.	When others feel sadness, I try to comfort them.	0	1	2	3	4	5	6	7	8	9	10
49.	I like to be there for others in times of difficulty.	0	1	2	3	4	5	6	7	8	9	10
50.	When given the opportunity, I enjoy helping others who are in need.	0	1	2	3	4	5	6	7	8	9	10
51.	Helping friends and family is one of the great joys in life.	0	1	2	3	4	5	6	7	8	9	10
52.	It feels wonderful to assist others in need.	0	1	2	3	4	5	6	7	8	9	10

Please read each statement below about your safety and mark the response that best shows how much you agree.

		Do not at all agree										Completely agree
53.	I feel safe going to and coming from school.	0	1	2	3	4	5	6	7	8	9	10
54.	I feel safe in the school.	0	1	2	3	4	5	6	7	8	9	10

Read the three questions below and rate the extent to which you enjoyed the following activities in the past week.

		Not at all or never										All the time or always
55.	During the past week, how much of the time have you enjoyed your class work?	0	1	2	3	4	5	6	7	8	9	10

56.	During the past week, how often did you enjoy leisure activities?	0	1	2	3	4	5	6	7	8	9	10
57.	During the past week, how much of the time have you enjoyed talking with or being with friends or relatives?	0	1	2	3	4	5	6	7	8	9	10

Please rate the extent to which people around you display the below behaviors by showing your agreement with the statements. Zero means "do not at all agree" and 10 means "completely agree".

		Do not at all agree										Completely agree
58.	People around me are nice and kind.	0	1	2	3	4	5	6	7	8	9	10
59.	People around me are respectful to me.	0	1	2	3	4	5	6	7	8	9	10
60.	People around me are very encouraging.	0	1	2	3	4	5	6	7	8	9	10
61.	People around me appreciate and value me.	0	1	2	3	4	5	6	7	8	9	10

How often do you do the following activities? Read the labels carefully.

		Never	Once or twice a month	Less than 3 times a week	3–5 times a week	Almost every day (6–7 times a week)
62.	Indoor hobbies (such as reading, drawing, and cooking)	1	2	3	4	5
63.	Outdoor hobbies (such as swimming, horse-riding, hiking, camping, and fishing)	1	2	3	4	5
64.	Entertainment activities (such as listening to music)	1	2	3	4	5
65.	Computer and internet activities (such as playing video games, watching YouTube videos, watching Netflix)	1	2	3	4	5
66.	Sports (such as playing rugby, cricket, and basketball)	1	2	3	4	5
67.	Physical activities (such as walking, jogging, exercise, and yoga)	1	2	3	4	5
68.	Socializing activities (such as hanging out with your friends, going to mall, going out to eat, visiting relatives)	1	2	3	4	5

The following questions are about your diet in the PAST WEEK. Read the labels carefully and check the appropriate box.

		Never	once	twice	3 times	4 times	5 times	6 or 7 times

69.	How many days during the last week did you consume breakfast?	1	2	3	4	5	6	7
70.	How many days in the last week did you have some vegetables (raw, cooked, or canned)?	1	2	3	4	5	6	7
71.	How many days in the last week did you have some fruit (fruit, canned, stewed, or dried, excluding juice)?	1	2	3	4	5	6	7

Note. Items represented with an (R) are reverse coded

Also answer the following 6 questions:

1. During the last week (Monday→Friday), how did you usually ***travel to school?***

Days	Car	Walk	Bicycle	Bus
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Other (please specify)				

2. During the last week (Monday→Friday), how did you usually ***travel from school?***

Days	Car	Walk	Bicycle	Bus
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Other (please specify)				

3. What time do you normally:
Go to bed on a weekday? _____

Get up on a weekday? _____

4. What time do you normally:
Go to bed on Saturday? _____

Get up on Sunday? _____

Please tick yes or no below:

5. Do you have a pet?

O Yes
O No

6. Do you have an older sibling?

O Yes
O No

Please fill in the information below:

Full name _____

Grade/Year level_____

Age_____

Gender_____

Ethnicity (cultural group that you belong to) – Tick the relevant option below
O African
O Asian
O Māori
O Middle Eastern
O New Zealand European
O Pacific Islander
O Other

Name of your school_____

Items constituting each component

Items	Component
1–6	Strength use and Knowledge
7–9	Self-control
10–12	Purpose
13–15	Self-efficacy
16–18	Mindfulness
19–21	Spirituality
22–27	Positive family relationships
28–33	Positive friendships
34–36	Perceived teacher support
37–39	School belonging
40–43	Involvement in organized activities
44–46	Connection with nature
47–52	Being kind and helpful
53–54	Feeling safe
55–57	Enjoyment
58–61	Being around positive people
62–65	Hobbies and leisure activities frequency
66–67	Physical activity frequency
68	Socializing activities frequency
69-71	Diet
Aggregate items	Readiness for secondary school transition

Appendix G. Wellbeing assessment (AWE)

The following question asks about how happy you felt yesterday on a scale from 0 to 10. Zero means you did not experience the feeling of happiness "at all" yesterday while 10 means you experienced the feeling of happiness "all of the time" yesterday.

		Did not feel happy at all yesterday										Felt happy all of the time yesterday
1.	How happy were you yesterday?	0	1	2	3	4	5	6	7	8	9	10

The following question asks about how worried and anxious you felt yesterday on a scale from 0 to 10. Zero means you did not experience the feeling of worry and anxiety "at all" yesterday while 10 means you experienced the feeling of worry and anxiety "all of the time" yesterday.

		Did not feel worried or anxious at all yesterday										Felt worried or anxious all of the time yesterday
2.	How worried or anxious were you yesterday?	0	1	2	3	4	5	6	7	8	9	10

The following question asks how you generally feel. Please choose one of these.

3.	In general, how happy or unhappy do you usually feel?
	Extremely happy (feeling ecstatic, joyous, fantastic)
	Very happy (feeling really good, elated)
	Pretty happy (spirits high, feeling good)
	Mildly happy (feeling fairly good & somewhat cheerful)
	Slightly happy (just a bit above normal)
	Neutral (not particularly happy or unhappy)
	Slightly unhappy (just a bit below neutral)
	Mildly unhappy (just a little low)
	Pretty unhappy (somewhat "blue", spirits down)
	Very unhappy (depressed, spirits very low)
	Extremely unhappy (utterly depressed, completely down)

The following question asks how worthwhile you feel the things you do in your life are, on a scale from 0 to 10. Zero means you feel the things you do in your life are "not at all worthwhile", and 10 means "completely worthwhile".

4.	Overall, to what extent do you feel the things you do in your life are worthwhile?	Not at all worthwhile 0	1	2	3	4	5	6	7	8	9	Completely worthwhile 10

The following question asks how satisfied you feel, on a scale from 0 to 10. Zero means you feel "not at all satisfied" and 10 means you feel "completely satisfied".

5.	Overall, how satisfied are you with life as a whole these days?	Not at all satisfied 0	1	2	3	4	5	6	7	8	9	Completely satisfied 10

Please rate how important and satisfied you are with each life domain. Rate the 5 domains for importance first, then rate the 5 domains for satisfaction.

	Importance											Satisfaction										
	0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10
6. Family																						
7. Friendships and social life																						
8. Education																						
9. Physical health																						
10. Fun and leisure																						

Read each statement below and then indicate how much the statement represents you.

		Not at all like me										Completely like me
11.	My relationships with other students at school are fantastic.	0	1	2	3	4	5	6	7	8	9	10
12.	I feel good about my appearance.	0	1	2	3	4	5	6	7	8	9	10
13.	I feel like I fit in at my school.	0	1	2	3	4	5	6	7	8	9	10

Read each statement below and then indicate how much the statement represents you.

		Not at all										All of the time
14.	I suffer from headaches, stomach pains, or feel sick at school.	0	1	2	3	4	5	6	7	8	9	10
15.	I get bullied by students at my school.	0	1	2	3	4	5	6	7	8	9	10
16.	I feel sad at school.	0	1	2	3	4	5	6	7	8	9	10

Read each statement below and then indicate how much the statement represents you.

17.	I am able to deal with my problems at school.	Not at all well 0	1	2	3	4	5	6	7	8	9	Completely well 10
18.	The teachers at my school care about me.	Not at all care 0	1	2	3	4	5	6	7	8	9	Completely care 10

Read each statement below and then indicate how much the statement represents you.

		Not at all like me										Completely like me
19.	I tend to bounce back quickly after hard times.	0	1	2	3	4	5	6	7	8	9	10
20.	I usually come through difficult times with little trouble.	0	1	2	3	4	5	6	7	8	9	10
21.	It does not take me long to recover from a stressful event.	0	1	2	3	4	5	6	7	8	9	10

Read each statement below and then indicate how satisfied you are with each aspect.

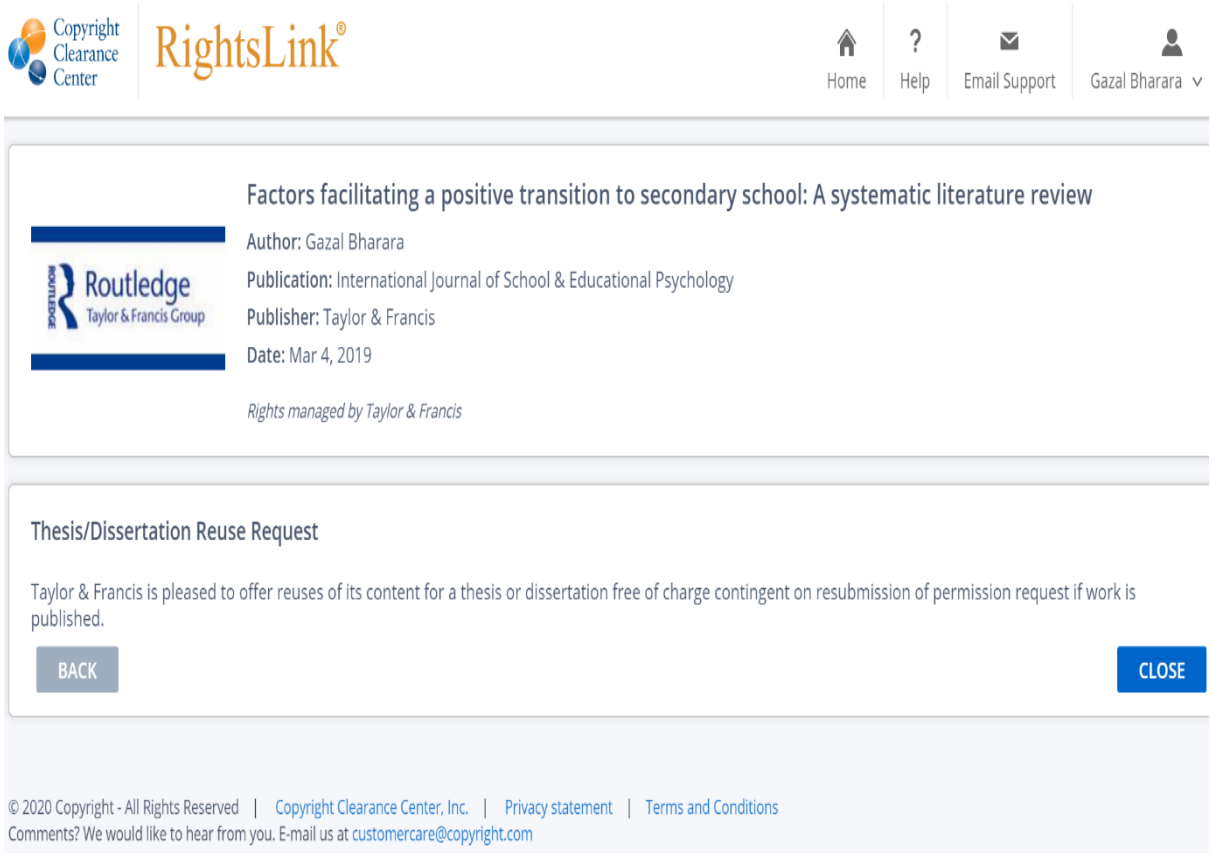
		Not at all satisfied										Completely satisfied
22.	In general, how satisfied are you with your health?	0	1	2	3	4	5	6	7	8	9	10
23.	In general, how satisfied are you with your diet?	0	1	2	3	4	5	6	7	8	9	10
24.	In general, how satisfied are you with the quality of your sleep?	0	1	2	3	4	5	6	7	8	9	10
25.	In general, how satisfied are you with your level of physical activity and exercise?	0	1	2	3	4	5	6	7	8	9	10

Read each statement below and then indicate how satisfied you are with each aspect.

		Not at all satisfied										Completely satisfied
26.	In general, how satisfied are you that your school supports and enables student wellbeing?	0	1	2	3	4	5	6	7	8	9	10
27.	In general, how satisfied are you with your role in supporting and enabling student wellbeing?	0	1	2	3	4	5	6	7	8	9	10

Appendix H. Permission for reuse of the published article in the thesis

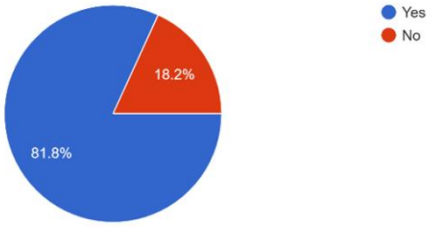
(as per the publisher requirements)



Appendix I. Pilot study questions and feedback summary (Chapter 4)

Were you able to understand the questions?

11 responses



If your answer is yes then go to question 3. If your answer is no to the above question, write which ones were hard to understand (if you can recall)?

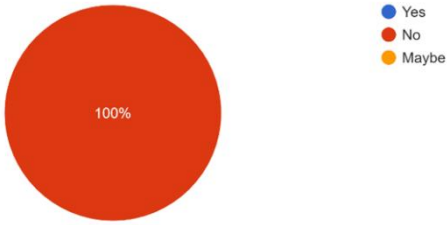
2 responses

45

They were all good except the last one about you ethnicity where I thought it could be slightly more specific with what they mean.

Did you skip through any questions without really thinking about the answer?

11 responses



If your answer is yes to the above question, then how many approximately?

0

How long do you think the survey was?

11 responses