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The Relationship Between Cultural Background, Gender, Physical Activity, and the Resilience and Well-Being Levels of Adolescents

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by

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Abstract

The incidence of mental health disorders continues to rise, and it is predicted that depression will be the second highest cause of disability, behind ischemic heart disease, for all ages and genders over the next decade (WHO, 2017). Mental health disorders in adults are quite clearly clearly understood; but mental health disorders in children and adolescents have not been as widely researched, particularly in relation to preventative and protective factors.

This non-experimental quantitative study investigated the relationship between the dependent variables of well-being and resilience, and the independent variables of gender, racial, and cultural background, and physical activity levels of a cohort of 386 adolescents from 10-14 years of age at an international school in Singapore. The study utilized the child and youth resilience measure (CYRM-12), (Ungar, 2016) to measure resilience, and the PERMA profiler (Butler & Kern, 2016) to measure levels of well-being.

The study results showed there to be a positive correlation between physical activity and increased levels of well-being and resilience in adolescents. There was no significant difference discovered in the different genders and the relationship with well-being and resilience. The analysis of racial and cultural background found there to be a significant difference between study participants in the PERMA subscales of relationships and accomplishment. Participants from a White or European background showed a significant difference compared to participants from an Asian background on the relationship subscale, and there was a significant difference between Asian and South Asian participants on the accomplishment subscale.

Dedication

To my amazing family who has helped me every step of the way.

To Kristin, Lucy, and Ollie – Thank you for your love, support,

hugs, laughs, and words of encouragement!

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Chapter 1: Introduction

The incidence of mental health disorders in adolescents is on the rise, with as many as one in five children and adolescents now reporting mental health problems (Bor, Dean, Najman, & Hayatkabash, 2014; Kieling et al., 2011). The world is continuing to change at a rapid rate, which brings with it social changes that can impact mental health. These social changes include a decrease in income equality (OECD, 2011), a higher prevalence of children coming from single parent families (Eurostat, 2012), along with changes in parenting values and practices (Twenge & Campbell, 2009), and an increase in parents with mental health problems that impact the well-being of their children (Fatori, Bordin, Curto, & De Paula, 2013).

Schools have been identified as an important social institution that can help to reverse the continued increase of mental health disorders in adolescents (Alford, 2017). Researchers have found academic expectations and other school-related social, emotional, and mental pressures can impact the mental health of students (Roth, Suldo, & Ferron, 2017). Schools are connected with students, families, and communities; therefore, schools play a significant role in the development of the whole child and adolescent (Alford, 2017). The changes in education and society also require a re-thinking in how the issue of child and adolescent mental health is approached (Alford, 2017; Bor et al., 2014; Seligman, 2011). Traditionally, schools and society have approached mental health disorders from a reactive perspective by dealing with the symptoms (Seligman, 2011; Shoshani & Steinmetz, 2014). However, recent research in the field of positive psychology has influenced thinking in some areas, developing a proactive approach through creating positive school-based interventions and preventative strategies in children and adolescents to combat the onset of mental health disorders (Shoshani & Steinmetz, 2014; Trompetter, de Kleine, & Bohlmeijer, 2017). Diener (2000) and

Seligman (2011) asserted that the development of well-being, along with the development of resilience (Masten, 2001; Rutter, 2013; Ungar, 2012), in children and adolescents can lead to positive outcomes in mental health.

Background of the Study

Children and adolescents face many life challenges, events, and occurrences that help to shape who they are, what they value, and what is important in their lives (Lerner & Galambos, 1998). Adolescence can be a particularly challenging time for individuals because they are changing their relationship with the world around them, and they experience new behavioral risks in their lives such as drugs, alcohol, substance abuse, and teenage pregnancy (Lerner & Galambos, 1998). Childhood is characterized by freedom, positive relationships with parents and friends, and enjoyment at school and in everyday life, whereas adolescence is characterized by change, both positive and negative, and the transition to adulthood (Lerner & Galambos, 1998).

Adolescence can be a challenging life stage, particularly due to the increased prevalence of mental health related issues that are affecting children and adolescents (Merikangas, Burstein, Swanson, & Avenevoli, 2010). The transition period from childhood to adolescence and then into adulthood can be challenging in an emotional, physical, and psychological sense (Galvan, 2017; Patton et al., 2016; Simmons, 2017). Adolescence can be a time when individuals struggle with a sense of identity and self; they start to identify with how others perceive them, and they start to become more aware of their faults and personal dislikes (Galvan, 2017; Patton et al., 2016; Simmons, 2017). It is a life period that can be characterized by self-esteem strengthening or weakening, and young individuals becoming more self-conscious of who they are, where they fit, and what they look like; girls are particularly vulnerable in this regard (Simmons, 2017). Other challenges throughout this period, which can lead to mental health issues, may be

related to cultural or ethnic backgrounds (Ungar, 2012), the age and stage of the individual (Oldehinkel, Hartman, Van Oort, & Nederhof, 2014), the gender of the child or adolescent (D'Agostino, Giusti, & Potsi, 2018), and the regular, or irregular, physical activity participation levels of the individual (McMahon, Corcoran, O'Regan, Keeley, Cannon, & Carli, et al., 2017).

Not all children and adolescents find this life period challenging, and continue to be well-adjusted adults with sound mental, physical, and emotional health (Shoshani & Steinmetz, 2014). Some adolescents can handle the stresses, transitions, and life changes that occur, while some have developed protective factors and strategies that help them to deal with adversity and challenges (Schultze-Lutter, Schimmelman, & Schmidt, 2016; Seligman, 2011). Building well-being and resilience in children and adolescents is seen as a valuable approach to creating a buffer and protection against the onset of mental health disorders (Sagone & De Caroli, 2014; Shoshani & Steinmetz, 2014). Protective factors can be built around sociocultural and attachment concepts, cognitive choice and self-control, and life purpose (Bosma, Orozco, Barriga, Rosas-Lee, & Sieving, 2015). Some of the specific elements of these protective factors include: understanding how to utilize intellectual and self-regulation skills in challenging situations; development of a positive self-esteem and self-perception, along with the development of hope and life purpose; positive attachment to support groups such as families, friends, and caregivers; strong bonds to community groups such as schools, sports clubs, youth groups, and other organizations; and a strong cultural understanding of beliefs, rituals, relationships, and personal support structures (Bosma et al., 2015).

The development of well-being is also seen as an element that can be established as a protective factor, and to provide increased immunity against mental health disorders (Diener, 2000; Ryff & Keyes, 1995; Seligman, 2011). The two forms of well-being

described in the literature are psychological well-being (Ryff & Keyes, 1995) and subjective well-being (Diener, 2000; Seligman, 2011). Both forms of well-being describe the elements of a well individual (Layous, Chancellor, & Lyubomirsky, 2014). Subjective well-being is an area of interest because it focuses on the concept of life purpose with the outcome being feelings of happiness and contentment (Diener, 2000, Seligman, 2011). Diener (2000) designed a subjective well-being model comprised of three major elements—satisfaction with life, positive affect, and low levels of negative affect—and asserted that these elements could be built upon via the use of intellectual skills, positive interventions, and cognitive processes to create a well individual with life purpose.

Seligman (2011) extended the work of Diener (2000), and Ryff and Keyes (1995) and developed the positive emotions, engagement, positive relationships, meaning, and accomplishment (PERMA) model which describes the five important life elements of positive emotions, engagement, positive relationships, meaning and purpose, and achievement. When all elements are combined, it is asserted that the PERMA model (Seligman, 2011) and the subjective and psychological well-being models help build the protective factors and resilience capabilities that allow an individual to flourish, and to rebound when circumstances are challenging (Diener, 2000; Ryff & Keyes, 1995; Seligman, 2011; Shoshani & Steinmetz, 2014). Identifying and creating programs and approaches that focus on building understanding and awareness around protective factors may help prevent the onset of major mental health disorders in children and adolescents (Seligman, 2011; Ungar, 2012).

The current study was designed to investigate the self-reported well-being and resilience levels of a cohort of adolescent participants, to build on previous research, and to add to the limited research on resilience and well-being in an international school setting.

Statement of the Problem

Mental health disorders such as depression and anxiety have become significant issues in society, particularly in children and adolescents; it has been predicted that approximately one in five individuals under the age of 18 years will experience mental health problems (Bor et al., 2014). The World Health Organization (WHO, 2017) predicted that depression and mental illness will be the second largest cause of early death by 2020, behind heart disease. There has been steady growth in the number of reported cases of mental health disorders over the past 10 years, with an 18.4% increase of reported depressive disorder between 2005 and 2015 (WHO, 2017). Depression currently stands as the most significant contributor to non-fatal health loss, with depressive and anxiety disorders being higher in females (WHO, 2017).

Western society has changed quite dramatically in the 21st century, and many of the related societal changes and pressures have been strong contributors to the increase of child and adolescent mental health disorders (Bor et al., 2014). Individuals are experiencing higher stress levels that have been created by increased use of social and digital media, as well as changes in family and social relationships (Bor et al., 2014). Nevertheless, a greater awareness of the effects of mental health disorders has led to a greater number of individuals who are prepared to self-report and seek help (Bor et al., 2014).

Despite the continued increase of mental illness concerns in individuals, particularly in children and adolescents, there has also been a growing movement towards positive psychology interventions as a means to improve protective factors, awareness, and understanding regarding how mental illness can be treated through a preventative approach (Shoshani & Steinmetz, 2014). Childhood and adolescence have been identified as target areas for the implementation of interventions that can help individuals stay

mentally well throughout life (Shoshani & Steinmetz, 2014). Following extensive research in the field of mental health, the World Health Organization (WHO, 2017) posited that approximately 50% of mental health issues in adulthood begin during childhood and adolescence; therefore, children and adolescents are perceived as an important focus group for the implementation of preventative strategies (Shoshani & Steinmetz, 2014).

Resilience has also been perceived as a protective factor against mental health disorders (Schultze-Lutter et al., 2016). It has also been described as a competence that can be developed and improved (Nemec, 2005). Resilience helps individuals overcome adversity and cope in stressful situations and it is an asset that acts as a strong protector against mental health disorders (Schultze-Lutter et al., 2016). Some of the common themes in the literature described resilience as the process of successfully overcoming adversity or trauma (Rutter, 2013); the personal durability to adapt to challenging circumstances, often created through positive experiences and support (Davydov, Stewart, Richie, & Chaudieu, 2010); the ability to rebound fully from a setback or traumatic experience (Masten, 2001); and the development of a form of mental immunity against future challenges (Masten, 2001).

Purpose of the Study

The purpose of this non-experimental, cross-sectional quantitative study was to explore adolescents' self-reported levels of resilience and well-being, and how they are impacted by gender, cultural, or racial background, and physical activity participation levels. This study was based on a cohort of middle school adolescents at an international school offering an American curriculum in Singapore, with students coming from a range of backgrounds and varied life experiences. The study built on the limited research that has been obtained regarding childhood and adolescent well-being and resilience, and it

attempted to add to the limited body of knowledge regarding the impact of cultural or racial background, gender, and physical activity participation levels on resilience and well-being, in an international school setting.

Rationale

There has been a continued increase in reported mental health disorders over the last 10-15 years, particularly in children and adolescents from six to 16 years of age (WHO, 2017). Of note is the increase in the number of children and adolescents requiring ongoing treatment for mental health disorders, leading to an increase in the administration of psychotropic medications to alleviate symptoms and illness (Olfson, Blanco, Wang, Laje, & Correll, 2014).

Alford (2017) asserted that schools play an important role in the development of children and adolescents due to their regular contact with families and the communities in which they live. Therefore, schools have a unique opportunity to educate the whole student to become resilient, develop their well-being, and live fulfilling lives, beyond the regular academic program (Alford, 2017). Many schools have a strong academic focus and counselors to take care of the mental well-being of students in a more reactive approach to individual wellness (Oades, Robinson, Green, & Spence, 2011). Alford and White (2015) proposed that a whole-school community, pro-active approach to well-being through a positive psychology and education framework will help to develop resilient individuals who can handle the stresses and mental challenges of a changing society. Resilience is seen as a personal trait that can be developed to enable children and adolescents to remain mentally, socially, and emotionally well, and to equip them with the ability to recover from adversity and traumatic life events (Connor & Davidson, 2003; Fergus & Zimmerman, 2005; Luthar, Cicchetti, & Becker, 2000; Masten, 2001; Ong, Bergeman, Bisconti, & Wallace, 2006).

Seligman (2011) posited that a state of well-being is more than the absence of ill-being, and, through approaches based around positive psychology and positive education frameworks, suggested that educators can build on the personal strengths of the students to help foster a state of flourishing. To create this state of flourishing, students learn to enhance subjective well-being through practices such as mindfulness, gratitude, and optimism, while enhancing psychological well-being in developing individual strengths and purpose (Alford, 2017; Clonan, Chafouleas, McDougal, & Riley-Tillman, 2004; Seligman, Ernst, Gillham, Reivich, & Linkins, 2009; Seligman, 2011). Seligman et al. (2009) contended that this enhanced state of well-being will help to prevent mental health disorders such as depression and anxiety. Enhancing well-being and resilience have been perceived as strong preventative measures that can help adolescents to navigate their way into adulthood in a healthy mental state (Masten, 2001; Seligman et al., 2009). However, there is still a lack of understanding of how resilience and well-being apply to other impacting variables such as race/culture, gender, and physical activity levels in adolescents.

This researcher examined the self-reported levels of the dependent variables of resilience and well-being in a cohort of adolescents, and developed an understanding of how this is related to the independent variables of culture, race, gender, and physical activity participation levels.

Research Questions

The primary questions that guided this study were:

1. Is there a difference between self-reported levels of well-being and resilience among adolescents of different genders?
2. Is there a difference between self-reported levels of well-being and resilience among adolescents of different cultural/ethnic backgrounds?

3. Is there a difference between self-reported levels of well-being and resilience among adolescents who are involved in varying levels of physical activity?

Significance of the Study

Although research into treatment of mental health disorders is not a new issue, the time has come to look beyond treating the symptoms and start looking at less traditional processes that relate to the psychological and emotional well-being of children and adolescents (Rutter, 2006, 2013; Seligman, 2011). Traditional symptomatic treatment of mental health disorders is typified by identifying the illness following onset, or patients self-reporting when they have experienced a change in their psychological, emotional, or physical state that requires support (Merikangas et al., 2010). With such an alarming rise in the prevalence of mental health disorders in adolescents, there is a significant increase in demand for financial and medical resources, pressures on families and society, and a greater need for research and program development that identify the risk factors and help build on protective factors such as resilience and well-being development (Merikangas et al., 2010; Seligman, 2011).

A significant body of research (Diener, 2000; Ryff & Keyes, 1995; Seligman, 2011; Shoshani & Steinmetz, 2014) discussed the importance of positive mental health, yet there is still need for further focus on children and adolescents (WHO, 2014). Many mental health disorders go unrecognized or undiagnosed until adulthood, yet approximately 50% of all mental health disorders have their onset before the age of 14 years (WHO, 2014). The development of positive psychology-based preventive measures, protective factors, and positive youth development showed beneficial results in recent research with at-risk youth (Sanders et al., 2015).

Along with researching child and adolescent mental health, it is important to examine the impact of protective factors such as the development of well-being and

resilience (Diener, 2000; Masten, 2001; Rutter, 2013; Seligman, 2011; Ungar, 2012). Furthermore, there is a need to investigate some of the impacting variables such as race or culture (Ungar, 2012), gender (D'Agostino et al., 2018), and participation in physical activity (Vella, Cliff, Magee, & Okely, 2015).

This study aimed to further the understanding of how the development of well-being and resilience can act as protective factors against growing levels of mental health disorders in adolescents by examining self-reported responses to the PERMA profiler (Butler & Kern, 2016), and the child and youth resilience measure (CYRM) (Ungar, 2016). Furthermore, the study aimed to gain a clearer understanding of the self-reported levels of resilience and well-being related to gender, physical activity participation levels, and cultural or racial background in a cohort of adolescents from an American international school in Singapore.

Through this investigation, the intention was to gain a clearer understanding of the role that resilience and well-being play in how adolescents can successfully transition through adolescence and into adulthood and minimize the possibility of developing a mental health disorder. The information obtained from this investigation will be shared with parents, administrators, teachers, and students to form the basis for school programming and educational approaches that promote positive mental health in children and adolescents.

Limitations

This study possesses several limitations. The first limitation is that the intended study group consists of a convenience sample. The convenience sample is proposed because it provides the appropriate population at an international school, and it provides an opportunity to add new research to a gap in the literature and build on previous research related to resilience and well-being. Convenience samples narrow the study and

findings to a small group of individuals and can create bias, and counteract the ability to generalize the results across a broader population (Patten, 2014). However, it is appropriate for an initial study that hoped to inform the ongoing research trajectory related to well-being and resilience.

A further limitation of this study was the use of a self-report measure. In an online survey such as the one proposed for this study, there was the possibility that students would rush through and not answer all questions accurately or in full (Wright, 2005). There was a further possibility that participants would search for what they perceived as the right answer to meet the needs of the researcher (Evans & Mathur, 2005), or answered questions in a manner they believe would benefit the study (Muijs, 2011). Furthermore, researcher bias may have been evident as a result of the researcher being a teacher at the selected study site.

Definition of Terms

The following terms were defined as follows for this study:

International School: An institution that is situated in a foreign country, offering a foreign curriculum or world curriculum. International schools predominantly serve students that are not citizens of the host nation where the school is situated.

International Students: Individuals who hold a passport or who are citizens of a country that is different from the host country in which they are studying. These students self-identify via their race, culture, or home country where they grew up or where their parents came from.

Positive Psychology: The study of well-being and optimal functioning that aims to build on positive individual traits and life experience, rather than just focusing on improving suffering (Seligman, 2011).

Psychological Well-Being (PWB): Being in a positive psychological state as a

result of the following factors: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth (Ryff, 1989).

Resilience: Though described in many ways in the early 2000s, depending on whether it is viewed as a trait, process, or outcome, for the purpose of this study, it is the ability to adapt in a healthy manner to stress, adversity, tragedy, or trauma (Southwick, Bonanno, Masten, Panter-Brick, & Yehuda, 2014).

Subjective Well-Being (SWB): The manner in which people evaluate their own personal life satisfaction and happiness, contentment, and feelings of positive psychological, psychosocial, and emotional wellness (Diener, 2000).

Well-Being: Can be described as a state of happiness, comfort, or positive health (Simpson, Weiner, & Oxford University Press, 1989), or "A composite of the two underlying concepts of happiness and life satisfaction" (Eger & Maridal, 2015, p. 46).

Organization of the Dissertation

Chapter 1 provides an introduction. The literature review in Chapter 2 provides a review of the research regarding adolescent mental health, well-being, and resilience. The chapter also provides a review of current interventions, particularly the use of positive psychology and positive education approaches, as a way to develop protective factors against the onset of mental health disorders.

Chapter 3 is designed to provide an outline of the methodology and theoretical framework of this study. The chapter describes the research design, data analysis, and use of results, along with the research questions and hypotheses of the study. Chapter 3 also includes a clear explanation of the convenience sample selection, setting and study site, and an outline of the limitations related to the proposed study.

Chapter 4 includes the results of the study, along with a detailed statistical analysis, including statistical tables and descriptive statistics, showing the findings related

to the research questions and associated variables.

Chapter 5 discusses the findings of the study. An attempt will be made to interpret and draw conclusions from the data based on analysis of correlations and connections between outcomes. The chapter concludes with implications for practice and recommendations for further research in this field.

Chapter 2: Literature Review

The following literature review is designed to develop an understanding of positive well-being, subjective and psychological well-being, resilience, and some of the factors leading to adolescent mental, social, and emotional health concerns. The literature review focuses on the common understandings of the topic and aims to provide some background on the various concepts; it also aims to relate resilience and well-being to mental health and connect the relevant theories and foundations related to the study.

Child and Adolescent Mental Health

The rate of adolescents with mental health and stress-related issues has grown over the last two decades, with as many as one in every three to four children in specific regions of the United States experiencing a mental disorder (Merikangas et al., 2010). It has been reported that depression affects over 100 million people worldwide. The World Health Organization (WHO, 2014) predicted that depression would be the second highest cause of disability for all ages and both genders over the next decade, behind ischemic heart disease (Layous et al., 2014). Furthermore, it was reported that suicide, with depression expressed as the major root cause, contributed to approximately 850,000 deaths across the world each year (Layous et al., 2011; WHO, 2011). This ever-growing epidemic is of even greater concern given the shortfall of resources to meet the growing need for professional support among those who need it (Belfer, 2008; Merikangas et al., 2010).

According to Shoshani and Steinmetz (2014), the rates of mental disorders for children and adolescents under the age of 18 has continued to rise since the late 1990s. These authors also noted that the use of positive psychology interventions as a preventative method to reduce mental health issues in adolescence lacked extensive empirically validated research. The World Health Organization (WHO, 2013) conducted

worldwide epidemiological studies over the past 10 years, and purported that the prevalence of mental disorders in children ranged from 10-20% of the total world population for those under the age of 18 years. Less than one third of those individuals reported the problem or accessed assistance for the mental health issue or disorder they experienced (Gulliver, Griffiths, & Christensen, 2010).

There was no significant change in the reported levels of mental health issues in toddlers and early childhood, but adolescent mental health issues have continued to increase steadily (Bor et al., 2014). Although the burden of externalizing problems in adolescence showed a slight increase, the internalizing of symptoms was most concerning, particularly in adolescent girls (Bor et al., 2014). Furthermore, studies showed this to be consistent for girls across a range of different countries of origin and cultural backgrounds (Bor et al., 2014).

It is unclear why recent generations of adolescent girls have become more likely to internalize problems. Previous research showed that women are more likely than men to experience anxiety and depression, and gender differences in mood disorders may increase throughout adolescence and into the adult years (Torsheim, Ravens-Sieberer, Hetland, Välimaa, Danielson, & Overpeck, 2006; Zahn-Waxler, Shirtcliff, & Marceau, 2008). It has been asserted that an increase in mental health-related disorders in girls may come about as a result of changes in societal pressures leading to increased worries about weight and self-image, along with the drive for educational success, thus creating higher levels of stress and pressure (West & Sweeting, 2003; Wiklund, Malmgren-Olsson, Ohman, Bergstrom, & Fjellman-Wiklund, 2012). Further societal pressures on adolescents such as earlier sexualization, changes in media and consumer culture, the increased use of social media, and changing cultural expectations have also been found to be contributors to elevated levels of pressure and the ensuing reason for internalization of

problems, particularly in girls (American Psychological Association, 2010; Eckersley, 2007; Hamilton, 2008; Hatch, 2011; Reist, 2009). Researchers suggested that a potentially positive explanation for the increased reporting of mental health issues may be due to changing societal attitudes towards mental health problems, which could lead to a greater willingness to report mental disorder (Bor et al., 2011).

In a nationwide U.S. study of 10,123 adolescents conducted by Merikangas et al. (2010), findings revealed that 50% of those affected by mental health disorders experienced anxiety disorders by the age of six, behavior disorders by age 11, mood disorders onset by age 13, and substance use disorders by age 15. A common age of onset of major depression and dysthymia was between 11 and 14 years, with most research participants experiencing a depressive disorder throughout their adult lives (Merikangas et al., 2010).

Prevention and intervention.

The traditional approach to the treatment of mental health disorders is to attend direct therapy sessions, which is very costly and can be a deterrent due to social stigmas related to mental health (Layous et al., 2014). Although depression is still a disease that is not widely understood, it is known to be related to molecular and biochemical imbalances and is therefore often treated with antidepressants to alleviate the negative outcomes of chemical imbalance (Layous et al., 2014). However, Seligman (2010) noted that antidepressants only account for a 60-70% response rate, with approximately 80% of the reported drug benefits coming as a result of the placebo effect. Furthermore, it has been argued that, even when drug therapy is successful in alleviating depression or similar mental health issues, patients may not actively seek the support they need when building their protective strategies to combat the depressive disorder; as a result they may become reliant on the drug as the only form of treatment (Layous et al., 2014).

In order to alleviate the growing incidence of mental health issues in adolescence, researchers posited that a preventative framework could be developed to focus on those children and adolescents who are seen as high-risk mental health disorder candidates (Kieling et al., 2011). However, among the challenges in identifying potentially at-risk individuals for selective interventions is the false identification of the illness, as well as the reality of limited available resources on which to base identification frameworks (Kieling et al., 2011).

Most current preventative interventions focused on targeting developmental aspects of the whole child as opposed to direct intervention related to mental health disorders (Kieling et al., 2011). However, there has been some success in school-based interventions, particularly in identifying students who were at risk, by assessing mental-health related protective factors (Kieling et al., 2011). Personal, familial, and social resources were three protective factors considered as essential to adolescent mental health and well-being (Wille, Bettge, Ravens-Sieberer, & BELLA Study Group, 2008).

Another interventional approach to combat mental illness in individuals of all ages focused on increasing levels of subjective well-being (SWB) and building an understanding of personal strengths (Greenspoon & Saklofske, 2001; Keyes, 2009; Roth, Suldo, & Ferron, 2017). Numerous researchers in the field of positive psychology contended that one can develop flourishing individuals by focusing on developing strengths as a buffer against mental health disorders such as depression (Karwoski, Garratt, & Ilardi, 2006; Layous et al., 2014). This positive approach to psychology with children and adolescents assumes that the enhancement of positive traits and protective processes will lead to a better life quality and a sense of self-control, as opposed to more traditional psychoanalytic approaches that may enhance the feelings of helplessness and hopelessness (Seligman & Csikszentmihalyi, 2000).

The strengths-based approach, coupled with positive activity interventions such as gratitude, optimism, empathy, and kindness, could enhance the development of positive emotion, which makes people feel good (Layous et al., 2014). Positive emotion was found to assist with the recovery of depressed individuals from short and lengthy bouts of depression, and to improve job satisfaction and performance, improve marriages and relationships, enhance physical health, and increase creativity (Lyubomirsky, King, & Diener, 2005). Sin and Lyubomirsky (2009) conducted a targeted research study on two groups of individuals, one depressed and one non-depressed, and utilized 51 different self-administered positive activity interventions. The findings revealed that positive activity interventions showed an increase in positive emotions among the majority of participants; however, the depressed group of individuals demonstrated the most significant increase in positive emotions following the intervention. The authors also noted that depressed individuals may be more committed and willing to exert more effort in the positive activities as a way to make themselves feel better.

The growth in positive psychology as an approach and framework to assist with the development of positive adolescent functioning has led to an increase in the development of interventions to meet key goals in educational and psychological services domains (Keyes, 2007; McGorry, Purcell, Hickie, & Jorm, 2007; Waters, 2011). Schools were targeted as the setting for early intervention and prevention strategies, as opposed to clinical services, largely due to cost-effectiveness (Burns, Davenport, Durkin, Luscombe, & Hickie, 2010). Educational programs have become a popular school-based platform for positive psychology interventions that are combined with the existing curriculum to enhance well-being (Seligman et al., 2009). Several positive education programs were designed and built on the PERMA framework (Seligman, 2011), that is structured according to the psychosocial domains of positive emotion (P), engagement with valued

activities (E), fostering positive relationships (R), cultivating life purpose and meaning (M), and pursuing accomplishments (A), (Seligman, 2011).

The enhancement of positive emotion regulation was a targeted outcome of positive psychology intervention in a 2017 study (Morrish, Rickard, Chin, & Vella-Brodrick, 2018). Emotion regulation includes the use of conscious cognitive strategies to self-regulate emotional impulses and behaviors, and to develop the ability to respond in an appropriate, controlled manner to emotion-eliciting events (Adrian, Zeman, & Veits, 2011; Sawyer et al., 2012). Emotion regulation is considered an important part of positive adolescent development (Blair, Calkins, & Kopp, 2010; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). The use of emotion regulation strategies can protect against the onset of mental illness (Aldao & Nolen-Hoeksma, 2012). Positive psychology intervention of emotion regulation is based on five phases: a) situation selection, which focuses on finding situations that promote positive emotion; b) changing situations to modify the emotional affect; c) attentional deployment to bring attention to certain features to alter the experience; d) cognitive change involving changing the appraisal of a situation; and e) response modulation to alter the physiological, cognitive, and behavioral response (Morrish et al., 2018).

Schultze-Lutter, Schimmelman, and Schmidt (2016) noted an increase in the prevalence of mental illness, and connected this to the need for resilience development as a method of preventing mental disorders. The terms *well-being* and *resilience* have become commonplace in schools and workplaces, with resilience now considered a fundamental element of mental health (Schultze-Lutter et al., 2016). The field of positive psychology grew dramatically over the past 10 years, and the science of wellbeing, resilience, and mental health was increasingly researched. Furthermore, reliable research supported the assertion that positive mental health acts as a resilience builder against

physical and mental illness and disease (Trompetter et al., 2017). Environmental and societal impacts such as immigration, financial status, a feeling of being safe as a child, community and family values, and life experiences, are important factors in shaping the child and adolescent mental health, resilience, and sense of well-being (Ungar, 2012).

Moves towards positive psychology interventions led to an increased focus on the strengths of individuals who appear to be flourishing, as opposed to attempting to repair everything that is wrong with individuals (Seligman, 2011). A strengths-based approach, when coupled with positive activity interventions such as gratitude, optimism, empathy, and kindness, can enhance the development of positive emotion, which makes people feel good (Layous et al., 2014). Positive emotion has been found to assist with the recovery of depressed individuals from short and lengthy bouts of depression, and to improve job satisfaction and performance, improve marriages and relationships, enhance physical health, and increase creativity (Lyubomirsky, King, & Diener, 2005).

Positive mental health interventions can lead to the development of optimism and hope, and can positively impact quality of life, happiness, and increased levels of overall life satisfaction (Diener, 2000; Peterson, 2000). The development of hope and an optimistic mindset in individuals has also been linked to improved physical health and improved immune systems (Carr, 2013). According to Carr, optimistic individuals have healthier lifestyles and are more likely than pessimistic individuals to seek medical advice and act on health recovery advice.

Research suggested that children are affected by the same cognitive processes as adults, which can lead to feelings of hopelessness and depression (Shatte, Gillham, & Reivich, 2000). One such program that focused on the development of hope and optimism was the Penn Optimism Program (POP), which aimed at preventing depression in children and adolescents (Shatte, Gillham, & Reivich, 2000). Some of the resilience-

building, protective skills that POP taught included the A-B-C model (Ellis & MacLaren, 2005), understanding explanatory style, learning to challenge irrational thinking, and learning not to catastrophize (Miller, Gilman, & Martens, 2008).

Another area of interest to researchers was understanding what adolescents and children do outside school hours, and how those activities impacted mental health (Miller, Gilman, & Martens, 2008). Structured extracurricular activities were found to positively impact the mental and physical development of children and adolescents, particularly as a result of the interpersonal connections that they created with adults and peers (Miller, Gilman, & Martens, 2008).

Online positive interventions.

The field of positive psychological intervention saw the development of online positive interventions from 2000-2010, largely due to the benefits in alleviating the pressure on an overloaded healthcare system, financial affordability, accessibility, and reliability (Banos, Etchemendy, Mira, Riva, Gaggioli, & Botella, 2017). According to Banos et al. (2017), the online interventions are highly beneficial due to adolescents' competence and confidence with informational technologies, and their immersion in a digital world. The use of information and communication technologies was found to be an efficient and effective manner for delivering mental health resources and programs, particularly through the Internet and smartphones as they are widely accessed and utilized in today's society (Banos et al., 2017).

By 2016, several technological, web-based systems were employed to increase well-being in adolescent and youth, with some platforms being utilized through social networks such as Facebook; email and text messages provided a means to send reminders and support the online interventions (Banos et al., 2017; Hackworth et al., 2013).

Among the benefits of online positive interventions is the wide reach of programs; in 2013, over two billion people worldwide had access to reliable internet services (Bolier & Abello, 2014). The online programs also provide tools that require self-management as the individuals using the program became active and responsible participants in their own health management (Swan, 2009). Several online intervention programs that have been widely used online include: *ResilienceOnline*, *Psyfit.nl*, *The Happiness Coach*, and the *Live Happy* iPhone application, among others (Bolier & Abello, 2014).

Well-Being and Resilience Theories

Well-Being.

Self-determination theory.

Self-motivation and psychologically healthy individuals are often shaped by their social-contextual conditions (Ryan & Deci, 2000). Self-determination theory (SDT) focuses on three psychological needs, they are competence, autonomy, and relatedness, and when these life needs are met individuals can experience higher levels of self-motivation, and mental health (Ryan & Deci, 2000). According to Ryan and Deci, humans by nature are curious and self-motivated with a drive to learn, master new skills, and use their talents responsibly. However, these innate human characteristics can wane as a result of the social environment, and they could also lead to decreased levels of self-motivation, energy, effort, and personal well-being. Motivation was a widely-researched topic in the field of psychology throughout the 1900s, mainly because of the positive outcomes that motivation can produce, and because it has its applications in a wide range of fields and professions. The concept of motivation takes into account a person's persistence, energy, and direction, with such outcomes as increased interest, confidence, and excitement (Ryan & Deci, 2000). This can lead to enhanced performance, creativity,

self-esteem, and general well-being, among other positive outcomes (Deci & Ryan, 1995, 2000; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997).

According to Ryan and Deci (2000), there are two major forms of motivation: intrinsic and extrinsic. Intrinsic motivation is the motivation to complete a task for the satisfaction of the task, which can lead individuals to seek out challenges, explore, and learn. This can lead to the positive outcomes of enhanced cognitive and social development that become key sources of life enjoyment and vitality (Csikszentmihalyi & Rathunde, 1993; Ryan, 1995). The second type of self-determined motivation is extrinsic, in which the driving motivation is to perform an activity to attain a measurable outcome or reward (Ryan & Deci, 2000).

Ryan and Deci (2000) suggested the psychological health and well-being of individuals increased by meeting the three basic psychological needs of competence, relatedness, and autonomy. Among adolescents and adults, it was found that those individuals who continued to seek the attainment of intrinsic life goals showed higher levels of well-being, as opposed to the search for attainment of extrinsic life goals, which revealed little effect on individual well-being (Ryan & Deci, 2000). Motivation and emotion regulation are also important components in developing resilience, particularly in individuals who have a goal-oriented, self-determined motivation style (Fried & Chapman, 2012).

Flow theory.

Parr, Montgomery, and DeBell (1998) contended that the flow theory is a model that can enhance important resilience traits and characteristics in students. Many discussions focused on the concept of resilience and how it is exhibited in children and adolescents have occurred over the past 30 years, particularly throughout the 1990s (Garmezy, 1993; Werner & Smith, 1992; Wolin & Wolin, 1993). Theorists presented the

concept of resilience in various ways, describing some of the common characteristics and qualities of a resilient individual as the presence of independence, positive relationships, problem-solving skills, optimism, a sense of responsibility and purpose, and resourcefulness (Garmezy, Masten, & Tellegen, 1984; Rutter, 1986; Wolin & Wolin, 1993). Students often possess one or two stronger resilience-related characteristics, attitudes, or traits and, as a result, they naturally present their resilience qualities in a less refined form (Parr, Montgomery, & DeBell, 1998).

Flow theory is a framework that was studied across a wide range of professional, personal, and leisure time pursuits, and was based around what people experienced and how those experiences were understood (Csikszentmihalyi, 1990). Flow has been described as an experience that creates deep focus on the accomplishment of goals, with the individual demonstrating intrinsic motivation and a sense of control and competence related to the task (Csikszentmihalyi, 1990). This sense of flow often comes about when the individual demonstrates a high level of skill and the task is highly challenging, which results in a feeling of satisfaction and positive emotions, and often a heightened level of self-esteem (Csikszentmihalyi & Csikszentmihalyi, 1992). Resilience was enhanced as a result of the strength gained from overcoming a significant challenge, and the ability to learn and understand elements of the sense of purpose and achievement gained from a potentially tumultuous life circumstance (Parr, Montgomery, & DeBell, 1998). Rathunde (1988) outlined the conditions present in flow, including an individual having clear goals, being present and aware, feeling a sense of control, applying intrinsic motivation, applying commitment to the task, and having the opportunity for self-development.

When individuals experience flow and total absorption, and the activity is in balance with the individuals' capacities and abilities, it is the purpose of the activity that provides motivation to be involved and engaged in the activity itself (Csikszentmihalyi,

1975; Deci, 1975). Intrinsic motivation is an important factor in creating the flow experience because challenge must be at a level that allows the participants to feel engaged and able to utilize their abilities to feel a sense of competence (Deci & Ryan, 1980, 2000).

Well-being theory.

Well-being theory is an adaptation of the authentic happiness theory developed by Seligman (2011) to enhance quality of life and holistic well-being (Lambert D'raven & Pasha-Zaidi, 2015; Seligman, 2011). The original version focused on happiness and life satisfaction as the outcome of the three pathways of pleasure, meaning, and engagement (Peterson, Park, & Seligman, 2005; Seligman, 2002). The theory was later re-developed, with the second iteration of well-being theory focused on the five areas of the PERMA model (Seligman, 2011), which is comprised of five pathways: positive emotions, engagement, relationships, meaning, and accomplishment (Seligman, 2011). The PERMA framework was developed as a way of assessing, predicting, and maintaining a level of well-being, and positive feeling and functioning in individuals (Forgeard, Jayawickreme, Kern, & Seligman, 2011).

The first component of the PERMA model (Seligman, 2011), positive emotions, was posited as helping to facilitate adaptive behaviors, improve growth and performance, and promote creative thinking, and flexible thought processes (Frederickson, 2000; Kok, Catalino, & Frederickson, 2008). Furthermore, positive emotions and experiences with friends can help to create greater trust, develop closer social bonds, and improve relationships (Cohn, Frederickson, Brown, Mikels, & Conway, 2009). Engagement is another component of the PERMA model (Seligman, 2011) that can provide increased meaning, performance, positive feelings, involvement, and concentration (Higgins, 2006; Nakamura & Csikszentmihalyi, 2009). Engagement also supports Deci and Ryan's (2008)

theories on intrinsic motivation, wherein individuals will be more likely to commit to a task due to their reliance on personal character strengths, abilities, and responsibility, and a sense of internal control. Relationships represented an important component of the PERMA model (Seligman, 2011) relating to life satisfaction and happiness (Aknin, Dunn, & Norton, 2012). Relationships provide an individual with a sense of belonging, and friends and positive relationships often provide support, kindness, and a sense of care, which can be a strong predictor of emotional well-being (Catalino & Frederickson, 2011; Eisenberger, Taylor, Gable, Hilmert, & Lieberman, 2007). Meaning, another component of the PERMA framework, requires the use of individual strengths and the outcome of a sense of personal fulfillment (Plante, 2008; Seligman et al., 2006). The sense of purpose is an influencing factor in motivating people to engage in what they do, and it operates to inform activities and goals, which in turn can create a buffer against negative emotions (Diener, Kahneman, & Helliwell, 2010; Kashdan & McKnight, 2009). Achievement, the final aspect of the PERMA framework, is a result of the successes achieved from setting and applying effort towards personal goals, and utilizing individual skills (Seligman, 2011). The sense of achievement attained from winning, achieving mastery, or accomplishing a task can contribute to happiness and life satisfaction (Seligman, 2005).

Resilience.

Resilience theory.

Resiliency theory is focused on a positive strengths-based approach to understanding children and adolescents, and utilized to inform future interventions that support children becoming healthy adults (Fergus & Zimmerman, 2005; Garmezy, 1991b; Rutter, 1986; Zimmerman & Brenner, 2010). According to Rutter (2006), the four key factors in resilience are: a) the reduction of risk impact; b) a reduction of negative chain reactions; c) the maintenance of self-esteem and self-efficacy; and d) the development of

future opportunities. Although there are varying perspectives of what resilience looks like in children and adolescents, some common threads that describe a resilient individual include a positive outlook on life, positive relationships, a sense of purpose, clear goals and a vision, the ability to accept responsibility, and the capacity to monitor regulate personal emotions (Parr, Montgomery, & DeBell, 1998).

Rutter's theory of resilience.

Rutter (2006) posited that resilience is an interactive concept involving much more than a positive mental state and social competence; resilience must involve risk (Shean, 2015). This theory and position on resilience arose from Rutter's observations in the field of psychopathology, where it was observed and documented that some children faced risk or negative life events but came through unscathed (Shean, 2015). The theory is based on the principle that resilience is a normal adaptation if children are provided the appropriate resources, such as positive relationships and parent support, to create the required protective factors essential in building resilience (Rutter, 2006; Shean, 2015).

Garmezy's theory of resilience.

Garmezy (1991a, 1991b) posited that all children are confronted with stress at some stage in their life; some children meet stress with resilience and functional adequacy, whereas others may feel a sense of despair and fear. The key elements of Garmezy's (1987) theory are based on individual and dispositional child attributes, family factors such as cohesion and warmth, and supportive resources in the wider community such as teachers, and other people outside the family unit. Three models explain resilience: the compensatory model, the protective versus vulnerability model, and the challenge model.

Ungar's theory of resilience.

Ungar's (2005) work on resilience focused on the cross-cultural aspects of resilience and the way that individual characteristics contribute to overcoming adversity. Ungar (2008) conducted a study into resilience across 14 different cultures and found what are described as the seven tensions of resilience: a) cohesion, b) social justice, c) power and control, d) cultural adherence, e) awareness of identity, f) relationships with others, and g) access to material resources. Ungar (2012) contended that the environment, and culture play an important role in the development of resilience, particularly in children and adolescents.

Resilience

Resilience was described as a protective factor that can help people build the resources to recover and cope with adversity (Cohn et al., 2009). Wagnild and Young (1993) described a resilient individual as possessing the ability to cope with misfortune and adversity. Similarly, Garmezy (1991a) described resilience as the ability to bounce back or rebound from challenge and adversity. High levels of resilience are often viewed as being the result of developed protective factors such as social and personal competence (Fried & Chapman, 2012). Furthermore, resilience was perceived as a protector against mental health issues, because it helps individuals cope with the normal stresses of life (Schultze-Lutter et al., 2016).

Discussions on resilience, mental health interventions, and measurements must include a consideration of fixed factors such as age, gender, and ethnicity (Sanders, Munford, & Boden, 2017). Resilience has been described in many ways over the years, and the definition as to what resilient behavior resembles continues to be debated (Alvord & Grados, 2005; Zolkoski & Bullock, 2012). Several common themes related to resilience were described as: a) showing positive outcomes across many life areas for an

extended period (Cichetti & Rogosch, 1997); b) possessing skills that help a person cope (Alvord & Grados, 2005); c) leading a successful life despite being at risk (Brooks, 2006); d) achieving positive outcomes despite challenging circumstances (Masten, 2001); e) coping successfully despite risks and trauma; and f) a focus on understanding good outcomes despite the risks (Masten, 2001). Bernard (1993) posited that every individual possesses an innate ability to be resilient. According to Bernard (1993), there are five attributes of a resilient individual: a) social competence, b) problem-solving skills, c) critical consciousness, d) autonomy, and e) a sense of purpose.

Although there has not been one particular view or definition of resilience, recent commonalities in the research on resilience demonstrated that resilience is a competence that does not just naturally occur as a result of the environment (Nemec, 2005). Several of the commonalities in the descriptions of resilience included: a) the ability to overcome adversity or trauma; b) the ability to adapt or adjust; c) the capacity to rebound from adversity; d) an aptitude that helps to build mental immunity; and e) a personal strength (Schultze-Lutter et al., 2016). Resilience was noted as a significant attribute that adolescents and children develop, particularly in the middle years of schooling where school engagement decreases, puberty occurs, and new life challenges arise (Nemec, 2005). Ahern (2006) observed that adolescent resilience is dependent on an individual's ability to adapt to risk or adversity, and to draw on family and social support in times of need.

A study conducted by Fried and Chapman (2012) on engagement and resilience in middle school students revealed that resilience plays an important part in emotion regulation. This in turn contributes to social competence. which is an essential element of well-being, particularly during adolescence and puberty when social dynamics are changing (Eisenberg et al., 1995; Fried & Chapman, 2012). However, due to the lack of a

common understanding of what the concept of resilience entails, it remains challenging to measure levels of resilience (Schultze-Lutter et al., 2016).

A variety of measurement tools focused on resilience, but most of those tools were used with adults (Ungar, 2016). A tool that includes measurement of neurobiological factors, such as stress responses (Rutter, 2013), and a tool that measures resilience across life stages, cultures, and other environmental and life factors were recommended for adolescents because these tools provided a broader scope of understanding for analysis (Schultze-Lutter et al., 2016).

Resilience was described in many ways in relation to mental health (Gerber et al., 2013). It was seen as a dynamic process (Luthar, Sawyer, & Brown, 2006) and, historically, it was seen as the absence of maladjustment (Gerber et al., 2013). Resilience was measured against the concept of mental toughness, and it was asserted that this toughness could act as a resilience buffer against depressive symptoms (Gerber et al., 2013). The concept of mental toughness can be difficult to define, but Gerber et al., viewed it as consisting of a feeling of control and personal life influence, personal commitment, a willingness to challenge the self and search out new opportunities, and the confidence to overcome personal and interpersonal problems. In a longitudinal study on resilience and mental toughness in adolescents, Gerber et al., (2013) found a correlation between elevated mental toughness scores and decreased depressive symptoms.

Ungar (2012) asserted that higher levels of resilience often led to the development of protective factors that could create some immunity against future mental health issues, and two of the important contributing factors were context and culture. The four traits that can be enhanced to create a protective buffer are navigation, negotiation, meaning and resources, which can lead to the development of behaviors that help individuals work their way through adverse situations or conditions (Ungar, 2011). Ungar (2012) further

emphasized the importance of learning to apply these traits since adverse situations often require more than just a positive attitude or mindset (Ungar, 2011, 2012). Rutter (2006) and Ungar (2012) implied that resilience was a situational, interactive concept between individuals and their environment.

Schultze-Lutter et al. (2016) discussed two perspectives on resilience, the trait-oriented perspective, and the process-oriented perspective. The trait-oriented perspective viewed resilience as being similar to a personality trait regarded as something that people possess, as an ability or asset that is a part of every individual (Schultze-Lutter et al., 2016). The process-oriented perspective viewed resilience as a process of interaction between individuals and other people, and their environments, which becomes defined by the context, stressors, and behaviors created in these interactions (Schultze-Lutter et al., 2016). To increase resilience, individuals can work with personal assets and resources described as *promotive factors* because they promote resilience and positive mental health (Fergus & Zimmerman, 2005; Schultze-Lutter et al., 2016; Ungar, 2015). Assets were defined as intrapersonal factors and resources related to protective environmental factors, which only come into use in the face of extreme adversity (Fergus & Zimmerman, 2005; Schultze-Lutter et al., 2016; Ungar, 2016).

History and definition.

Research on resilience was popularized in the early 1970s when researchers began to notice that some children thrived in the face of adversity, while others appeared to be at more risk of psychopathology (Shean, 2015). This led to greater research into resilience and protective factors because the focus shifted from mental illness to mental health (Shean, 2015). Ongoing research in the field of resilience has informed schools and mental health care professionals since that time, and has provided the data that has shaped

approaches to mental health, social and emotional development, positive psychology, and preventative programs (Shean, 2015).

In the history of research there were three major waves of research and focus on resilience (Zolkoski & Bullock, 2012). The first wave was focused on the prevention of psychopathology, the second wave centered on protective factors and the processes related to resilience, and the third wave came about as recognition of the increased adversity faced by children and adolescents. These waves created a heightened interest in resilience prevention, intervention, and policy (Masten, 2001; Masten & Obradovic, 2006; Zolkoski & Bullock, 2012).

Research on resilience as a part of the behavioral sciences began in the 1970s, but resilience had its origins in the medical field (Cicchetti & Rogosch, 1997; Masten, 2001). The study of resilience was originally influenced in the medical profession by scientists working to understand, prevent, and treat mental health problems, along with addressing possible dangers in overall childhood development (Masten, 2001; Zolkoski & Bullock, 2012). In later studies, Zolkoski and Bullock (2012) found that risk and protective factors must be present in a situation or circumstance for an individual to demonstrate resilience. This can lead to the promotion of positive outcomes and reduction of negative possibilities (Fergus & Zimmerman, 2005). Furthermore, Rutter (1993) contended that parenting is an important factor in child resilience development, because overprotective parenting in the infant, toddler, and young child stages may hamper the development of resilience.

Protective Factors and Resilience.

Protective factors were viewed as significantly influential in the way that individuals handle and respond to adverse life events, whereas risk factors created situations that increased the possibility of poor life outcomes (Zolkoski & Bullock, 2012).

Both of these concepts changed in relation to the context and environment, with resilience optimization occurring when protective factors, such as family and community relationships, were strengthened (Benzies & Mychasiuk, 2009; Walsh, 2003). With regard to individual protective factors, Werner (1984) found in the Kauai Longitudinal Study that resilient children demonstrated a strong sense of autonomy, optimism, independence, and a strong social orientation. Further studies found that self-regulation and an easy-going temperament (Alvord & Grados, 2005; Benzies & Mychasiuk, 2009; Werner & Smith, 1992), along with positive self-esteem and confidence (Marton et al., 1988; Zolkoski & Bullock, 2012) were strong protective factors when it came to resilience. Family conditions and community supports were also protective factors associated with resilience (Zolkoski & Bullock, 2012), along with parenting that provides a loving, warm, and cognitively stimulating environment, while maintaining an intimate partner relationship and cohesive family unit (Benzies & Mychasiuk, 2009). Outside the home it was noted that role models in the neighborhood, recreational activities, and religious groups also created a buffer for those children deemed as at risk in terms of mental health disorder (Alvord & Grados, 2005; Benzies & Mychasiuk, 2009).

Many factors place children at risk in an emotional, physical or mental capacity (Zolkoski & Bullock, 2012), including poverty, parents' education level, racial discrimination, minority status, abuse, or similar negative life experiences (Brooks, 2006; Luthar et al., 2000; Masten, 2001; Rak & Patterson, 1996).

Adolescence is an important life period where individuals begin to assert their independence by making more decisions and taking actions, which can be challenging to the adolescent and the family (Paradis et al., 2011; Viner et al., 2012; Williams & Merten, 2014). Race, ethnicity, and cultural background can also create an impact on mental health, particularly throughout adolescence (Williams & Merten, 2014). Adolescents

who have been exposed to racial or cultural discrimination have expressed higher levels of mental health issues and lower levels of resilience (Wickrama, Simons, & Baltimore, 2012).

Pahl and Barrett (2007) posited that socially and emotionally competent children become confident adolescents with strong interpersonal, communication and academic skills, along with higher levels of persistence and self-worth. These resilient traits become protective factors against stressors, and emotional, and behavioral issues later in life (Garmezy, 1993; Pahl & Barrett, 2007). Schools that provided a positive and supportive environment were considered essential in the development of connectedness and engagement (Durlak et al., 2011), with these two factors contributing strongly to the development of resilience (Midford, Cahill, Geng, Leckning, Robinson, & Te Ava, 2017; Resnick et al., 1997). Strong social and emotional support, particularly in schools, has been associated positively with the strengthening of resilience in children, and contributed to improved academic achievement scores (Durlak et al., 2011). The development of social and emotional learning programs that target adolescents may be particularly important, given that approximately one-third of the 43,799 adolescents surveyed in an Australian study expressed consistent feelings of unhappiness, stress, or depression in their daily lives (Midford et al., 2016).

The protective factor model consists of two components, the risk-protective and protective-protective factors (Trezise, McLaren, Gomez, Bice, & Hodgetts, 2018; Zimmerman, 2013). The risk-protective model operates on reducing the association between risks and negative outcomes, while the protective-protective model operates on enhancing promotive factors, and focuses on enhancing positive outcomes, self-esteem, cultural identity, and similar protective assets (Zimmerman, 2013).

According to the research of Garmezy (1987) and Rutter (1986), stress-resistant children possessed three major variables that acted as human protective factors: a) personality features, such as self-esteem; b) family cohesion and absence of discord; and, c) the availability of external support systems that encouraged and supported coping efforts in children. Marital discord often manifested an emotional and behavioral disturbance, particularly in boys who were more likely to act with disruptive oppositional behavior and emotional distress (Rutter, 2006). Some other significant factors that impacted child behavior and the development of resilience included parent-child relationships, school experience, and early parental loss (Garmezy, 1993; Rutter, 2006, 2013).

Protective factors and protective mechanisms can be developed to build resilience against mental health disorders and stress in adolescents and children (Fergus & Zimmerman, 2005). Resilience is related to individual responses to risk, showing that some people overcome life hazards, stress, and adversity, while others can succumb to the effects of these external pressures (Rutter, 1986). Interestingly, Rutter (1986) and Garmezy (1987), two influential early researchers in the field of resilience, asserted that resilience is not a fixed attribute; it alters throughout life depending on the adversities and stressors faced by the individual. Individual vulnerability or protective mechanisms influence the interaction and ensuing responses to a particular circumstance or perceived risk (Fergus & Zimmerman, 2005; Rutter, 1986).

Resiliency theory suggested that it is important to develop a framework to create further understanding, intervention programs, and a unifying language and theory to promote resilience, particularly in children and adolescents (Buckley & Chapman, 2018; Zimmerman, 2013). Resilience helps protect against poor outcomes from situations of

potential risk or danger in adolescents, and can promote health and well-being (Zimmerman, 2013).

Well-Being

Well-being has been described as feeling well and functioning well psychologically, socially, and physically (Trompetter et al., 2017). Between 1990 and the mid-2010s there was significant growth in mental health disorders in children and adolescents, as well as significant progress in the field of positive psychology; the focus was on understanding how well-being and positive mental health can be improved (Duckworth, Steen, & Seligman, 2005; Shoshani & Steinmetz, 2014). However, despite ongoing development in the positive psychology field, there remains a limited range of empirically validated interventions and measures of well-being in school children and adolescents (Shoshani & Steinmetz, 2014). The increase in reported mental health disorders in children and adolescents coincided with education reforms that led to an increased focus on rigorous academic demands and curriculum standards, as well as teacher and student accountability, and a decreased emphasis on social and emotional learning (Hargreaves, 2003; Shoshani & Steinmetz, 2014). This is of particular importance to parents, educators, and general society, with adolescents reporting the highest increase in mental health disorder across all age groups (Merikangas et al., 2010). Adolescent well-being is an important area of focus because adolescence is a life period of significant physical, emotional, and behavioral change, and a period when important habits are created that could determine future lifestyle choices and life patterns (Ghiami et al., 2015).

Advances in the science of psychology offered a clearer understanding of the relationship between well-being and ill-being, and provided a clearer understanding of psychological well-being (PWB) and subjective well-being (SWB) in children and

adolescents (Shoshani & Steinmetz, 2014). The increased focus on positive psychology, positive emotions and positive interventions led to a call for schools to adopt a positive education approach in school reforms, that takes into account the psychological and emotional needs of students, in conjunction with academic outcomes (Weare & Gray, 2003). Studies also showed a correlation between childhood and adolescent mental health concerns and the potential for compromised academic functioning, thereby reinforcing the importance of a holistic approach to the nurturing and education of young people (Field, Diego, & Sanders, 2001; Needham, Crosnoe, & Muller, 2004). Schools have the potential to create positive social and health change in their communities (Rowling & Rissel, 2000). A broad vision encapsulated by a social-ecological model can drive the appropriate programs to enhance physical, mental, social, and emotional well-being in schools and the community (Dooris, 2004).

Saab and Klinger (2010) conducted research into the associations between individual physical and mental well-being outcomes, and related school factors. The adolescents involved in the study were 10-16 years of age, with results of the study demonstrating that geographical school regions consisting of wealthier individuals and populations showed higher levels of emotional well-being, and a more positive culture (Saab & Klinger, 2010). Whereas in less wealthy school communities, where there are often higher levels of aggression, behavioral and discipline issues, students expressed lower levels of subjective well-being (Saab & Klinger, 2010).

History and definitions.

Historically, the term *happiness* was the equivalent of what is referred to today as *well-being*. Happiness was seen as a holistic concept in ancient Greece, and in Christian and Eastern religious writings and understandings (Eger & Maridal, 2015). Happiness was viewed from a holistic perspective and could be related to the concept of *eudaimonia*,

which signified that the individual was leading a flourishing and virtuous life, but it was also considered to be beyond human control (Eger & Maridal, 2015). Throughout the 18th century, the concept of happiness began to focus on virtue as the avenue to a flourishing and happy life, with an increased emphasis on pleasure and the absence of pain. (Eger & Maridal, 2015). This emphasis on pleasure and positive feeling led to an increased focus on the realm of positive psychology and wider research into well-being, life satisfaction, and happiness, with the concept of happiness becoming increasingly important in the social sciences (Eger & Maridal, 2015). Happiness was described as a short moment of pleasure or a good feeling, whereas life satisfaction is applied more widely to describe longer-term feelings of happiness and satisfaction (Eger & Maridal, 2015). To further delineate the two concepts, many researchers in the positive psychology field increasingly defined happiness as an emotion, and satisfaction as a cognitive judgment (Eger & Maridal, 2015).

Although a common definition of well-being has not been universally agreed upon, the common definition relates to quality of life, happiness, life satisfaction, and prosperity, among others (Eger & Maridal, 2015). Happiness tends to describe moments of pleasant emotion; life satisfaction is considered a deeper happiness signified by a longer-term life focus, while prosperity focuses on economic and financial circumstances (Eger & Maridal, 2015). In a systematic review of the literature related to well-being, Pollard and Lee (2003) found inconsistencies in the understanding and definition of happiness. However, there was a degree of consistency around five themes that related to human well-being: physical health, psychological and mental health, cognitive wellness, social wellness, and an economic component (Pollard & Lee, 2003). A definition of well-being, as proposed by Dodge, Daly, Huyton, and Sanders, (2012), outlined the importance of finding a balance between personal and individual resources, and life

challenges. With too much challenge, a well-being imbalance occurs and a lack of challenge leads to stagnation and an ensuing imbalance (Dodge et al., 2012). If individuals possess higher levels of well-being, they will be more stable, and more likely to return to a point of emotional and psychological stability and well-being much more quickly following psychological, physical, or emotional distress or illness (Dodge et al., 2012).

Subjective Well-Being (SWB).

Subjective well-being (SWB) has not been commonly defined, despite a significant body of research over the past two decades (Diener, 2012). The commonalities in the literature that relate to subjective well-being focused on developing positive mental, physical, social, emotional, economic, environmental, and relational wellness, and a sense of life purpose (Diener, 2000; Ryff & Keyes, 1995; Seligman, 2011).

Despite increased study into the field of well-being and positive psychology, further research is required that includes a wider range of individuals, schools, contexts, different ages, an d cultural cohorts (Shoshani & Steinmetz, 2014). However, there were commonalities in how SWB was described by researchers in the field of subjective well-being (Diener, 2012), including: a) the positive and negative feelings experienced in various situations (Diener, 2012; Veenhoven, 2013); b) the balance of positive and negative feelings (Bradburn, 1969); c) the hedonic levels experienced by an individual, and overall judgment of personal life satisfaction (Campbell, Converse, & Rogers, 1976; Pavot & Diener, 1993); and d) the ongoing emotional experiences and reactions throughout individuals' daily lives (Diener, 2012).

Three main factors shaped the concept of SWB: it is subjective (Kammann, 1983); it is a broad, overall assessment that is not based on one particular life component;

and it is representative of positive life experiences, not just the absence of negative life circumstances (Diener, 1984; Pavot & Diener, 2013). Shoshani and Steinmetz (2014) found six common themes throughout the literature that described components of SWB, including: positive emotions, positive relationships, ongoing goal-setting, optimistic mindset, identification, use of character strengths, and goal fulfillment. Optimism was widely researched and found to play an important role in adolescents as a protective factor against the onset of depressive symptoms, along with producing improved coping strategies in stressful conditions, improved school performance, and improved mental and physical health (Seligman, 2011).

In short, SWB consisted of a life satisfaction component, the presence of positive affect, and the absence of negative emotional experiences (Diener, 2000). Shoshani and Steinmetz (2014) suggested that the components of SWB were significant in schools because studies showed a positive correlation between SWB and academic functioning, social competence, physical health, achievement, school engagement of children and adolescents, and better relationships between adolescents and parents, teachers, and peers (Gilman & Huebner, 2006). The absence of subjective well-being was linked to higher rates of depression, suicide, and relationship problems (Green & Pope, 2000).

Well-being was related to physical, emotional, and mental health and was improved by targeting the elements of physical health, moods and emotions, self-perception, family, school, and peer groups, among other factors (KIDSCREEN Group Europe, 2006). A further challenge to the positive well-being of children and adolescents is the significant increase in the number of overweight and obese children in the early part of this century. The World Health Organization (WHO, 2008) found that excess weight and obesity can create potentially harmful perceptions of personal image, which has a direct correlation to negative self-image (Gaspar, Ribeiro, de Matos, Leal, & Ferreira,

2012; KIDSCREEN Group Europe, 2006). Gaspar, Santos and de Matos (2017) found that self-perception, and in particular body weight, was more of an issue for adolescent girls than for boys. Body weight negatively impacted subjective well-being and could potentially lead to physical and psychological problems (Halberstadt, Makkes, De Vet, Jansen, Nederkoorn, van Baan-Slootweg, & Seidell, 2013; Ottova, Erhart, Rajmil, Dettenborn-Betz, & Ravens-Sieberer, 2012).

The development of subjective well-being aimed to create interventions that build mindsets and behaviors conducive to creating feelings of happiness, which in turn lowers the effects of mental illness (Roth, Suldo, & Ferron, 2017). The improved happiness experienced as a result of enhanced subjective well-being is directly related to the frequency with which individuals experience positive and negative emotions (Diener, 2000; Roth, Suldo, & Ferron, 2017). Suldo, Riley and Shaffer (2006) noted that adolescents who expressed higher levels of subjective well-being also experienced higher levels of academic engagement, improved social relationships, enhanced academic performance, and better physical health.

Subjective well-being is very personal in the way it is perceived by individuals, particularly because it can be closely linked to personality and character traits (Pavot & Diener, 2013). Some of the contributing factors include introverted and extroverted personality types, societal factors, local community factors, gender and cultural backgrounds, and goal-setting and attainment (Diener, Kahnemann, & Helliwell, 2010; Pavot & Diener, 2013).

Most aspects of subjective well-being are consistent throughout various cultures, but some aspects are only identifiable in particular cultures (Diener, 2009). Pavot and Diener (2012) discussed how different cultures may view positive and negative emotions differently, depending on cultural norms and understandings. These authors also noted the

dichotomy created by individualist cultures as opposed to collectivist cultures. For example, the concept of pride was viewed positively in an individualist culture due to the sense of individual accomplishment, whereas a collectivist culture did not place high value on pride because of the focus on the individual as separate from the group (Pavot & Diener, 2013; Scollon, Diener, Oishi, & Biswas-Diener, 2004). The researchers found it equally important to explore the meaning of the emotions and the causes of variable levels of SWB across different cultures (Pavot & Diener, 2013). The examination of cultural variations related to SWB, and the comparison of the levels of SWB across cultures needs further exploration (Pavot & Diener, 2013).

Numerous studies were conducted as a result of the growing focus and understanding of the significance of subjective-wellbeing, attempting to identify the relevant factors contributing directly to the SWB of children and adolescents (Shoshani & Steinmetz, 2014). Researchers identified factors such as positive emotions, gratitude, hope, goal setting, and character strengths (Fredrickson, 2004; Froh, Sefick, & Emmons, 2008; Locke & Latham, 2002; Peterson & Seligman, 2004; Snyder, Lopez, Shorey, Rand, & Feldman, 2003). Exercises such as writing gratitude diaries, writing about intensely positive experiences, re-counting personal blessings in daily and weekly diaries, and developing personal plans based on a strengths inventory and identification process, led to higher levels of reported subjective well-being (Burton & King, 2004; Emmons & McCullough, 2003). However, despite the success of the interventions, much of the literature and research was based around short-term efficacy studies in controlled research environments, with few direct links to educational settings (Shoshani & Steinmetz, 2014). This presents an opportunity for further exploration because researchers have found that students who demonstrate increased levels of subjective well-being, often have more

positive personal relationships with friends, parents, and teachers (Gilman & Huebner, 2006).

Psychological Well-Being (PWB).

Ryff and Keyes (1995) developed a multidimensional model of positive well-being based on six components of positive psychological functioning aimed at encompassing the breadth of wellness: self-acceptance, personal growth, purpose in life, positive relations with others, environmental mastery, and autonomy. This set of psychological features, along with self-efficacy, were seen as essential to positive human functioning and enhanced resilience (Keyes, Shmotkin, & Ryff, 2002). The concept of psychological well-being was based around a *eudaimonic perspective* which focused on human flourishing, self-actualization, and optimal functioning (Ryff & Singer, 2003). Human flourishing was characterized by the ability to develop positive relationships, to demonstrate love and identification with others, express empathy and affection, and to demonstrate independence, self-determination, and behavior regulation (Ryff & Singer, 2003). The concept of human flourishing is quite similar in nature to the search for life satisfaction, and long-term emotional and psychological well-being (Diener & Larsen, 1993). Ryff and Keyes (1995) described life satisfaction as a cognitive attribute supporting positive functioning and individual happiness.

Psychological well-being was related to resilience and hardiness (Masten, Hubbard, Gest, Tellegen, Garmezy, & Ramirez (1999), among other individual concepts such as adaptive coping strategies (Gloria, Castellanos, Scull, & Villegas, 2009), and positive and negative affect (Garcia & Moradi, 2013). More specifically, it was argued that resilient individuals tended to recover more quickly from setbacks and stress, and were often able to maintain a healthier physical and psychological lifestyle (Ryff & Singer, 2003). Adolescents who experienced high levels of resilience were also more

likely to cope and function in a healthy manner while decreasing the likelihood of mental illness (Sagone & De Caroli, 2014); resilience was also found to effectively enhance psychological well-being in adults (Frederickson, 2001). Furthermore, psychological well-being was positively linked with the three factors of dispositional resilience, namely, commitment, control, and challenge (Picardi et al., 2012).

Ryff and Keyes (1995) applied the PWB model to adolescent and adult populations to explore if there were any notable differences between gender, age, and culture. Interestingly, Ryff and Keyes (1995) found that environmental mastery and autonomy increased with age, while personal growth and purpose in life gradually decreased from adolescence, through adulthood, and into older age. In a study on gender, Ryff and Keyes (1995) found that women consistently expressed higher self-ratings in the areas of personal growth and positive relations with others. When the study was applied to the cultural context, it showed that Americans from a White or European background rated themselves highest in personal growth and autonomy, while Koreans from and Asian background rated consistently higher in positive relations with others (Ryff & Keyes, 1995).

Well-Being, Resilience, and Gender

Gender inequality, which functions from the premise that men and women are not equal, could be a contributor to gender well-being disparities (Sen, 2009). Gender has been a contributing factor in the well-being of younger people, especially adolescents (D'Agostino et al., 2018). D'Agostino et al. (2018) showed there was still some degree of gender inequality that could impact positive well-being in adolescents. However, historically and culturally, gender can often refer to socially constructed roles, behaviors, and activities that are deemed appropriate for males and females in different societies at different times (D'Agostino et al., 2018). The associated inequalities are often a product

of the ideals and realities created by institutional structures and behaviors, particularly as promoted by the government and local communities, family, or the labor market (D'Agostino et al., 2018; Gonzalez, Alegria, & Prihoda, 2014). Well-being is further impacted by a wide variety of factors in the family setting (D'Agostino et al., 2018). Impacting factors included family size, parental employment status, family structure and sole parenting, and the manner in which parents related to different genders (D'Agostino et al., 2018).

D'Agostino et al. (2018) conducted a study that involved a group of children and adolescents in a home setting in Italy, Portugal, Greece, and Spain, and concluded that well-being was an attribute associated with play, social life, nutrition and clothing, finances, shelter, safety, and bodily health. The results indicated that males expressed higher levels of subjective well-being (D'Agostino et al., 2018). Similar studies also found that males expressed higher levels of subjective well-being than females across the adolescent age group (Gabos & Toth, 2011; Kaye-Tzadok, Kim, & Main, 2017). Furthermore, single-parent families, economic pressures and family interaction have been shown to negatively impact the well-being of children (D'Agostino et al., 2018).

Sagone and De Caroli (2014) found that adolescent boys reported higher levels of psychological well-being and resilience than girls of the same age. The measurement tools covered: autonomy, environmental mastery, life purpose, positive relations, personal growth and self-acceptance, along with the ability to cope with adversity, and challenging life events (Ryff & Keyes, 1995; Wagnild & Young, 1993). The results of the study showed that boys were more likely to manage their environment, choose contexts suitable to personal needs, make effective use of opportunities, and to express positive attitudes toward self-image (Sagone & De Caroli, 2014).

Well-Being, Resilience, and Culture

One of the significant challenges for building resilience and well-being in adolescents is to identify risk factors and protective factors that are common across cultures (Kieling et al., 2011; Ungar, 2005). Mental health problems are evident across all cultures and cultural backgrounds, but the challenge for researchers is to understand the sources of the distress, and the effect of cultural background on the adolescent (Kieling et al., 2011). Some of the cultural challenges may include immigrant status, relocation from countries of armed conflict or war, forced displacement, cultural traditions and beliefs, and religious beliefs and understandings (Kieling et al., 2011; Mels, Derluyn, Broekaert, & Rosseel, 2010; Wong, Homma, Johnson, & Saewyc, 2010). To develop common understandings and mental health identification, prevention, and action plans, there is a need for the development of a common language that crosses cultural and ethnic boundaries (Kieling et al., 2011).

Resilience research and definitions of resilience have traditionally focused on middle-class individuals from a European background (Ungar, 2012). Cultures and contexts are influential in the construction of environments, and the environment in which an individual interacts creates opportunity for growth and adaptation in resilience (Ungar, 2012).

Children and adolescents who developed a clear understanding of their own cultural identification through family and local community reinforcement reported higher levels of resilience (Ungar, 2012). In some cultures that had seen war, widespread turmoil, or catastrophic events, children and adolescents demonstrated resilient traits and the required cultural resources, support structures, belief systems, and in some cases the metacognitive skills, to cope with the stressors (Cyrulnik, 2008; Ungar, 2012). As resilience research and understanding broadens to a wider range of cultures, researchers

will gain a deeper knowledge of the culture-specific structures that help individuals develop adaptive skills that help them function in their communities, and society in general (Ungar, 2012). Traditionally, much of the mental health research and study has focused on majority cultural groups, such as individuals from a White or European background (Ungar, 2012). Ungar (2012) contended that there must be further research into a wider range of marginalized groups, and children, adolescents, and adults from a wide range of cultural backgrounds and socioeconomic groups. This would help in developing common understandings and language of across cultures, and would increase understanding about resilience and how it applies in various contexts and cultures (Ungar, 2012). To create informed programs and interventions to develop resilience in children and adolescents, it is important to first identify cultural beliefs, values, and expectations (Ungar, 2012).

The literature to date showed a greater focus on individual coping strategies (Ungar, 2012, 2016). This focus may present a cultural bias because it is the dominant approach in western culture, whereas some indigenous populations and cultural groups focus more on relational and kinship approaches to helping others cope, or other social practices that could promote resilience (Ungar, 2012).

Well-Being, Resilience, and Physical Activity

Jewett et al. (2014) asserted that high stress levels, low levels of personal mental health, and evidence of depression can significantly impact quality of life, well-being, and overall health. An increased risk of mental health concerns such as depression, anxiety, and more serious psychological issues was linked to decreased levels of physical activity (Lobstein, Baur & Uauy, 2004; Shearer & Moore, 2013). However, increased levels of physical activity were shown to positively benefit mental health by helping to reduce stress, anxiety, and feelings of depression, while helping to improve concentration,

memory, and self-confidence, among other health benefits (Hallal, Victoria, Azevedo, & Wells, 2006; Mutrie & Parfitt, 1998). Physical activity was seen as a preventative strategy to protect against poor mental health in adulthood, particularly if adopted during childhood or adolescence (Jewett et al., 2014).

Physical activity and movement are essential elements in positive brain development, particularly during childhood and adolescence (Myer et al., 2015). Recent advances in technology, such as the use of magnetic resonance imaging (MRI), has allowed scientists and brain researchers to gain a deeper understanding of brain development, particularly during adolescence (Dumontheil, 2016). It is understood that brain development occurs rapidly throughout childhood to adult volume levels, but adolescence is a period where specific changes occur that can determine responses and behaviors (Dumontheil, 2016). Techniques in neuroimaging have shown the functional and structural changes that occur during adolescence, and the developmental factors that contribute to the ongoing motor skill development that occurs throughout adolescence and into young adulthood. Cognitive training implementations such as physical activity, and mindfulness have been utilized successfully during adolescence to show positive functional brain development, which also contributed positively to emotion regulation and behavior (Dumontheil, 2016).

Physical activity has been successfully prescribed under various conditions to treat major depressive disorders (Nystrom, Neely, Hassmen, & Carlbring, 2015). Certain areas of the central nervous system play a significant role in mental health and wellness, particularly in the hippocampus which helps to regulate emotion and plays, an important role in memory and spatial awareness (Masi & Brovedani, 2011). Researchers have found that physical activity leads to neurological changes in brain development that positively impact mood, and social behaviors in children, which can lead to positive social,

emotional, and psychological outcomes throughout life (Donnelly et al., 2016). More specifically, it is the impact of physical activity on the synaptic transmission and neural growth that leads to positive outcomes in executive function processes and behaviors (Donnelly et al., 2016). During the adolescent period, physical activity positively impacts brain plasticity and development because it stimulates brain-derived neurotrophic factor (BDNF), which can lead to improved cognitive performance and behavioral outcomes (Donnelly et al., 2016). Neuroplasticity in adolescence is a concept that has gained increased attention over the past 10 years, as it is an important part of brain development and can help the nervous system to modify as a response to physical activity, and other life experiences (Mandolesi et al., 2018). Further studies of the brain also showed physical activity related to changes in neurotransmitters, such as serotonin, which led to a positive sense of well-being (Lista & Sorrentino, 2010).

Brain development, brain function, cognition, knowledge-building, and understanding, are important predictors of psychological health and well-being in adults (Esteban-Cornejo, Tejeno-Gonzalez, Sallis, & Veiga, 2015). More specifically, adolescents who experience higher cognition levels demonstrated a correlation between lower levels of anxiety, depression, various forms of heart disease, and some cancers, and increased levels of self-esteem, and self-concept (Esteban-Cornejo et al., 2015). Certain measures of cognition, such as working memory, and concentration, have shown to be positively influenced by positive physical habits in adolescence (Esteban-Cornejo et al., 2015). Unfortunately, adolescence is a period of life when there can be a significant decline in physical activity, therefore potentially contributing to cognitive decline and the related health issues (Esteban-Cornejo et al., 2015).

In a further study conducted by Svatkova et al. (2015), the learning and ongoing practice of physical activities showed positive improvement in brain connectivity,

particularly in the region of the brain that contributes to motor function. Physical activity and movement also had positive impact on the inferior longitudinal fasciculus (ILF), and the inferior fronto-occipital fasciculus (IFOF), two regions of the brain that help with visual-processing, executive, and language functions, and memory (Svatkova et al., 2015). There have been numerous studies supporting the assertion that physical activity can enhance cognition in children and adolescents, contribute beneficially to concentration, behavior, and memory in the classroom, and develop neural connections and growth of new brain cells (Blaydes, 2000; Erickson, Hillman & Kramer, 2015; Jansen & LeBlanc, 2010). Positive engagement with school and academic achievement have been linked to increased self-esteem and self-confidence (Seligman, 2011). Positive self-esteem has proven to be an influential factor in resilience-building, particularly throughout adolescence (Ungar, 2012).

In a global study, the World Health Organization (WHO, 2014) found that around two thirds of people age 11-15 years did not meet the recommended level of physical activity of a minimum of 60 minutes of vigorous activity at least five days per week. Researchers claimed there was a consistent positive relationship between mental well-being and physical activity, because physical activity can also help to create a positive self-image and self-confidence, along with improved sleeping patterns and improved self-esteem (Hallal et al., 2006; Mutrie & Parfitt, 1998). Furthermore, Viholainen, Aro, Purtsi, Tolvanen, and Cantell (2014) discussed the benefits of physical activity on psychosocial well-being, their findings showed that increases in physical activity also demonstrated a positive correlation with higher levels of emotional health and fewer social problems.

Further studies showed that children and adolescents who were more physically active often demonstrated stronger motor skill development, which can lead to greater

self-worth and increased self-esteem, and this can act as a buffer against anxiety and depressive symptoms (Viholainen et al., 2014). Physical inactivity is also a cause of excess weight in adolescence (Goldfield et al., 2010; Makinen et al., 2015) with research participants expressing a poorer quality of life, a higher likelihood of body dissatisfaction, and lower self-esteem (Goldfield et al., 2010; Makinen et al., 2015). Inactivity impacts self-image, with overweight adolescents expressing feelings of social isolation and marginalization, meaning they could be at greater risk of mistreatment by peers, and also have fewer friends or intimate relationships (Pearce, Boerger, & Prinstein, 2002; Strauss & Pollack, 2003).

Adolescence is a time when young people are significantly vulnerable to mental disorders, with research showing that close to half of all psychological disorders begin before the age of 14 years (Kessler et al., 2005). There is also an increased rate of dropout in organized sports during adolescence (Vella et al., 2015). In a study of children between the ages of 8-10 in Australia, results showed that 10% of the children involved in the study dropped out of sport, which would equate to approximately 250,000 Australian children in total, if the results were generalized nationwide (Australian Bureau of Statistics, 2012). In looking at the mental, social, and emotional health of those children who dropped out, researchers found the dropouts had more psychological difficulties at age 10, particularly in showing greater internalization of personal problems (Vella et al., 2015). Furthermore, it was asserted that children who continued to participate in organized sports may have experienced less social and emotional difficulties because they were more likely to possess a greater range of psychosocial skills (Vella, Oades, & Crowe, 2011).

It is recommended that further consideration be given to the quality of sports programs, and the methods of implementation, to ensure that organized sports provide

benefits to mental health (Fraser-Thomas, Cote, & Deakin, 2005). Some of the factors included in the development of a mental-health friendly sports program include a clear age-appropriate structure, supportive relationships with adults, positive social norms, opportunities for empowerment, and autonomy (Vella et al., 2011, 2015). Unfortunately, despite the recognition and increased understanding of mental health and the relationship to sport, most of the research related to elite athletes, not to adolescents in particular (Coyle, Gorczynski, & Gibson, 2017). Additionally, Liddle, Deane, and Vella (2017) found that only 11% of sports organizations in Australia demonstrated a significant focus on the mental health of their members, but these campaigns lacked solid evidence and prior evaluation in explicitly supporting the cause for improved mental health outcomes.

Males represented the highest risk group for mental health problems and suicide in one-third of all developed countries (WHO, 2014). A reason for the higher rates in males was the stigma associated with mental health concerns, which made males more vulnerable and likely to require interventions to assist in the promotion of positive mental health (Swann et al., 2018). One particular mental health intervention that assisted in building mental health literacy in males (Jorm, 2000) was the enhancement model aimed at building on strengths and competencies; the model also focused on improving indicators of well-being such as self-esteem, subjective well-being, and resilience (Barry, 2001; Lubans et al., 2016). The enhancement approach is widely used in youth sport to support and build on self-esteem, strengths, and positive mental development and well-being (Holt, 2016). The utilization of an enhancement approach to well-being and positive youth development and the construction of a suitable environment in youth sport can enhance social and emotional functioning, and promote the development of protective factors such as increased self-esteem, improved social relationships, and overall well-being (Fraser-Thomas, & Cote, 2009; Holt, 2016; Holt et al., 2017). Swann et al. (2018)

claimed that organized sport can be a positive context to support change in health behaviors, particularly in males who demonstrated higher sport participation rates. However, it was also noted that the environment must be conducive to positive development and include a focus on mental health in adolescents to support positive mental health, and to build an understanding around preferences and perceptions of the available youth sports (Swann et al., 2018).

Cognitive, behavioral, and environmental factors can present challenges in youth participation in physical activity (Shearer & Moore, 2013). Some of which may include a lack of interest or motivation, self-consciousness, tiredness, and a lack of time (Clemmens & Hayman, 2004; Park & Kim, 2008). School-based extracurricular activities are a form of organized sports that have demonstrated high adolescent participation rates (Feldman & Matjasko, 2005). Researchers found a positive correlation between adolescent well-being and participation in extracurricular physical activity (Gilman, Meyers, & Perez, 2004; Kort-Butler & Hagewen, 2011). The type of physical extracurricular activity was also an influential factor in positive well-being development, with adolescents demonstrating a steady increase in self-esteem when the physical activity was engaging and there was the opportunity to develop competence (Kort-Butler & Hagewen, 2011). Given the high participation rates, extra-curricular activities are seen as an important opportunity to promote the development of skills and social networks, healthy choices, and positive well-being (Eccles, Barber, Stone, & Hunt, 2003; Marsh & Kleitman, 2002).

Darling (2005) and Khanlou (2004) described the extracurricular activity domain as a place where adolescents can grow and develop self-esteem in a safe environment that provides emotional support. Self-esteem is a protective resource that assists adolescents in buffering against psychological problems and emotional stressors, with low self-esteem

showing links to life dissatisfaction, physical health problems, depression, and a higher vulnerability that can lead to the risk of negative outcomes (Crocker & Wolfe, 2001; Thoits, 1995; Trzesniewski, Donnellan, & Robins, 2003; Turner & Lloyd, 1999; Turner & Roszell, 1994). Furthermore, it was noted that individuals who were more involved in school clubs and sports clubs tended to demonstrate higher levels of self-esteem, and psychological resilience, when compared to those students who participated less, or not at all (Fredericks & Eccles, 2006; Simpkins, Eccles, & Becnel, 2008). Related studies showed that boys demonstrated a higher sports participation rate than girls, with athletic involvement being a more significant contributing factor in the well-being of boys than girls (Darling, 2005; Eccles et al., 2003).

Sedentary behavior and passive activities, such as watching television or using a computer, demonstrated a negative correlation with child and adolescent well-being, with active pursuits having a higher positive impact (Csikszentmihalyi & Hunter, 2003; Hills & Argyle, 1998; Parfitt & Eston, 2005; Ussher, Owen, Cook, & Whincup, 2007). This was particularly evident in an individuals' subjective well-being, which was related to life satisfaction and happiness (Holder, Coleman & Sehn, 2009). Holder, Coleman, and Sehn also found that parental involvement in children's sport and physical activity positively impacted participation levels, well-being, and enjoyment, particularly when parents and coaches ensured that children and adolescents were supported in developing athletic skills, along with a positive sport self-concept (Slutzky & Simpkins, 2009). In team sports, the involvement of parents and the support for a positive self-concept was crucial when children and adolescents were in a setting where they were inclined to compare themselves to others (Smoll & Smith, 2002). However, it was noted that competitive environments can also be negatively associated with enjoyment, in part due to the

decrease in positive social interactions that can occur in sporting and physical activity situations (Frederick-Recascino & Schuster-Smith, 2003; Holder & Coleman, 2009).

School sport and sporting clubs provide the opportunity for adolescents to develop relationships and interact with peers and coaches, while developing a feeling of connectedness to the school or sporting club, which positively influences mental health (Brettschneider, 2001; McBride et al., 1995). Outdoor physical activity was also viewed as having a significant influence on positive mental health outcomes (Van Herzele & de Vries, 2012). Exercising in a natural environment such as parklands, meadows, or in the woods can positively impact feelings of happiness and mental well-being (Kuo, 2015; White, Alcock, Wheeler, & Depledge, 2013).

There is a significant body of research revealing that physical activity can enhance physical health as well as a growing field of research supporting the positive impact physical activity plays in acting as a buffer against mental health issues (McMahon et al., 2017). A longitudinal study conducted by McPhie and Rawana (2015) with adolescent aged individuals, revealed those involved in higher levels of physical activity represented a population that measured higher in resilience and lower in depressive symptoms. Further outcomes of the study showed that lower levels of depression and suicidal ideation were expressed by those who were more physically active, with participation in team sports also leading to higher levels of reported happiness (Jewett et al., 2014). McMahon et al. (2017) found a disparity between the reported levels of physical activity participation between males and females in adolescence. Vella et al. (2015) supported the assertion that physical activity acts as a key buffer in the prevention of mental illness. They found that among a study cohort of ten-year-old children, those who stayed involved in sport presented lower rates of parent-

reported psychological disorders when compared to children of the same age who were not involved in sports (Vella et al., 2015).

The development of sports and physical activity-related interventions and preventions can contribute to an increase in overall quality of life (Huebner & Gilman, 2004), and in school engagement and satisfaction (Furlong et al., 2003; Gilman & Huebner, 2004).

Chapter 3: Methodology

This study utilized a quantitative methodology to examine the self-reported levels of well-being and resilience in a cohort of adolescents age 10-14 years. The results were compared with the independent variables of gender, racial and cultural background, and physical activity participation levels. The study intended to examine whether there were any self-reported differences between the various groups of participants by utilizing reliable and valid instruments that were appropriate for use with adolescents.

Philosophy and Justification

All participants for this study attended an international middle school that is renowned for the high academic achievement levels of its students. The school is very well resourced, with a wide number of support systems for the academic, social, and emotional needs of individuals. There is a counselor at each grade level who provides support for students, teachers, and parents, and the school states as its strategic focus that it provides extraordinary care for all students.

The traditional model of supporting children in dealing with child and adolescent mental health is to react to episodes of mental ill-health, stress, anxiety, and depression. However, it is asserted that a proactive model aimed at preventing mental health disorder onset, as viewed through a positive psychology lens, can prevent and continue to alleviate stress, anxiety, and depression, along with other preventable mental health disorders (Masten, 2001; Seligman, 2011; Ungar, 2016). With a specific focus on building holistic well-being through a framework such as the PERMA model (Seligman, 2011), and by intentionally teaching and building resilience traits in schools and the community (Masten, 2001; Rutter, 2006; Ungar, 2012, 2016), it was posited that individuals will be equipped to deal with life challenges, particularly in the school setting (Alford, 2017).

With an increase in the prevalence of mental health disorders in children and adolescents (Schultze-Lutter et al., 2016), there is an increased sense of urgency in developing ways to reverse this trend (Shoshani & Steinmetz, 2014). Preventative strategies and structures, such as positive education and resilience building, are viewed in some sectors as being a method that is accessible by all, which can be successful in building protective mechanisms for children and adolescents (Morrish et al., 2018; Seligman, 2011). One of the significant challenges in building well-being and resilience is the development of a common language and understanding across cultures, races, and diverse backgrounds, because people have varied interpretations of these concepts (Ungar, 2016).

One of the strategic focus areas at the study site is providing extraordinary care for all students. However, the structures in place supported a reactive approach to extraordinary care where counselors work with students who present symptoms and signs of distress or potential mental disorder. The study participants came from 38 different cultural backgrounds, so the population provided a sample that allowed for the dependent variable of cultural or racial background to be measured against well-being and resilience. This research adds to the knowledge gap in the study of children and adolescents, and builds on the limited current knowledge, particularly in the area of adolescents at an international school. Furthermore, given the traditional reactive approach to the emotional and psychological support of students, this study provided an opportunity to bring together the school community to look at the results of the study and consider the implications and next steps.

Theoretical Framework

Well-being.

The theoretical framework for this particular study was based around the study and research related to resilience, well-being, and the self-determination theory (SDT); (Deci & Ryan, 2000). The self-determination theory aimed to identify and develop increased levels of self-motivation, which in turn can lead to improved outcomes for mental health (Deci & Ryan, 2000). The SDT model works on the assumption that humans are curious by nature, and if individuals are provided with the three needs of competence, autonomy, and relatedness, there is a strong possibility that the individual will become engaged and motivated, and will experience an increased sense of motivation, energy, and persistence (Deci & Ryan, 2000). This focused, engaged, and motivated state of mind and being can lead to better relationships, heightened persistence and excitement levels, and an overall improved level of mental health and well-being (Deci & Ryan, 2000).

In creating a feeling of motivation, engagement, and persistence, an individual can then experience a state of flow (Csikszentmihalyi, 1990). Flow theory is seen as being the result of experiences that create a feeling of deep engagement, absorption, motivation, and focus when an activity is in alignment with an individual's capacities and abilities; the experiences also present a challenge (Csikszentmihalyi, 1990). The sense of purpose, positive emotions, and engagement can lead to a heightened feeling of individual well-being and can positively impact relationships and goal achievement (Parr, Montgomery, & DeBell, 1998).

A theoretical framework for well-being in individuals focused on the holistic approach of creating a state of flourishing (Seligman, 2011). Well-being theory has been developed and adapted to create the PERMA framework (Seligman, 2011), which

included positive emotion, engagement, relationships, meaning, and achievement (Peterson, Park, & Seligman, 2005; Seligman, 2002, 2011). The well-being theory asserted that being well across the five dimensions of PERMA (Seligman, 2011) can lead to a life of purpose, fulfillment, and flourishing because it enhances components of subjective well-being (SWB) (Diener, 2000; Seligman, 2011) and psychological well-being (PWB) (Ryff, 1989; Ryff & Keyes, 1995).

Resilience.

Several theoretical frameworks related to resilience framed this study, including resiliency theory (Rutter, 1986), Rutter's theories of resilience (Rutter, 2006), Garmezy's (Garmezy, 1991a, 1991b) theory of resilience, and Ungar's (Ungar, 2005, 2008, 2012) theory of resilience. Common themes across the various theories related to resilience in children and adolescents, such as the understanding that resilience can be fostered and developed (Garmezy, 1991a; Rutter, 1986, 2006; Ungar, 2012). Early studies into resilience in the 1950s and 1960s worked on the understanding that resilience was a naturally occurring trait as a result of adversity in life (Zimmerman & Brenner, 2010). However, research on resilience conducted over the past 30-40 years focused on individual traits and the environment, to better understand how the various interactions and life factors lead to increased resilience and an increased ability to recover from trauma, adversity, and challenging life events (Ungar, 2012; Zimmerman & Brenner, 2010). Research found common traits among resilient individuals, including a strong sense of responsibility and life purpose, positive relationships within their family and community, a positive and optimistic outlook on life, the ability to set ongoing life goals, a clear emotional self-awareness, and an ability to express personal feelings and needs (Fergus & Zimmerman, 2005; Garmezy, 1991a; Rutter 1986, 2006; Ungar, 2012).

Variables

The dependent variables for this study were the self-reported levels of well-being and resilience. There were three independent variables: the racial and cultural background of the individual, the participants' gender, and their level of participation in physical activity.

Research Questions and Hypotheses

The hypotheses were derived from the research questions and designed to measure the dependent variables:

1. What difference, if any, exists in self-reported levels of well-being and resilience among adolescents of different genders?

   H_{01}*:* There is no difference in the self-reported levels of well-being among adolescents of different genders.

   H_{01}*:* There is no difference in the self-reported levels of resilience among adolescents of different genders.

2. What difference, if any, exists in self-reported levels of well-being and resilience among adolescents of different cultural/ethnic backgrounds?

   H_{02}*:* There is no difference in the self-reported levels of well-being among adolescents of cultural/racial backgrounds.

   H_{02}*:* There is no difference in the self-reported levels of resilience among adolescents of cultural/racial backgrounds.

3. What difference, if any, exists in self-reported levels of well-being and resilience among adolescents who are involved in varying levels of physical activity?

   H_{03}*:* There is no difference in the self-reported levels of well-being among adolescents of varying physical activity levels.

H_{03}: There is no difference in the self-reported levels of resilience among adolescents of varying physical activity levels.

Research Design

The study was a non-experimental, quantitative research study that aimed to build upon previous research (Diener, 2000; Masten, 2001; Rutter, 2013; Seligman, 2011), and to address the gap in the literature related to racial and cultural background (Ungar, 2012), physical activity levels (Vella et al., 2015), and gender (D'Agostino et al., 2018) of adolescents in an international school setting.

A survey was administered online due to the advantages (McPeake, Bateson, & O'Neill, 2014) and ease of electronic statistical analysis (Evans & Mathur, 2005; McPeake, Bateson, & O'Neill, 2014), and the ease of handling larger data sets (Duffett et al., 2012). The online survey aimed to gather information to examine the self-reported levels of resilience and well-being related to gender, physical activity, and racial or cultural background across a cohort of adolescents from an international school in Singapore. The survey was created with questions drawn from the PERMA profiler (Butler & Kern, 2016), and the child and youth resilience measure (CYRM-12) (Ungar, 2016). Questions were coded to identify responses directly related to the resilience and well-being dependent variables.

Research sample.

Participants in the study were part of a convenience sample of adolescents in middle school at an American international school in Singapore offering an American curriculum. The study focused on an international school setting, and the independent variables of racial or cultural background, gender, and physical activity participation levels. It is intended that the study will be broadened and applied to other cultures and regions as a part of the ongoing research trajectory.

The middle school consists of students in Grades six, seven, and eight, ranging from 10-14 years of age. Based on enrolment figures at the time of the study, the middle school student population totaled 963 students. The participants were all under the age of 18 years; therefore, the parents of all prospective participants received information outlining the various aspects of the study and were asked to provide informed consent (Cresswell, 2014) for their son or daughter to participate in the study. Students who received informed consent were also given the opportunity to either participate or withdraw from the study during the initial phases of the online survey.

Research site.

Following approval from the Institutional Review Board (IRB) at Bethel University, the instruments utilized for the study were the PERMA profiler (Butler & Kern, 2016), and the child and youth resilience measure (CYRM-12) (Ungar, 2016), which were digitized so the survey could be administered through Qualtrics; data were collected and tabulated using SPSS software (Muijs, 2011).

All prospective study participants were surveyed at the school during regular class time. The surveyor outlined the study and provided relevant information before the study began. A link was provided to the online survey utilizing Qualtrics software, and made accessible to all participants. The survey link was provided through a website post that included a description of the researcher, the purpose of the study, a request for informed consent to participate in the study, and the timetable for completion of the survey. The link was easily accessible to allow the supervising teacher to assist any students who required further support. Students who were absent at the time of survey were provided an opportunity to complete the survey over the following four days during school time.

The issue of bias and potential misrepresentation in online surveys can be problematic, particularly the possibility that not all questions will be answered accurately,

honestly, or in full (Wright, 2005). This sometimes occurs as a result of participants searching for what they perceive as the right answer, or moving through the survey quickly and not reading or correctly interpreting the question (Evans & Mathur, 2005). To alleviate this potential bias, participants were explicitly informed that responses were completely anonymous, and a generous timeframe was allotted to complete the survey.

Administration of the adolescent well-being and resilience survey.

The online survey was administered to examine the self-reported levels of resilience and well-being among a cohort of adolescents at an American international school in Singapore. The following tested and validated survey instruments were adapted and modified to fit the digital Qualtrics format.

The 12-item child & youth resilience measure (CYRM-12) was the primary instrument used in assessing the self-reported resilience levels of the adolescent participants (Ungar, 2016). The CYRM-12 was selected as the item for resilience measurement as it had demonstrated strong reliability and validity in use with adolescents, and particularly in a variety of cultures (Liebenberg, Ungar, & LeBlanc, 2013). The research site for this study, an international school in Singapore offering an American curriculum, encompassed a wide range of cultures and backgrounds. In designing the CYRM-12, Ungar and Liebenberg (2011) studied 14 different cultures to gain an understanding of the commonalities and unique aspects of resilience. The CYRM-12 measured factors related to the individual traits, and the individual's environment in determining which internal and external assets were most influential in building resilience, with questions worded in a culturally sensitive manner (Liebenberg et al., 2013).

Through a qualitative study the researchers verified the validity of the CYRM-12 (Ungar, 2016) instrument for adolescents, with the major challenge being the variability

in how people from different cultures and backgrounds expressed commonalities related to the concept of resilience (Liebenberg et al., 2013). A further quantitative analysis of a study consisting of 1,451 adolescents between the ages of 10 and 15 from 14 countries and cultures found the instrument to be reliable for use with adolescents (Liebenberg et al., 2013). Cronbach's alpha scores for each of the resilience subsets represented in the CYRM-12 (Ungar, 2016) were: Individual = 0.84, Relational = 0.66, Community = 0.79, and Culture = 0.71 (Liebenberg et al., 2013). An example of a resilience-related indicator from the CYRM-12 that focused on individual and personal skills asked questions, such as how the individual cooperates with others, and how family and friends provide support structures. Followed by a five-point Likert response scale ranging from *not at all* to *a lot.*

To measure the self-reported well-being of the adolescent participants, the study utilized the positive emotion, engagement, positive relationships, meaning, and achievement (PERMA) profiler (Butler & Kern, 2016), which was developed to measure aspects of the PERMA model (Seligman, 2011). The PERMA model and profiler measure showed strong reliability with Cronbach's alpha scores of P = 0.88, E = 0.72, R = 0.82, M = 0.90, and A = 0.79, and an overall score of 0.94 across the combined samples of the 31,966 participants who were involved in the study (Butler & Kern, 2016). The PERMA model was developed to align with well-being theory (Diener, 2009; Seligman, 2011), which posited that well-being is not just the absence of function or poor health; it is focused on building an optimal state of functioning through the five domains associated with the PERMA measure (Kern, Benson, Steinberg, & Steinberg, 2015; Seligman, 2011). The PERMA profiler (Butler & Kern, 2016) asked questions to ascertain how often the respondent felt positive or anxious, and how often the respondent experienced meaning and purpose in life, among other questions. Survey participants responded on an 11-point Likert response scale, with response options ranging from *never* to *always*. It is

asserted that the development of positive emotions, engagement, positive relationships, meaning, and achievement will lead to improved physical health, and will positively impact overall well-being throughout life (Seligman, 2011).

Data Collection

Following successful completion of the survey development and field-testing, along with further confirmation of the reliability and validity of the instrument, the researcher applied for approval from the study site and Institutional Review Board (IRB) at Bethel University. IRB ethics approval is essential when working with human subjects, particularly in a study such as this, involving individuals under the age of 18 years (Creswell, 2014).

With school study site and IRB approval, the Qualtrics survey was administered to the adolescent participants, and all responses and data were collected and tabulated with use of the Statistical Package for the Social Sciences (SPSS) software (Muijs, 2011).

The first step prior to administering the survey was to gain active parent or guardian consent for all participants who were under 18 years of age. The school's electronic communication system provided parents with all of the information, as well as the opportunity to provide consent or to exclude their child from the study. All parents of potential participants received information outlining the purpose of the study, and all relevant information regarding the study, and parents were offered the opportunity to attend a briefing session to ask questions and seek clarification. The study utilized a convenience sample of middle school adolescent students at an international school in Singapore; this allowed for scheduling and administration to be more effective and time-efficient.

Data Analysis

In the data analysis phase, information was available that outlined the number of participants surveyed, and the response rate.

Descriptive statistics were used to summarize the frequency distribution of the survey answers. These results are presented in charts and tables displaying information on the mean, standard deviations, and range of scores for the independent and dependent variables.

Further analysis focused on inferential statistics that investigated the relationship between the independent variables (gender, racial and cultural background, physical activity levels), and the dependent variables (well-being, resilience).

In order to process and statistically analyze the data, SPSS software was utilized to test the inferential and research questions involved in the study. To examine correlations in the statistical data in each of the research questions, a separate independent analysis of variance (ANOVA) was conducted for the dependent variable of resilience, and to analyze the results of the child and youth resilience measure (CYRM-12). The PERMA profiler (Butler & Kern, 2016) raw data was processed and analyzed using a multivariate analysis of variance (MANOVA) to analyze the results of the survey questions related to well-being, and the independent variable of physical activity. A further Tukey Post Hoc test was utilized to further analyze all results and correlations of significance.

Field Testing

The field-testing of the survey was undertaken by a number of current and former colleagues of the researcher, along with adolescents at the study site who were not participating in the study. Some survey modifications were made based on feedback provided by the individuals who conducted the field test, particularly in areas such as the

length of the survey, clarification of important terms and vocabulary, and the wording of questions to suit individuals age 10-14 years.

Limitations

The study was conducted in light of several limitations:

- The issue of bias and potential misrepresentation in online surveys is sometimes a concern because participants may not clearly understand the question, will search for what they perceive as the right answer, or will move through the survey too quickly.
- Individuals often have varying interpretations of the meanings of well-being and resilience. Cultural backgrounds and understandings may influence pre-conceived notions of what the appropriate answer may be.
- The convenience sample was based at one international school in Singapore; therefore, the results are not easily generalizable across similar populations.
- Reporting the average amount of time a participant engaged in physical activity each week may have been difficult to calculate for some participants if there were significant variations between weeks.
- Self-report, multi-choice response measures may sometimes be inaccurate due to the varying interpretations of the scale being used.
- Participant responses to resilience and well-being survey questions may be based on factors other than cultural background, gender, or physical activity levels.

Delimitations

The delimitations of this study include:

- The study was limited to a convenience sample in one international school offering an American curriculum in Singapore with connections to the

researcher. The initial study was designed to inform the ongoing research trajectory.

- The quantitative study and analysis was selected as the research design in order to examine results across a large sample population of up to 963 participants.
- The study did not specify the type or intensity of physical activity.
- The racial and cultural backgrounds were defined based on the population of the initial study sample group at an international school located in Southeast Asia.

Ethical Considerations

In any research involving human participants, the researcher has an ethical obligation to ensure that no physical or psychological harm comes to participants (Orcher, 2014). Furthermore, the researcher is compelled to respect that participants also have the right to privacy and confidentiality, the right to understand the knowledge of purpose of their participation in the study, and the right to provide informed consent for their participation in the study (Patten, 2014).

In order to meet the highest ethical standards, this study complied with the five general principles outlined in the Ethical Principles of Psychologists and Code of Conduct (American Psychological Association, 2017): a) beneficence and non-maleficence, (b) fidelity and responsibility, c) integrity, d) justice, and e) respect for people's rights and dignity. These principles informed the study design and administration, together with parent and participant communication in seeking informed consent. Following the completion of the study design, inclusive of appropriate ethical considerations, the study was submitted to the Institutional Review Board (IRB) at Bethel University where it was reviewed and approval was received to proceed with the study

(Appendix E).

To collect the data required for the study, the first consideration was the needs of a potentially vulnerable population, because all participants were under the age of 18 years (Creswell, 2014). Parents and guardians of the participants received all relevant information regarding the study, including the survey questions; they were provided with an informed consent form to be signed that clearly outlined the study and granted permission for their child to participate (Patten, 2014). Furthermore, participants were also provided the opportunity to indicate informed consent before participating in the survey (Patten, 2014). Included in the correspondence to parents and participants were the following components: identification of the researcher, identification of the sponsoring institution, identification of the purpose of the research and benefits to the participants, identification of participant selection methods, identification of the level and type of participant involvement, potential risks to the participant, guarantee of privacy and confidentiality, assurance of the option to withdraw at any time, and the names of people to contact for further questions or concerns (Sarantakos, 2012).

Online surveys and study methods have become increasingly prominent across the last 20 years, largely due to the increased efficiency and ease of administration, particularly for larger groups in diverse geographic locations (Buchanan & Hvizdak, 2009). Some of the Internet-specific considerations of this study were to ensure the collection of data for a specific purpose, protecting the data, maintaining anonymity of the participants and the material, and developing a clear understanding of the relevant online etiquette that related to different areas of the research (Buchanan & Hvizdak, 2009).

Chapter 4: Results

Introduction

The purpose of this research was to gain an understanding of the self-reported well-being and resilience levels of a group of 386 adolescents, and to investigate the relationship with gender, cultural and racial background, and physical activity participation levels. Following administration of the survey, the levels of well-being and resilience were compared across the variables of gender, physical activity levels, and racial and cultural background.

The survey responses were processed and analyzed utilizing the Statistical Package for Social Sciences (SPSS) Software. The data were cleaned to remove all preview attempts, unneeded columns, and participants missing significant amounts of data that would impact the results analysis. Missing values were replaced with mean substitutions, and the total scores for each measure were then computed.

Descriptive Statistics

The participants required informed parental consent to participate in the study, as the sample group ranged from 10-14 years of age. The convenience sample consisted of a total of 963 potential participants, with a total of 455 (47%) parents providing informed consent for their child to participate in the study. Of those 455 who were provided with informed consent, 386 adolescents provided informed consent and participated in the study, for a total response and participation rate of 40%.

Descriptive statistics were calculated to examine the mean and standard deviation for participant demographics, and more specifically the variables of age, gender, and racial / cultural background in all study participants. Of the 386 participants, all participants responded to the demographic items related to gender and age, with 382 participants listing their cultural or racial background.

Age.

All of the participants were middle school students who attended an international school in Singapore at the time of the study. Age was identified as a demographic for analysis, although it was not a variable for final analysis. The study participants ranged in age from 10-14 years of age, with a mean age of 12.34 years; 0.8% (n = 3) of participants were 10 years of age; 19.9% (n = 77) of participants were 11 years of age; 35.9% of participants (n = 139) were 12 years of age; 31.0% (n = 120) of participants were 13 years of age; and, 12.1% (n = 47) of participants were 14 years of age.

Gender.

Of the 386 participants in the study, 52.1% (n = 201) were male; 46.1% (n = 178) were female; one participant (.3%) was transgender; three participants (.8%) elected not to list their gender; and three (.8%) participants listed their gender as *other*. The transgender response group (n = 1), the group preferring not to state their gender (n = 3), and the *other* group (n = 3) were excluded from the gender analysis due to the small number of responses, and the inability to create an appropriate comparison.

Cultural and racial background.

Participants were asked to list their cultural or racial background; of the 386 participants a total of 382 participants registered a response. Of the 382 participant responses, 26.4% (n = 102) were from a White or European background; 23.5% (n = 91) were from a Mixed background; 22.5% (n = 87) were from an Asian background; 15.2% (n = 59) were from a South Asian background; 4.1% (n = 16) came from a Southeast Asian background; 2.1% (n = 8) came from a Latin American background; 1.6% (n = 6) were from a Filipino background; .8% (n = 3) from a Pacific Island background; and, 2.6% came from an unlisted background.

Physical activity.

The independent variable of physical participation levels was analyzed as a continuous variable; participants were asked to indicate how many hours of physical activity they had participated in throughout the previous week. Of all the recorded responses it was found $M = 6.22$ hours, and $SD = 2.81$. Participants recorded the following responses, 2.71% ($n = 11$) stated one hour or less of physical activity; 2.51% ($n = 10$) participated in one hour; 5.28% ($n = 21$) participated in two hours; 8.54% ($n = 34$) participated in three hours; 8.79% ($n = 35$) participated in four hours; 12.06% ($n = 48$) participated in five hours; 14.57% ($n = 58$) participated in six hours; 9.30% ($n = 37$) participated in seven hours; 11.31% ($n = 45$) participated in eight hours; 4.27% ($n = 17$) participated in nine hours; and, 20.60% ($n = 80$) of respondents participated in 10 or more hours of physical activity in the week preceding the survey administration.

Statistical Analysis

In order to prepare the data for analysis, all incomplete responses were eliminated and the survey Likert scale responses were converted into raw scores for the dependent variables of well-being and resilience. Any participants who had a significant number of missing or incomplete responses were removed and replaced with mean substitutions.

The raw data for the CYRM-12 (Ungar, 2016) was scored as a whole, as each of the 12 items focused on the various aspects of resilience. It was then processed against the independent variables of gender, cultural and racial background, and physical activity participation levels.

The PERMA profiler (Butler & Kern, 2016) was broken down into the five components of positive emotions, engagement, relationships, meaning, and accomplishment, and the results were compared based on the independent variables of gender, cultural and racial background, and physical activity participation levels.

Relationship Between Physical Activity, Resilience, and Well-Being

In order to determine the strength and direction of the relationship between the continuous variable of physical activity levels of participants, and the resilience and well-being levels, a Pearson correlation was utilized. As noted in Table 1, most of the areas demonstrated a strong relationship and showed a relationship with the outcome variables, but the correlations with the outcome variables remained quite small. The results of the CYRM-12 (Ungar, 2016) analysis showed a weak, but significant, correlation with physical activity, $r = .130$, $p < .01$. Whereas the correlation between physical activity levels of the various sections of the PERMA profiler remained weak to modest, the resulting correlations were very similar to the CYRM-12 resilience measure results. Positive emotion ($r = .17$), engagement ($r = .12$), and relationships ($r = .17$) all showed a weak correlation, with meaning ($r = .23$) and achievement ($r = .27$) demonstrating some correlation. All correlations with the PERMA were significant, $p < .01$. Overall, the results showed that all of the correlations were significant, which demonstrated a relationship between the dependent variables of well-being and resilience, and the independent variable of physical activity participation. The correlation was not strong, but still significant.

Table 4.1

Mean, Standard Deviations, and Bivariate Correlations for All Measures

	M(SD)	1	2	3	4	5	6	7
1. CYRM	49.61 (6.68)	--						
2. PERMA - P	21.53 (5.40)	.68**	--					
3. PERMA - E	22.46 (4.48)	.44**	.55**	--				
4. PERMA - R	22.77 (5.39)	.73**	.73**	.47**	--			
5. PERMA - M	21.10 (5.98)	.65**	.74**	.47**	.69**	--		
6. PERMA - A	20.06 (4.43)	.44**	.51**	.39**	.41**	.63**	--	
7. Phys. Activity	7.24 (2.82)	.13**	.17**	.12**	.17**	.23**	.27**	--

Note. * $p < .05$, ** $p < .01$. CYRM-12 = Child Youth Resilience Measure, PERMA = Positive Emotions, Engagement, Relationships, Meaning, and Accomplishment, subscales of the PERMA profiler.

Relationship Between Gender, Resilience, and Well-Being.

In order to determine if there was any significant difference between gender and resilience, a ANOVA was conducted with the responses of 379 of the participants on the child and youth resilience measure (CYRM-12). The analysis of variance only included only the male and female group respondents because the groups identifying as transgender, other, and unspecified were too small to make appropriate comparisons. As noted in Table 4.2, in the sample for analysis there were 201 males ($M = 49.1768$, $SD = 6.93$), and 178 females ($M = 50.1767$, $SD = 6.37$), showing that gender is not a significant factor in the self-reported resilience levels of the male and female participants. Results showed $F(5, 372) = 2.12$, $p = .146$, demonstrating very little, if any, difference between the self-reported resilience levels in relation to different genders.

In determining if there was any significant difference between genders as it relates to well-being through analysis of the PERMA profiler (Butler & Kern, 2016), MANOVA was utilized. The analysis only focused on male ($n = 201$) and female ($n = 177$) responses

because the other groups were too small for a comparison. A MANOVA was conducted because the PERMA profiler scales are so closely related, which therefore allowed for all subscales to be analyzed simultaneously. The MANOVA showed no statistically significant difference between gender and well-being, $F(5, 372) = .723$, $p = .61$; Wilk's $\Lambda = 0.990$, partial $\eta 2 = .01$.

Table 4.2

Means and Standard Deviations by Gender in Relation to CYRM and PERMA Profiler

	CYRM	Positive Emotion	Engagement	Relationships	Meaning	Accomplishment
Male (*n* = 201)	49.17 (6.93)	21.79 (5.59)	22.62 (4.55)	22.86 (5.40)	21.48 (6.20)	20.14 (4.57)
Female (*n*=177)	50.13 (6.35)	21.31 (5.04)	22.37 (4.13)	22.81 (5.30)	20.75 (5.62)	20.10 (4.03)
Transgender (*n* = 1)	37.00	2.00	1.00	9.00	7.00	7.00
Other (*n* = 3)	48.67 (3.06)	20.67 (1.53)	23.67 (2.08)	19.67 (6.81)	21.33 (5.51)	23.00 (4.36)
Prefer not to say (*n* = 3)	48.33 (7.51)	22.00 (5.57)	21.00 (5.57)	18.33 (3.79)	16.00 (5.20)	12.00 (5.57)

Relationship Between Cultural & Racial Background, Resilience, and Well-Being

An ANOVA was utilized to determine any significant difference between cultural or racial background, and the results of the CYRM. As noted in Table 4.3, the ANOVA only included the larger response groups of White or European ($n = 102$, $M = 50.04$, $SD = 6.20$), South Asian ($n = 59$, $M = 50.90$, $SD = 6.92$), Asian ($n = 87$, $M = 48.97$, $SD = 6.78$), and Mixed Background ($n = 91$, $M = 48.70$, $SD = 6.82$). Other response groups were excluded from the analysis because they were too small to make comparisons. The results indicated no significant difference in self-reported resilience levels of adolescence from different cultural or racial backgrounds, $F(3, 76) = 1.719$, $p = .163$. This finding remained consistent with the null hypothesis that there would be no significant difference.

In order to determine if there was any significant difference between the adolescent study participants from different cultural or racial backgrounds as it related to well-being in response to the PERMA profiler (Butler & Kern, 2016), a MANOVA was utilized. The analysis only focused on White or European (n = 102), South Asian (n = 59), Asian (n = 87), and Mixed Background (n = 91). Again, the other response groups were excluded from the analysis because they were too small to make comparisons.

A MANOVA was again conducted because the PERMA profiler scales were closely related, which allowed all subscales to be analyzed simultaneously. The MANOVA showed two significant findings, which were noted when the analysis was run on each of the PERMA profiler subscales, $F(15, 911) = 2.24$, $p = .0.004$; Wilk's $\Lambda = 0.905$, partial $\eta 2 = .033$.

More specifically, the MANOVA showed a significant difference in the PERMA profiler subscales of relationships and accomplishment, but no significant difference between the other subscales. The effect on relationship was significant, $F = 3.263$, $p = .02$. The Tukey post hoc test indicated that the only significant difference ($p = .04$) in relationships was between participants from a White or European, and an Asian background. The difference between South Asian and Asian background was close to significant, $p = .05$).

A secondary finding of significance was located in the accomplishment subscale responses. The Tukey post hoc test indicated there was a significant difference ($p = .04$) in the well-being subscale of accomplishment, $F = 3.124$, $p = 0.26$, between participants from a South Asian, and an Asian background. The three PERMA profiler subscale results of positive emotions, engagement, and meaning were consistent with the hypotheses, showing no significant difference between adolescents from various racial or cultural backgrounds. However, the subscales of relationships and accomplishment

showed results of significance when compared to the results of the responses from other cultural groups.

Table 4.3

Means and Standard Deviations by Cultural / Racial Background in Relation to CYRM and PERMA Profiler

	CYRM	Positive Emotion	Engagement	Relationships	Meaning	Accomplishment
White or European (*n* = 102)	50.03 (6.20)	21.58 (5.34)	22.81 (4.16)	23.51 (5.60)	21.71 (5.91)	19.71 (4.34)
South Asian (*n* = 16)	48.97 (6.78)	22.17 (5.87)	22.80 (4.60)	23.71(5.62)	22.07 (6.06)	21.19 (4.85)
Asian (*n* = 87)	49.19 (5.46)	21.02 (5.39)	21.43 (5.47)	21.37 (5.35)	20.21 (5.74)	19.19 (4.68)
South-East Asian (*n* = 16)	47.17 (6.65)	22.64 (3.63)	23.69 (3.20)	23.19 (4.68)	21.44 (3.41)	19.06 (3.77)
Filipino (*n* = 6)	47.17 (6.65)	21.83 (2.32)	22.41 (2.77)	20.33 (3.01)	17.50 (7.42)	19.00 (4.43)
Latin American (*n* = 8)	54.88 (2.90)	24.88 (3.00)	23.75 (1.98)	27.00 (2.07)	26.00 (3.59)	21.13 (3.98)
Pacific Islander (*n* = 3)	48.71 (7.79)	19.00 (2.65)	23.67 (3.06)	22.33 (4.62)	18.33 (3.79)	18.67 (6.66)
Mixed Background (*n* = 90)	48.59 (6.79)	21.16 (5.48)	22.41 (4.21)	22.47 (5.11)	20.33 (6.38)	20.64 (3.98)
Other	50.60 (8.67)	21.80 (7.00)	22.90 (4.53)	21.90 (6.17)	21.90 (6.51)	20.90 (3.31)

Summary of Results

Based on the results of the survey, there was not enough evidence to suggest the two null hypotheses related to gender, well-being, $F(5, 372) = .723$, $p = .61$, and resilience, $F(5, 372) = 2.12$, $p = .15$, could be rejected. The analysis of the responses related to well-being and resilience, and physical activity showed no finding of significance; therefore the null hypotheses could not be rejected. The null hypotheses related to resilience, and cultural and racial background could not be rejected because there also was not enough evidence to show a significant distance between the groups. However, the analysis of cultural and racial background showed a finding of significance related to the PERMA profiler (Butler & Kern, 2016) subscales of relationships and accomplishment.

Chapter 5: Findings and Recommendations

Overview of the Study

The purpose of this study was to investigate the self-reported levels of well-being and resilience in a group of adolescents, and to examine the relationship between the dependent variables of well-being and resilience, and the independent variables of gender, racial and cultural background, and physical activity participation levels. Well-being and resilience are seen as factors that can help to protect against the growing incidence of mental health disorders in children and adolescents (Rutter, 2006; Ryff & Keyes, 1995; Seligman, 2011; Ungar, 2012), and there is very little academic research that has investigated or explored the resilience and well-being levels of adolescents in an international school setting. This particular convenience sample group was selected because all of the participants attended an international school, were of the relevant adolescent age, and represented a wide range of racial and cultural backgrounds.

The convenience sample consisted of 386 participants. Parental consent was obtained from each participant because they were younger than 18 years of age. The 386 participants ranged between 10-14 years of age and attended an international school based in Singapore. A total of 963 students were invited to take part in the study and parental consent was received for 47% (n = 455) of the students. Of these 963 students, 40% (n = 386) received parental consent and also provided personal informed consent to complete the survey. Of the parent-approved cohort of adolescents, 85% (n = 386) of the total group of 455 parent-consented adolescents completed the survey. A study of academic study response rates conducted by Baruch and Holtom (2008) found a variety of views on the ideal number of participants and the response rate required to execute a successful study. After analyzing over 1,600 articles, Baruch and Holtom (2008) found that the average response rate across the studies was around 50%, with a standard

deviation of approximately 20 percentage points. In this study, the entire target population consisted of 963 individuals, but potential participation was contingent upon parent approval given the participant age range of 10-14 years. The 40% response rate, when compared with the overall target population, was satisfactory, and the 85% response rate of individuals who were granted parental permission provided a strong percentage of responses for statistical analysis.

All study participants completed a self-report survey comprised of questions from the positive emotions, engagement, relationships, meaning, and accomplishment (PERMA) profiler (Butler & Kern, 2016), and the child and youth resilience measure (CYRM-12) (Ungar, 2016). The survey questions were developed to gain an understanding of the resilience and well-being levels of participants, and the responses to the demographic questions provided information related to the independent variables of gender, cultural and racial background, and physical activity levels. The questions regarding the three independent variables were listed to determine whether there was any correlation with self-reported levels of well-being and resilience.

Research Questions

The resilience, or CYRM-12 (Ungar, 2016), section of the survey asked participants to answer questions and provide information about influential resilience-related topics such as psychological and physical care, education, cultural attachment, social and personal skills, and peer support structures (Rutter, 2006; Smith, 2010; Ungar, 2005; Weiss & Baker-Smith, 2010). A resilient individual can interact positively in social settings with peers, school, and educational settings, and in various community-related situations (Liebenberg et al., 2013). The CYRM-12 attempted to measure these essential elements of resilience. The well-being, or PERMA profiler (Butler & Kern, 2016), section of the survey required participants to answer questions and provide information

about the five PERMA (Seligman, 2011) components of positive emotions, engagement, relationships, meaning, and accomplishment. The PERMA profiler is a multidimensional model designed to measure more than ill-being; it is designed to capture the essential elements of the complex psychological construct of well-being (Forgeard et al., 2011; Friedman & Kern, 2014).

In the relevant literature, the independent variables of physical activity (Dumontheil, 2016), gender (D'Agostino et al., 2018), and racial or cultural background (Kieling et al., 2011; Ungar, 2005) were seen as potential factors that could promote or inhibit the development of well-being and resilience in adolescents, and ensuing feelings of increased self-esteem and self-confidence (Lee et al., 2017). It must be noted that the use of a convenience sampling approach, although affordable, manageable, and easily accessible, can sometimes provide data that is not transferrable to other groups of individuals of the same age and characteristics, as the study can be very site-specific (Kam, Wilking, & Zechmeister, 2007).

Research question 1.

What difference, if any, exists in self-reported levels of well-being and resilience amongst adolescents of different genders?

Of the 386 participants in the study, 52% (n = 201) of respondents indicated they were male; 46% (n = 178) were female, .002% (n = 1) were transgender, and .01% (n = 3) were from the group labeled other, and .01% (n = 3) were from the group of respondents that preferred not to list their gender. As a result of the low response rate of those who identified as transgender, other, or unspecified gender, those responses were excluded from the analysis due to the inability to create a comparison in the analysis.

In this particular study, the ANOVA carried out on the data showed there was no significant difference between genders when it came to self-reported levels of well-being and resilience. This means that the responses to the child and youth resilience measure (CYRM-12) showed similarities in the responses and the scores of the different genders of participants, demonstrating that gender does not contribute to higher, or lower, levels of resilience within this sample group. A MANOVA was utilized to analyze the results of the positive emotions, engagement, relationships, meaning, and accomplishment (PERMA) profiler, and again the results showed no significance. Therefore, there is not enough evidence to reject the null hypotheses (H_0) that there is no difference between the self-reported levels of well-being and resilience of adolescents from different genders.

There is very little literature on the impact of well-being and resilience on adolescents and gender in an international school setting. A study conducted by Bluth, Campo, Futch, and Gaylord (2017) found that although the resilience levels of females between 13-17 years of age were only slightly lower than males of the same age, females demonstrated higher levels of self-compassion, and were more emotionally expressive; however, males expressed higher levels of self-esteem and self-confidence. These factors were seen to contribute to resilience building in adolescents (Rutter, 2006; Ungar, 2012), along with strong family and friend relationships (Bluth et al., 2017). A similar result was found when analyzing the results of responses to the PERMA profiler to gain an understanding of self-reported levels of well-being, and potential correlations of significance in the results, when related to gender. A MANOVA was utilized to analyze the data because the PERMA profiler subscales were closely related. A total of 386 adolescents responded to the question regarding gender, but due to the very small number of responses from transgender individuals (n = 1), *other* (n = 3), and the *prefer not to say*, respondents (n = 3), these results were not analyzed due to the inability to create a

correlation or comparison with the higher number of respondents in the male (n = 201), and female (n = 178) groups.

Previous studies have shown similarities in the male and female levels of resilience and well-being, but differences in the contributing factors that lead to these levels, such as relationships and family support (Simmons, 2017). Both males and females demonstrated that being self-conscious about themselves and their social roles increased throughout adolescence, which could have an impact on well-being and resilience (Simmons, 2017). Additional significant factors at the adolescent level are social and digital media, and changing relationships with family and friends (Bor et al. 2014). These particular factors can be attributed to higher stress levels and potential depressive episodes and anxiety disorders, particularly in females (WHO, 2017). Furthermore, the internalization of symptoms and mental health disorders (Bor et al., 2014), along with societal pressures such as weight and self-image, and increased academic pressures, have contributed to lower levels of resilience and well-being at the adolescent level in females (West & Sweeting, 2003).

The literature suggested little research into transgender individuals and resilience, particularly when faced with hardship or significant life stress (Bariola et al., 2015). Due to the lack of significant research into transgender populations and resilience, the understanding of resilience factors and buffers is quite limited (Bariola et al., 2015). Early qualitative and quantitative studies suggest that connections to the lesbian, gay, bisexual, and transgender (LGBT) community can act as a supportive factor, along with peer relationships, and community acceptance and support (Bariola et al., 2015). However, the lack of in-depth studies provides opportunity for researchers to further develop a deeper understanding in this area.

In this study, the results did not show any significant differences between the genders in relation to the PERMA profiler (Butler & Kern, 2016) and CYRM-12 (Ungar, 2016). More specifically, the results of this study showed no specific differences in the resilience components outlined by Ungar (2016). This was consistent with the results of the well-being survey and responses to the PERMA profiler (Butler & Kern, 2016), which showed similarities for the male and female genders when related to the subscales of positive emotion, engagement, relationships, meaning, and accomplishment.

Recommendations for practitioners.

The research question regarding well-being, resilience, and the relationship to gender did not show any significant difference between males and females. However, the results are encouraging in that educators can take these results and utilize the various elements of resilience and well-being to inform the development of educational programs and approaches that suit the needs of both males and females in childhood and adolescence.

Seligman's (2011) PERMA model is broken down into the subscales of positive emotion, engagement, relationships, meaning, and accomplishment, which provides a clear structure for educators to develop an understanding of the specific areas of need for individuals. The PERMA model can also be used as a framework in which schools build holistic approaches to school-wide well-being by having teachers, administrators, parents, and students using a common language and approach to the various facets of well-being. Slavin, Schindler, Chibnall, Fendell, and Shoss (2012) asserted that the PERMA model is a tool that can be utilized to effect cultural change in organizations, and to develop flourishing employees, as it provides a clear structure that many traditional wellness programs do not. Slavin et al. (2012) also suggested that the PERMA model is useful in developing cognitive and emotional tools that can help school students and employees to

develop personally and professionally, in schools and the workplace. Some of the specific areas that can be targeted include, but are not limited to: identifying and developing approaches to alleviate significant stressors, to create intentional opportunities for engagement; setting goals and using reflection, to create opportunities for relationship-building activities; and developing cultures of innovation and celebrating successes and goal-achievement (Seligman, 2011).

A further recommendation for educators and administrators is to build a clear understanding of how different genders view the various facets of the PERMA model, and find out more about how the different perspectives impact school and home life (Khaw & Kern, 2014). Ongoing research and analysis is important to help educators gain a clear understanding of how well-being differs by gender; additionally, the development of a common language can help encompass the views of all genders (Khaw & Kern, 2014). Resilience building is important in personal, professional, and educational success. Therefore, it is important for schools to identify and build programs and understanding across the school community (Rutter, 2006; Ungar, 2012, 2016). This study showed no significant difference between genders in relation to resilience, but due to the low number of respondents in three of the gender categories it was difficult to analyze the data. The child and youth resilience measure (CYRM-12) (Ungar, 2016) is designed around seven specific resilience-related concepts: personal skills, peer support, social skills, physical caregiving, psychological caregiving, education, and culture. Attention to these particular facets allows educational practitioners the opportunity to develop approaches, programs, and a common language that relates to individuals from different genders.

Recommendations for academics.

Glynn et al. (2016) suggested that transgender individuals were at a higher risk of depression and similar mental health issues, which led to lower levels of self-esteem, resilience, and psychological well-being. Some of the reasons for the higher levels of psychological distress included a lack of family acceptance, regular discrimination, and transphobia (Bazargan & Galvan, 2012; Testa et al., 2012). Aspects of the gender-related literature also suggested that adolescent males generally score higher on self-report surveys and studies related to well-being and resilience, and females are more prone to anxiety and depression at the adolescent life stage (Torsheim et al., 2006; West & Sweeting, 2003; Wiklund et al., 2012, Zahn-Waxler et al., 2008).

It is recommended that further research and investigation be conducted into a wider range of individuals from different genders, particularly in an international school setting. The small number of respondents who indicated a gender other than female, and male limited this study, and the ensuing data analysis; therefore, there was very little data available to further explore the differences between genders. Further qualitative or mixed methods research into the reasons for the self-reported levels of well-being and resilience would be valuable to gain a deeper understanding of the pressures faced by adolescents of different genders, and the strengths and resilience measures that adolescents can utilize in potentially difficult and challenging circumstances.

Research question 2.

What difference, if any, exists in self-reported levels of well-being and resilience amongst adolescents of different racial or cultural backgrounds?

After sorting the raw data and responses, several racial and cultural background groups were excluded from the final analysis due to the small number of respondents, which made it difficult to create a comparison with the data from the larger response

groups. These groups included South-East Asian (n = 16), Filipino (n = 6), Latin American (n = 8), and Pacific Islander (n = 3) respondents. The cultural and racial groups included in the final analysis included White and European (n = 102), South Asian (n = 59), Asian (n = 87), and Mixed Background (n = 91).

The analysis of the responses to the CYRM-12 (Ungar, 2016) showed there to be no significant difference between the different racial and cultural groups in relation to resilience. The CYRM-12 consisted of questions based around the seven components of personal skills, peer support, social skills, physical caregiving, psychological caregiving, education, and culture. The instrument was selected as the measurement tool for this study because it has shown reliability and validity with adolescents, but more importantly, it has been tested across a range of cultures. Ungar (2016) developed the tool by testing it across 14 different countries and cultures to develop an understanding of the commonalities in cultural understanding and common language related to the concept of resilience. The cultural aspect is essential at an international school with a student body consisting of individuals from a wide range of cultural and racial backgrounds.

The study site was an academic-focused school with a wide range of familial, social, emotional, psychological, and relational support structures, and students who came from families that place a high value on education. These structures could contribute to increased levels of resilience in children and adolescents, and could explain the similarities in responses of individuals from various racial and cultural backgrounds (Nemec, 2005; Ungar, 2012).

The MANOVA that was conducted on the responses related to the PERMA profiler showed two areas of significance in the subscales of relationships and accomplishment. The PERMA model (Seligman, 2011), and the PERMA profiler (Butler & Kern, 2016) were developed to define the various aspects of well-being across all ages.

The specific aspects of relationships that Seligman (2011) referred to included social connections, love, and intimacy; along with the emotional and social interactions that individuals have with family, friends, and peers. The subscale of accomplishment related to the feelings of satisfaction, pride, and fulfillment that individuals experience upon achieving or accomplishing a goal or task.

The statistical analysis showed a significant difference between individuals from a White or European background and an Asian background when related to the PERMA profiler subscale of relationships. White or European participants reported higher scores (M = 23.51, SD =5.60) than the Asian respondents (M = 21.37, SD = 5.35) on the relationship subscale. A further finding of interest was the analysis of Asian and South Asian (M = 23.71, SD = 5.62) study participant responses that showed a difference that was close to significant, with South Asians having reported higher scores on the relationship subscale. The accomplishment subscale showed a significant difference between those individuals from an Asian (M = 19.19, SD = 4.68) background and those from a South Asian (M = 21.19, SD = 4.85) background; the latter reported higher scores related to accomplishment. The participants from an Asian background included individuals predominantly from China, Korea, and Japan. Those from a South Asian background included participants predominantly from India, Pakistan, and Sri Lanka.

There has been little, if any, research into the relationship between cultural or racial background, and well-being and resilience in an international school setting. This provides scope and opportunity for further and more in-depth research to help build understanding and knowledge for use in a wider range of settings. Cultural and racial background plays a significant role in influencing how people view the world, develop their beliefs, values, and expectations (Manning, Baruth, & Lee, 2017; Ungar, 2012). Different cultures interpret the concepts of resilience and well-being differently (Rutter,

2006; Ungar, 2012, 2016), which may have been a factor that influenced responses in this study. One such example of potential cultural bias was the focus on coping strategies in western culture, as opposed to indigenous and other cultural groups. Western culture focuses on individual coping strategies, whereas other cultural groups focus on relational and group coping practices (Ungar, 2012).

Some of the research suggested that the complexity of culture can impact many facets of life, including resilience and well-being (Theron, Liebenberg, & Ungar, 2015), which may have been evident in the results of this study. An example of cultural difference having an impact on how well-being is interpreted related to the comparison between a traditional Japanese cultural understanding and an American or Canadian cultural practice (Theron et al., 2015). In the Japanese culture children are encouraged to develop an attachment to their place within an institution; this is referred to as *ibasho*. However, some Western cultures view attachment or placement in an institution as a possible threat to psychosocial development (Theron et al., 2015).

Recommendations for practitioners.

The second research question relating to well-being, resilience, and the relationship to racial and cultural background showed two differences of significance related to well-being, and the PERMA profiler subscales of relationships and accomplishment. The knowledge that relationships and accomplishment can be interpreted differently, or may have a different level of importance, based on the cultural or racial background of the individual, is important knowledge for educators and practitioners when working with student well-being.

In an international school setting, students have wide-ranging backgrounds, which means there is a broad variety of beliefs, values, and expectations. A recommendation for practitioners is to develop a deeper understanding of the cultural understandings and

beliefs, and to develop knowledge of the impact that different practices and beliefs have on the various domains of adolescent development in a school setting. This may occur through ongoing action research, or engaging with various sectors of the school community to learn more about the cultural aspects related to well-being and resilience. The understandings can inform well-being and resilience-related program development.

Recommendations for academics.

Traditionally, much of the research related to resilience and well-being centered around mono-cultural and bi-cultural studies, with a particular focus on those individuals from a European background (Ungar, 2012). Earlier studies focused on a limited set of beliefs, values, understandings, and expectations (Rutter, 2006; Ungar, 2012). Different cultures approach the concepts of mental health, resilience, and well-being in different ways, and there is a valuable opportunity for academics and researchers to develop a clearer understanding of the approaches. Ungar (2012) posited the need for further research into cultural groups and groups from a range of backgrounds and demographics in order to develop common understandings and language that can be applied across a range of cultures and contexts. Despite recent increases in the focus on resilience and well-being, there is opportunity for researchers to work with schools and cultural groups in a variety of contexts to develop programs, approaches, and research cycles to build a broader base of understanding (Shoshani & Steinmetz, 2014).

In future research, quantitative research into large cultural populations is recommended to determine trends and commonalities in the understanding and responses; additionally, qualitative or mixed methods research with smaller groups would improve understanding of specific aspects of well-being and resilience across different cultures. This research can help determine common understandings and approaches to the

development of well-being and resilience, and ultimately inform the development of culturally appropriate tools and instruments of measurement.

Research question 3.

What difference, if any, exists in self-reported levels of well-being and resilience amongst adolescents who are involved in varying levels of physical activity?

Physical activity participation levels were scaled from *less than 1 hour* through to *10 or more hours*, by one-hourly increments, which created a continuous variable requiring the use of a Pearson correlation analysis to process the responses. A correlation was identified between physical activity participation levels and the dependent variables of well-being and resilience. However, the relationship remained quite small across responses to the CYRM-12 (Ungar, 2016) and PERMA profiler (Butler & Kern, 2016). More specifically, the correlations with resilience were weak but somewhat significant, and the correlations with well-being were weak to modest. The results showed that increased participation in physical activity demonstrated a positive correlation with resilience and well-being in adolescents, although it was not a strong correlation.

Results of this survey showed that the mean score for the hours of physical activity in the cohort of study participants was 6.22 hours per week, which was slightly above the World Health Organization (WHO, 2014) physical activity recommendation of 60 minutes of vigorous activity at least five days per week. The study found that 60% (n = 239) of respondents indicated they had participated in five or more hours of physical activity in the previous week, and 40% (n = 159) had completed five hours or less of physical activity. In comparison, the WHO (2014) found in a worldwide study, that only around one third of people aged 11-15 years were meeting the recommended physical activity guideline; thus, individuals involved in this study were achieving higher-than-recommended participation levels overall. Increased physical activity is linked to lower

levels of depression, anxiety, and stress, along with improved self-confidence, and concentration levels in children and adolescents (Hallal et al., 2006; Mutrie & Parfitt, 1998). During adolescence, brain plasticity is enhanced by physical activity, and the neurological changes that occur have a positive impact on mood and social behaviors, which can contribute to the development of resilience and well-being (Donnelly et al., 2016; Masi & Brovedani, 2011).

There has been extensive research into the impact of physical activity on brain development and the positive psychological, emotional, and social outcomes for individuals who are physically active (Donnelly et al., 2016; Dumontheil, 2016; Masi & Brovedani, 2011; Nystrom et al., 2015), but there is very little research on physical activity and the relationship with well-being and resilience in individuals in an international school setting.

The study participants attended an international school where physical activity is valued and encouraged; students have a wide range of activities and after- school sports to participate in, and physical education is a core subject with a weekly time allotment equal to that of science, mathematics, and social studies. The adolescents involved in the study also came from a middle to higher socioeconomic background, which can also positively influence the frequency of physical activity in an individual's daily life (Bergh, Udumyan, Fall, Almroth, & Montgomery, 2015). In a 17-year longitudinal study in Norway on obesity, researchers found those individuals from a higher socioeconomic background had significantly lower levels of obesity (Bergh et al., 2015). Furthermore, the researchers also discovered that obesity in adults was linked to sedentary behavior patterns in adolescence (Bergh et al., 2015).

Over the past five years, the study site had developed parent-education programs that reinforced the importance of physical activity and brain development in adolescents.

Parental engagement and involvement in personal and family-based physical activity has been found to contribute to increased levels of physical activity in children and adolescents (Brown et al., 2016). When children and adolescents view physical activity as a family value, engage in physical pursuits with parents and other family members, and see physical activity as a positive contributor to family health, they are more likely to engage with physical activity, and understand that it is an important component of their daily life (Brown et al., 2016).

Resilience and well-being are concepts that can be developed to enhance protective factors against mental health, and emotional disorders in adolescents. The results of this study show a weak correlation, but the outcomes supported the assertion that higher levels of physical activity have a positive impact on well-being and resilience. There is an opportunity for further study into this area to develop better understanding from an academic and practical educational perspective.

Recommendations for practitioners.

Research over the past 10-15 years into the positive impacts of physical activity on adolescent brain development; reinforce the importance of physical activity in schools. Physical activity has been successfully prescribed as a treatment for depressive and anxiety-related issues (Nystrom et al., 2015). The impact of physical activity on the hippocampus is significant, in that it helps to regulate emotional responses and reactions, which also positively impacts memory and concentration (Masi & Brovedani, 2011). Physical activity also contributes positively to cognitive levels, which has a direct correlation with lowered anxiety and depression levels, along with other physical health benefits (Esteban-Cornejo et al., 2015).

This study supported the importance of physical activity in building resilience and well-being. Although the correlation was weak, there was a relationship that supported

physical activity as being a positive contributor to well-being and resilience at the adolescent age. For educators, this is important because it informs the development of social, emotional, and mental health programs and educational approaches that focus on holistic well-being.

Recommendations for academics.

A significant number of studies over the past 15years related to physical activity and adolescent mental health found a direct correlation between physical activity and lower levels of depression and anxiety (Gunnell et al., 2016; Jewett et al., 2014; McMahon et al., 2017). However, there is limited research directly related to physical activity and its effect on increased or decreased levels of resilience and well-being as related to the five components of the PERMA profiler (Butler & Kern, 2016). Furthermore, there is little, if any, research related to individuals in an international school setting.

Further research is recommended on how physical activity relates to the five components of the PERMA profiler, particularly in an international school setting. This study relied on a convenience sample; it would be valuable for future studies to broaden the study to wider populations to better generalize the results across the adolescent age group, and to develop understandings that could lead to improvements in educational programs and practices.

Limitations

It is important to acknowledge the limitations of this study. The first, and most significant limitation was the use of a convenience sample for the purpose of the study. Convenience sampling, otherwise known as nonrandom or nonprobability sampling, is often utilized for ease of accessibility, geographical location, affordability and similar circumstances (Etikan, Musa, & Alkassim, 2016). In the case of this study, the target

population was a cohort of 963 adolescents between the ages of 10-14 years who attended an international school in Singapore. Given that the population consisted of varying genders, cultural, and racial backgrounds, the close geographic proximity, the adequate sample size, and the ease of accessibility, the sample was considered appropriate for this study. All research participants were living in Singapore, which was not their home country. The influence of socioeconomic background and residing outside home culture in an international setting may have impacted the results.

The major concern with convenience sampling in research is the possibility of bias; results are often not representative of the greater population; which means the results are rarely generalizable across broader populations (Landers & Behrend, 2015). However, if the researcher is clear from the outset that the results will be specific to that particular cohort of study participants, the study results are valid, reliable, and valuable for future studies (Landers & Behrend, 2015).

Given the limitations of convenience sampling, the researcher recommends that the data and knowledge gained from this study be utilized as a part of the ongoing research into resilience and well-being. Sampling approaches that represent a wider and more generalizable population of adolescents would benefit the research and understanding in this domain. Furthermore, studies conducted on resilience and well-being related to different populations would create a greater depth of data related to adolescent mental health, well-being, and resilience.

A qualitative or mixed methods approach would be beneficial in identifying specific factors that influence the responses of people from different genders, and racial and cultural backgrounds. The type of data gained from such research would also help in developing a greater awareness of the pre-conceived thoughts and ideas that are shaped

by the background, and the cultural influences related to well-being and resilience, in individuals.

Another limitation of the study was the potential bias and misrepresentation that can occur as a result of self-reporting, and the potential influence on results created by participants who fail to answer questions, search for the so-called right answer, or move through the survey too quickly (Evans & Mathur, 2005; Muijs, 2011; Wright, 2005). A total of 10 participants were removed from the final analysis because of missing data, and a total of six preview attempts were deleted.

The total response rate for the study may have been impacted by the age of participants. The initial target population consisted of 963 adolescents age 10-14 years that attended an international school in Singapore. All potential participants represented a vulnerable population as they were less than 18 years of age, which required parental informed consent, and the survey contained questions that were sensitive and personal in nature; therefore consideration of ethics and protection of human participants was a significant consideration (Walliman, 2017). Of the potential sample of 963 adolescents, 47% (n = 455) received parental informed consent, with a final participant response rate of 40% (n = 386) of individuals who provided informed consent and completed the survey. Of the 455 adolescents who received parental informed consent, there was an 85% completion rate. In a review of a wide range of research response rates, Baruch and Holtom (2008) found that an acceptable and appropriate response rate for individual studies is around 50%. Despite the fact that the overall response rate was 40%, the results of the study still hold some validity based on the high number of respondents, though they may not be easily generalizable across different populations.

The WHO (2014) recommended that children and adolescents should participate in five hours of vigorous physical activity per week. A limitation of the study relating to

physical activity levels was that the intensity or type of physical activity was not defined. Further research into the relationship between types of physical activity, vigor, and intensity of physical activity would be valuable to inform future approaches related to well-being and resilience.

Furthermore, the physical activity scale ranged from *1 hour or less*, with hourly increments, to *10 hours or more*, and requested that participants calculate the hours of physical activity they participated in over the preceding week. Steene-Johannessen et al. (2016) researched the effectiveness of self-report surveys related to physical activity. The findings indicated the most effective methods of gathering data on physical activity participation levels were to have participants track their physical activity over a period of time before reporting, include intensity levels, and identify the types of activities in which they participated. This limitation presents an opportunity for researchers to further define the length of activity, types of activity, and intensity of activity that most influence increased levels of resilience and well-being.

Conclusion

This dissertation study aimed to investigate the relationship between the dependent variables of well-being and resilience, and the independent variables of gender, cultural and racial background, and physical activity participation levels. The three research questions investigated whether any significant difference existed in the self-reported levels of well-being and resilience across a group of adolescents from different genders, different racial or cultural background, and in individuals who participated in various levels of physical activity.

Many studies have shown a rise in the number of reported mental health disorders between 2000-2018, particularly in adolescents and children (Alford, 2017; Bor et al., 2014; Kieling et al., 2011; Shoshani & Steinmetz, 2014; Suldo, Riley, & Shaffer, 2006;

WHO, 2014, 2017). Researchers posited that the development of well-being (Diener, 2000; Ryff, 1989; Ryff & Keyes, 1995; Seligman, 2011, 2013), and resilience (Garmezy, 1991a; Rutter, 2006; Schultze-Lutter et al., 2016; Ungar, 2012, 2016) in children and adolescents proves successful as protective and preventative factors in the onset of mental illness, and mental disorders. Furthermore, gender (D'Agostino et al, 2018; Gabos & Toth, 2011; Kaye-Tzadok et al., 2017), racial and cultural background (Duckworth, Steen, & Seligman, 2005; Shoshani & Steinmetz, 2014; Trompetter et al., 2017; Ungar, 2012, 2016), and physical activity levels (Hallal et al., 2006; Jewett et al., 2014; Lobstein et al., 2004; Shearer & Moore, 2013) were identified as factors that can influence positive mental health outcomes in adolescents.

The findings of this study showed a weak correlation between increased participation in physical activity and higher levels of well-being and resilience. The relationship between well-being, resilience, and gender showed no statistical significance. However, given the low response rate of genders other than male and female, the analysis only existed between male and female. The findings related to well-being, resilience, and racial and cultural background showed two specific areas of significance related to the (Butler & Kern, 2016) subscales of relationships and accomplishment. More specifically, the responses of participants from a White or European and an Asian background were statistically significant, with White or European participants rating higher in the importance of relationships on the PERMA profiler scale. The subscale related to accomplishment and achievement showed a statistical significance between the responses of respondents from Asian and South Asian backgrounds.

Further research into the relationships between the types of physical activity and the intensity of physical activity would provide valuable information to further define the specific benefits of physical activity for adolescents. The analysis of study results was

limited to two gender groups, male and female. This opens the door to further study of a wider range of gender groups, to improve current knowledge of the relationships and correlations between well-being, resilience, and gender, particularly related to transgender groups, and those that identify with other genders. The most significant findings of the study were related to well-being, and the relationship with individuals from White or European, Asian, and South Asian backgrounds. These findings offer researchers the opportunity to learn more about individuals from a wider range of racial and cultural backgrounds, and to continue to develop common understandings and measures that represent a broader range of cultural understandings related to well-being and resilience.

Finally, it would valuable for future research into well-being and resilience to be conducted with a group of individuals from a random or purposive sample of participants. This research would be valuable if it were conducted across a range of contexts and locations to decrease the possibility of bias, and to eliminate the impact of one particular school's culture.

Concluding Comments

Positive mental health, and well-being are essential in developing children and adolescents who are successful academically, and become fully-functioning adults who can handle the stresses and pressures of everyday life, and adversity that may occur as a result of life stress, trauma or loss (Merikangas et al., 2010). Preventing the onset of mental health disorders has become increasingly challenging because children and adolescents are now faced with a wider range of pressures and dangers, such as those challenges created by digital and social media, increased academic expectations, and the ongoing societal stigmatization of mental and psychological health disorders, and dysfunction (Layous et al., 2014). There has been limited research into causes, and

treatments for child and adolescent mental health disorders, particularly related to the relationship with well-being and resilience as a protective buffer, in an international school setting.

Research has found that by intentionally developing the traits of well-being (Seligman, 2011) and resilience (Nemec, 2005; Ungar, 2012, 2015) in children and adolescents, a protective buffer can be created that can lead to positive outcomes for social, emotional, mental, and psychological wellness. Seligman (2011) developed the positive emotion, engagement, relationships, meaning, and achievement (PERMA) framework that has been successfully utilized in developing mental, social, and emotional wellness in children, adolescents, and adults. Butler & Kern (2016) developed the PERMA profiler to measure the levels of well-being across the five PERMA components, which can lead to the identification of areas for growth and goal-setting, and lifestyle change to create higher levels of well-being. Ungar (2012, 2015) identified individual, relational, communal, and cultural factors that can be developed as resources for the creation of higher levels of resilience. Ungar (2016) developed the child and youth resilience measure (CYRM) to help individuals identify areas for growth in resilience, and validated the use of the instrument across 14 different cultures. Historically, resilience was seen as a naturally occurring trait that was developed as a result of child and adolescent adversity, and trauma (Rutter, 2006; Ungar, 2012). However, resilience-related research over the past 15 years posited that resilience is a trait that can be developed and enhanced (Ungar, 2012, 2015).

The three independent variables that were examined in this study, and were considered to potentially impact levels of well-being and resilience, were gender (D'Agostino et al., 2018), racial and cultural background (Keiling et al., 2011; Ungar, 2005), and physical activity levels (Dumontheil, 2016). This study attempted to

understand the relationship between each of the independent variables, and the dependent variables of well-being and resilience, amongst a cohort of 386 adolescents who attended an international school in Singapore.

The resilience levels of the adolescents were measured using the child and youth resilience measure (CYRM-12) (Ungar, 2016). The resilience survey results showed a weak correlation between higher physical activity levels, and higher levels of resilience. However, the study didn't find any significance in the relationship between higher levels of self-reported resilience, and the two independent variables of gender, and racial and cultural background.

The PERMA profiler (Butler & Kern, 2016) was administered to the 386 adolescents that participated in the study, to ascertain a clearer understanding of any relationships between well-being and gender, racial and cultural background, and physical activity levels. The study found that there was a weak correlation between increased levels of physical activity, and higher levels of self-reported well-being. There was no significant finding related to self-reported levels of well-being, and gender. The most significant findings were related to cultural and racial background. The study discovered a significant difference in well-being between participants from a White or European background, and participants from an Asian background, when related to the PERMA profiler subscale of relationships. A further finding of significance, related to the accomplishment subscale of the PERMA profiler, was discovered between study participants from a South Asian, and Asian background.

The study findings demonstrated that there is some relationship between increased levels of resilience, and higher levels of physical activity. However, further research into individuals who identify with different genders, and from various racial and cultural backgrounds from different regions would help to deepen the understanding of any

relationship with resilience. The study results also demonstrated a relationship between increased levels of well-being, and higher physical activity levels. A further relationship with particular PERMA well-being subscales and individuals from various racial and cultural backgrounds was also found. Further research into resilience and well-being with a wider range of children and adolescents would help to validate, and further the knowledge and understanding related to well-being, resilience, and adolescent mental health.

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Appendix A: Participant Survey

PERMA Profiler and Child & Youth Resilience Measure 12-item (CYRM-12)

Section A: Participant Informed Consent

1. I agree to participate in the survey to find out more about my well-being and resilience levels, and the well-being of other middle school students at SAS: Y/N

2. Have you had Mr. Symes as a teacher in your time at SAS? Y/N

Section B: PERMA-Profiler Measurement Well-Being Questions
(15 Items)

Block	Questions	11-Point Likert Scale Responses
Block 1	In general... 1. How much of the time do you feel you are making progress towards achieving your goals? 2. How often do you become absorbed in what you're doing? 3. How often do you feel joyful? 4. How often do you achieve the important goals you have set for yourself?	0 = Not at all 10 = Always
Block 2	In general... 1. To what degree do you lead a purposeful and meaningful life? 2. To what extent do you receive help and support from others when you need it? 3. To what extent do you feel what you do in your life is valuable and worthwhile? 4. To what extent do you feel excited and interested in things?	0 = Not at all 10 = Completely
Block 3	In general... 1. How often do you feel positive? 2. How often are you able to handle your responsibilities? 3. How often do you lose track of time while doing something you enjoy?	0 = Never 10 = Always
Block 4	In general... 1. To what extent do you feel loved? 2. To what extent do you generally feel you have a sense of direction in your life? 3. How satisfied are you with your personal relationships? 4. To what extent do you feel contented or happy?	0 = Not at all 10 = Completely

Section B: Child & Youth Resilience Measure (CYRM-12)
(12 Items)

Individual

		Not at all	A little	Somewhat	Quite a bit	A Lot
Individual: Personal Skills						
	I try to finish what I start.	❑	❑	❑	❑	❑
	I am able to solve problems without harming or hurting myself or others.	❑	❑	❑	❑	❑
Individual: Peer Support						
	My friends care about me when times are hard (for example, if I am sick or have done something wrong).	❑	❑	❑	❑	❑
0	My friends care about me when life is hard.	❑	❑	❑	❑	❑
Individual: Social Skills						
	I know where to go in my community to get help.	❑	❑	❑	❑	❑
1	I have opportunities to develop skills that will be useful later in life (like job skills and skills to care for others).	❑	❑	❑	❑	❑

Relationship with Primary Caregiver

		Not at all	A little	Somewhat	Quite a bit	A Lot
Caregiver: Physical Caregiving						
	My family cares about me when times are hard (for example, if I am sick or have done something wrong).	❑	❑	❑	❑	❑
Caregiver: Psychological Caregiving						
	My parents / caregivers know a lot about me.	❑	❑	❑	❑	❑

Context

		Not at all	A little	Somewhat	Quite a bit	A Lot
Context: Education						
	Getting an education is important to me.					
Context: Cultural						
	I have people I look up to.					
	I feel I belong at my school.					
2	I enjoy my community's traditions.					

Age:

a. 10 years
b. 11 years
c. 12 years
d. 13 years
e. 14 years

Gender:

a. Male
b. Female
c. Transgender
d. Other (Please specify in the box):
e. Prefer not to say

Cultural / Racial Background:

a. White or European
b. Black (African or Caribbean descent)
c. South Asian (e.g., Indian, Pakistani, Punjabi, Sri Lankan)
d. Asian (e.g., Korean, Japanese, Chinese)
e. Southeast Asian (e.g., Cambodian, Indonesian, Singaporean, Malaysian, Thai, Vietnamese)
f. Middle Eastern (e.g., Armenian, Egyptian, Iranian, Lebanese)
g. Aboriginal or Native
h. Filipino
i. Latin American (e.g., Mexican, South American, Central American)
j. Pacific Islander (e.g., Fijian, Samoan, Tongan)
k. Mixed Background (please list all groups in the box that apply):
l. Other (please specify in the box):

How many hours of physical activity did you do in the last week, including school PE, after-school activities, and all out-of-school activities?

a. 1 hour
b. 2 hours
c. 3 hours
d. 4 hours
e. 5 hours
f. 6 hours
g. 7 hours
h. 8 hours
i. 9 hours
j. 10+ hours

Appendix B: Parent Informed Consent

Dear Parents,

Your child is invited to participate in an anonymous study that will investigate levels of resilience and well-being in middle school students at Singapore American School, and relate the results to cultural and racial background, gender, and physical activity participation levels. All students in 6th, 7th and 8th grade are being invited to participate, including your child. We will be asking questions about personal support structures, friendships, experiences, thoughts and feelings about school and life in general. For example, we will ask about how often the students feel joyful, happy and experience a sense of purpose and importance in their life. The findings of the study will help to inform the school faculty, counselors and administrators in continuing to build a supportive environment that offers extraordinary care to all individuals. If your child participates, they will complete a survey during a Health classroom session that will last about fifteen minutes.

All procedures will be employed with sensitivity to children's feelings and all participants will be told that they do not have to participate. You may also withdraw your child from the study if you do not wish for them to participate. In similar studies, we have found that children enjoy participating and feel special being part of these types of projects. A copy of the survey will be available in the middle school office if you would like to review it. If your child does not participate, they will complete regular classroom work during the session.

To ensure maximum privacy, each student will be assigned a private identification number, and only these numbers will be associated with their responses. Information regarding individual children is strictly confidential and will not be available to teachers, school personnel or anybody else in the school or wider community.
The planned study will form a part of the ongoing research trajectory that I am hoping to continue with students, teachers, and possibly parents throughout the remainder of middle school. If you do NOT want your child to participate, please complete the information below and return this form to the middle school office, or to Josh Symes before December 14th, 2018. Otherwise, we will be delighted to include your child in our study. Please also keep a copy of this form for your records.

Don't hesitate to contact me via email if you have any further questions or concerns regarding the proposed study.

Yours Sincerely,

Josh Symes
jsymes@sas.edu.sg

Please print and fill in the information below if you do NOT want your child to participate in the study:

_____

No, I do not want my child to participate in this study.

Parent's signature: _____ Date: _____

Parent's Name: _____

Child's Name: _____

Appendix C: Participant Informed Consent

Informed Consent to Participate in Adolescent Well-Being and Resilience Survey

(To be read aloud to all participants before beginning the survey)

Introduction

Dear Students,
You are invited to participate in a study that aims to examine the impact of culture, race, gender and physical activity on levels of well-being and resilience in adolescents. This information will help to inform our community about how we can continue to develop programs that lead to extraordinary care for every student.

Procedures

You are selected as a possible participant because you are a middle school student at Singapore American School (SAS), aged between 11-14 years. This study is part of a dissertation at Bethel University, Minnesota. If you decide to participate, this study will present a 27-item survey that will take approximately 10-15 minutes to complete online.

Confidentiality

In the written reports or publications, no one will be identified or identifiable, and only aggregate data will be presented. All questionnaires will be concealed, and no one other than the primary investigator and approved assistants will have access to them. The data collected will be stored in the HIPPA-compliant, Qualtrics-secure database and on password protected computers in locked rooms. Your decision to participate or not participate will not affect your current or future relationship with SAS or Bethel University in any way. If you decide to participate, you are free to discontinue participation at any time without affecting these relationships.

Participation

Participation in this research study is completely voluntary. You have the right to withdraw at anytime or refuse to participate entirely without jeopardy to your academic status. If you desire to withdraw after beginning please just close your Internet browser.

Questions about the Research

This research project has been approved by the researcher's dissertation advisor in accordance with Bethel University's Level of Review of Research with Humans, and this college's Level of Review of Research with Humans committee. If you have any questions about the research and/or research participant's rights, or wish to report a research related injury, please contact Josh Symes (jos42242@bethel.edu) or Dr. Erica Hering (e-hering@bethel.edu).

Informed Consent Authorization

If you consent to participating in the study on adolescent well-being and resilience, please click on the first box in the survey that indicates "Yes" and begin the survey. If you do not consent, please click "No" and continue on with your Health assignment.

Appendix D: Permission to Conduct Research On-Site

Site Permission for Research

Dear Dr. Sparrow,

I am currently working on my doctorate in the Doctor of Educational Leadership program at Bethel University, and I am approaching the final stages of my research work. My research topic is based on examining resilience and well-being levels of adolescents, and will involve middle school students here at SAS. I am investigating the effects of three independent variables; they are, the differences in responses between the various cultural and racial backgrounds, differences between genders, and the impact of various levels of physical activity. A better understanding of the effects of well-being and resilience will provide valuable information for students, families, school counselors, administrators and faculty as we continue to develop programs related to social, emotional and psychological wellness.

I would like to ask for permission to contact the parents of our middle school students to present all relevant information about the proposed study, and to gain passive consent for their children to be involved in the survey and research. The survey has been developed through the use of Qualtrics software, and utilizes the Child and Youth Resilience Measure (CYRM-12), and the 15-item PERMA Profiler to measure resilience and well-being. This survey will be administered on campus during Health classes to all students in grades 6, 7 & 8 whose parents have provided passive consent, and there will be a further option for students to opt out if they choose not to take part in the study. I plan to share the results of this study with parents, faculty, administrators and counselors.

In following acceptable research protocols, I will keep all the data I collect completely confidential and will not use the school name, nor any student names in any research report. In keeping with confidentiality protocols the school will be referred to as an American-International School in Singapore. If you prefer that I refer to our institution in a different way please let me know.

No information that I present will be linked to any personal information that may identify the participants in the investigation. I am confident that I have taken the necessary steps to ensure my research meets ethical standards. Research will begin once I have received permission from the Institutional Review Board at Bethel University.
Please do not hesitate to contact me, if you have any questions or concerns regarding this study, via jos42242@bethel.edu.

If you are willing to allow me to seek parent consent and to administer the survey to middle school students, please sign the form below. By signing this document you are providing me with your written permission.
Thank you for your consideration.

Yours Faithfully,

Joshua Symes

_____ I give my permission for you to conduct the research as described above.
_____ I do not give my permission to you to conduct the research as described above.

_____

Dr. Jennifer Sparrow

_____ _____

Deputy Superintendent Date

Appendix E: Bethel University Institutional Review Board (IRB)

Approval to Conduct the Study

The Impact of Cultural and Racial Background, Gender and
Physical Activity Participation on the Well-Being and Resilience Levels of Adolescents