

**The Scale of Perfectionism and Excellencism (SCOPE):
An Adolescent-Based Validation Study for the Measurement of
Perfectionism and Excellencism**

Thesis submitted for the degree of Master of Psychology (Clinical)

Nicole Tape

School of Psychology,
The University of Adelaide

September 2021

Word Count 7,974

CONTENTS

LIST OF TABLES	iii
LIST OF FIGURES	iv
ABSTRACT	v
DECLARATION	vi
ACKNOWLEDGEMENTS.....	vii
CHAPTER 1. INTRODUCTION	1
Definitions of Perfectionism.....	1
Measures of Perfectionism	3
Perfectionism in Adolescence.....	4
Clinical Relevance of Perfectionism.....	4
The Importance of Measurement in Clinical Psychology.....	5
The Impact of Perfectionism on Academic Achievement.....	6
Study Aims	6
CHAPTER 2. METHOD.....	7
Participants	7
Procedure.....	7
Measures.....	8
SCOPE Measure	8
FMPS Measure	8
APS-R Measure	9
Wellbeing	10
Illbeing	10
Academic Performance	11
Data Analysis for Aim 1.....	11
Measure Testing.....	11
Reliability	13
Validity.....	13
Power.....	15
Statistical Analysis	15
CHAPTER 3. RESULTS	15
Aim 1: Examine the Reliability and Validity of the SCOPE Measure	16
Objective 1: Investigating the Reliability of the SCOPE.....	16

Objective 2: Investigating the Validity of the SCOPE Measures.....	18
Aim 2: Explore Relationships between SCOPE and Academic Performance	22
CHAPTER 4 – DISCUSSION.....	24
Reliability	24
Construct Validity	25
Convergent validity.....	25
Discriminant validity.....	25
FMPS Personal Standards and APS-R High Standards Subscales: Adaptive, Maladaptive or Mixed Outcomes	28
SCOPE and Academic Performance.....	28
Implications for Practitioners	29
Strengths and Limitations.....	30
Self-Report ATAR Scores.....	30
Sample Generalisability	31
Future Research Directions	31
Clinical Thresholds	31
Gender	32
Cultural Considerations.....	32
Educational Settings.....	32
Conclusion	33
REFERENCES	34
APPENDICES	46
Appendix A: Participant Information Sheet.....	46
Appendix B: Opt-Out Form.....	48
Appendix C: Online Questionnaire to Participants.....	49
Appendix D: Adverse Events Procedure.....	51
Appendix E: Journal Instructions to Authors/Contributors:.....	52

LIST OF TABLES

Table 1. Demographic Characteristics of Current Sample (n=376).....	16
Table 2. Correlations, Internal Reliability and Descriptive Statistics of (1) SCOPE Excellencism, (2) SCOPE Personal Standards Perfectionism, (3) FMPS Personal Standards, (4) FMPS Concern Over Mistakes, (5) APS-R High Standards, (6) APS- R Discrepancy, (7) Stress, (8) Anxiety, (9) Depression, (10) Engagement, (11) Perseverance, (12) Optimism, (13) Connectedness, (14) Happiness, and (15) Academic Performance.....	17
Table 3. Evidence required for Convergent Validity.....	18
Table 4. Evidence for Discriminant Validity: Predicted and Observed Adolescent SCOPE Correlations with Wellbeing and Illbeing.....	19
Table 5. Relationships between SCOPE, FMPS and APS-R Positive Subscales with Wellbeing Components.....	20
Table 6. Relationships bet ween SCOPE, FMPS and APS-R Positive Subscales with Illbeing Components.....	20
Table 7. Relationships between SCOPE, FMPS and APS-R Negative Subscales with Illbeing Components.....	21
Table 8. Relationships between SCOPE, FMPS and APS-R Negative Subscales with Wellbeing Components.....	21

LIST OF FIGURES

Figure 1. Overview of the Three Phases and Nine Steps of Scale Development and Validation.....	12
Figure 2. Dual Y Axes with Scale X Axis of SCOPE Excellencism and SCOPE Personal Standards Perfectionism by Academic Achievement.....	23

ABSTRACT

While perfectionism is often perceived to be something positive, maladaptive perfectionism can lead to a number of mental health issues including depression, anxiety, and eating disorders. Contemporary definitions suggest perfectionism is composed of two higher-order dimensions: maladaptive ‘perfectionistic strivings’ and adaptive ‘perfectionistic concerns’. However, recent studies suggest that frequently used measures of perfectionistic strivings predict both maladaptive and adaptive outcomes, contradicting current definitions. To resolve this issue, the Scale of Perfectionism and Excellencism (SCOPE) was created. It attempts to separate maladaptive perfectionism from adaptive striving for excellence in the hope to unpack the perfectionistic strivings dimension. The primary aim of this study was to examine the reliability and validity of the SCOPE on an adolescent population. Further, the study also explored associations between perfectionism and academic performance. The study was conducted using an online survey of Australian adolescents ($n = 376$, $M age = 17.99$, $SD = 1.28$) from both a Senior College and University. Results revealed both SCOPE subscales demonstrate high internal consistency indicating the measure is reliable, and promising initial evidence for construct validity. Furthermore, the SCOPE excellencism subscale was more strongly associated with academic performance than the SCOPE personal standards perfectionism subscale contributing further evidence to construct validity. Future studies should test the longitudinal validity of the SCOPE in detecting changes in perfectionism over time in a more generalisable sample.

DECLARATION

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree. I acknowledge that copyright of published works contained within this thesis resides with the copyright holder(s) of those works. I also give permission for the digital version of my thesis to be made available on the web, via the University's digital research repository, the Library Search and also through web search engines, unless permission has been granted by the University to restrict access for a period of time.

Conference items

Branson, V., & Tape, N. (2019, March). Living a Flourishing, Thriving Life at School:

Causes and academic effects of wellbeing in adolescence. Paper session presented at the Positive Education Schools Association South Australian Chapter State Conference, Adelaide, Australia.

9 September 2021

ACKNOWLEDGEMENTS

Firstly, I would like to express my sincere gratitude to Dr Victoria Branson and Professor Deborah Turnbull who agreed to supervise and guide me on this journey. Your patience and generosity of both time and knowledge was unwavering from the very beginning. Thank you also to another member of the University of Adelaide Faculty, Dr Matt Dry for his insight and expertise at various stages of the data analysis.

I would like to take this opportunity to acknowledge the amazing support and assistance of the staff and students at the University Senior College, Adelaide. Specifically, to Nadia Lovett and Anna Bassani who recognised the value of this research and engaged the leadership team to make it happen. Also, to the young people at both the University Senior College and Adelaide University who took part in my survey, I will be forever grateful for your time and effort. Without you this research would not have been possible.

I dedicate this thesis to my family, especially my four young children. I missed many trips to the playground, library and gymnastics lessons to make this possible and you never once complained. I hope you look back on this and realise you can achieve anything. A big thank you to my partner Simon who spent countless hours proofreading my work and providing words of encouragement when it felt impossible. And finally to my late father, Maurice. I know you would be looking down on me and be bursting with pride. I wish you were still here to see me finally finish my degree.

The Scale of Perfectionism and Excellencism (SCO-PE): An Adolescent-Based Validation Study for the Measurement of Perfectionism and Excellencism

We live in a society where positive connotations are attached to the word ‘perfect’, such as being faultless or exceptional. It is therefore understandable that people often describe themselves as a perfectionist in everyday talk. However, while it sounds reasonable to strive for perfection, clinical perfectionism is suggested to be a complex disorder that impacts an individual’s functioning. People with clinical levels of perfectionism view anything short of perfect as unacceptable, causing high levels of distress.

In order to accurately assess and treat clinical perfectionism, psychologists require the ability to accurately measure perfectionism with a psychometric test which is both reliable and valid. Psychological assessment is a common task for many psychologists with results informing both diagnosis and treatment plans, guiding a client towards more positive mental health. The primary aim of this study was to examine the reliability and validity of the SCOPE measure on an adolescent population. Further, the study also explored associations between perfectionism and academic performance.

Definitions of Perfectionism

Definitions of perfectionism centre on the pursuit of excessively high personal standards and overly critical self-evaluations (Frost et al., 1990; Limburg et al., 2017). Hamachek (1978), a widely cited theorist in the perfectionism arena famously described perfectionism as a psychological phenomenon and a clinical mystery. He identified two types of perfectionism: 1) normal, and 2) neurotic. According to Hamachek, people with normal perfectionism attain pleasure from doing well at something difficult and can accept both personal and circumstantial limitations. On the other hand, people with neurotic perfectionism are unable to feel pleasure as they strive for unrealistic goals and feel dissatisfied if their goals are not met. Contemporary research supports this concept by

differentiating between adaptive and maladaptive perfectionism (e.g. Bieling et al., 2003; Enns et al., 2001).

Supporting these definitions, factor analytic studies suggest perfectionism is composed of two higher-order dimensions: *perfectionistic strivings* (also referred to as ‘personal standards’ perfectionism) and *perfectionistic concerns* (also known as ‘evaluative concerns’ perfectionism; Stoeber & Otto, 2006). For most individuals, perfectionist strivings and perfectionistic concerns coexist to varying degrees (Smith et al., 2015). Perfectionistic strivings are widely regarded as adaptive and associated with aiming to achieve high standards of performance (Stoeber, 2011), positive emotions (Kaye et al., 2008), and motivation that is facilitative for performance (Stoeber & Becker, 2008). In its adaptive form, perfectionism can motivate people to reach their goals and these people take pleasure in doing so. Conversely, perfectionistic concerns are typically considered maladaptive and associated with the perception that others are demanding perfection of them, concern over mistakes, fear of failure, and fear of negative evaluation from others (Stoeber, 2011). People with this form of perfectionism often set unreasonable goals and in the event they reach them, often reset to another unattainable level (Curran & Hill, 2019).

Empirically, measures of perfectionistic concerns are consistently associated with maladaptive outcomes and related to poor mental health (Gnilka et al., 2012; Hill & Curran, 2016; Sassaroli et al., 2008). However, contrary to the expectation that perfectionistic strivings be exclusively adaptive and associated with healthy outcomes, empirical evidence remain mixed despite years of scientific inquiry (Flett & Hewitt, 2006, 2014; Gotwals et al., 2012). In fact, recent meta-analytic evidence suggests both dimensions of perfectionism are associated with various forms of psychopathology (Limburg et al., 2017). Empirically, perfectionistic strivings have been found to be associated with unhealthy outcomes such as burnout (Stoeber & Otto, 2006) and suicidal ideation (Smith et al., 2018), although these

relationships are typically weaker than those shared with perfectionistic concerns. Suffice to say that perfectionistic strivings is often considered a double-edged sword related to both adaptive and maladaptive outcomes (Gaudreau, 2019).

Measures of Perfectionism

Numerous measures exist which fall under the wide conceptual area of the perfectionism construct (e.g., The Perfectionism Cognitions Inventory; Flett et al., 1998). That aside, Patrick Gaudreau, a prominent researcher in the perfectionism field advocates that the distinction between perfectionism and adaptive striving for excellence is a lingering issue that urgently requires theoretical and empirical attention (Gaudreau, 2019). He recommends perfection and excellence be treated as two different, yet related, constructs and advanced the term '*excellencism*'. Excellencism is defined as 'a tendency to aim and strive toward high yet attainable standards in an effortful, engaged, and determined yet flexible manner' (Gaudreau, 2019). Gaudreau claims excellencism is a required reference point for reassessing the adaptiveness or maladaptiveness of perfectionistic strivings, a question which continually returns mixed results with current measures (Flett & Hewitt, 2006, 2014; Gotwals et al., 2012). To that end, the SCOPE measure was created, designed to carefully separate maladaptive perfectionism from adaptive excellencism. Gaudreau proposes existing perfectionism measures, including the two most commonly used in school-aged populations; the Frost Multidimensional Perfectionism Scale (FMPS; Frost & Marten, 1990) and the Almost Perfect Scale-Revised (APS-R; Slaney et al., 2001), be revisited as they inadequately capture the latent construct of perfectionistic strivings. He argues these measures conceptualisation of perfectionistic striving includes elements of both perfectionism and excellencism, leading to the mixed empirical results.

Perfectionism in Adolescence

Adolescence is commonly defined as the transitional period between puberty and adulthood where changes in cognitive and social functioning occur (Costelle et al., 2011). For the purposes of this study, adolescence was defined as the period between 13 and 21 years. Perfectionism is particularly relevant to the adolescent population as empirical evidence suggests it is on the rise. A recent cross-temporal meta-analysis compared the prevalence of perfectionism across generations and found that from 1989 to 2016, levels of perfectionism among college students has been linearly increasing (Curran & Hill, 2019). In other words, recent generations of young people are becoming more perfectionistic than past generations. This finding is particularly concerning given adolescence is a pivotal stage of development. Not only is it a time of heightened stress due to academic pressure, puberty, and the desire for independence (Spear, 2000), many life-long health related behaviours are established during this period (Department of Health, 2015). According to epidemiological evidence, the onset of half of all mental health disorders occurs during adolescence (Kessler et al., 2007) making it a time of great reward for prevention or clinical intervention.

Clinical Relevance of Perfectionism

Perfectionism is not a stand-alone clinical diagnosis however there has been a call for it to be included in subsequent revisions of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013; Ayearst et al., 2012). Based on Gaudreau's (2019) conceptualisation of perfectionism, if the adaptive excellencism component could be quantitatively separated from the maladaptive perfectionistic component, clinicians could accurately measure the damaging effects of perfectionism and potentially redefine the construct as a diagnosable personality disorder.

A growing body of research suggests perfectionism is not associated with a single disorder or type of disorder, but rather represents an underlying factor across several

diagnoses (Bieling et al., 2004; Egan et al., 2011). Meta-analytic evidence associates elevated perfectionism with a range of negative outcomes including depression (Smith et al., 2016), anxiety (Smith et al., 2018), suicidal ideation (Smith et al., 2018), eating disorders (Stice, 2002), and Obsessive Compulsive Disorder (OCD; Limburg et al., 2017). These findings are supported by the Egan et al., (2011) review that found perfectionism is a transdiagnostic process elevated across these disorders.

Addressing perfectionism in clients can reduce the number of their mental health symptoms (Egan et al., 2011). In Pleva and Wade's clinical study (2007), patients were treated for perfectionism rather than a specific disorder using both guided and pure self-help Cognitive Behavioural Therapy (CBT). Results found a 30% clinically significant decrease in obsessionality and depression, along with a 15% decrease in anxiety. CBT has also been shown to help perfectionists reduce social anxiety, public self-consciousness, and OCD behaviours (Lundh & Ost, 2001). With the strong evidence base of the association between perfectionism and mental health disorders, it is important to advance research into these relationships.

The Importance of Measurement in Clinical Psychology

Administering psychometric tests and interpreting results is a critical skill for clinical psychologists. It is so important that 'Psychological Assessment and Measurement' is included as a core competency requirement for endorsement as a Clinical Psychologists in Australia (Psychology Board of Australia, 2020). One of the principal uses of a psychometric test is to establish if a particular diagnosis, problem, or attribute is present in an individual at a given time (Cohen et al., 1996; Fairfax 2017). Results of these tests can impact clinical outcomes such as diagnosis and treatment planning; therefore, development of high quality measures is vital in clinical practice (Fairfax, 2017). High quality measures bear the trademarks of being both reliable and valid. Reliability refers to the repeatability, stability, or

internal consistency of a questionnaire while validity is concerned with if a questionnaire is measuring what it claims to (Jack & Clarke, 1998). Before a measure can be considered for use as a clinical tool, it must be adequately tested to establish reliability and validity. To date, reliability and validity of the SCOPE measure has not been tested on an adolescent population.

The Impact of Perfectionism on Academic Achievement

In addition to mental health outcomes, there is growing acknowledgement among educators and school psychologists regarding the difficulties for young people with perfectionistic tendencies, as it can undermine learning and performance (Flett et al., 2016). Not surprisingly, teachers and researchers invest a large amount of time, effort, and resources trying to understand how to help students perform at their optimal level. Students who perform well academically report larger earnings, better health, and greater contributions to society (Forbes et al., 2010). A recent meta-analysis found perfectionistic strivings facilitated academic achievement while perfectionistic concerns hindered achievement (Madigan, 2019). Perfectionistic strivings has been associated with high academic efficacy and low academic procrastination, both of which are conducive to greater academic performance (Bong et al., 2014; Stornelli et al., 2009). In contrast, perfectionistic concerns has been associated with procrastination, test anxiety, and low academic efficacy, all of which may lead to lower achievement (Bong et al., 2014; Stoeber & Rambow, 2007). That being said, Madigan (2019) noted the instrument used to measure perfectionism was a significant moderator of the overall meta-analytic effects. It is important to investigate if the SCOPE measure can predict academic performance as this will provide further evidence of the measures validity.

Study Aims

The current research had two aims. The primary aim was to examine the reliability and validity of the SCOPE measure on an adolescent population. This was

informed by comparing the adaptive and maladaptive SCOPE subscales with adaptive and maladaptive clinical outcomes (i.e. wellbeing and illbeing). The secondary aim was to explore associations between the SCOPE and academic performance. This involved investigating the predictive value of the SCOPE measure in terms of academic performance. Results of this study will begin the groundwork in establishing the reliability and validity of the SCOPE and ultimately the potential ability for incorporation into clinical settings.

CHAPTER 2. METHOD

Participants

To obtain a broad sample, students (over the age of 13) from two different educational institutions were invited to take part in the online survey and provided with an information sheet (see Appendix A). The first group included undergraduate students from a South Australian university ($n = 246$) and the second included Year 10 to 12 students from a South Australian senior college ($n = 130$). Inclusion criteria required being aged between 13 and 21 years and currently undertaking academic study. University students were recruited via the School of Psychology Research Participation System and received participation credit as part of their course requirement. All senior college students enrolled in February 2021 were opted-in to the study however parental/caregiver consent was still required and the option to opt-out was available (see Appendix B).

Procedure

Participants were directed to Qualtrics, a web based survey platform where study information was available and consent obtained. Failure to provide consent ended the survey. Eligible participants were first asked to answer demographic questions (age, gender, ethnicity, language; see Appendix C) as part of the 104-item questionnaire followed by standardised instruments to measure perfectionism, wellbeing, and illbeing. University

students participated from August to October 2020 while participation for senior college students occurred in February 2021. As the latter was conducted in a traditional school setting, supervision was provided and the Dean of Student Experience was available in the event of any adverse reaction to the content of the questionnaire (see Appendix D; note no events were reported). Ethical considerations emphasised anonymity, confidentiality, informed consent, and protecting participants' wellbeing. Procedures were approved by The University of Adelaide, School of Psychology: Human Research Ethics Subcommittee (Code Number 20/65).

Measures

SCOPE Measure

The SCOPE is a 22 item scale consisting of two subscales: excellencism and personal standards perfectionism. It contains 11 items from the excellencism subscale (e.g., 'as a student, my goal at school is to produce high quality work') and 11 items from the personal standards perfectionism subscale (e.g., 'as a student, my general goal in life is to be a perfect student'). A 7-point Likert scale ranging from 1 (*not at all*) to 7 (*totally*) was used, with a higher mean item score indicating higher levels of striving for excellence or perfectionism. The SCOPE was made available on the Open Science Framework for interested researchers to utilise. At the time of this study, the SCOPE was still under evaluation in a series of psychometric studies, and thus published validity and reliability data were not available.

FMPS Measure

The FMPS was designed to measure the dimensions and nature of perfectionism whereby higher mean item scores indicate higher levels of perfectionism. This measure involves six subscales (i.e., personal standards, concern over mistakes, organisation, parental expectations, parental criticism, and doubts about actions), however only personal standards

and concern over mistakes were included in the current study¹. Personal standards involves seven statements (e.g., 'I expect higher performance in my daily tasks than most people'), while concern over mistakes contains nine (e.g., 'I should be upset if I make a mistake'). Each statement is rated on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The FMPS has demonstrated acceptable levels of internal reliability. Chronbach's α scores were reported as .85 for personal standards and .88 for concern over mistakes in an Australian study investigating different perfectionistic profiles of adolescent high school students (Sironic & Reeve, 2015). More recently, a study investigating the psychometric properties of the FMPS in children and adolescents found the FMPS subscales presented good internal consistency with Cronbach's α scores $>.70$ for both subscales (Gavino et al., 2019). High Cronbach's α scores for both FMPS personal standards and concern over mistakes subscales (.84 and .92) were respectively noted in the current study.

APS-R Measure

The APS-R was designed to measure the perfectionistic attitudes people have toward themselves, their performance, and others with higher scores indicative of higher levels of perfectionism. This measure involves three subscales (i.e. high standards, discrepancy and order) however only high standards and discrepancy were included in this study¹. High standards contains seven items (e.g., 'I set very high standards of myself'), while discrepancy contains twelve (e.g., 'I am hardly ever satisfied with my performance'). Participants responded on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The APS-R has demonstrated acceptable levels of internal reliability with Chronbach's α scores reported as .88 for high standards and .92 for discrepancy in an Australian study investigating different perfectionistic profiles of adolescent high school students (Sironic & Reeve, 2015).

¹ In the interests of limiting participant burden, the decision was made to limit inclusion of all perfectionism measures, using only the relevant subscales from the FMPS and APS-R.

High internal consistencies for both the APS-R high standards and APS-R discrepancy subscales (.89 and .94) were respectively noted in the current study.

Wellbeing

The Engagement, Perseverance, Optimism, Connectedness, and Happiness (EPOCH; Kern et al., 2016) measure was used for wellbeing. EPOCH assesses adolescent wellbeing across 20 items and quantifies respondents' levels of wellbeing in each of the five domains, whereby higher scores indicate greater levels of wellbeing. Each domain contains four questions (e.g., 'I finish whatever I begin' or 'I feel happy'). Participants responded on a 5-point Likert scale from 1 (*almost never or not at all like me*) to 5 (*almost always or very much like me*). Kern and colleagues (2016) reported good internal consistency for each subscale (Chronbach's α ranging from .75 to .87) and concluded the measure appears psychometrically sound. High internal consistencies for all five subscales (.84, .78, .86, .85 and .90) were respectively noted in the current study.

Illbeing

To measure illbeing, the Depression, Anxiety and Stress Scales – Short Form (DASS-21; Lovibond & Lovibond, 1995) measure was utilised. Participants self-report the extent to which they experienced each of the symptoms over the past week. Each domain consists of seven questions (e.g., 'I found it hard to wind down' or 'I felt that life was meaningless') on a 4-point Likert scale from 0 (*did not apply to me at all*) to 3 (*applied to me very much or most of the time*). Scores were summed for each of the domains and multiplied by two, with higher scores indicating greater intensity of the emotional state. The DASS-21 has been shown to have good overall internal consistency and validity for use in adolescents (Szabo, 2010). Additional support for the scale's validity was provided by Tully et al., (2009). They reported high internal consistency for depression (.88), anxiety (.79), and stress (.84) in a study involving a South Australian adolescent population ($N = 4,039$, aged 12 to 18 years). High

internal consistencies for all three subscales (.89, .91, and .93) were respectively noted in the current study.

Academic Performance

University students were studying in their first year therefore end of year results were unavailable. Consequently, students were required to self-report their ATAR score. The ATAR gives each student a rank between 0 and 99.95 relative to other Year 12 students in their state based on subject grades². A Grade Point Average (GPA) was calculated for each senior college student to indicate overall academic performance. GPAs are the most commonly used measure of academic achievement in both research and practice (Bilge et al., 2014; Cadime et al., 2016; Iachini et al., 2015; Peters & Woolley, 2015). Both GPA and ATAR scores were converted to standard scores (z-scores) to allow for comparison to the normative sample.

Data Analysis for Aim 1

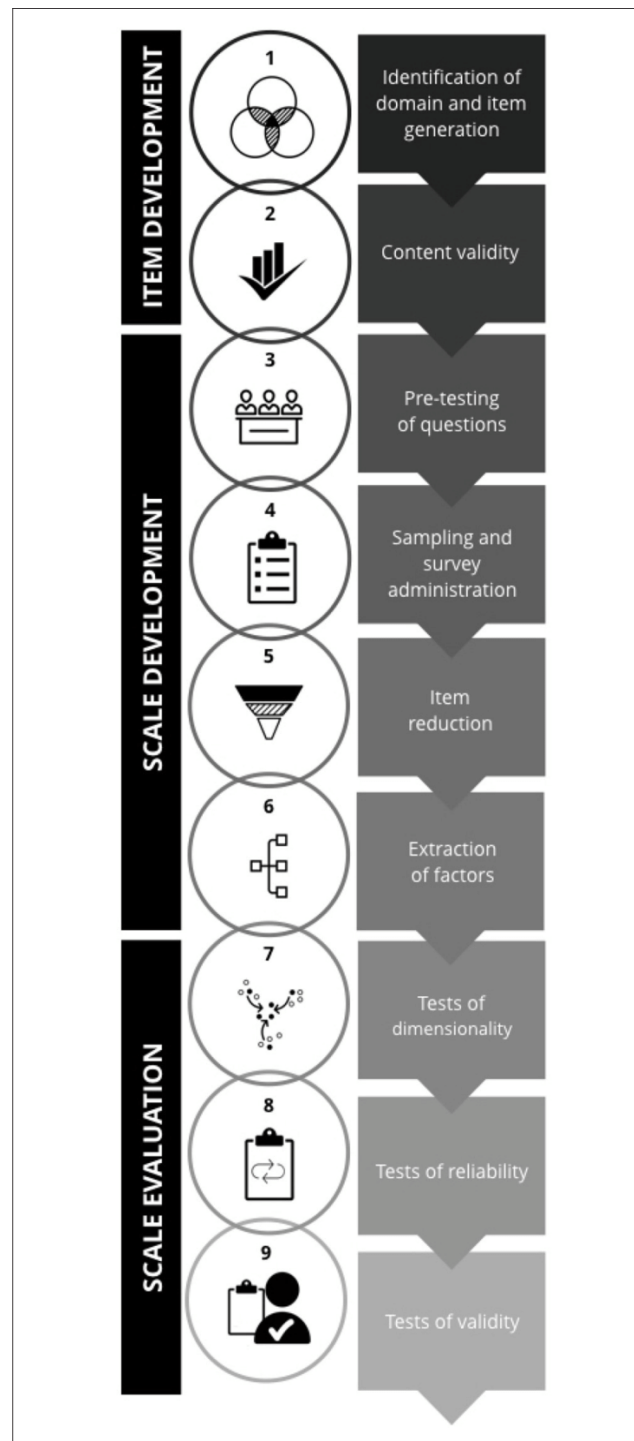
Measure Testing

As science advances and new theories emerge, new scales become necessary. Scale development and validation are critical, especially in the areas of health, social, and behavioural sciences where they may be used in clinical settings (Boateng et al., 2018). When developing best practice for validating scales, Boateng (2018) and his team identified three phases that span nine steps (see Figure 1). This paper concentrates on the third phase titled ‘Scale Evaluation’ where reliability and validity are assessed.

² Year 12 is the final year of secondary schooling within Australia

Figure 1

Overview of the Three Phases and Nine Steps of Scale Development and Validation



Note. Taken from: *Best practices for developing and validating scales for health, social, and behavioural research: A primer*, Boateng et al., 2018

Reliability

The reliability of a developing questionnaire must be demonstrated through rigorous testing procedures (Rattray & Jones, 2005). Reliability refers to the repeatability, stability, or internal consistency of a questionnaire (Jack & Clarke, 1998).

Internal Reliability. A number of statistics have been developed to assess the reliability of a scale. Chronbach's α was selected for this study as it is commonly used in psychological research and has received general approval within the literature (Boateng et al., 2018). There is no consensus within the psychometric literature on the minimum threshold of Chronbach's α to demonstrate an acceptable level of internal consistency. Bowling (1997) suggests it should exceed .70 for a developing questionnaire such as the SCOPE or .80 for a more established questionnaire. Conversely, Boateng et al., (2018) suggests a reliability of .90 as the minimum threshold that should be tolerated, however, states a reliability of .95 is the desirable standard. The authors note that while the ideal is rarely obtained, .70 is often accepted as satisfactory for most scales (Boateng et al., 2018).

Validity

Validity refers to if a questionnaire is in fact capturing the latent construct it is intended to measure (Rattray & Jones, 2005). The three most common types of validity include:

1. **Content Validity** (or face validity): this is an initial step in establishing validity and can be performed prior to the measure being administered. It refers to expert opinion regarding if the scale items represent the proposed domains or concepts the questionnaire is intended to measure (Rattray & Jones, 2005);
2. **Criterion-related Validity:** the extent to which there is a relationship between a given test score and performance on another measure of particular relevance,

typically referred to as criterion (Boateng et al., 2018). Two forms of criterion validity include predictive and concurrent; and

3. **Construct Validity:** this relates to how well items in a questionnaire represent the underlying conceptual structure (i.e. that a given concept can be defined in terms of the features that make up its meaning; Rattray & Jones, 2005). Four indicators of construct validity are relevant to scale development: convergent validity, discriminant validity, differentiation by known groups, and correlation analysis.

Convergent Validity. In the current study, construct validity was initially examined by investigating convergent validity; the extent to which a construct (perfectionism) measured in different ways yields similar results. Evidence for the convergent validity of the SCOPE was provided by examining the extent to which it correlates highly with existing perfectionism measures (FMPS and APS-R) both of which have robust psychometric properties in adolescent samples. Although the correlations will preferably indicate a strong positive relationship between the measures, they should not be higher than the square root of Chronbach's α . In Classical Test Theory, the square root of α is considered equal to the scale's correlation with the true score. Since no other indicator should be a better estimate of the true score (than the true score itself), no validity coefficient should exceed the square root of α (DeVellis, 2006).

Discriminant Validity. Measures should have not only convergent validity, but also discriminant validity, defined as the extent to which a measure is novel and not simply a reflection of some other construct (Churchill, 1979). Discriminant validity is indicated by predictably weak correlations between the measure of interest (SCOPE) and other measures that are supposedly measuring conceptually different variables. As DeVellis (2006) highlights, there are no specific guidelines regarding the threshold for discriminant validity. Therefore, for the purposes of this study, the traditional Campbell and Fiske (1959) cut-off

was utilised whereby a correlation less than 0.8 is considered evidence of discriminant validity. Examination will be performed on the extent the SCOPE subscales correlate with wellbeing and illbeing. The wellbeing and illbeing constructs were chosen on the basis of three criteria; (1) shared conceptual overlap and empirical links to perfectionism, (2) illbeing and wellbeing have robust psychometric properties in adolescent samples, and (3) suitability based on practical considerations (low respondent time burden, questionnaire length, and cost to access).

Power

A priori analysis using Gpower (Faul et al., 2014) was used to compute the required sample size for this analysis. For a two-tailed correlation, analysis indicated that a minimum sample size of seven was required to detect acceptable reliability ($r = .8$) with 80% power and $\alpha \leq .05$. The eventual sample of 364 participants exceeded this minimum. Post-hoc sensitivity analysis using Gpower was used to examine statistical power. Testing a point biserial correlation model with a list wise sample size of 364 and 80% power, a small effect size ($r = .15$) would be detected at $\alpha \leq .05$ (Cohen, 1988).

Statistical Analysis

Analyses were conducted using Statistical Package for Social Sciences (SPSS) Version 23.0 (SPSS Inc., 2017). To examine reliability, Chronbach's α scores were calculated while to examine validity, correlation analysis was used. To investigate relationships between the SCOPE and academic performance, correlation analysis and linear regression were conducted.

CHAPTER 3. RESULTS

472 adolescents completed the questionnaire. Data from ninety-six participants were removed due to failure to complete the survey ($n = 19$), failure to provide consent ($n = 15$), or

unavailable grade data ($n = 62$). The final data set consisted of 376 participants. Table 1 details demographic characteristics of the sample.

Table 1

Demographic Characteristics of Current Sample ($n=376$)

Characteristic	<i>n</i>	%
Gender		
Female	281	74.7
Male	83	22.1
Gender Diverse	12	3.2
Age		
15	8	2.1
16	39	10.4
17	90	23.9
18	104	27.7
19	85	22.6
20	48	12.8
21	2	.5
Schooling Type		
University	246	65.4
Senior College	130	34.6
Language Background		
English	248	66
Language other than English	128	34

Aim 1: Examine the Reliability and Validity of the SCOPE Measure

Objective 1: Investigating the Reliability of the SCOPE

Estimates of internal consistency were computed for both SCOPE subscales (see Table 2). SCOPE excellencism $\alpha = .95$ and SCOPE personal standards perfectionism $\alpha = .98$ therefore both subscales passed the criteria for acceptable levels of internal consistency ($\alpha > .7$).

Table 2

Correlations, Internal Reliability and Descriptive Statistics of (1) SCOPE Excellencism, (2) SCOPE Personal Standards Perfectionism, (3) FMPS Personal Standards, (4) FMPS Concern Over Mistakes, (5) APS-R High Standards, (6) APS-R Discrepancy, (7) Stress, (8) Anxiety, (9) Depression, (10) Engagement, (11) Perseverance, (12) Optimism, (13) Connectedness, (14) Happiness, and (15) Academic Performance

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. SCOPE EX	1	.64**	.58**	.20**	.63**	.07	.12*	.05	-.03	.24**	.41**	.26**	.15**	.14**	.31**
2. SCOPE PS		1	.62**	.52**	.62**	.36**	.26**	.19**	.17**	.15**	.30**	.08	-.05	-.04	.17**
3. FMPS-PS			1	.58**	.82**	.34**	.33**	.24**	.21**	.11*	.35**	.02	-.08	-.14**	.38**
4. FMPS-COM				1	.52**	.73**	.46**	.42**	.47**	-.11*	-.01	-.33**	-.38**	-.43**	.14**
5. APS-R HS					1	.34**	.27**	.17**	.15**	.12*	.35**	.10	.01	-.03	.36**
6. APS-R DIS						1	.43**	.37**	.46**	-.15**	-.17**	-.42**	-.42**	-.46**	-.09
7. Stress							1	.83**	.76**	-.03	-.06	-.25**	-.16**	-.33**	.15**
8. Anxiety								1	.75**	.02	-.02	-.22**	-.20**	-.30**	.05
9. Depression									1	-.19**	-.21**	-.48**	-.43**	-.56**	.02
10. Engagement										1	.44**	.52**	.33**	.55**	.01
11. Perseverance											1	.46**	.31**	.40**	.18**
12. Optimism												1	.62**	.75**	.10
13. Connectedness													1	.66**	.22**
14. Happiness														1	.08
15. Academic Per															1
Chronbach's α	.95	.98	.84	.92	.89	.94	.89	.91	.93	.84	.78	.86	.85	.90	
<i>M</i>	65.33	51.15	25.63	27.48	40.10	53.77	8.66	8.12	10.29	2.99	3.37	3.16	3.93	3.26	1.16
<i>SD</i>	9.53	17.00	4.94	8.51	6.82	16.02	5.84	5.84	6.05	.91	.84	1.02	.97	.98	1.32

Note. $N = 376$, * $p < .05$ (two-tailed), ** $p < .001$ (two-tailed)

Objective 2: Investigating the Validity of the SCOPE Measures

Convergent Validity. Evidence required to satisfy convergent validity is provided in Table 3. Convergent validity of the SCOPE excellencism subscale was confirmed as it correlates highly with other subscales purporting to measure positive aspects of perfectionism. Convergent validity was further investigated by analysis of SCOPE personal standards. Likewise, it was confirmed as it correlates highly with other subscales purporting to measure the negative aspects of perfectionism. No correlations exceeded $\sqrt{\alpha}$ for their respective subscales (SCOPE excellencism = .97, SCOPE personal standards = .99) contributing further evidence to convergent validity.

Table 3

Evidence required for Convergent Validity

Positive Relationship Requirement	Result
SCOPE excellencism and FMPS personal standards	Confirmed, $r = .58^{**}$
SCOPE excellencism and APS-R high standards	Confirmed, $r = .63^{**}$
SCOPE personal standards and FMPS concern over mistakes	Confirmed, $r = .52^{**}$
SCOPE personal standards and APS-R discrepancy	Confirmed, $r = .36^{**}$

Note. $N = 376$, $**p < .001$ (two-tailed)

Discriminant Validity: Predicted and Observed Results. Discriminant validity was assessed by investigating the strength of correlations between the SCOPE subscales with wellbeing and illbeing. A correlation less than 0.8 is considered evidence in the affirmative. As SCOPE excellencism is designed to reflect positive aspects, it should positively correlate with measures of wellbeing and negatively with measures of illbeing. Conversely, SCOPE personal standards is designed to capture clinical perfectionism, thought to be related to illbeing aspects and therefore should correlate positively with measures of illbeing and negatively with measures of wellbeing. An illustration of expected and observed correlations are shown in Table 4. A Principal Components

Analysis (PCA) was calculated for both wellbeing and illbeing for this analysis. PCA reduces a large set of variables into a smaller set of variables that account for most of the variance in the original variables (Kaiser, 1974).

Table 4

Evidence for Discriminant Validity: Predicted and Observed Adolescent SCOPE Correlations with Wellbeing and Illbeing

Variable	Expected Pattern of Results		Observed Correlation	
	SCOPE Excellencism	SCOPE Personal Standards	SCOPE Excellencism	SCOPE Personal Standards
Engagement	+	-	.24**	.15**
Perseverance	+	-	.41**	.30**
Optimism	+	-	.26**	.08
Connectedness	+	-	.15**	-.05
Happiness	+	-	.14**	-.04
PCA Wellbeing	+	-	.30**	.10
Depression	-	+	-.03	.17**
Anxiety	-	+	.05	.19**
Stress	-	+	.12*	.26**
PCA Illbeing	-	+	.05	.23**

Note. Predictions are based on the expected pattern. – indicates a negative correlation is expected; + indicates a positive correlation is expected. $N = 376$. * $p < .01$, ** $p < .001$

SCOPE excellencism was found to be significantly positively related to all five wellbeing components. The patterns were in the direction expected and the strength of all correlations were less than 0.8 providing evidence for discriminant validity. These results indicate SCOPE excellencism is sufficiently distinct from wellbeing, a related, non-perfectionism construct (Campbell & Fiske, 1959).

To provide further evidence of the usefulness of the SCOPE, these correlations were compared with that of existing perfectionism measures; see Table 5. It appears that while all three scales capture components of wellbeing, the SCOPE excellencism subscale not only has

discriminant validity, it is more sensitive than the FMPS personal standards and APS-R high standards subscales as it captures all five wellbeing components.

Table 5

Relationships between SCOPE, FMPS and APS-R Positive Subscales with Wellbeing Components

Measure	Engagement	Perseverance	Optimism	Connectedness	Happiness
SCOPE Ex	+	+	+	+	+
FMPS PS	+	+			+
APS-R HS	+	+			

Note. + indicates a positive correlation; see Table 2 for statistical output and correlation strength

In light of these results, it was decided to examine the positive subscales of perfectionism with illbeing in order to understand precise differences between the measures. This analysis revealed SCOPE excellencism shared a weak positive relationship with stress however no relationship with anxiety or depression. In contrast, both the FMPS personal standards and APS-R high standards subscales were significantly positively related to all three illbeing components (see Table 6).

Table 6

Relationships between SCOPE, FMPS and APS-R Positive Subscales with Illbeing Components

Measure	Depression	Anxiety	Stress
SCOPE Ex			+
FMPS PS	+	+	+
APS-R HS	+	+	+

Note. + indicates a positive correlation; see Table 2 for statistical output and correlation strength

These results contribute evidence of the discriminant validity of the SCOPE excellencism subscale as it relates positively with wellbeing and shares no relationship with illbeing with the exception of stress. It also shares a relationship with more wellbeing and less illbeing components compared to the FMPS and APS-R and as such could be considered a more robust subscale.

Discriminant Validity: Examining SCOPE Personal Standards with Illbeing. SCOPE

personal standards was found to be significantly positively related to all three illbeing components. These patterns were in the direction expected and the strength of the correlations were less than 0.8 providing evidence for discriminant validity. These results indicate SCOPE personal standards is sufficiently distinct from illbeing, a related, non-perfectionism construct (Campbell & Fiske, 1959).

In addition, FMPS concern over mistakes and APS-R discrepancy both shared a moderate positive relationship to all three illbeing components (see Table 7). That being said, the SCOPE personal standards subscale shares the weakest correlation compared to FMPS concern over mistakes and APS-R discrepancy (see Table 2).

Table 7

Relationships between SCOPE, FMPS and APS-R Negative Subscales with

Illbeing Components

Measure	Depression	Anxiety	Stress
SCOPE Personal Standards	+	+	+
FMPS Concern Over Mistakes	+	+	+
APS-R Discrepancy	+	+	+

Note. + indicates a positive correlation; see Table 2 for statistical output and correlation strength

In light of these results, it was decided to examine the negative subscales of perfectionism with wellbeing (see Table 8).

Table 8

Relationships between SCOPE, FMPS and APS-R Negative Subscales with Wellbeing Components

Measure	Engagement	Perseverance	Optimism	Connectedness	Happiness
SCOPE PS	+	+			
FMPS COM	-		-	-	-
APS-R D	-	-	-	-	-

Note. + indicates a positive correlation, - indicates a negative correlation; see Table 2 for statistical output and correlation strength

While the SCOPE personal standards subscale has discriminant validity, possible interference is shown with wellbeing factors (engagement and perseverance) which may require further investigation beyond the scope of this study. It is worth noting that both the FMPS concern over mistakes and APS-R discrepancy subscales share a stronger relationship with illbeing components than SCOPE personal standards. It is also worth highlighting that the correlation between SCOPE excellencism and personal standards perfectionism was quite strong ($r = .64$, $p < .001$) as shown in Table 2.

Aim 2: Explore Relationships between SCOPE and Academic Performance

It was important to examine if the SCOPE could predict academic performance as this would provide further evidence of construct validity. The first step involved examining correlations. SCOPE excellencism shared a stronger relationship with academic performance compared to SCOPE personal standards (see Table 2). Interestingly, the strength and direction of correlations between the positive subscales; SCOPE excellencism, FMPS personal standards and APS-R high standards were all tightly related (ranging from $r = .31$, $p < .001$ to $r = .38$, $p < .001$). In contrast, only two of the three negative subscales; SCOPE personal standards and FMPS concern over mistakes were related to academic performance ($r = .17$, $p < .001$ and $r = .14$, $p < .001$ respectively). The strong correlations provide a good foundation for the assumption that both positive and negative aspects of the SCOPE measure may predict academic performance.

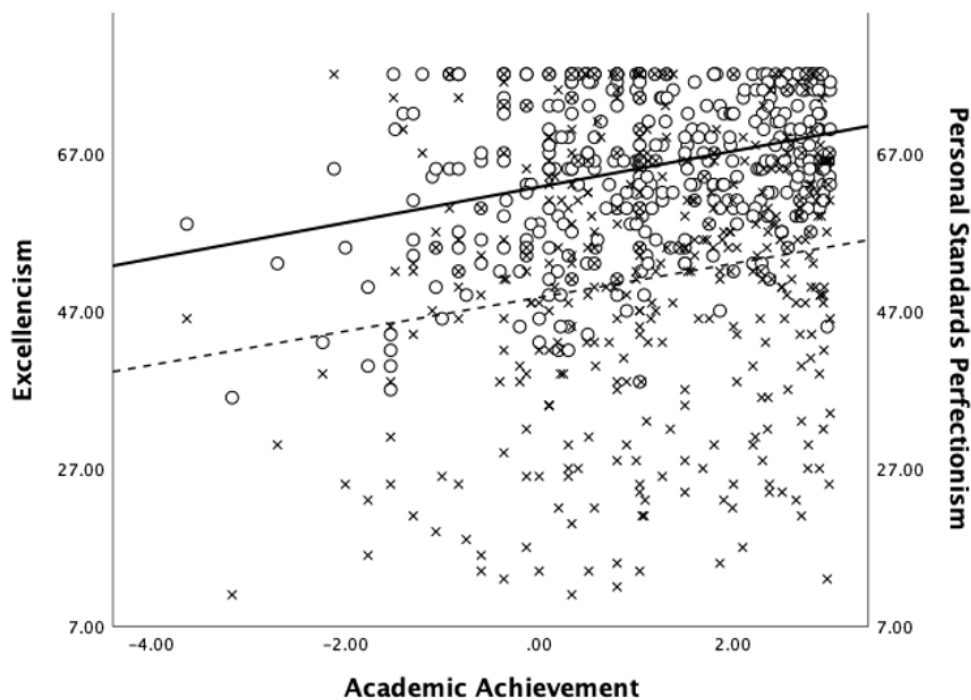
In light of this, a linear regression was run to understand the effect of both SCOPE subscales on academic performance. To assess linearity, a scatterplot of SCOPE excellencism against academic performance with superimposed regression line was plotted. Visual inspection of these two plots indicated a linear relationship between the variables. Results suggest an individual's SCOPE excellencism score could statistically significantly predict academic performance $F(1,373) = 40.78$, $p < .001$, with a large size effect ($d = 9.43$) according to Cohen (1988). SCOPE excellencism accounted for 10% of the explained variability in academic performance ($R^2 = .10$)

and the gradient was significant, $t = 6.39$, $B = 2.28$, $p < .001$, meaning for every four unit increase in SCOPE excellencism, academic achievement scores increase by a standard deviation.

A second linear regression was run to investigate the relationship between SCOPE personal standards and academic performance. Results suggest an individual's SCOPE personal standards score could statistically significantly predict academic performance $F(1,373) = 10.58$, $p < .001$, with a small size effect ($d = 4.15$) according to Cohen (1988). SCOPE personal standards accounted for 3% of the explained variability in academic performance ($R^2 = .03$) and the gradient was significant $t = 3.25$, $B = .17$, $p = .001$ meaning for every six unit increase in SCOPE personal standards, academic achievement scores increase by a standard deviation. Figure 2 illustrates the stronger relationship between SCOPE excellencism and academic achievement compared to SCOPE personal standards perfectionism. From a broader perspective, these results provide further evidence of construct validity for the SCOPE measure.

Figure 2

Dual Y Axes with Scale X Axis of SCOPE Excellencism and SCOPE Personal Standards Perfectionism by Academic Achievement



Note. ○ represents excellencism, — excellencism regression line, x personal standards perfectionism, and - - - personal standards perfectionism regression line

CHAPTER 4 – DISCUSSION

Psychometrics plays an important role not only in the practice of clinical psychology, but in many health and science related fields. Without psychometrically sound measures, psychologists can not accurately assess latent variables and make conclusions about their relationships with other variables. As such, the ability to accurately measure a patient's reported symptoms with a psychometric test which is both reliable and valid is essential for evidence-based practice (Rose & Devine, 2014).

The SCOPE measure was created to separate clinical perfectionism from excellencism, as extant research reveals inconsistent relationships between the purportedly adaptive perfectionistic strivings and positive outcomes (Flett & Hewitt, 2006, 2014; Gotwals et al., 2012). The primary aim of this study was to examine the reliability and validity of the measure with an adolescent population which must occur before it can be considered for use as a clinical tool. The secondary aim was to explore associations between the SCOPE and academic performance.

Reliability

Both SCOPE subscales well exceeded minimum thresholds to demonstrate internal consistency of a measure ($\alpha = .95$ and $\alpha = .98$ respectively) and were therefore classified as having very good reliability. Furthermore, internal consistency levels were similar to established perfectionism measures; FMPS and APS-R.

Many factors affect the value of Chronbach's α including the number of test items, item inter-relatedness and dimensionality. High α values have been argued to reflect unnecessary duplication of content across items and point more to redundancy than homogeneity (Tavakol, & Dennick, 2011). This could be true for the SCOPE where α values approached one, a possible indication of duplication. For example, question 18 ('as a person, my general goal in life is to attain perfection') and question 20 ('as a person, my general goal in life is to reach perfection') are suggested to be essentially indistinguishable in semantic content.

Redundancy contributes to increased questionnaire length which has been proposed as a factor affecting response burden (Rolstad et al., 2011). Response burden and response quality is frequently mentioned as a reason for abridging questionnaires. In fact, meta-analytic reports have found associations between lower response rates and longer questionnaires (Rolstad et al., 2011). If future research into confirmation of reliability in an adolescent sample continues to return high Chronbach α scores, the originators may consider assessing redundancy and removing superfluous items through an iterative factor analytic method (Tsang et al., 2017). This method involves deleting items iteratively according to factor loadings, until no cross loadings exceed ≥ 0.3 and either all items load on one factor ≥ 0.7 or a minimum of 5 items load on each factor ≥ 0.5 (Costello & Osborne, 2005).

Two additional methods of testing reliability include sensitivity to change and test-retest reliability. Due to the cross-sectional nature of this study design, neither methods were suitable as they require longitudinal samples; this is an area for future research.

Construct Validity

Scale validity is said to be supported if at least two different forms of construct validity have been examined and passed criteria for acceptance (Boateng et al., 2018).

Convergent validity

Evidence for convergent validity was provided by examining correlations showing the relationship between the SCOPE and existing perfectionism measures. Strong positive correlations were reported between SCOPE excellencism and the adaptive subscales of the FMPS and APS-R and between SCOPE personal standards perfectionism and the maladaptive subscales of those measures. As further evidence, no correlation exceeded the $\sqrt{\alpha}$ for their respective subscales (DeVellis, 2006).

Discriminant validity

Evidence for discriminant validity was provided by examining the extent to which the scale was theoretically distinct from similar constructs. Correlations between SCOPE excellencism with

wellbeing and SCOPE personal standards perfectionism with illbeing were examined. They were both less than 0.8 providing the required evidence to establish discriminant validity. Encouragingly, the SCOPE showed superior discriminant validity when compared to existing perfectionism measures (see Table 2).

Further validation evidence was provided by examining the extent to which the SCOPE measure related as expected to wellbeing and illbeing. In general, the observed results followed the expected pattern of results. Given the practical confines of the study such as limiting participant time burden, it was not possible to examine every potential discriminant validation construct. Although EPOCH (wellbeing) measures fit the selected criteria, several alternate validation constructs could have been used to assess wellbeing in adolescents including; The Brief Scale of Psychological Wellbeing for Adolescents (BSPWB-A; Viejo et al., 2018), Students Life Satisfaction Scale (Huebner, 1991), or the Child and Adolescent Wellness Scale (CAWS; Copeland et al., 2010). Several alternate validation constructs to the DASS-21 exist to assess illbeing in adolescents including; The Youth Outcome Questionnaire (Wells et al., 1999), Beck Youth Inventories (BYI; Beck et al., 2005), or the Child and Adolescent Symptom Inventories-5 (CSI-5; Gadow & Sprafkin, 2002). As validation of a new measure is an ongoing, collective effort (Boateng et al., 2018), these constructs could be used in future studies seeking to further validate the SCOPE.

To gather evidence on whether excellencism and perfectionism should be treated as two different constructs (as suggested by Gaudreau, 2018), it was important to establish if the excellencism subscale was adaptive and associated with better mental health outcomes compared to the personal standards perfectionism subscale. As anticipated, excellencism shared positive correlations with each of the wellbeing variables suggesting it was measuring adaptive outcomes. SCOPE personal standards perfectionism is said to capture maladaptive perfectionism however shared a weak positive correlation with engagement and moderate positive correlation with perseverance. Although initially unexpected, these relationships can be understood in light of their definitions. Engagement refers to being absorbed, interested, and involved in an activity or the

world itself while perseverance refers to having the tenacity to stick with things and pursue a goal, despite challenges that occur (Kern et al., 2016). People with maladaptive perfectionism often set unreasonable expectations of themselves and strive to achieve unrealistic goals which, upon reaching, reset even higher. It may be that these people have the drive to engage and persevere at their unrealistic goals, thereby meaning they score highly on these variables. It is important to note that although the correlations between personal standards perfectionism and engagement, and personal standards perfectionism and perseverance was statistically significant ($r = .15, p < .001$, and $r = .30, p < .001$ respectively), they are very weak and are likely not clinically meaningful. The term statistical significance is often misinterpreted as a clinically meaningful result (Ranganathan et al., 2015). It has been suggested that clinical significance should reflect the extent of change, whether the change makes a real difference to people's lives, how long the effects last, cost-effectiveness, and ease of implementation (LeFort, 1993).

SCOPE personal standards perfectionism shared positive correlations with each of the illbeing variables suggesting it is associated with maladaptive outcomes. On the other hand, the excellencism subscale shared a weak positive correlation with stress. This raises an interesting issue: if you are a person who scores highly on the excellencism subscale, it may be that you seek out opportunities that put you under stress. For example, a student taking on extra course work for additional credit or choosing more challenging subjects in the curriculum in the hope of gaining a higher ATAR score. Alternatively, stress could be a combination between external stressors and how students perceive them. If someone is striving for excellencism, that in itself could be creating an external stressor. The authors do not mean to imply that you cannot strive for excellence without negative stress, but perhaps some degree of stress could in fact be beneficial. Contemporary literature supports the idea that stress has a maladaptive (distress) and adaptive (eustress) component. Eustress is defined as a positive psychological response to a stressor and reflects the extent to which demands are appraised to benefit the individual and/or enhance wellbeing (Hargrove et al., 2015). Another factor to consider is the high female percentage in the study

(74.7%). It is well established that females experience higher levels of illbeing (including stress) compared to males (Calvarese, 2015; Lim et al., 2018 & Wiklund et al., 2012) which may have influenced results. Again, it is important to note that although the correlation between excellencism and stress was statistically significant ($r = .12, p < .05$) it is unlikely to be clinically meaningful. In light of these findings, it is fair to say that excellencism and perfectionism should be treated as two different constructs.

FMPS Personal Standards and APS-R High Standards Subscales: Adaptive, Maladaptive or Mixed Outcomes

The SCOPE measure was created partly because existing perfectionism measures show mixed results regarding the adaptiveness or maladaptiveness of the perfectionistic striving dimension. This study added to the body of literature examining if the FMPS personal standards and APS-R high standards subscales are uniquely associated with adaptive, maladaptive or mixed outcomes. This study is further evidence that the two subscales said to be adaptive also capture maladaptive components as they share relationships with all three illbeing variables resulting in mixed outcomes. Furthermore, it supports meta-analytic findings by Stoeber & Otto (2006) who found both forms of perfectionism were associated with various forms of psychopathology³.

SCOPE and Academic Performance

While the main aim of the paper was to establish reliability and validity, academic achievement was also investigated. It was considered important as this study utilised an adolescent population, an age at which academic performance is of particular interest. Contrary to recent meta-analysis findings (Madigan, 2019) where perfectionistic striving facilitated and perfectionistic concerns hindered academic performance, our results suggest both SCOPE subscales were significantly positively correlated with academic performance. Intuitively, SCOPE excellencism shared a stronger correlation than SCOPE personal standards. Results of linear regressions indicate

³ It should be noted that these relationships are weaker than the maladaptive subscales (FMPS concern over mistakes and APS-R discrepancy).

both SCOPE subscales had the ability to predict academic performance. While acknowledging this finding was modest, it is striking considering the large explanatory power of intellectual ability accounting for up to 25% of the overall variance of academic performance (Neisser et al., 1996). Unlike variables measuring intellect, perfectionism is amenable to change through targeted psychological intervention (Lloyd et al., 2015; Suh et al., 2019). Interestingly, SCOPE excellencism, FMPS personal standards, and APS-R high standards were all tightly correlated ($r = .31, p < .001$ to $r = .38, p < .001$). Based on the equivalence of the correlations, the suggestion is that the adaptive component of all three measures do an equally good job of predicting academic performance.

Implications for Practitioners

Perfectionism appears as a common theme in adolescent presentations to mental health services with established associations between perfectionism and psychological problems (Taylor et al., 2017). Furthermore, perfectionism has been shown to be a transdiagnostic factor across multiple diagnoses, suggesting treatment of clinical perfectionism may be helpful in alleviating a multitude of symptoms. A therapist may encounter behaviors including avoidance, procrastination, comparison with others, and spending excessive amounts of time or energy on a task. If a therapist suspects a client demonstrates these tendencies, two of the most common measures to administer for adolescents is the FMPS and APS-R. However, results of the current study suggest these two measures inadequately differentiate the negative aspects of perfectionism from adaptive striving for excellence. In light of these results, clinicians may consider administering the SCOPE once appropriately validated to track progress in therapy.

Personal standards perfectionism is characterised in the SCOPE using terms such as perfect, flawless, and relentless. If a client scores highly on this subscale, several lines of evidence suggest CBT is an effective therapy to help reframe thoughts and demonstrate perfection should not be the end goal of each undertaking (Ferguson & Rodway, 1994). CBT can help highlight flawed beliefs or biases a person may have about things that they feel need to be perfect (Egan & Hine, 2008 &

Glover et al., 2007). Mindfulness based approaches and bibliotherapy have also shown promise as an intervention for perfectionism (Wimberley et al., 2016). A recent study found mindfulness-based cognitive therapy resulted in larger improvements than pure self-help CBT in university students experiencing difficulties due to perfectionism (James & Rimes, 2018). As a clinician, the aim of treatment is not to remove the striving for or lowering of reasonable standards, but rather to remove ones self-evaluation exclusively based on meeting these standards (Egan et al., 2011).

On the other hand, excellencism is characterized using terms such as very good, competent, skillful and successful. A clinician may capitalise and build on this by adopting a positive psychology strengths approach. Positive psychology aims to expand the traditional emphasis of psychology to focus on positive human functioning rather than mental illness (Waters, 2011), while strengths based approaches concentrate on the inherent strengths of individuals and builds upon those strengths (Scerra, 2012). School based programs could incorporate a strengths based approach via psychoeducation with the aim to raise excellencism and in turn build wellbeing and academic achievement on a large scale.

Strengths and Limitations

There are several strengths of this study, mainly it was one of the first to determine validity and reliability of the SCOPE with an adolescent population. That being said, the authors acknowledge that demonstrating the psychometric properties of a novel scale is an ongoing process and continued testing is required (Rattray & Jones, 2007). With that in mind, the following limitations should be considered when interpreting results.

Self-Report ATAR Scores

Although grade data were obtained directly from the senior college administrative team, university students were required to self-report their ATAR score. Self-reporting was the only option as they were first year students, therefore previous grade data was unavailable from the university. That being said, studies often rely on students self-reporting academic scores (e.g., Sevelever & Rice, 2010; Vuong et al., 2010). It has been suggested this reliance may be attributed to the ease of

asking the student, in contrast to barriers researchers can face in obtaining actual academic data e.g. being denied access by the school or ethical considerations (Caskie, 2014). That being said, reliability of self-report data is an Achilles' heel of survey research. Disadvantages of self-reported answers are well known and include exaggeration, embarrassment to reveal private details (especially related to one's own academic performance), and social desirability bias, all of which may have occurred in this study. As such, we cannot guarantee the accurateness of university students self-reported ATAR scores. Future studies may consider using second year students ensuring first year results are accessible.

Sample Generalisability

While this study was well powered, the recruited participant population was relatively homogenous. Of the 376 adolescent participants, 74.7% were female, 66% spoke only English at home (compared to the national average of 72.7%; ABS, 2016), and they were all engaged in formal education, thereby constraining the generalisability of results.

A second factor to acknowledge relates to academic performance. A certain level of academic success was required to achieve the minimum ATAR for acceptance into a university course. While participation in the study was open to all senior college students regardless of academic ability, it must be assumed that lower ATAR students have not been represented in the university sample.

Future Research Directions

Clinical Thresholds

While meaningful interpretation of SCOPE personal standards perfectionism scores could be achieved through comparison to derived normative data (once published by the creators), future research may seek to extend this by developing clinical threshold scores. Threshold scores would enable clinicians to ascertain a cut-off score above which a client is likely to benefit from therapy. It would also allow clinicians a clinically relevant framework for interpreting SCOPE personal standard perfectionism scores.

Gender

Samples were limited by the large number of female ($n = 281$) and small number of gender-diverse participants ($n = 12$). It is well established that females experience higher levels of illbeing compared to males (Calvarese, 2015; Lim et al., 2018 & Wiklund et al., 2012). Although out of scope for this paper, it was observed that females reported statistically significant higher scores on the SCOPE personal standards perfectionism subscale compared to males, confirmed via a Mann-Whitney U test. This possibly skewed the relationship with illbeing and may have contributed to a ceiling effect. Future research should obtain larger male and gender diverse samples and examine how the SCOPE performs when separated by all gender types.

Cultural Considerations

All three perfectionism measures were developed in a Western culture, therefore they should be considered in the context of that culture. Although adolescents in our sample were predominantly Caucasian and English-speaking, generalisation to other cultures is not recommended without further research. It is well recognised that when a test developed in one culture is used in another, the comparability of measurement cannot be assumed (Hambleton & Lee, 2013). Furthermore, despite the growing volume of research on perfectionism, surprisingly few studies have examined potential racial and ethnic differences in this construct. To date, researchers do not have a clear sense of how individuals from different cultural backgrounds experience perfectionism (Castro & Rice, 2003). Future researchers may consider evaluating the SCOPE in a more culturally diverse sample to assess reliability and validity within different population groups.

Educational Settings

Our research may be limited by sampling exclusively from formal educational settings. In doing so, adolescents who are no longer involved in an education environment due to a variety of reasons including employment or disengagement from education were not captured. Maladaptive perfectionism has been found to increase burnout which is thought to contribute to school dropout (Cam & Ogulmus, 2021). It may be the case that a number of adolescents left the formal education

setting due to their maladaptive perfectionism and therefore were not captured in our sample. Future research may consider sampling from a broader range of settings outside of the educational sphere to increase generalisability.

Conclusion

Limitations notwithstanding, these initial results suggest the SCOPE is a valid, reliable, psychometrically sound scale. The self-report scale benefits from quick and easy administration, which is particularly useful not only for clinicians, but for other adolescent-focused areas including education. That being said, validation of a novel scale is a long term process and future studies should test the longitudinal validity of the SCOPE in detecting changes in clinical perfectionism over time. In addition, both subscales have the ability to predict academic performance. In conclusion, with replication in more diverse samples and further validation, the SCOPE has a strong future for clinicians in the field of perfectionism.

REFERENCES

- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Arlington, VA: Author.
- Australian Bureau of Statistics. (2016) 2016 Census: Multicultural. <https://www.abs.gov.au/ausstats/abs@.nsf/lookup/media%20release3>
- Ayearst, L., Flett, G., & Hewitt, P. (2012). Where is multidimensional perfectionism in DSM-5? A question posed to the DSM-5 personality disorders work group. *Personality Disorders, 3*, 458-469. <https://doi: 10.1037/a0026354>
- Beck, J. S., Beck, A. T., Jolly, J., & Steer, R. A. (2005). Assessment Library Materials (University of Lethbridge. Faculty of Education. Curriculum Laboratory). [BYI-II]: Beck youth inventories for children and adolescents.
- Bieling, P., Israeli, A., Smith, J., & Antony, M. (2003). Making the grade: The behavioural consequences of perfectionism in the classroom. *Personality and Individual Differences, 35*(1), 163–178. [https://doi.org/10.1016/S0191-8869\(02\)00173-3](https://doi.org/10.1016/S0191-8869(02)00173-3)
- Bieling, P. J., Summerfeldt, L. J., Israeli, A. L., & Antony, M. M. (2004). Perfectionism as an explanatory construct in comorbidity of axis I disorders. *Journal of Psychopathology and Behavioural Assessment, 26*(3), 193–201. <https://doi.org/10.1023/B:JOBA.0000022112.27186.98>
- Bilge, F., Tuzgol Dost, M., & Cetin, B. (2014). Factors affecting burnout and school engagement among high school students: Study habits, self- efficacy beliefs, and academic success. *Educational Sciences: Theory and Practice, 14*(5), 1721-1727.
- Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in Public Health, 6*, 149. <https://doi.org/10.3389/fpubh.2018.00149>
- Bong, M., Hwang, A., Noh, A., & Kim, S.I. (2014). Perfectionism and motivation of adolescents in academic contexts. *Journal of Educational Psychology, 106*, 711-729.

- Bowling, A. (1997) *Research Methods in Health*. Berkshire, England: Open University Press.
- Cadime, I., Pinto, A. M., Lima, S., Rego, S., Pereira, J., & Ribeiro, I. (2016). Well-being and academic achievement in secondary school pupils: The unique effects of burnout and engagement. *Journal of Adolescence*, *53*, 169-179. <https://doi:10.1016/j.adolescence.2016.10.003>
- Calvarese, M. (2015). The effect of gender on stress factors: An exploratory study among university students. *Social Sciences*, *4*(4), 1177–1184. doi.org/10.3390/socsci4041177
- Cam, Z., & Ogulmus, S. (2021). Testing of a model on the school burnout among high school students and exploring the models prediction level of grade retention. *International Journal of Curriculum and Instruction*, *13*(2), 950-985.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multi trait – multi method matrix. *Psychological Bulletin*, *56*, 81-105. <https://doi:10.1037/h0046016>
- Caskie, G. I. (2014). Accuracy of self-reported college GPA: Gender-moderated differences by achievement level and academic self-efficacy. *Journal of College Student Development*, *55*(4), 385–390. <https://doi.org/10.1353/csd.2014.0038>
- Castro, J., & Rice, K. (2003). Perfectionism and ethnicity: Implications for depressive symptoms and self-reported academic achievement. *Cultural Diversity and Ethnic Minority Psychology*, *9*(1), 64-78.
- Churchill, G. A., Jr. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, *16*, 64-73. <https://doi:10.2307/3150876>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, N.J: Erlbaum Associates.
- Cohen, R. J., Swerdlik, M. E., & Phillips, S. M. (1996). *Psychological testing and assessment: An introduction to tests and measurement* (3rd ed.). Mayfield Publishing Co.

- Copeland, E. P., Nelson, R. B., & Traugher, M. C. (2010). Wellness dimensions relate to happiness in children and adolescents. *Advances in School Mental Health Promotion, 3*(4), 25–37.
- Costello, E. J., Copeland, W., & Angold, A. (2011). Trends in psychopathology across the adolescent years: What changes when children become adolescents, and when adolescents become adults? *Journal of Child Psychology and Psychiatry, and Allied Disciplines, 52*(10), 1015–1025. <https://doi.org/10.1111/j.1469-7610.2011.02446.x>
- Costello, A., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation, 10*, 1-9.
- Curran, T., & Hill, A. P. (2019). Perfectionism is increasing over time: A meta-analysis of birth cohort differences from 1989 to 2016. *Psychological Bulletin, 145*(4), 410–429.
- Department of Health. (2015). The mental health of children and adolescents. Report on the second Australian child and adolescent survey of mental health and well-being. <https://www.health.gov.au/internet/main/publishing.nsf/Content/9DA8CA21306FE6EDCA257E2700016945/%24File/child2.pdf>
- DeVellis, R. F. (2006). Classical test theory. *Medical Care, 44*, 50-59. <https://doi:10.1097/01.mlr.0000245426.10853.30>
- Egan, S.J., & Hine, P. (2008). Cognitive behavioural treatment of perfectionism: a single case experimental design series. *Behavioural Change, 24*, 245–58.
- Egan, S. J., Wade, T. D., & Shafran, R. (2011). Perfectionism as a transdiagnostic process: A clinical review. *Clinical Psychology Review, 31*(2), 203–212. <https://doi.org/10.1016/j.cpr.2010.04.009>
- Enns, M., Cox, B., Sareen, J., & Freeman, P. (2001). Adaptive and maladaptive perfectionism in medical students: a longitudinal investigation: Perfectionism in medical students. *Medical Education, 35*(11), 1034–1042. <https://doi.org/10.1111/j.1365-2923.2001.01044.x>

- Fairfax, H. (2017). Psychometrics in Clinical Settings. In *Psychometric Testing* (pp. 175–184). Wiley.
- Faul, F., Erdfelder, E., Lang, A.G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioural, and biomedical sciences. *Behaviour Research Methods*, *39*(2), 175-191. <https://doi:10.3758/BF03193146>
- Ferguson, K. L., & Rodway, M. R. (1994). Cognitive-behavioural treatment of perfectionism—initial evaluation studies. *Research on Social Work Practice*, *4*, 283–308.
- Flett, G., & Hewitt, P. (2006). Positive versus negative perfectionism in psychopathology: A comment on Slade and Owens’s dual process model. *Behaviour Modification*, *30*, 472-495. [https://doi: 10.1177/0145445506288026](https://doi:10.1177/0145445506288026)
- Flett, G., & Hewitt, P. (2014). A proposed framework for preventing perfectionism and promoting resilience and mental health among vulnerable children and adolescents. *Psychology in the Schools*, *51*(9), 899–912. <https://doi.org/10.1002/pits.21792>
- Flett, G. L., Hewitt, P. L., Besser, A., Su, C., Vaillancourt, T., Boucher, D., Munro, Y., Davidson, L.A. & Gale, O. (2016). The child - adolescent perfectionism scale: Development, psychometric properties, and associations with stress, distress, and psychiatric symptoms. *Journal of Psychoeducational Assessment*, *34*(7), 634–652. <https://doi.org/10.1177/0734282916651381>
- Flett, G., Hewitt, P., Blankstein, K. & Gray, L. (1998). Psychological distress and the frequency of perfectionistic thinking. *Journal of Personality and Social Psychology*, *75*(5), 1363–1381. [https://doi: 10.1037/0022-3514.75.5.136](https://doi:10.1037/0022-3514.75.5.136)
- Forbes, M., Barker, A., & Turner, S. (2010). The effects of education and health on wages and productivity. Productivity Commission. <https://www.pc.gov.au/research/supporting/education-health-effects-wages/education-health-effects-wages.pdf>
- Frost, R., Marten, P. (1990). Perfectionism and evaluative threat. *Cognitive Therapy and Research*, *14*(6), 559–572. <https://doi.org/10.1007/BF01173364>

- Frost, R., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 14*(5), 449 – 468. <https://doi.org/10.1007/BF01172967>
- Gadow, K. D., & Sprafkin, J.N. (2002). *Child Symptom Inventory – 4. Screening and norms manual*. Stony Brook, N.Y: Checkmate plus.
- Gaudreau, P. (2019). On the distinction between personal standards perfectionism and excellencism: A theory elaboration and research agenda. *Perspectives on Psychological Science, 14*(2), 197–215. <https://doi.org/10.1177/1745691618797940>
- Gavino, A., Nogueira, R., Pérez-Costillas, L., & Godoy, A. (2019). Psychometric properties of the frost multidimensional perfectionism scale in Spanish children and adolescents. *Assessment, 26*(3), 445–464. <https://doi.org/10.1177/1073191117740204>
- Glover, D. S., Brown, G.P., Fairburn, C. G & Shafran, R. (2007). A preliminary evaluation of cognitive-behaviour therapy for clinical perfectionism: a case series. *British Journal of Clinical Psychology, 46*, 85–94.
- Gnilka, P., Ashby, J., & Noble, C. (2012). Multidimensional perfectionism and anxiety: Differences among individuals with perfectionism and tests of a coping - mediation model. *Journal of Counselling and Development, 90*(4), 427–436.
- Gotwals, J., Stoeber, J., Dunn, J., & Stoll, O. (2012). Are perfectionistic strivings in sport adaptive? A systematic review of confirmatory, contradictory, and mixed evidence. *Canadian Psychology, 53*, 263-279. <https://doi: 10.1037/a0030288>
- Hargrove, M. B., Becker, W. S., & Hargrove, D. F. (2015). The HRD eustress model: Generating positive stress with challenging work. *Human Resource Development Review, 14*, 279-298. <https://doi: 10.1177/1534484315598086>
- Hamachek, D. (1978) Psychodynamics of normal and neurotic perfectionism. *Psychology, 15*, 27-33.
- Hambleton, R. K., & Lee, M. K. (2013). Methods of translating and adapting tests to increase cross-language validity. In Saklofske, D. H., Reynolds, C. R., Schwean, V. L. (Eds.), *The Oxford*

Handbook of Child Psychological Assessment (pp.172–181). New York, NY: Oxford University Press.

- Hewitt, P., Flett, G., Sherry, S., Habke, M., Parkin, M., Lam, R. & Stein, M. (2003). The interpersonal expression of perfection: Perfectionistic self-presentation and psychological distress. *Journal of Personality and Social Psychology*, *84*, 1303-1325.
- Hill, A., & Curran, T. (2016). Multidimensional perfectionism and burnout: A meta-analysis. *Personality and Social Psychology Review*, *20*(3), 269–288. <https://doi.org/10.1177/1088868315596286>
- Huebner, E. S. (1991). Initial development of the students' life satisfaction scale. *School Psychology International*, *12*, 231-243.
- Iachini, A. L., Brown, E. L., Ball, A., Gibson, J. E., & Lize, S. E. (2015). School mental health early interventions and academic outcomes for at-risk high school students: A meta-analysis. *Advances in School Mental Health Promotion*, *8*(3), 156-175. <https://doi:10.1080/1754730X.2015.1044252>
- Jack., B & Clarke., A (1998). The purpose and use of questionnaires in research. *Professional Nurse*, *14*, 176–179.
- James, K., & Rimes, K. A. (2018). Mindfulness-based cognitive therapy versus pure cognitive behavioural self - help for perfectionism: a pilot randomised study. *Mindfulness*, *9*(3), 801–814. <https://doi.org/10.1007/s12671-017-0817-8>
- Kaiser, H.F. (1974). An index of factorial simplicity. *Psychometrika*, *39*, 31–36. <https://doi.org/10.1007/BF02291575>
- Kaye, M., Conroy, D., & Fifer, A. (2008). Individual differences in incompetence avoidance. *Journal of Sport and Exercise Psychology*, *30*(1), 110-132. <https://doi.org/10.1123/jsep.30.1.110>
- Kern, M. L., Benson, L., Steinberg, E. A., & Steinberg, L. (2016). The EPOCH measure of adolescent wellbeing. *Psychological Assessment*, *28*(5), 586–597.

- Kessler, R., Amminger, G., Aguilar-Gaxiola, S., Alonso, J., Lee, S., & Ustün, T. (2007). Age of onset of mental disorders: A review of recent literature. *Current Opinion in Psychiatry*, 20(4), 359-64.
- LeFort, S.M. (1993). The statistical versus clinical significance debate. *Image The Journal of Nursing Scholarship*, 25, 57–62.
- Lim, G. Y., Tam, W. W., Lu, Y., Ho, C. S., Zhang, M. W., & Ho, R. C. (2018). Prevalence of depression in the community from 30 countries between 1994 and 2014. *Scientific Reports*, 8(1), 2861. <https://doi.org/10.1038/s41598-018-21243-x>
- Limburg, K., Watson, H., Hagger, M., & Egan, S. (2017). The relationship between perfectionism and psychopathology: A meta-analysis. *Journal of Clinical Psychology*, 73(10), 1301–1326.
- Lloyd, S., Schmidt, U., Khondoker, M., & Tchanturia, K. (2015). Can psychological interventions reduce perfectionism? A systematic review and meta-analysis. *Behavioural and Cognitive Psychotherapy*, 43(6), 705–731. <https://doi.org/10.1017/S1352465814000162>
- Lounsbury, J., Fisher, L., Levy, J., & Welsh, D. (2009). An investigation of character strengths in relation to the academic success of college students. *Individual Differences Research*, 7(1), 52-69.
- Lovibond, S. H. (1995). Manual for the depression anxiety stress scales. In P. F. Lovibond & A. Psychology Foundation of (Eds.), *Manual for the DASS (2nd ed. ed.)*. Sydney, N.S.W.: Psychology Foundation of Australia.
- Lundh, L., & Öst, L. (2001). Attentional bias, self-consciousness and perfectionism in social phobia before and after cognitive-behaviour therapy. *Scandinavian Journal of Behaviour Therapy*, 30(1), 4–16. <https://doi.org/10.1080/02845710117841>
- Madigan, D.J. (2019). A meta-analysis of perfectionism and academic achievement. *Educational Psychology Review*, 31, 967–989. <https://doi.org/10.1007/s10648-019-09484-2>

- Neisser, U., Boodoo, G., Bouchard Jr., T., Boykin, A., Brody, N., Ceci, S., Halpern, D., Loehlin, J., Perloff, R., Sternberg, R., & Urbina, S. (1996). Intelligence: knowns and unknowns. *American Psychologist*, *51*(2), 77–101.
- Peters, S. C., & Woolley, M. E. (2015). Testing a model of environmental risk and protective factors to predict middle and high school students' academic success. *Children & Schools*, *37*(3), 135-143. <https://doi:10.1093/cs/cdv014>
- Pleva, J., & Wade, T.D. (2007). Guided self-help versus pure self-help for perfectionism: A randomised controlled trial. *Behaviour Research and Therapy*, *45*, 849-861.
- Ranganathan, P., Pramesh, C. S., & Buyse, M. (2015). Common pitfalls in statistical analysis: Clinical versus statistical significance. *Perspectives in Clinical Research*, *6*(3), 169–170. <https://doi.org/10.4103/2229-3485.159943>
- Rattray, J., & Jones, M. C. (2005). Essential elements of questionnaire design. *Issues in Clinical Nursing*, *16*, 234-243. <https://doi:10.1111/j.1365-2702.2006.01573.x>
- Rolstad, S., Adler, J., & Rydén, A. (2011). Response burden and questionnaire length: Is shorter better? A review and meta-analysis. *Value in Health*, *14*(8), 1101-1108.
- Sacks, D. (2003). Age limits and adolescents. *Paediatrics & Child Health*, *8*(9), 577–578. <https://doi.org/10.1093/pch/8.9.577>
- Salanova, M., Martinez, I., & Llorens, S. (2012). Success breeds success, especially when self-efficacy is related with an internal attribution of causality. *Estudios de Psicología*, *33*(2), 151-165.
- Sassaroli, S., Romero Lauro, L., Maria Ruggiero, G., Mauri, M., Vinai, P., & Frost, R. (2008). Perfectionism in depression, obsessive-compulsive disorder and eating disorders. *Behaviour Research and Therapy*, *46*(6), 757–765. <https://doi.org/10.1016/j.brat.2008.02.007>
- Satvinderpal, K. (2012). Impact of academic stress on mental health: A study of school going adolescents. *Global Journal for Research Analysis*, *3*, 27-29. <https://doi:10.15373/22778160/MAY2014/11>.

- Sawyer, S. M., Azzopardi, P.S., Wickremarathne, D., & Patton, G.C. (2018). The age of adolescence. *Lancet Child Adolescent Health*, 2(3), 223-228. [https://doi: 10.1016/S2352-4642\(18\)30022-1](https://doi.org/10.1016/S2352-4642(18)30022-1)
- Scappatura, M. L., Bidacovich, G., Banasco Falivelli, M. B., & Rutzstein, G. (2017). Dimensions of perfectionism (adaptive and maladaptive) in adolescents with eating disorder. *Revista Mexicana de Trastornos Alimentarios*, 8(2), 131–141. <https://doi.org/10.1016/j.rmta.2017.03.001>
- Scerra, N. (2012). Strengths-based practices: An overview of the evidence. *Developing Practice : the Child Youth and Family Work Journal*, 31, 43–52.
- Sevlever, M. & Rice, K. (2010). Perfectionism, depression, anxiety, and academic performance in premedical students. *Canadian Medical Education Journal*, 1(2), 96.
- Sironic, A., & Reeve, R. (2015). A combined analysis of the Frost Multidimensional Perfectionism Scale (FMPS), Child and Adolescent Perfectionism Scale (CAPS), and Almost Perfect Scale—Revised (APS-R). *Psychological Assessment*, 27 (4), 1471-1483. [https:// doi: 10.1037/pas0000137](https://doi.org/10.1037/pas0000137)
- Slaney, R., Rice, K., Mobley, M., Trippi, J., & Ashby, J. (2001). The revised almost perfect scale. *Measurement and Evaluation in Counselling and Development*, 34(3), 130–145.
- Smith, M., Saklofske, D., Yan, G., & Sherry, S. (2015). Perfectionistic strivings and perfectionistic concerns interact to predict negative emotionality: Support for the tripartite model of perfectionism in Canadian and Chinese university students. *Personality and Individual Differences*, 81, 141–147. <https://doi.org/10.1016/j.paid.2014.09.006>
- Smith, M., Sherry, S., Chen, S., Saklofske, D., Mushquash, C., Flett, G., & Hewitt, P. (2018). The perniciousness of perfectionism: A meta-analytic review of the perfectionism-suicide relationship. *Journal of Personality*, 86,(3), 522-542.
- Smith, M. M., Sherry, S. B., Rnic, K., Saklofske, D. H., Enns, M., & Gralnick, T. (2016). Are perfectionism dimensions vulnerability factors for depressive symptoms after controlling for

neuroticism? A meta-analysis of 10 longitudinal studies. *European Journal of Personality*, 30, 201-212.

Smith, M. M., Vidovic, V., Sherry, S. B., Stewart, S. H., & Saklofske, D. H. (2018). Are perfectionism dimensions risk factors for anxiety dimensions? A meta-analysis of 11 longitudinal studies. *Anxiety, Stress, & Coping*, 31, 4-20. <https://doi.org/10.1080/10615806.2017.1384466>

Spear, L.P. (2000). The adolescent brain and age-related behavioural manifestations. *Neuroscience and Biobehavioral Reviews*, 24, 417-463.

SPSS Inc. (2017). IBM SPSS Statistics (Version 24). Armonk, NY: IBM Corp.

Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin*, 128, 825-848. <https://doi.org/10.1037//0033-2909.128.5.825>

Stoeber, J. (2011). The dual nature of perfectionism in sports: relationships with emotion, motivation, and performance. *International Review of Sport and Exercise Psychology*, 4(2), 128-145. <https://doi.org/10.1080/1750984X.2011.604789>

Stoeber, J., & Becker, C. (2008). Perfectionism, achievement motives, and attribution of success and failure in female soccer players. *International Journal of Psychology*, 43(6), 980-987. <https://doi.org/10.1080/00207590701403850>

Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review*, 10, 295-319. https://doi.org/10.1207/s15327957pspr1004_2

Stoeber, J., & Rambow, A. (2007). Perfectionism in adolescent school students: relations with motivation, achievement, and well-being. *Personality and Individual Differences*, 42, 1379-1389.

Suh, H., Sohn, H., Kim, T., & Lee, D. (2019). A review and meta-analysis of perfectionism interventions: Comparing face-to-face with online modalities. *Journal of Counselling Psychology*, 66(4), 473-486. <https://doi.org/10.1037/cou0000355>

- Szabo, M. (2010). The short version of the depression anxiety stress scales (DASS-21): Factor structure in a young adolescent sample. *Journal of Adolescence*, 33(1), 1-8.
<https://doi.org/10.1016/j.adolescence.2009.05.014>
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53–55. <https://doi.org/10.5116/ijme.4dfb.8dfd>
- Taylor, E.P., Couper, R. & Butler, C.M. (2017). Adolescent perfectionism: Structural features of the Frost Multidimensional Perfectionism Scale and correlates with attachment and psychopathology. *Psychology and Psychotherapy: Theory, Research, and Practice*, 90, 686-704. <https://doi.org/10.1111/papt.12133>
- Tsang, S., Royse, C. F., & Terkawi, A. S. (2017). Guidelines for developing, translating, and validating a questionnaire in perioperative and pain medicine. *Saudi Journal of Anaesthesia*, 11(1), 80–89. https://doi.org/10.4103/sja.SJA_203_17
- Tully, P. J., Zajac, I. T., & Venning, A. J. (2009). The structure of anxiety and depression in a normative sample of younger and older Australian adolescents. *Journal of Abnormal Child Psychology*, 37(5), 717-726. <https://doi.org/10.1007/s10802-009-9306-4>
- Viejo C., Gómez-López M., Ortega-Ruiz R. (2018). Adolescents' psychological well-being: a multidimensional measure. *International Journal Environmental Research and Public Health*, 15 (10), 23-25.
- Vuong, M., Brown-Welty, S., & Tracz, S. (2010). The effects of self-efficacy on academic success of first-generation college sophomore students. *Journal of College Student Development*, 51(1), 50–64. <https://doi.org/10.1353/csd.0.0109>
- Waters, L. (2011). A review of school-based positive psychology interventions. *The Australian Educational and Developmental Psychologist*, 28, 75-90. <https://doi.org/10.1375/aedp.28.2.75>
- Wells, M. G., Burlingame, G. M., & Lambert, M. J. (1999). Youth Outcome Questionnaire (Y-OQ). In M. E. Maruish (Ed.), *The Use of Psychological Testing for Treatment Planning and Outcomes Assessment* (pp. 497–534). Lawrence Erlbaum Associates Publishers.

- Wiklund, M., Malmgren-Olsson, E. B., Ohman, A., Bergström, E., & Fjellman-Wiklund, A. (2012). Subjective health complaints in older adolescents are related to perceived stress, anxiety and gender - a cross-sectional school study in Northern Sweden. *BMC Public Health*, *12*(1), 993–993. <https://doi.org/10.1186/1471-2458-12-993>
- Wimberley, T. E., Mintz, L. B., & Suh, H. (2016). Perfectionism and mindfulness: Effectiveness of a bibliotherapy intervention. *Mindfulness*, *7*(2), 433–444. <https://doi.org/10.1007/s12671-015-0460-1>
- World Health Organisation. Adolescent health (2021). <https://www.who.int/health-topics/adolescent-health>

APPENDICES

Appendix A: Participant Information Sheet

PARTICIPANT INFORMATION SHEET

PROJECT TITLE: The Relationship between Perfectionism, Mental Health and Academic Achievement

HUMAN RESEARCH ETHICS COMMITTEE APPROVAL NUMBER: H-2020/65

PRINCIPAL INVESTIGATOR: Professor Deborah Turnbull

STUDENT RESEARCHER: Nicole Tape

STUDENT'S DEGREE: Master of Psychology (Clinical)

Dear Participant,

You are invited to participate in the research project described below.

What is the project about?

This research project aims to investigate the role of perfectionism in adolescents' psychological and academic achievement. The project will examine the relationship between perfectionism and wellbeing, whether there is a 'good' type of perfectionism, and what factors may influence these associations. Results of the survey will then be linked to participant's academic grade data to investigate any relationships. This research may give us with a better understanding of healthy adolescent development.

Who is undertaking the project?

This project is being conducted by Nicole Tape. This research will form the basis for the degree of Master of Psychology (Clinical) at the University of Adelaide under the supervision of Professor Deborah Turnbull, and Dr Victoria Branson.

Why am I being invited to participate?

You are being invited as you are over the age of 13 and currently enrolled in year 8-12.

What am I being invited to do?

You are being invited to complete an online questionnaire during the Charter session. This questionnaire includes measures of perfectionism, wellbeing, and other psychological variables.

How much time will my involvement in the project take?

The questionnaire is expected to take between 5-10 minutes to complete.

Are there any risks associated with participating in this project?

There are no foreseeable risks as the participant, but if you do experience any emotional distress from answering the questions, you can talk to Nadia Lovett, the University Health Practice on (08) 8313 5050 or contact The Kids Helpline on 1800 55 1800 or at www.kidshelp.com.au

What are the potential benefits of the research project?

There are no immediate benefits to you as a participant, however the research may result in researchers gaining a better understanding of healthy adolescent development.

Can I withdraw from the project?

Participation in this project is completely voluntary. If you agree to participate, you can withdraw from the study at any time without penalty. Students not participating in the research will complete an alternative activity during the allotted questionnaire time.

What will happen to my information?

All information given during the questionnaire is anonymous. It will be confidentially and securely stored with only the researchers at the University able to access the information. The information in its raw form will be confidentially stored for 5 years as per section 2.1 of the Australian Code for the Responsible Conduct of Research. Findings from this project will be reported in a Master's thesis and may be published in academic journals or the mainstream media (without any identifying information). The data may be used in future research projects that are an extension of, or closely related to this original project.

Your information will only be used as described in this participant information sheet and it will only be disclosed according to the consent provided, except as required by law.

Who do I contact if I have questions about the project?

If you have any questions about the project, the primary contact is Nicole Tape on nicole.tape@adelaide.edu.au. You may also contact Professor Deborah Turnbull on deborah.turnbull@adelaide.edu.au or Dr. Victoria Branson on victoria.branson@adelaide.edu.au or on (08) 8313 1229. You may also speak with Nadia Lovett at the school or the University Health practice on (08)8313 5050.

What if I have a complaint or any concerns?

The study has been approved by the Human Research Ethics Committee at the University of Adelaide (approval number H-2020/65). This research project will be conducted according to the NHMRC National Statement on Ethical Conduct in Human Research 2007 (Updated 2018). If you have questions or problems associated with the practical aspects of your participation in the project, or wish to raise a concern or complaint about the project, then you should consult the Principal Investigator. If you wish to speak with an independent person regarding concerns or a complaint, the University's policy on research involving human participants, or your rights as a participant, please contact the Human Research Ethics Committee's Secretariat on:

Phone: +61 8 8313 6028

Email: hrec@adelaide.edu.au

Post: Level 4, Rundle Mall Plaza, 50 Rundle Mall, ADELAIDE SA 5000

Any complaint or concern will be treated in confidence and fully investigated. You will be informed of the outcome.

If I want to participate, what do I do?

If you wish to participate, consent firstly needs to be obtained. Parents/guardians will be contacted for their consent and school teachers will co-ordinate a time for the questionnaire to be undertaken.

Yours sincerely,

Nicole Tape, Master of Psychology (Clinical) candidate
Professor Deborah Turnbull, and Dr. Victoria Branson

Appendix B: Opt-Out Form**OPT-OUT FORM**

Parents/Guardians,

Please fill out the below form if you **DO NOT AGREE** to you child taking part in the ‘The Relationship between Perfectionism, Mental Health and Academic Achievement’ research. You have 10 business days from the date you receive this form to opt your child out of the research.

I have read the attached letter about the research project to be conducted by Master of Psychology (Clinical) student Nicole Tape from the University of Adelaide.

I _____ [your full name] **DO NOT** consent to _____ [children’s full name] participating in the research project entitled ‘The Relationship between Perfectionism, Mental Health and Academic Achievement’.

Signed: _____

Date: _____

Relationship to Child: _____

Appendix C: Online Questionnaire to Participants

Questionnaire



This questionnaire may help University Senior College understand the things they can focus on to help you feel good and achieve your best academically. It will only take approximately 5-10 minutes to complete. Please be honest; it is private and there are no wrong answers. And thanks for doing it.

We need to tell you:

- We treat your information with absolute confidentiality - individuals will not be identified, data will only be examined on an aggregate basis. Data may be linked to other outcome data held by the school without re-identification.
- You can withdraw at any time, but your participation and honest answers will help your school to better teach you. If you decide not to do it, your teacher will give you another activity to complete.

If you experience any emotional distress from answering the questions, you can speak to the University Health Practice on (08) 8313 5050, Nadia Lovett or you can contact The Kids Helpline on 1800 55 1800 or at www.kidshelp.com.au

Consent page

By checking the button below, I agree that;

- **I have read the above information**
- **I voluntarily agree to participate**
- **I understand I am free to withdraw at any time without penalty**
- **I am at least 13 years of age today**

 **AGREE**

Next

Part 1 of 6:

This is a just a bit of background information about you.

STUDENT ID

.....

Age today

.....

Which gender do you identify with

Male

Female

Gender
diverse*

Do you speak a language other than English at home?

Yes

No

Which country were you born in?

.....

*Here gender diverse includes (but is not limited to) transsexual, intersex, gender fluid, androgynous, non-binary, and 'unsure'.

Note. As per thesis submission guidelines, all psychological tests have been removed

Appendix D: Adverse Events Procedure

Adverse Events Procedure

Risk to participants:

This research is considered low-risk, meaning that the only foreseeable risk to participants is discomfort (please refer to Chapter 2.1 of the National Statement on Ethical Conduct in Human Research).

The only foreseeable risk to students of participating in this questionnaire is that they will be answering questions they may consider confronting and this could lead to emotional distress.

What emotional distress looks like⁴:

Some signs of emotional distress are:

- Perspiring excessively
- Having breathing difficulties
- Being tearful
- Appearing vague and/or confused
- Irritability
- Displaying agitation
- Displaying speech patterns that seem pressured, racing, or confused
- Nervous habits (e.g. nail biting)

In addition, a student displaying none of these signs may raise their hand and indicate to you that they are experiencing emotional distress.

Protocol to be followed in the event a student experiences emotional distress:

Students' involvement in this questionnaire is entirely voluntary and participants are free to withdraw from the questionnaire at any time. If you observe that a student is experiencing emotional distress, please remind them they are free to withdraw from the questionnaire at any time.

If a student does withdraw from the questionnaire they may wish to complete the alternative activity for the remaining time. However, if the participant is emotionally distressed to the extent that this is undesirable, please direct them towards the school's counsellors/psychologist.

Finally, students have been provided with information about how to access help through the school and other appropriate public organisations (Kids Helpline). This information is included in their participation information sheets as well as on the first screen of the questionnaire. More copies of the participation information sheet are available during questionnaire administration. Please remind students of this information.

Please report any adverse event to the researcher, Nicole Tape, or to Anna Bassani as soon as possible to the appropriate bodies can be informed.

⁴ <http://services.unimelb.edu.au/counsel/community/staff/sar/distress>

Appendix E: Journal Instructions to Authors/Contributors:

Journal Title: Journal of Psychoeducational Assessment

Journal Description: The Journal of Psychoeducational Assessment (JPA) publishes both regular and brief articles, as well as test and book reviews, on topics relevant to psychological and educational assessment. The editors and editorial board of JPA will review high quality manuscripts that would be of interest to research and practicing psychologists, educational diagnosticians, special educators, university trainers, and others interested in psychoeducational assessment. Although expository and review papers will be considered, the primary purpose of the journal is to present methodologically sound, empirical studies that offer evidence-based implications and applications for psychoeducational measurement and assessment practices. Manuscripts that describe new and innovative assessment strategies, validity-reliability studies, relationships between different assessment methods, diagnostic procedures, links between assessment and important educational and psychological criteria, and critical analyses of assessment techniques, strategies, and instrumentation are particularly welcome. However, articles that only present psychometric data from the adaptation or translation of lesser known/used measures, and are further limited to specific groups, must justify the contribution to the research and practice literature. Such papers should include additional validity evidence and are most often submitted as brief articles. We also invite proposals for ‘special issues’ that fit with the aims and scope of JPA. However, papers only reporting limited or local results for translated or adapted tests will not be considered for review or publication. Correspondence regarding JPA may be directed to the editor, Dr. Donald H. Saklofske at dsaklofs@uwo.ca.

Instructions to Authors/Contributors: Manuscripts published in JPA fall into 3 categories: Regular articles, Brief articles, and Test/Book Reviews. Preparation of manuscripts should follow the most recent edition of the Publication Manual of the American Psychological Association. Manuscripts that do not comply with these guidelines will be returned to the author for editing prior

to beginning the review process. Because all manuscripts are reviewed anonymously, please do not include any identifying information in the paper, including headers and footers. A covering letter should include a statement that the article, review, or information contained in the submission has not been published elsewhere and is not currently being considered for publication. Please also include a statement that all ethical guidelines were followed as required for conducting human research. Authors may wish to provide the names and email addresses of potential reviewers for their paper. Manuscripts must be submitted electronically at <http://mc.manuscriptcentral.com/jopa> where authors will be required to set up an online account in the SAGETRACK system powered by ScholarOne. Regular manuscripts should be limited to 6000 words including text, references, tables, and figures. 4 to 5 keywords must also be provided. Under some circumstances, expository papers including comprehensive critical reviews and meta-analyses may be allowed up to 9,000 words in total. To comply with journal submission requirements, it is acknowledged that I will need to reduce my word count to 6,000 words. I will do this by condensing my introduction and discussion section. The 4-5 keywords I would provide include: perfectionism, adolescents, wellbeing, and mental health.