

The Relationship Between Career Indecision and Depression, Considering the Effects of Self-Efficacy, Sense of Control, and Rumination When Students are Transitioning From High School Into Work or Tertiary Studies.

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Abstract

Transitioning from high school is considered a stressful period for adolescents as they contemplate their future. There is a dearth of studies that have investigated the interplay and relationship between mental health constructs and career indecision. Existing research has predominantly focussed on tertiary students, neglecting crucial challenges that high school students face approaching the transition from school. A scoping review was conducted first to inform the basis for a conceptual model, which provided a foundation for subsequent empirical enquiry. This thesis used a mixed methods design to investigate linkages between career indecision and depression, also considering the effects of rumination, sense of control and self-efficacy in high school students.

The scoping review findings indicated there were no studies at this time that investigated career decision making, self-efficacy, sense of control, and mental health in the defined population of students, transitioning from school to work or tertiary studies. In fact, the scoping review only found nine studies that met the set inclusion criteria and these studies indicated that there are significant relationships between at least some combination of these variables in this population group.

Data were collected from a representative sample of 315 high school students across New Zealand, utilising five valid and reliable scales, measuring career indecision, rumination, sense of control, self-efficacy and depression. The final sample analysed comprised 275 participants' data. The results of the quantitative studies showed that sense of control over perceived external constraints and general self-efficacy acted as significant mediators of the relationship between career indecision and depressive symptomatology. The surveyed group exhibited significantly higher levels of career indecision and depression compared to previously reported normative results. Ruminative brooding significantly moderated the effects between career indecision and depressive symptoms. The adjusted postulated model indicating the linkages between these constructs was then tested and found to be a good fit to the data.

In the final phase of this thesis research, 19 students from across New Zealand participated in three focus group interactions. The researcher explored aspects of career decision-making, feelings, sense of barriers and efficacy amongst the high school students. Data were analysed using Reflexive Thematic Analysis, emerging themes were further explored and illustrated through vignettes. The vignettes illustrated the interrelatedness and complexity of this transition point. The themes from the qualitative study added further depth to the quantitative insights when mixed and emphasised the importance of addressing perceived barriers and efficacy in schools.

The overall findings of this thesis gave rise to a plausible theoretical model indicating possible relationships between the constructs investigated. An integrated intervention approach is suggested to more holistically address the intersection between vocational and personal counselling in schools and tertiary institutions. The goal would be to inform strategies that better equip students as they navigate career decision making and personal mental health challenges in high school settings. The research findings provide direction for policy makers, education agencies, school principals, career guidance counsellors and school support agencies for providing new programmes of support and skills for high school students through this transition.

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor used artificial intelligence tools or generative artificial intelligence tools (unless it is clearly stated, and referenced, along with the purpose of use), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.




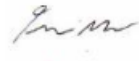
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Chapter 5

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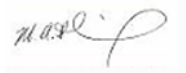

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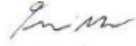
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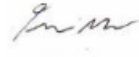
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Love you all, Fay.

Ethics Approval

The proposal for this research was reviewed by The Auckland University of Technology Ethics Committee and was approved on 11th September 2020. The approval number is AUTEK 20/211. (See Appendix A for approval letters).

Intellectual Property Rights

Copyright for the CDS (Career Decision Scale) is held by the Psychological Assessment Resources, Inc., a Florida Corporation. The CDS used in this thesis was licensed for use for collection of data and was signed by the PhD student and Dr Christian U. Krägeloh – chris.krageloh@aut.ac.nz of Auckland University of Technology. The signed licence agreement is contained in Appendix B.

The other scales used in this research are available for use at no cost to anyone using them in research. The Center for Epidemiological Studies Depression Scale are from Radloff, L. S. (1977). The CES-D Scale: A Self-Report Depression Scale for Research in the General Population. *Applied Psychological Measurement*, 1(3), 385-401.

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The Rumination Response Scale is free to access and intellectual property rights are acknowledged to Treynor, W., Gonzalez, R. & Nolen-Hoeksema, S. Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research* 27, 247–259 (2003).

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The Sense of Control scale and New General Self-Efficacy Scale are provided from Stanford SPARQ, Department of Psychology, Bldg. 420, Stanford, CA 94305.

Stanford_SPARQ@stanford.edu. Both are linked in Appendix D and E respectively.

Abbreviations

AGFI	Adjusted Goodness of Fit Index
AMOS	Analysis of Moment Structures
CDS	Career Decision Scale
CES-D	Center for Epidemiological Studies Depression Scale
CFI	Comparative Fit Index
GFI	Goodness of Fit Index
GSES	New General Self-Efficacy Scale
PICO	Population; Intervention; Comparison; Outcomes
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-analysis
PRISMA-ScR	Preferred Reporting Items for Systematic Reviews and Meta-analysis - Guideline for Scoping Review
PROCESS	Modification to SPSS that computes regression analyses for combinations of mediators, moderators, and covariates
RMSEA	Root Mean Square Error of Approximation
RRS	Ruminative Response Scale
RTA	Reflexive Thematic Analysis
SC-Ext	Sense of Control External Constraints
SC-Int	Sense of Control Personal Mastery
SEM	Structural Equation Modelling
SOC	Sense of Control Scale
SPIDER	Sample; Phenomenon of Interest; Design; Evaluation; Research Type
SPSS	Statistical Package for Social Sciences
SRMR	Standardised Root Mean Square Residual
TEC	Tertiary Education Commission (New Zealand)
YOUTH2000	Research conducted over several secondary school cohorts in New Zealand

Chapter 1: Introduction and Rationale

1.1. Rationale for this research

Adolescents at school are expected to make decisions in relation to their career direction early in their high school years, and as they progress, career decision-making is a core part of transitioning from junior high years into senior years and then leaving school. Students are under pressure to make key subject decisions as the last two years of schooling approach and have to consider any key requirements that are needed for tertiary study and achieving possible university entrance requirements (Blustein et al., 2019; Krumboltz & Worthington, 1999). The relationship between career indecision and mental health has been explored to a degree, more often in tertiary students. The focus on mental health in secondary school students has increased, with researchers reporting on the significant rise of depression and anxiety in school students (Fink et al., 2015; Fleming et al., 2022; McGraw et al., 2008). Mental health constructs such as depression, negative thinking, anxiety, adverse stress and hopelessness are shown to have a strong correlation with career indecision (Bullock-Yowell et al., 2014; Dieringer et al., 2017; Lowe & Wuthrich, 2021; Strauser et al., 2012; Walker & Peterson, 2012). However, there is less research available that investigates these mental health constructs and their relationship with career indecision in high school students.

The present research investigated depression and depressive symptomatology, levels of rumination and career indecision in high school students, particularly those in their last 2 years of school. There is increased concern around mental health distress observed in secondary school aged youth, whereby rates of depression, depressive symptomatology and distress have consistently been shown to increase during adolescence (Balázs et al., 2013; Fink et al., 2015; Gadassi et al., 2015; Hickey et al., 2017; Lowe & Wuthrich, 2021; Perry et al., 2015; Werner-Seidler et al., 2017). Due to the harm that this can cause, both in adolescence and in later adulthood, there is an increased focus on prevention and therefore a need for a deeper understanding of identifying significant risk factors that may trigger the onset of depressive symptoms. Further, early intervention can effect a reduction in the rates of psychological distress and subsequent development of depressive symptomatology (Carrellas et al., 2017; Fink et al.,

2015; Masselink et al., 2018). The present research investigated these constructs in high school students as they approach leaving school and how this relates to general self-efficacy and sense of control.

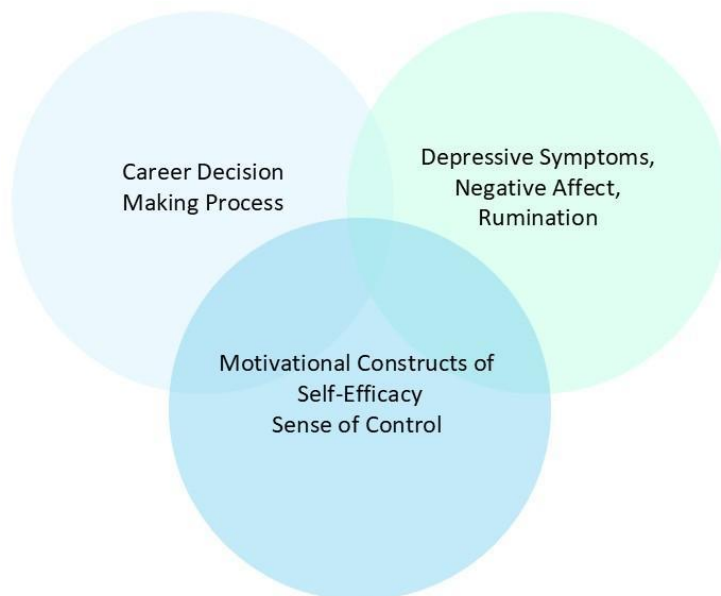
In the latter years of high school, students assess their context and begin to formulate ideas around their future, possible career options and their perceived likely access to these pathways. It has been argued that negative thinking, along with perceived barriers and perceived locus and sense of control, may have a significant impact on their career decision-making process (Kim & Lee, 2018; Stărică, 2012; Ulas & Yildirim, 2019). The present research aimed to specifically investigate the impact of sense of control over barriers and self in relation to mental health and career decision making in high school students. The process of career decision making, including the impact of environmental uncertainty, unpredictability, and lack of access to relevant information, as well as environmental constructs, may influence school leavers significantly.

It is further possible that general self-efficacy plays a significant role in the process of deciding what to do after school and may also affect mental health. It is equally possible that this overall decision-making process and state of career indecision may be strongly associated with negative thinking or rumination, a reduced sense of control and reduced self-efficacy, as well as negative affect or depressive symptomatology (Anghel & Gati, 2021; Bullock-Yowell et al., 2014; Duffy, 2010; Gadassi et al., 2013; Penn & Lent, 2019). The last 2 years of school are a critical time for young adolescents who may face continuous pressure to decide or determine their next steps. The lay terminologies and contexts can be presented as a transition from the questioning around “what you would like to be when you grow up?” to “what will you do when you leave school?”. Career decision making encompasses all aspects of deciding which pathways to pursue after school, not just tertiary study, but also consideration of future prospects, work options or job pursuits (Bańka & Hauziński, 2015; Bullock-Yowell et al., 2014; Dik et al., 2008). The possible increasing stress of facing the future, and possible associated state of indecision may also be highly correlated with rising rumination and the onset or presentation of symptoms of

depression. Investigating this decision-making process, therefore, should consider all problems and challenges associated with deciding what to become or do after completing school.

The present study investigated these specific constructs in high school students approaching the transition from school to tertiary studies or work, along with also investigating the interplay between sense of control and self-efficacy in relation to career indecision and mental health. Figure 1.1 illustrates the constructs under investigation in this research, particularly as part of the literature review to further inform the development of the proposed model and phases of the research.

Figure 1.1 *Proposed Key Constructs*



This thesis starts with a preliminary literature review of the key constructs to establish the context, introduce a theoretical background, and identify gaps, before progressing to practical implementation of the research in the methodology chapter. Chapter 2 introduces the literature and focuses on the key aspects of career indecision and mental health, along with a review of the specific variables investigated in this research. The researcher outlines the research regarding career decision-making processes, career indecision, and how this relates to self-efficacy and sense of control. Chapter 3 focuses on the literature as it pertains to associated research for adolescents and mental health, specifically symptoms of depression and rumination, alongside

the motivational constructs of self-efficacy and sense of control. Chapter 2 and 3 outline how these constructs have been investigated to date and how they may relate to the progression of career decision making in high school students as they approach the transition from school to tertiary studies or work. With these constructs in mind and how they may interrelate, Chapter 4 describes the epistemological position, design, aims and methodology, and an outline of the phases of the research conducted.

To further the understanding of the hypothesised research constructs in the purported model, Chapter 5 presents a scoping review (Amaral et al., 2023) which describes the range of the literature, examined evidence regarding the relationships between constructs, and identified gaps in the field. The review specifically examined research conducted across high school students and transitioning students as they enter tertiary studies, and investigated research conducted into mental health (depression, negative emotion, rumination, and negative thinking) and career indecision, as well as research into self-efficacy and sense of control. Chapter 6 focusses on assessing the mediation effects of sense of control and self-efficacy between career indecision and depression in New Zealand high school students. This study also describes the levels of career indecision and depression in this sample and the interrelatedness of these variables.

Chapter 7 reports on the structural equation analysis results from data collected with the same sample of high school students, with the inclusion of the data collected on rumination and the effect of this on the relationship between career indecision, self-efficacy, sense of control and depression. This phase of the study also examines a theoretical model and presents a final refined model based on the results. Chapter 8 presents a qualitative study investigating high school students' career indecision and perceptions of transition from school. Using reflexive thematic analysis, key themes are described and illustrated using vignettes. The aim of the qualitative analysis is to investigate the research questions around career decision making, the experience of approaching the end of school, associated feelings and the student's sense of control in this process, as well as to enrich the quantitative findings.

Finally, Chapter 9 summarises the overall findings, presents a final proposed model for further testing, possible insights, and conclusions, indicating future directions for further research. This final chapter discusses how the present research provides vital insights into the interrelatedness and possible interaction between mental health and career decision making in the transition phase of leaving school. This research builds on existing research in two key domains of psychology, vocational and counselling psychology. This is particularly poignant as the current research focuses on key integrated constructs related to the high school student contexts, as opposed to the tertiary student contexts where the bulk of existing research concentrates. Finally, Chapter 9 includes a visual representation of the constructs from the integrated findings to further inform suggestions for future research, along with possible intervention directions, research, and practices.

Chapter 2: Literature Review – Career Indecision, Self-Efficacy, and Sense of Control

The interrelationships between mental health, career indecision, sense of control, rumination, and self-efficacy, among high school students, who are transitioning from school into tertiary education or the workforce, has thus far remained a relatively unexplored research area. During the process of navigating career choice, high school students may struggle with confusion and decision-making challenges, which may lead to distress and anxiety (Creed et al., 2003; Kulcsár et al., 2020; Walker & Peterson, 2012). These challenges are possibly exacerbated by mounting adverse stress and pressure, which may in turn manifest as negative affect, ruminative brooding, and symptoms of depression. Understanding this interaction between mental health aspects of rumination and depressive symptomatology, alongside sense of control and self-efficacy, on the career decision-making process may provide valuable insight into how better to support high school students in this pivotal stage of their lives. Furthermore, the findings from this research may contribute to a more holistic approach to implementing career decision making support in schools, which considers both career choice and mental health when delivering career counselling interventions.

2.1. Career Decision-making process and Well-Being

The process of making career choices has grown increasingly complex given the significant fast-evolving work landscape and technological advancements affecting career pathways, with mounting pressure on young adolescents to make definitive choices and decisions at an early age (Blustein et al., 2019). Young adolescents may be required to narrow down their subjects in the early high school years and may often face confusion and reduced efficacy levels in certain subject areas (Bandura et al., 2001; Stringer et al., 2012). By this juncture, numerous influences may have adversely affected a young person's self-efficacy, or perceived capabilities, and their perceptions of their sense of control over external and internal factors, making the decision-making process even more challenging (Duffy, 2010; Pastorelli et al., 2001). The latter years of secondary education and early adulthood may entail further decision making, as students grapple with defining their post-secondary school paths, making choices in relation to tertiary

education or employment. While it is possible to change direction at any point, it is not always straightforward and may be economically untenable. Consequently, the timing of decisions and the weight placed on their outcomes, along with the ultimate direction chosen, appears to narrow considerably as the students approach the end of school.

It is increasingly more evident that rates of depression, depressive symptomatology, and distress tend to increase during adolescence (Balázs et al., 2013; Fink et al., 2015; Hickey et al., 2017; Werner-Seidler et al., 2017). Early intervention potentially ameliorates the rates of psychological distress and the subsequent development of depressive symptoms (Carrellas et al., 2017; Fink et al., 2015; Masselink et al., 2018). It is also possible that depression is both a precursor to and consequence of the difficulties associated with leaving school and choosing pathways. The entire process of determining one's post-secondary school path may lead to considerable confusion, distress and consternation, probably affecting wellbeing (Arbona et al., 2021; Vignoli, 2015).

During the later years of secondary school young adolescents evaluate their context and begin formulating ideas around their future potential career options and avenues available to them. Negative thinking, along with perceived barriers and perceived locus of control are likely to exert a significant influence on career decision-making processes (Stărică, 2012; Ulas and Yildirim, 2019). Decision making affects all facets of choosing one's path after secondary school, including not only tertiary education but also employment options and career pursuits (Bańka & Hauziński, 2015; Bullock-Yowell et al., 2014; Dik et al., 2008). Ultimately, this transition point is integrally linked to addressing the various challenges, mental health difficulties and dilemmas associated with determining one's post-secondary school trajectory.

This transition from school to work or tertiary studies represents a critical juncture for young people as they make decisions in relation to their future. The researcher hypothesizes that the state of indecision may be closely correlated with increasing distress, negative thoughts, reduced efficacy, lowered sense of control and possibly also the presence of depressive symptomatology. To date, there has been limited research about depressive symptomatology,

emotional states, and career related concerns, particularly in the context of leaving high school and the transition from the relative security of the school environment into the next phase of early adulthood. Whether this transition involves tertiary studies, trade apprenticeships, travel, or work, it is marked by a series of decisions made by young people. Research analyses and findings from the Youth19 surveys in New Zealand, underscores the concerns of young people in schools across the New Zealand, including apprehension around the future, lack of guidance, increasing symptoms of depression, uncertainty around careers and job options, and barriers to accessing education and future employment (Fleming et al., 2020, 2022).

The impact of environmental uncertainty, unpredictability, perceived barriers, and limited access to information, may further complicate the process (Blustein et al., 2019). These factors may lead to the development of negative thoughts, ruminative brooding, lowered general self-efficacy and depressive symptomatology (Di Schiena et al., 2013; Giota & Gustafsson, 2017; Jo et al., 2016; Kim et al., 2015; Nolen-Hoeksema et al., 2008; Werner-Seidler et al., 2017). There is scarce research focusing on depressive symptomatology and career-related concerns, particularly in high school students. Researchers and scholars have advocated for further research to shed light on the concurrent influence of depressive symptomatology, negative affect, and career indecision (Dieringer et al., 2017; Rottinghaus et al., 2009; Thompson et al., 2019). While there is research and statistical reporting on depression and depressive symptomatology among adolescents in New Zealand, as well as research on career guidance and transitions, there is no identified research investigating the relationships that may exist between these constructs and within this transition phase. The gap in research is not unique to New Zealand as there is a paucity of global research in this area (Dieringer et al., 2017; Thompson et al., 2019). In fact, it is proposed that less than 20% of all vocational research is dedicated to high school students, with even fewer studies focusing on middle school students (Blustein et al., 2019). There is also often a dichotomy between career counselling and clinical or personal counselling, and this distinction has been reported to extend into research, as well as counselling interventions (Blustein et al., 2019; Dieringer et al., 2017; Rottinghaus et al., 2009).

In addition to experiencing adverse stress and pressure, adolescents grappling with career decisions may be susceptible to feelings of hopelessness, rumination and ultimately anxiety and depression (Dieringer et al., 2017; Ulas-Kilic et al., 2020; Ulas & Yildirim, 2019). By 2019, only a few research studies have focused on depression, rumination and negative thinking, within the context of self-efficacy and the process of making decision-making, particularly with respect to high school students (Dieringer et al., 2017; Lent et al., 2019; Smith & Betz, 2002). Understanding the intricate and possibly interwoven relationships between depressed mood, depression, rumination, general self-efficacy, perceived sense of control and career decision-making processing, is critical to informing better practice around providing effective guidance to our students in high school as they consider their advance to tertiary studies. Empirical research has only recently started to explore the relationship between depression, career decision making, and what has been described as career self-efficacy (Rottinghaus et al., 2009). The following sections outline the constructs in further detail, starting with career exploration, decision making difficulties and self-efficacy. This literature review chapters aim to provide a more detailed platform for the specific investigative design aspects of the present research to inform subsequent chapters.

2.2. Career Exploration

Career exploration is the process of working through these options and defining pathways to follow after school (Chiesa et al., 2016; Li & Fan, 2017). During the path of adolescent development, there may have been multiple influences that have negatively impacted on a young person's career and general self-efficacy, sense of control, and possible perceptions of personal and academic capabilities, making this decision-making process more challenging (Bandura et al., 2001; Stărică, 2012; Vignoli, 2015). Although one can change direction at any time, this may not be easily instigated due to problems accessing suitable advice, information and other resources. This makes the timing of the decisions, the emphasis on the outcomes and ultimately the direction chosen, seemingly narrow. Overall, this process of defining what to do after school may give rise to great confusion, adverse stress, and consternation. Krumboltz and Worthington

(1999) suggested that a useful approach could be to assess what type of work adolescents enjoy, what learning areas they potentially may need to enhance and areas of interest. The authors emphasised that young people making a career choice should be given the opportunity to think of every possible avenue of interest, rather than a confined list of traditional careers.

Vocational theories offer a basis on which counsellors and researchers are able to investigate and understand the process and concerns that individuals face when making career related choices and decisions (Blustein et al., 2019). Vocational theories such as Holland's typology theory, describes the information, knowledge and tools needed to connect individuals with careers, particularly in so far as those matching interests and values (Daniels et al. 2011; Wright et al., 2000). Super's theory of life-span and life-space focuses on the developmental tasks and roles individuals face through their lives (McInnes & Chen, 2011). Lent, Brown and Hackett's social cognitive career theory (Ireland & Lent, 2018) suggests that both environmental and individual factors intertwine to shape cognitions, particularly those related to self-efficacy and expectations or perceived outcomes (Blustein et al., 2019; Ireland & Lent, 2018). These constructs are important in respect of shaping career choices and related interests (Blustein et al., 2019). Within the developmental and constructionist perspectives, there are other perspectives on career development, such as theories that focus on identity development. Savickas's life design approach embraces a constructivist approach whereby narratives around the individual's life and experiences inform and impact on how they view their career path (Blustein et al., 2019; Di Fabio, 2016; Guan et al., 2016; Savickas, 2019). The journey of identity formation focusses on both those experiences and ideas that expand and constrict an individual's career development process and design (Guan et al., 2016; Savickas, 1995).

Blustein et al. (2019) suggested that a key shortcoming in the theory to date, is that there is a prevalent assumption that all young people can shape their careers and exercise their free will, uninhibited, in so far as choices are concerned. Blustein et al. (2019) further suggested that this assumption is indicative of a middle-class bias throughout the field and theories developed to date. Research in this arena has been predominantly focussed on middle-class tertiary students,

with limited research indicating the need for further investigation into lower socio-economic groups (Fergusson et al., 2015). This is in addition to the fact that work is fast evolving and changing, with new careers and significant change forces impacting on old or traditional careers (Bandura, 1995; Blustein et al., 2019; Hui et al., 2018).

Within the developmental and constructionist perspectives, there are other perspectives on career development stages and decision making. Savickas's life design approach (Santilli et al., 2017; Savickas & Savickas, 2018) reflects a constructivist approach whereby narratives around the individual's life and experiences inform and impact on how they view their career path (Blustein et al., 2019; Di Fabio, 2016; Guan et al., 2016). The journey of identity formation focusses on both those experiences and ideas that expand and constrict an individual's career development process and design (Guan et al., 2016; Savickas, 1995).

The process of making a career decision is made more complex through major shifts in the work environment that entails for example, increasing automation, the onset of artificial intelligence and globalization (Blustein et al., 2019). It is likely that many young people may make career choices on the basis of limited information. It is likely that the landscape of educational choices, work opportunities and defining clear pathways to careers has become more complex ultimately giving rise to increasing inequality and confusion (Hayden & Osborn, 2020; Maree & di Fabio, 2015). Work has also become increasingly unstable, where the vision of attaining a long-standing and steady career is largely uncertain (Blustein et al., 2019; Gadassi et al., 2013).

The impact of COVID-19 is yet another key global effect to be understood and is likely to increase stressors in the process of defining careers and dealing with change. Early research indicates that there is a definite rise in anxiety and concern around the future, lack of jobs and uncertainty created through the global pandemic (Aristovnik et al., 2020). This aforementioned study spanned over 30 000 students across 62 countries, however focused on tertiary students as opposed to school students. In addition to the current context and climate of uncertainty, there are also many jobs that may not yet be created or understood, particularly as technology advances,

let alone be part of career choices in schools. The pace of change, the uncertainty, the sense of loss of control are all aspects to consider in future research into career decision processing.

When considering the process of exploring future careers and directions to pursue after school, there appears to be limited research that includes mental health factors alongside career choice globally and appears limited in New Zealand specifically. In the context of a multicultural society with a high level of immigrants and an emerging economic gap, it is possible that young people, may experience greater levels of negative cognitions, depressive symptoms, lowered confidence, or self-efficacy and perceive less access to varied options when considering career pathways (Fleming et al., 2022). Further, all these aspects may be significantly affecting mental health amongst high school students and youth leading to higher levels of difficulty associated with career choice and decisions.

2.3. Career Decision Making Difficulties and Career Indecision

Research suggests that a key challenge in choosing a career, is the conflict experienced both internally and externally in working through the thought processes or cognitions around career direction, resulting in difficulties in making the decisions that lead to a particular career path (Bullock-Yowell et al., 2015; Fatima & Khatoon, 2017; Kleiman et al., 2004). This entails making the right subject choices, managing perceived capabilities and traversing barriers associated with a particular career direction (e.g. medicine). School students are expected to make these key career-related choices earlier on in school and into increasingly narrow areas, particularly when one considers defined subject choices in schooling, required for university entrance (Blustein et al., 2019; Jung & Young, 2017; Krumboltz & Worthington, 1999).

Gati et al., (1996) suggest that there are three key aspects associated with career decision-making difficulties, these include a lack of readiness, reduced or lack of information during the decision-making process, and inconsistent information given in or through the career decision-making process. Providing guidance to assist with problem solving that is individually tailored and relevant may improve decision making. Career decision-making difficulties have also been

found to be related to lowered career self-efficacy and negative thinking (Kleiman et al., 2004; Sampson et al., 1998). Further, the challenges associated with career decision making may induce a state of inertia or avoidance in respect of a career direction or decision, the avoidance behaviours are further associated increased confusion, pressure and reduced self-efficacy (Bullock-Yowell et al., 2014; Lauderdale et al., 2019). Therefore, a vital step in career counselling may be identifying students' specific areas of difficulty, associated pressure, depressed mood and focussing on assisting the young person to resolve the decision-making difficulties. Career decision-making difficulty is closely related to low career self-efficacy as well as negative thinking (Kleiman et al., 2004; Sampson et al., 1998).

Decision making implies the process of working through options, giving thought to these options, and then having to select a final direction or aspect. Osipow (1999) suggests that making choices and decisions as related to career paths and direction are particularly stressful and can lead to anxiety and stress, in turn making decisions more difficult. This pressure is exacerbated by expectations that are interwoven into the fibre of school progression, academic expectations and the future as defined by the time when a young person leaves school (Newcomb-Anjo et al., 2017; Pastorelli et al., 2001).

The pressure associated with career decision making may also give rise to confusion that is associated with the decision-making process, this may be a result of negative thoughts, perceived locus of control, self-efficacy, possible obstacles and knowledge around specific careers (Bertoch et al., 2014; Walker & Peterson, 2012). Career decision making requires the process of resolving internal and external conflict whilst determining a career direction (Bullock-Yowell et al., 2014). Career indecision is a critical area within the field of vocational psychology and has evolved from a more simplistic construct of choice implying absolute direction, to being defined as a process that captures the various milestones and work related transitions that a person makes as they move from adolescence at high school, into young adults and then into adulthood (Blustein et al., 2019; Galles et al., 2019; Kleiman et al., 2004). Establishing career direction and one's vocational identity is probably one of the most important processes a young person is faced

with (Blustein et al., 2019; Kleiman et al., 2004). This time of emerging adulthood is one of the critical transition periods in a young person's life and is characterised by a range of impacting forces (Krumboltz & Worthington, 1999). Much research has been conducted around the process and importance of searching for a career direction, to increase the understanding of this process and outcomes (Blustein et al., 2019; Bullock-Yowell et al., 2014; Creed et al., 2004; Işık, 2012; Kırdök & Harman, 2018; Womack et al., 2018).

Further, prior research suggests that some indecision may be a normal part of moving through the various stages of high-school and transitioning onwards to other potentialities, however persistent or significant indecision has been shown to impact negatively on longer term career development and overall well-being (Creed et al., 2005). Blustein et al (2019) suggest that there is a need for more research and further theoretical frameworks to be developed, which consider emerging areas of significant impact in today's world, particularly when experiencing mental health challenges and social injustice, working with paradigm shifts and being involved in precarious work, as well as oppression associated with marginalisation. Albert Bandura, a well-respected researcher, and theorist on the subject of self-efficacy, suggests that the pressure is ever increasing on individuals and their capability in terms of controlling their future pathways ahead. Bandura (1995) also reported on the impact of accelerated change as being significant and self-efficacy is central to managing all of life's demands.

2.4. Self-Efficacy and Career Indecision

Self-efficacy may be defined as a person's evaluation of his or her ability to perform a specific task or behaviour (Bullock-Yowell et al., 2014). In other words, self-efficacy expectations are concerned not with an individual's actual skills but with an individual's perceptions of their capabilities (Betz & Hackett, 2006; Garcia et al., 2015). General self-efficacy has emerged as a rising area of focus in research and pertains to one's set of expectations around capability in terms of new situations. It is the perception of the ability to perform and achieve (Scherbaum et al., 2006). Self-efficacy as it pertains to career, or career self-efficacy is specific to the task of making vocational related decisions being made in high school and higher education.

Career self-efficacy is the cognitive appraisal of an individual of their perceived capabilities or judgment of these performance areas in relation to career pathways or requirements (Betz & Hackett, 2006). The development of positive career self-efficacy as a key construct of career decision making may be critical in the process to making decisions in respect of a possible career direction (Betz & Hackett, 2006). That is, career self-efficacy is a domain, specifically the set of beliefs or cognitions that a student or young person has in relation to their career or vocational expectations or career decision-making process (Betz & Hackett, 2006). Career self-efficacy is a domain that emerged from Bandura's original self-efficacy construct, as is defined as the self-assessment or judgement of competence in performing particular tasks (Rottinghaus et al., 2009). The development of career self-efficacy takes place through the formation of a set of beliefs by the self, linked to specific facets, one of which would be career choice or decision making (Betz et al., 2005).

Previous findings have reported that students in high school who are told that they may not be as proficient in academic tasks or given positive feedback as others, may struggle with negative self-esteem, lowered self-efficacy and depression (McGraw et al., 2008; Ulas & Yildirim, 2019). A further area of interest in the counselling psychology domain has been the investigation of the applications of social-cognitive theory to career and personal adjustment. Formulated by Bandura, social-cognitive theory emphasizes the importance of strong personal self-efficacy expectations for competence in interpersonal contexts (Bandura, 1995; Betz et al., 2005). Bandura linked self-efficacy to academic proficiency early on, with strong links established to depression. Bandura reported that low social and academic self-efficacy contributed to later depression (Smith & Betz, 2002). Lowered overall self-efficacy has been linked to persistent career indecision and confusion amongst high-school and college going students (Creed et al., 2005).

Self-efficacy as it pertains to career pathways is fundamental when considering the importance that is placed on making vocational related decisions throughout high school years and into higher education. Self-efficacy has been found to be significant in the process of making

career decisions, as it affects young people's ability and self confidence in respect of identifying and pursuing career paths (Betz & Hackett, 2006). It is likely that many young people make career choices on the basis of limited information, confined perceptions as to their abilities, as well as perceived barriers in pursuing those career choices (Blustein et al., 2019; Chircu, 2014; Krumboltz & Worthington, 1999; Praskova et al., 2015). Erikson theoretically proposed, some 60 years ago, that having a sense of vocational identity and the journey to establish this, was the most difficult process in transitioning from adolescence to young adulthood (Porfeli et al., 2011). There is likely great complexity in respect of the constructs affecting a young person's view of their options, particularly as their life complexity increases (Blustein et al., 2019). The importance of contextual and external factors in the environment have been stated as key aspects not only in terms of career choice, but also particularly in terms of the development of career related self-efficacy (Galles et al., 2019; Grier-reed & Skaar, 2010; Miller & Kerlow-Myers, 2009).

It is notable that within the domain of career theory, there is a clear link between the contextual and social cognitive factors that impact on career goals and selection (ex, 2008). Although there have been strong research findings that suggest clear support for the influence of self-efficacy on career decision making (Bandura et al., 2001; Crişan & Turda, 2015; Fatima & Khatoon, 2017; Gadassi et al., 2013; Ganske & Ashby, 2007; Pastorelli et al., 2001), much of this excludes the impact of socio-economic status and the impact of expectations (Ali et al. 2008). Prior research has shown that it may be more likely that young people who are disadvantaged and who come from low socio-economic environments, may experience more negative events, have less resourced schools and more likely a poorer education (Clark et al., 2018; Fergusson et al., 2015; Fleming et al., 2014; Newcomb-Anjo et al., 2017). Perceived barriers and the perceived lowered chances of entering specific careers is shown through research to be closely linked with lowered career self-efficacy (Anderson & Betz, 2001; Ganske & Ashby, 2007; Lent et al., 2017; Myers & Major, 2017; Smith & Betz, 2002).

Conversely, research shows that strong career decision self-efficacy is closely linked to investigative and enquiring behaviours, whereby individuals are seeking alternatives and perceive

them to be viable options (Dik et al., 2008; Shukla & Katepeth, 2016). Prior research also indicates the importance of thought processes that shape the career decision-making process, self-esteem and self-efficacy (Shukla & Katepeth, 2016). Introducing interventions that promote exploration and gaining greater insights into careers, have also been found to have a positive impact on career decision making, albeit these studies have specific cultural contexts, whereby generalising these results to all populations may be misleading (Lam & Santos, 2018; Mao et al., 2017). Career decision self-efficacy impacts a young person's ability to visualise and then choose particular careers, as well as impacting the individual's self-belief that they are in fact capable of making a decision (Bubić & Ivanišević, 2016). Parental perceived efficacy and the expectations of parents and siblings also have a direct impact on career self-efficacy (Bandura et al., 2001; Guan et al., 2016). Overall lack of self-efficacy can then severely impact a young person's career decision making to the extent that this in fact further exacerbates lowered self-esteem and ultimately results in career decision paralysis (Bullock-Yowell et al., 2014).

As a significant determinant of one's performance of a given behaviour, self-efficacy functions separately from the abilities that one possesses, such as academic strength, although both skills and self-efficacy beliefs are necessary for competent functioning (Betz & Hackett, 2006; Smith & Betz, 2002). Bandura suggests that this may be a subject related efficacy and some research has investigated the relationship of poor self-efficacy and the sciences and mathematics domains, for example, and particularly in relation to gender (Cordero et al., 2010; Fatima & Khatoon, 2017; Gnilka & Novakovic, 2017; Lent & Hackett, 1987). A rising area of interest is research in counselling psychology investigating the applications of social-cognitive theory to career and personal adjustment. Formulated by Bandura (1977, 1986, 1997), social-cognitive theory emphasizes the importance of strong personal self-efficacy expectations for competence in interpersonal contexts (Bandura, 1995; Betz et al., 2005). Bandura linked self-efficacy to academic proficiency early on, with strong links established to depression indicated in the results from a study across 282 children (mean age 11.5 years), whereby low social and academic self-efficacy contributed to later depression (Smith & Betz, 2002).

Higher levels of self-efficacy have been suggested to lead to approach- rather than avoidance-based behaviours, an important principle when considering the career decision making process (Betz & Hackett, 2006; Smith & Betz, 2002). In Bandura's theory, self-efficacy expectations influence approach versus avoidance behaviours, for example approaching a career decision or avoiding making one. Further self-efficacy expectations may also influence actual behavioural performance, and persistence when an individual faces discouraging experiences, such as academic failure or setbacks. As a significant determinant of one's performance of a given behaviour, self-efficacy functions separately from the abilities that one possesses, such as academic strength, although both skills and self-efficacy beliefs are necessary for competent functioning (Betz & Hackett, 2006; Deane et al., 2017; Smith & Betz, 2002). Bandura has argued persuasively for the importance of self-efficacy influencing mental health and wellbeing, including reference to anxiety and depression (Bandura, 1995). Bandura's theory of self-efficacy also describes a model of depression whereby perceived self-efficacy is critical to an individual's sense of control over the future and success (Bandura, 1997). This sense of control and adaptation is an important defence against symptoms of depression. Taber and Blankemeyer (2014) suggest that feelings of being in control and having a strong locus of control, may also lead to being less indecisive about the future.

2.5. Sense of Control and Career Indecision

The relationship between sense of control, locus of control and career indecision has been somewhat established in previous research; Jung and McCormick (2010) found that there was a significant relationship between amotivation and indecision. Saunders et al. (2000) found that a group of college students with negative career thoughts were more confused and that there was a significant relationship between motivational constructs, such as locus of control and negative thinking. Perceived barriers or sense of control have been shown to impact students as they make decisions on choice of career, self-efficacy, career success and tertiary studies (Kenny et al., 2003; Ulas & Yildirim, 2019). The importance of contextual and external factors in the environment have been stated as key aspects not only in terms of career choice, but also particularly in terms

of the development of general and career self-efficacy (Azizli et al., 2015; Fatima & Khatoun, 2017; Galles et al., 2019; Grier-reed & Skaar, 2010; Miller & Kerlow-Myers, 2009).

Further, perceived barriers to further education and career success may also lead school students to disengage from school and possibly drop out (McWhirter et al., 2007; Ulas & Yildirim, 2019). Minority groups or more under privileged students, may have additional perceived barriers to career development around access and financial constraints (Aguiar & Conceição, 2015; Ulas & Yildirim, 2019). Levels of motivation and adverse stress have also been found to be correlated with lowered sense of control over external factors, such as future employment (Jung & McCormick, 2010; Lowe & Wuthrich, 2021). Students who felt more in control over their lives have been found to feel more adaptable and may be better able to adjust their expectations (Duffy & Sedlacek, 2010). Further, lowered sense of control over career decision making has been linked to worry, anxiety, increased levels of adverse stress and negative thoughts (Kulcsár et al., 2020; Son et al., 2014; Vignoli, 2015). There is also an established relationship between negative thinking, rumination and depression (Susan Nolen-Hoeksema et al., 2008), although there is scant research available on school students and their levels of rumination in relation to career indecision alongside possible symptoms of depression.

Negative thinking may also be closely related to career confusion, lowered career self-efficacy and decision making, along with the possible perceived lack of control and a low orientation to a future career perspective or vocation, as compared to young people who potentially have had a positive career self-efficacy process (Bertoch et al., 2014; Jo et al., 2016; Taber & Blankemeyer, 2015). It may be that individuals with low self-efficacy are also overly focused on the present which ultimately leads to a diffuse identity status (Taber & Blankemeyer, 2015). It is therefore conceivable that this creates inertia and paralysis in relation to the career decision process, which incites further pressure and anxiety, or feelings of hopelessness. In contrast, young people who are high achievers, typically whom have a strong vocational identity, strong self-efficacy and clarity around their future direction (Bullock-Yowell et al., 2014; Taber & Blankemeyer, 2015).

Perceived barriers to entering a career by school leavers in New Zealand have been distilled into five core areas by the Tertiary Education Commission; these are perceived costs, perceived lack of connections with desired pathways, perceptions around capacity to engage in decision making, the impact of COVID -19 along with perceived and real systemic biases, such as streaming (TEC, 2022). Given the ongoing climate of uncertainty, both economic and social, as well as the lingering effects of the global pandemic, it is possible that perceived barriers, fears, and uncertainty, as well as a lack of feeling in control are likely to having a greater impact now on young people than ever before. The Tertiary Education Commission report in New Zealand (2022) also found that a lack of confidence was a common barrier to students doing what they wanted to do after school, this affected over half of all school leavers in New Zealand. The importance of perceptions or sense of control over contextual and external factors in the environment have been stated as key aspects not only in terms of career choice and have found to be closely related to the development of positive self-efficacy (Azizli et al., 2015; Fatima & Khatoon, 2017; Galles et al., 2019; Grier-reed & Skaar, 2010; Miller & Kerlow-Myers, 2009).

The researcher hypothesises that the impact of lowered self-efficacy, sense of control and rumination, reduced mental well-being, along with confusion and perceived barriers to access other opportunities may be significant. Given the potential harm associated with mental health challenges, both in adolescence and later adulthood, there is a growing emphasis on prevention and a pressing need for a deeper understanding of risk factors that may trigger the onset of depressive symptomatology. The following chapter (Chapter 3) reviews the literature in relation to mental health challenges, depression and rumination in adolescence and youth.

**Chapter 3: Literature Review - Mental Health Challenges, Depression, and Negative
Thinking**

Levels of depression and distress in adolescents has been reported as rising steadily (Carrellas et al., 2017; Fleming et al., 2022; Giota & Gustafsson, 2017; SAMHSA & Substance Abuse and Mental Health Services Administration, 2018; Ssegonja et al., 2019). The transition from school to tertiary studies or work can be stressful and involves decision making around career pathways and next steps for adolescents. There is a dearth of research that explores the interrelatedness between mental health and career decision making, particularly rumination and depression in school leavers.

3.1. Rumination, Negative Thoughts, and Depressive Symptomatology

Rumination is defined as repetitive, often negative thoughts that may be a response to a mood, negative events or challenges (Jose & Brown, 2008; Nolen-Hoeksema, 2000). Specifically, this occurs when an individual may repetitively think and analyse the cause, responses and possible consequences of events or their mood (Nolen-Hoeksema et al., 2008). There is evidence that rumination precedes depression, may worsen depressive symptomatology, drives negative thought processes, and impairs problem-solving capability (Di Schiena et al., 2013; Gepty et al., 2019; Nolen-Hoeksema et al., 2008; Ward et al., 2003). Bandura proposed that there is a third pathway to depression, which was the ability to control negative thoughts. Bandura et al. (1999) conducted research utilising these various aspects of the model for depression and found there was evidence to support this theory.

There are studies linking negative thinking and the impact that this may have on career indecision (Bertoch et al., 2014; Bullock-Yowell et al., 2015). There is less research linking these negative career thought patterns to possible symptoms of depression, despite the accepted researched links of negative thought patterns or rumination and depression. It is theorised that a focus on negative past events can also cause a preoccupation with negative career thoughts relating to the present and future (Bullock-Yowell et al., 2015). Taber and Blankemeyer (2014) also refer to research suggesting that past negative thoughts are closely and positively associated

with symptoms of depression whereas a focus on the future was inversely related to mental unwellness.

Dysfunctional thinking, rumination and negative thinking are all constructs closely associated with the cognitive processes leading to confusion, lowered self-efficacy and avoidance behaviour (Bullock-Yowell et al., 2011; Dieringer et al., 2017; Kleiman et al., 2004). Negative thinking and rumination may have a significant effect on the perceived barriers or sense of control in respect of choosing a particular career. The negative thoughts associated with ability and capability, has been shown to lead to reduced self-efficacy and the perceived locus of control (Ulas & Yildirim, 2019). Dysfunctional thinking has been found to have a profound impact on a young person's behaviour and feelings (Kleiman et al., 2004). Negative thoughts also significantly impact on the ability to problem solve, exacerbating the cognitive processes involved in decision making, equally increasing confusion and associated pressure, fundamentally reducing career self-efficacy (Bullock-Yowell et al., 2014, 2015; Kleiman et al., 2004).

Importantly, the impact of the cultivation of negative thoughts and rumination has been closely associated with the development of depressed mood or symptomatology (Mezulis et al., 2014; Nolen-Hoeksema et al., 2008; Treynor et al., 2003). It is possible that the decision-making process involved in deciding what career direction to strive for, what subjects to take, what majors to choose and what to become in the future, which are all cognitive processes, may inculcate negative ruminative brooding, negative thought patterns, and culminate in reduced self-efficacy. Low career self-efficacy has been associated with hopelessness and depression (Dieringer et al., 2017). Walker and Peterson (2012) found that dysfunctional career thoughts and vocational indecision were related to depression symptoms, with decision-making confusion being a key predictor. This study was however conducted across tertiary students as opposed to secondary school students.

Cognition has been recognised for a number of years as an integral part of career decision making, it follows therefore that both negative and positive thinking may also have a significant

impact on young people's decision-making process (Bullock-Yowell et al., 2011; Sampson et al., 1998). The Cognitive Information Processing (CIP) theory of career thought processes includes three aspects to processing a decision or solving a career thought process, these are self-talk, self-awareness, monitoring and control (Bullock-Yowell et al., 2014; Sampson et al., 1998). Self-talk is the quiet, most often subconscious conversing that people have with themselves, most often involving an evaluation or assessment of a task. It is possible that these may become negative thoughts, whereby a young person may suggest to themselves that they are not able to pick a career, or it is impossible to choose. This may also be closely related to the concept of sense of control, or perceived barriers and hopelessness (Stărică, 2012; Ulas & Yildirim, 2019). Self-awareness is the level of awareness that a young person may have of these inner conversations and the consciousness they may have of the influence that this has on their behaviour. Monitoring and control are the processes of identifying this negative self-talk and the ability to change these thoughts to more positive inner conversations. This theory focusses very much on the process of decision making; however, these negative career thoughts have also been linked to the variance in self-efficacy and associated career self-efficacy (Bullock-Yowell et al., 2014). These negative thoughts have also been associated with increased indecision (Saunders et al., 2000; Walker & Peterson, 2012), as well as a sense of hopelessness and depression (Dieringer et al., 2017).

Hopelessness is a key construct associated with the perceived barriers to entering a particular career path that may exist in a young person's mind (Ulas & Yildirim, 2019). These barriers may be real, for example financial access to tertiary studies or exemplified by a young person's role models, social history, or perceived access to careers. Closely associated with perceived barriers is the concept of self-efficacy, or as described above, the self-perceived capabilities or abilities of an individual. Hopelessness is also closely related to locus of control and a sense of purpose or perceived ability to reach purpose (Dieringer et al., 2017). Beck's theory of depression is the activation of three cognitive patterns, namely how individuals see themselves, the world and the future in a negative manner, with dysfunctional thoughts having a significant impact on behaviour and emotions (Sampson et al., 1998; Saunders et al., 2000). Negative

thinking is closely associated in the theory and literature on depression, career indecision and career self-efficacy. It has been indicated by previous research that rumination or negative thought patterns in respect of perceived barriers or constraints to entering a career, the negative thoughts associated with ability and capability, may lead to reduced self-efficacy and lowered perceived sense of control (Bullock-Yowell et al., 2014; Ulas & Yildirim, 2019). Dysfunctional thinking has been found to have a profound impact on a young person's behaviour and feelings (Kleiman et al., 2004).

The ability to cope effectively with the transition from school to young adulthood, both from cognitive and affective perspectives, may be compromised through negative career thoughts, increasing distress and depressed mood (Kleiman et al., 2004; Lustig et al., 2012). Depression (Dieringer et al., 2017; Lustig et al., 2017; Saunders et al., 2000), anxiety (Andrews et al., 2014; Dieringer et al., 2017; Kelly & Shin, 2009), adverse stress (Bubić & Ivanišević, 2016; Fatima & Khatoon, 2017). These are all linked to the process of career choice and the state of indecision. Walker and Peterson (2012) suggested that there is the need to ensure that career counsellors are adequately resourced and prepared to identify and support depression, as well as depressive symptoms, along with other possible mental health problems that may be associated with the career identity search as well as career decision making. Park et al. (2017) suggests that there is very little research on depression and depressive symptomatology in relation to career exploration. This has implications and suggests directions for future research and practice.

3.2. Depressive Symptomatology and Depression in Adolescents

Depression has been cited as one of the most frequently diagnosed disorders amongst adolescents with observed symptomatology being found in up to 20% of adolescents (Werner-Seidler et al., 2017). There is also evidence in research across several countries that the incidence of depression in adolescence is increasing (Corrieri et al., 2014; Keyes, et al., 2019; Newcomb-Anjo et al., 2017). Depressive symptomatology and depression are pervasive mental health issues facing young people today. Depressive symptoms and psychological distress rates increase during

adolescence (Avenevoli et al., 2015; Compas et al., 1993; Werner-Seidler et al., 2017). Psychological distress or distressed mood may arise from the development of negative emotions and associated negative cognitions and is also associated with anxiety and symptoms of depression (Kulcsár et al., 2020; Lauderdale et al., 2019; Medvedev et al., 2018).

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (Thapar et al., 2012), depression is clinically defined as the presence of specific symptoms resulting in specific symptomatology, which then results in impaired functioning. Depression may be described in stages, firstly indicated by depressed mood or sadness, followed by the presence of symptoms of depression (also known as sub-threshold depression) and finally as a clinical syndrome, such as Major Depressive Disorder (Compas et al., 1993). Depressed mood can be described as a reflection of sadness or unhappiness for a period of time (often measured in recent weeks) and is a reliable discriminatory measure between non-depressed and mild depression (Tolentino & Schmidt, 2018).

Depressive symptomatology, which can also be described as sub-threshold depression, is indicated through the presence of various symptoms, dimensions and affect, reflecting the possible onset of depression (Balázs et al., 2013). The presence of depressive symptomatology is associated with the onset of depression, and may result in functional impairment, and has been correlated with subsequent depressive episodes and depression (Balázs et al., 2013). In a large study comprising over 12 000 adolescents across 11 European countries, 29.2% of the adolescents surveyed were found to be sub-threshold depressed. The early identification of depressive symptoms decreases the burden of later depression and suicide risk (Balázs et al., 2013; Werner-Seidler et al., 2017).

The Youth2000 research in New Zealand indicated that depressive symptoms in school students in New Zealand continues to be at concerning levels. Over the life of the Youth2000 research, depression symptoms have increased alarmingly, with 11.6% of the school students having significant depressive symptoms in the initial group surveyed in 2001, and has steadily

increased from 2012-2019, from 13.0% to 22.8% (Fleming et al., 2022). This study had a sample of 4,815 secondary school students surveyed in 2019 and 6, 303 secondary school students were surveyed in 2012. Female students show the largest increase in depressive symptoms, from 14.5% (2001) to 28.9% in 2019 (Fleming et al., 2022).

There is an emerging gap in the research whereby the focus to date has been specifically on clinical depression, that is, a clinical diagnosis of depression or major depressive disorder as per the DSM-5 diagnostics definition (Ssegonja et al., 2019). The incidence of depressed mood and symptomatology in high school students may be as high as 60%, with impaired school functioning and associated increased risk of overall functional impairment (Carrellas et al., 2017). Symptoms of depression have been shown to become more debilitating or inhibiting as time progresses or when encountering unmanageable circumstances or lack of support continues (Hickey et al., 2017). The literature review conducted by Carrellas et al. (2017) shows that deeper research into subthreshold depression is needed, particularly given the high prevalence in adolescence and the associated degeneration into clinical depression later in life. Specifically, in relation to subthreshold depression, Carrellas et al. (p.273, 2017) state “this review documents that a large number of adolescents who do not receive diagnoses are at high risk for adverse outcomes”.

It is likely that depression and depressive symptomatology limits the ability for a young person to form good decisions as well as impairing their thinking around career choices (Saunders et al., 2000). It is also likely that negative thinking and rumination associated with career indecision and lowered general self-efficacy may lead to depressed mood and the development of depressive symptomatology (Dieringer et al., 2017; Rottinghaus et al., 2009). It is possible therefore, that depression may be both a consequence and precursor to lowered general and career self-efficacy and career indecision. Further, it is also likely that the transition from school to tertiary study or work brings added pressure. School students are asked continuously through high school to consider what they will do after school, “Establishing career goals may reduce the likelihood of depressive symptoms...” (p. 273, Rottinghaus et al., 2009). The continuous

expectations on some, as well as perception of barriers or lowered general self-efficacy in others, may result in increased depressed mood through this transition (Dieringer et al., 2017; Domene et al., 2017). Results from previous studies also suggest that there is a need for counselling to address the negative career thoughts, which may be dysfunctional and can spiral to create a deeper negative cognitive cycle leading to increased stress, anxiety and depressed mood (Bullock-Yowell et al., 2011; Dieringer et al., 2017; Saunders et al., 2000).

Adolescence is a critical developmental stage where common mental health issues are likely to emerge (Dupéré et al., 2018). Adolescence, encompassing the period between childhood and adulthood, is characterised by substantial neurodevelopment (Muñoz et al., 2012) along with biological, cognitive, and psychosocial changes (Brown, 2015), which together may contribute to increased vulnerability to mental health concerns, such as depression. Until recently, depression was not believed to be present in adolescence and was often dismissed as teenage mood swings (Boyd et al., 2000; Reavley & Jorm, 2011). It may also be that self-ratings of dysphoria by adolescents are higher than the same reports or recognition of symptoms by parents, who possibly dismiss the symptoms as mood swings or teenage behaviour (Boyd et al., 2000; Devenish et al., 2016; King et al., 2011).

Hickey et al (2017) conducted a study across over 6,000 young people aged 12 -19 years. Their findings suggest that parental support is essential through adolescence in the prevention of depressive symptoms, especially should the adolescent also have lowered self-esteem. A literature review by Bor et al. (2014) suggested that the rise in single parent families, rising inequality, pressure within high schools may be some of the factors contributing to the rise in mental health problems in children and adolescents. Social support contributes to higher levels of self-esteem with lowered self-esteem being a predictive factor for depressive symptoms (Hickey et al., 2017). Equally, the presence of lowered self-efficacy or the sense of reduced capability is closely linked to reduced self-esteem. Should the support system act to exacerbate this sense of lowered capability, adverse stress and psychological distress are likely to lead depressive symptoms (Compas et al., 1993; Hickey et al., 2017).

In the systematic review by Bor et al. (2014) of 2300 articles, 19 studies were included in the review as they specifically researched key mental health outcomes in children and adolescents across a specific time scale. Twelve of the studies focussed on adolescents specifically (11 years -18 years), and the review covers 12 countries; overall the studies indicated an increasing depressive symptomatology in adolescents, particularly in girls (Bor et al., 2014). This review may be limited in so far as some of the scales may show a lower threshold of symptom indication or detection than a diagnostic interview, however there is evidence that shows that symptom questionnaires have fair predictive capacity to identify future depressive disorders or the presence of more severe symptoms (Goldstein et al., 2018). There is a strong correlation between depression in adolescence and depression in adulthood (Corrieri et al., 2014; Werner-Seidler et al., 2017). The reported rates of young people at risk for depression from university samples across various countries was between 39-64% (Newcomb-Anjo et al., 2017). Adolescent depression strongly predicts the development of major depressed mood or disorder in later adulthood with an estimated risk of 40%-67% by age 30 (Olino et al., 2019; Rey et al., 2001; Sihvola et al., 2008). Adolescence is therefore a critical period for identification, intervention, and prevention of depression. Adolescents with depression have a 40% chance of a subsequent episode occurring within 2 years (Birmaher et al., 1996) and depression onset before the age 17. These factors increase the risk of mental health issues and adverse social outcomes in adulthood and reduces treatment responsiveness (Zisook, 2007).

3.3. The Rise of Depressive Symptomatology in Adolescence

In the study conducted by Fleming et al, (2014) the overall prevalence of mental illness in New Zealand has increased between 2007 and 2012, with no measured improvements with regards to suicidality in secondary school students. It was reported in 2017 in America that 13.3% of adolescents aged 12 years to 17 years, representing around 3.2 million youth, were reported to have had a Major Depressive Episode (MDE) in the year before. It was also reported that 9.4% of adolescents in America were diagnosed with a prior year MDE, with severe impairment (SAMHSA & Substance Abuse and Mental Health Services Administration, 2018). One in six

15-16 year old adolescents in Canada have reportedly experienced major depression (Dupéré et al., 2018). Studies in New Zealand and Australia investigating depressive symptomatology in adolescents showed a steady increase in measured depressive symptomatology in youth populations (Boyd et al., 2000; Devenish et al., 2016; Fleming et al., 2014; Sharpley et al., 2016). In the USA it has been estimated that around 20% of adolescents will have had a depressive episode by the time they turn 18, and in Australia, it is reported that up to 25% of adolescents will have had a depressive episode by the same age (Corrieri et al., 2014; Reavley & Jorm, 2011). There is still, however, a stigma attached to reporting and acknowledging the presence of depression and depressive symptomatology (Arnold & Baker, 2018; Carnevale, 2013; Reavley & Jorm, 2011). It is therefore concerning that it is possible that early warning signs and the emergence of depressive symptomatology in adolescence and early adulthood, are still being ignored (Carrellas et al., 2017; Reavley & Jorm, 2011). Depression impairs functioning and ultimately may lead to suicide if left untreated, with studies suggesting that 90% of teenagers who commit suicide likely had treatable mental illness, with more than 50% having had major depression (Devenish et al., 2016; King et al., 2011).

3.4. Linking Depressive Symptomatology, Depression, and Career Indecision

The ongoing presence of depressive symptomatology in young people is a major concern, not only in the context of severe consequences, but also given the fact that depression and depressive symptomatology is likely to continue into adulthood (Corrieri et al., 2014; Rausch et al., 2017). It is significant that the review conducted by Corrieri et al. (2013) shows that only 28 studies could be included in their final review involving young people, with at least 100 participants, in studies after 2000. Further, these studies were the only ones dealing with school-based prevention and intervention programmes, intentionally focusing on depression and or anxiety. The evaluation of these studies showed that school based preventative interventions on depression and anxiety can be effective and could play a key role in addressing the increasing prevalence of depression and depressive symptomatology early on. In addition to the importance of prevention, there is a need for a deeper understanding of the etiology, as well as early signs or

sub-threshold of depressive symptoms in adolescence in order to design good universal interventions to address this rising problem (Boyd et al., 2000; Carrellas et al., 2017).

Early intervention and identification is a driver for raised awareness of this depressive symptomatology, which may be overlooked due to the episodic nature of depression, non-clinical presentation of symptoms, and lack of skilled professionals in schools (Corrieri et al., 2014; Dupéré et al., 2018; Muñoz et al., 2012). Depressive symptoms have also been linked with high school drop-out, whereby one out of four adolescents had significant depressive symptoms in the three months prior to leaving school (Dupéré et al., 2018). Early drop out of school has also been closely linked to career indecision and low self-efficacy (Dupéré et al., 2018; Lam & Santos, 2018). It is also suggested by previous studies that “investments in comprehensive mental health services are needed in schools struggling with high dropout rates, the very places where adolescents with unmet mental health needs tend to concentrate.” (Dupéré et al., 2018, p.1).

Given that leaving school is a major transitional period, it may be that this change, the associated experiences of anxiety, and adverse stress, along with the pressure to decide what to do and be after school impacts heavily on young people leaving school. Further, it has been purported that, the search for establishing a career direction, purpose and identity is becoming more complex (Blustein et al., 2019; Kleiman et al., 2004; Krumboltz & Worthington, 1999). The range of careers, the changing work environment, the advances in technology, the impact of artificial intelligence and the globalisation trends, all influence the complexity and confusion that can arise when considering the options that adolescents face when determining their choices (Blustein et al., 2019; Kleiman et al., 2004), and could ultimately contribute to, or exacerbate, depressive symptomatology.

Some previous studies have found that there is a need for counselling to address negative career thoughts, which are effectively dysfunctional and can spiral to create a deeper negative cognitive cycle leading to increased stress, anxiety and depressed mood (Bullock-Yowell et al., 2011; Dieringer et al., 2017; Saunders et al., 2000). Walker and Peterson (2012) suggest that it is

important to further investigate and understand the complexity around depressive symptomatology and career indecision. Rottinghaus et al. (2009) linked depression and career indecision, whereby university students who had made a career decision were significantly less depressed than those who had not yet decided on their career path. There is increasing complexity not only in relation to accessing higher education, but also the nature of work and the considerable change in career opportunities, as well as historically traditionalist career counselling support within schools (Blustein et al., 2019; Dieringer et al., 2017). Academic success and career aspiration have become a well understood platform from which a young person makes career choices (Hartung et al., 2005; Kantamneni et al., 2016). This is not only limiting in respect of the multifaceted needs within the world of work but is extremely limiting given that many young people do not have access to the same academic opportunities as others (Clark et al., 2018). Adolescents experiencing negative affect, such as negative mood, anxiety or depression, are more likely to experience low self-efficacy and therefore make judgements that are due to feelings of inadequacy ((Dieringer et al., 2017; Park et al., 2017; Yang et al., 2017; Bandura, 1995). There is, however, very little research that examines depression in relation to career indecision, self-efficacy as well as depressive symptomatology or depression to self-efficacy (Marcotte et al., 2018; Rottinghaus et al., 2009).

It is a crucial and challenging stage as young people transition from school into tertiary studies or work and need to work through the process of making decisions around their future and what possible career options or pathways they have (Chiesa et al., 2016; Marcionetti & Rossier, 2017; Ulas & Yildirim, 2019). This process may have been made more difficult for them depending on their circumstances and the context in which they have grown to understand (Jiang et al., 2019; Li & Fan, 2017; Mao et al., 2017). Making career decisions are complex and involves ensuring that the individual has a clear idea of what it is that they are aiming for, as well as an intellectual understanding or knowledge around the careers that they are interested in pursuing (Blustein et al., 2019; Bullock-Yowell et al., 2014; Kleiman et al., 2004). It is equally important that the individual is in a positive emotional state as well as having a clear awareness of identity

(Lustig et al., 2012). Bukth and Akkas (2023) suggested that there is not enough research investigating depression and career decision making, despite the indications that there is a link between career problems and mental health concerns. This research is mainly linked to the experiences of university students, is mostly US centric with much of the research focussed on the implied difficulties that arise should a young person be depressed along with the subsequent cognitive challenges associated with career decision making (Dieringer et al., 2017; Saunders et al., 2000; Walker & Peterson, 2012).

However, despite the indicated links of mental health challenges and career indecision, along with the rise of mental health concerns in adolescents, to date there is very little research in terms of depressive symptomatology, other affective states and career related concerns, especially in terms of school leavers as they leave the relative security of a school system and enter into the next phase of early adulthood (Marcotte et al., 2018; Rottinghaus et al., 2009; Denise Eller Saunders, 1998; Walker & Peterson, 2012). Whether this research is concerned with tertiary studies, a trade apprenticeship, travel or work, the preamble to this next life stage is a series of decisions made by the young person. When exploring qualitative feedback in the Youth19 surveys in New Zealand, concern for the future, lack of support and guidance, what career and job options were available and barriers to access study and future work were all tabled as concerns by young people in schools across New Zealand (Fleming et al., 2020). The process and expectations around career decision making influence young people in the latter years of schooling significantly. The impact of environmental uncertainty, unpredictability, perceived barriers and lack of access to relevant information further exacerbates the process (Blustein et al., 2019). Researchers and scholars are calling for further research to be done to better understand the co-occurrence of depressive symptomatology, negative affect and career indecision (Dieringer et al., 2017; Rottinghaus et al., 2009; Thompson et al., 2019).

3.5. Summary

Remarkably there is a relative dearth of established research exploring the co-occurrence of depressive symptomatology and career indecision. There are gaps in the research indicating the need to investigate and articulate the relationship between mental health, career indecision and motivational constructs such as self-efficacy and sense of control. These constructs have been individually researched and found to be independently connected with either career indecision or depression. Blustein et al. (2019) makes a strong case for a more integrated approach both in counselling and research involving career development and the inter-connectivity of well-being and work. There are several aspects to the process of undecidedness, whereby a young person may be undecided as to the subjects they wish to include in later years of school, they may be undecided as to career direction or interests, they may also struggle with decisions in respect of tertiary institution, majors and defined courses (Andrews et al., 2014; Bullock-Yowell et al., 2014; Womack et al., 2018). Some of these decisions may be resolved as young people transition, but for others this is a struggle, and many remain undecided through the choices they make, from defining subject choices at school to entering tertiary studies with the view to entering a career (Bullock-Yowell et al., 2014; Krumboltz & Worthington, 1999).

Blustein et al. (2019) suggests that the choices associated with career decision making are becoming more complex, fuelled by new careers, globalisation and shifting work-place needs. Students and young people who may be undecided may benefit from access and exposure to more varied information, a focus on their interests and potential, and increasing their knowledge that is relevant to careers opportunities (Blustein et al., 2019; Dieringer et al., 2017; Jepsen, 1992). Simply providing knowledge or information, however, may not be enough for young people experiencing real challenges with their decision-making process. This is a significant gap identified in the research, whereby there is little focus on motivational, emotional and social aspects that may influence cognitions, choices, perceived access and processing (Blustein et al., 2019; Dieringer et al., 2017; Marcotte et al., 2018) along with career self-esteem and career self-efficacy (Galles et al., 2019; Grier-reed & Skaar, 2010; Miller & Kerlow-Myers, 2009). The

importance of making a decision around a career is continually emphasised through the high school years (Corrieri et al., 2014; Newcomb-Anjo et al., 2017). Most young people begin their journey by first needing to narrow their choices around subjects at the age of fourteen or fifteen years. Grier-Reed and Skaar (2010) pointed to the need to accept the levels of change globally and suggest therefore, young people will need increased skills and emotional strength to construct their future career paths, with increased career self-efficacy and developing cognitive skills to empower decision making and coping. Expectations of young people at school around career choice, as well as contextual pressures entering adolescence, perceived barriers, and sense of control as well as cultural pressures, are all likely to impact on the well-being and mental health of the young person. The possible need for an integrated counselling approach to career choice and development of career planning, may be essential to prevent confusion, anxiety, stress, and depressed mood which may be associated with this process of transitioning from school to tertiary studies or work as linked with the process of career decision making.

A key theme in the research to date is the strong correlation between either career indecision and depression or career indecision and self-efficacy and negative affect. However, there are several identifiable gaps in the research published, particularly the lack of generalisable research across multiple geographic regions, cultural groups, school leavers as a specified group and a more globally represented audience. There is also a clear gap integrating the investigation into the specific nature of the relationship between self-efficacy, sense of control, career indecision and depressive symptomatology. Career decision making is an essential component of young adolescent life, has huge consequences for future adult life, and is a stressor for many young adults. Further, depressive symptomatology and disorders are becoming more prevalent in youth, and not only impacts functioning and quality of life, but may impact career decision making, leading to complex interactions between adverse stress experiences and depressed mood in school students and adolescents. However, this interplay has not received sufficient attention in research to date.

The results from this proposed research will help identify key constructs and their relationships, will inform further testing of the proposed theoretical model, to better support young people as they navigate this important stage of life. There is no known research that collectively investigates the key constructs outlined above, particularly with regards to school students approaching the transition from high school into tertiary studies or work.

The first study in this research thesis investigates this proposed gap by conducting a scoping review with the aim to determine what research into these constructs has been conducted to date, particularly with school students transitioning from school. The scoping review will provide a platform and confirm the types of hypotheses that were required for the subsequent studies in the thesis. The scoping review aimed to explore how self-efficacy and perceived sense of control may affect the career decision-making process and, how these motivational constructs may also be linked to rumination or the presence of depressive symptomatology as school leavers approach the transition from school.

The subsequent quantitative and qualitative studies focussed on the specific aims of investigating these constructs, emerging from the scoping review, in school students who were transitioning from school in New Zealand. It is proposed that the results from this thesis may help identify strategies to improve interventions for young people leaving school, that may also be at greater risk of depressive symptomatology, as they navigate their next steps toward the future and make career decisions. Implications and suggestions for future research and practice are discussed in the final chapter (Chapter 9). The following chapter (Chapter 4) outlines the methodology for the research in this thesis.

Chapter 4: Methodology and Methods

This chapter provides an overview of the epistemological position and methodology underlying the research as applied in this thesis. The use of the specific mixed-methods design is described. The phases of research are then presented as well as how these phases interacted and informed each other, along with the aims and overarching methodology used for the phases. The specific details of the methods for each phase are described in each of the publications (Chapters 5-8). The thesis resulted in four submissions to international peer-reviewed journals: one scoping review (Amaral et al., 2023), with two quantitative papers (one published; one under review) and one qualitative paper currently under review (Amaral et al., 2024a; 2024b; 2024c).

The aim of this PhD thesis was to investigate the specific gaps identified in the literature review and the scoping review, particularly in respect of students transitioning out of school and their mental health, motivation and career decision making experience. The thesis also aimed to develop a theoretical model and investigate the relationships between key constructs, particularly career indecision, rumination, sense of control, self-efficacy and mental health challenges in high school students approaching the transition from school into tertiary studies or work. Finally, the qualitative study aimed to further explore these constructs through three different focus groups, to gain a deeper understanding of the transitional experiences of students as they approached the end of school. The themes that emerged from this study were then mixed with the results from the quantitative study in the final discussion chapter of this thesis to present integrated findings.

4.1. Ontological Position

The ontological position taken by the researcher was one of social constructivism, whereby the reality comprises of continuous human interaction and interpretation (Grix, 2002). Central to the ontological framework of this thesis is the understanding of reality as interconnected and relational. So, it is acknowledged that the individual's experiences of mental health, motivation and career decision making are not isolated phenomena, but are influenced by various interconnected factors such as social relationships cultural influences and institutional structures in the schools. In the context of this research, it is recognised that the student experiences, identities, and realities are shaped by social processes, norms, culture, and their educational institutions. The quantitative study aimed to quantify the perceptions and self-ratings

on the specified scales as completed by the students. The qualitative study aimed to explore deeper subjective experiences associated with the constructs under investigation (through focus group discussions) of high school students as they navigated through the transition out of school. The research recognises the existence of multiple perspectives and diverse lived experiences amongst the students through the qualitative analysis and emphasises this complexity in the integrated analysis.

This research adopted a reflexive stance, recognising the role of the researcher's positionality and biases when shaping the research process, analysis, and interpretations. By acknowledging the subjective influence of the researcher through the study, the researcher engaged in reflexivity and self-awareness through the research journey. By adopting the ontological approach grounded in social constructivism, the researcher emphasised the subjective, interconnected, and relational nature of reality. The researcher therefore aimed to uncover the complex dynamics at play in the students' experiences of transitioning out of school and aimed to contribute to a deeper understanding of the social realities shaping their mental health, motivation constructs and career decision-making processes. Further, the research seeks to explore the complex interplay between the identified factors and their implications for students' well-being through this transitional phase taking a post-positivist epistemological position to the research.

4.2. Epistemological Position

The research takes a post-positivist epistemological approach, with a mixed-methods design. The post-positivist approach values both the empiricism attached to quantitative research as well as ensuring the subjective context and individual perspective is captured through qualitative research (Panhwar et al., 2017). This thesis aimed to add to the existing knowledge and to develop a new model of constructs and their relationships around career indecision and mental health, particularly in school leavers as they approach the transition from school to work or tertiary studies (Grix, 2002). This approach balances both interpretivist and positivist epistemological standpoints, seeking to explore the individual standpoints, but subscribing to the view that there is no perfect truth in social science, rather aiming to understand the directions,

meaning of reality and perspectives through mixed-method research (Panhwar et al., 2017). The researcher chose this stance given the position taken that these constructs are complex, may be embedded in social relativism and aimed to find a balance between quantitative findings and the reflections of the students found through the reflexive thematic analysis in the qualitative phase. The integration and interpretation in the discussion phase of the study enriches and contextualises the transition journey taken by these students. This approach embraces the complexity and plurality inherent in social studies.

The post-positivism paradigm recognises that human behaviour is complex and achieving absolute objectivity in social or behavioural investigations may be unlikely. In this approach, researchers use a combination of methods to investigate and explore constructs, believing that there is no perfect method for discovering truth, so by using various methods, the aim is to balance the weaknesses with the strengths of the other methods, using triangulation (Davies & Fisher, 2018). Triangulation is a combination of methods and helps researchers gain a more comprehensive understanding. “Post-positivist research uses a triangulation of approaches to research, as it is grounded in the belief that there is no perfect way of determining the truth, and that using different approaches allows the weakness of one approach to be offset by the strength of another” (Davies & Fisher, 2018, p 22). The post-positivist epistemological position aligns with the ontological perspective of the researcher, acknowledging the importance of a critical realist perspective, recognising the existence of external reality, whilst this is mediated through perceptions and interpretations.

4.3. Theoretical Considerations

The epistemological position taken by the researcher is aligned with existing theoretical positions within the context of the proposed research into transitioning students and their experience of career decision making, motivational constructs and mental health. Social Cognitive Career Theory (SCCT) integrates cognitive and social learning theories into career development (Choi et al., 2012; Wright, 2017). In this theory, self-efficacy beliefs, along with outcome expectations play a central role in shaping career choices. The present research aimed to make further connections and aimed to show that self-efficacy and perceptions of external

constraints are central in the relationship between career indecision and depression. In Savickas's Life Design Approach there is a strong emphasis on personal narratives through the career development stages (Maree & di Fabio, 2015; Santilli et al., 2017; Savickas, 2019). In this theory, the integration of self-concept and alignment of roles with identity and experiences are central, and career decisions are seen as ongoing processes. Should perceptions and narratives be negative or influenced by perceived barriers to careers or negative thinking and ruminative brooding, it is possible that maladaptation or even mental health challenges may result (Hirschi, 2011; Kenny et al., 2003).

Nolen-Hoeksema (2000, 2008) has conducted a lifetime of research into the impact of rumination on mental health, suggesting that rumination, both brooding and reflection are clear precursors to the development of depressive symptoms. However, there is a dearth of research into the possible role of rumination and career decision making in high school students as they approach transitioning out of secondary school, and furthermore, linking this to depression. The limited studies available show links between negative thinking, career decisions and depression, albeit only with college aged students (Amaral et al., 2023). Whilst depression in school students is somewhat investigated, it is still regarded as an area that is in need of further attention (Corrieri et al., 2014; Ferro et al., 2015; Fleming et al., 2020). Beck's theory (1987, 2006, 2011) of depression is the activation of three cognitive patterns: namely how individuals see themselves, the world and the future perceived in a negative manner, with dysfunctional thoughts having a significant impact behaviour and emotions (Sampson et al., 1998; Saunders et al., 2000). The researcher posits that there may be a significant effect of rumination on career indecision, and sense of control that then can be associated with symptoms of depression. In this thesis, the researcher considered that if a student is unsure what to do after leaving school, they may be more susceptible to rumination, and then this negative thinking pattern may affect their perceived sense of control or levels of self-efficacy.

The post-positivist approach acknowledges the importance of reflexivity, the role of biases in the research and is a flexible approach, allowing the researcher to use multiple methods to carry out the research (Panhwar et al., 2017). The post-positivist approach recognises the value

of both empirical and individual perspectives, which lends itself to a mixed-methods design. The integration of the afore-mentioned theoretical positions, post-positivist epistemological approach informed the direction of the design of this thesis. The researcher used a concurrent transformative design in this thesis and specifically aimed to produce a theoretical model to inform further research and the possible development of positive intervention practices from a more holistic perspective. A mixed-methods design was also chosen for this thesis to support the aim of gathering both quantitative and qualitative data to support some generalisability of the findings, to extend the depth and breadth of knowledge when investigating these constructs proposed in the study, and increase understanding (Dawadi et al., 2021). The quantitative research phases aimed to investigate the gaps highlighted in the literature review, as well as the gaps that emerged as part of the scoping review conducted in Phase 1. For example, self-efficacy has not been investigated as a possible mediator, particularly in relation to career indecision and depressive symptomatology in high school students. The qualitative research in the final phase of the research aimed to further investigate the gaps that emerged in the scoping review, to specifically investigate prevalent themes and context in New Zealand. The focus group research intended to gain deeper insights into the specificities of high school students' experiences of the process of making career decisions as they approach the end of secondary school. The research design specifically employed in the phases of research is outlined below.

4.4. Research Design

Mixed methods research aims to pertinently integrate quantitative and qualitative approaches to research (Creswell, 2006; Ivankova & Plano Clark, 2018). A concurrent transformative design was employed in the thesis study. Data were collected concurrently to ultimately compare the data findings, to assess themes and results in the search for depth and congruent findings (Creswell et al., 2003). Investigating the relationships through quantitative and qualitative methods allowed the researcher the opportunity to form a more detailed and holistic reflection of the transitional pressures for secondary school students (Dawadi et al., 2021). The concurrent transformative approach allows for a more comprehensive exploration of the phenomenon under study by triangulating the different sources of both qualitative and

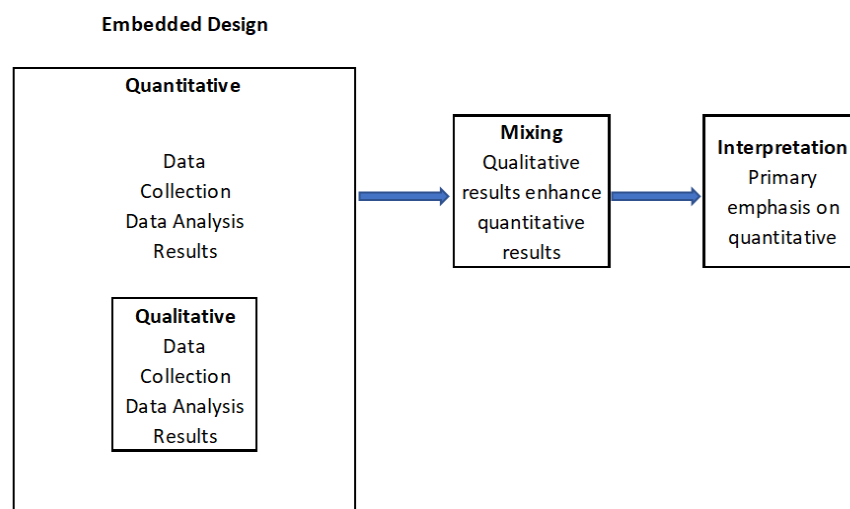
quantitative data. The purpose of which is to compare the data findings, assess the themes and results and to provide a more detailed and holistic understanding of the research topic. The researcher analysed the quantitative and qualitative data separately, the results were reported, and the findings are integrated and critically analysed in the final discussion chapter of the thesis.

Finally, using the concurrent transformative design is supported in social research when the aspects under investigation may be complex social and environmental challenges, in this case hypothesised as secondary school leavers who may experience barriers or challenges, career indecision along with mental health challenges as they transition out of school (Creswell et al., 2003). Transformative studies also consider how the data may be collected to protect the participants and ensure that the diversity within the findings is captured (Creswell et al., 2003). Most importantly, the thesis used a transformative design in the hope of contributing to building further theoretical understanding through the quantitative data analysis and testing the proposed model assumptions. The quantitative findings are then enhanced with the addition of the qualitative findings. The transformative aspect of integrating and interpreting the findings in the final stage aimed to ensure the social complexity, reflexive stance of the researcher and findings enrich the theory and knowledge to date. Ultimately, it is hoped that this may further inform the development of interventions in schools to increase support and influence systems change around career guidance, pathways to successful transitions from school and integrated counselling at both ends.

The transformative nature of the mixed research design used supports the researcher's perspective and exploration of the phenomena, seeking to inform and promote change in the social, vocational, and psychological support given to school leavers as they transition from secondary school to tertiary studies or work. Unlike the traditional triangulation design, a nested or embedded design has a predominant method that guides the project (Creswell et al., 2003). In this study, the qualitative method is embedded, or nested, within the predominant quantitative method. This mixed methods design has some key strengths. This method allowed for the simultaneous collection of the data, which was critical to the study given the impact of the global COVID-19 pandemic and, at times, limited access to the schools, the participants and physical

access to collect the data. The advantages of the qualitative data findings enrich, produce thematic understanding, and give a more descriptive context and the advantage for quantitative data findings is the wider reach, range of data that was collected and the variables that the researcher was able to include via the five questionnaires. The application of both quantitative and qualitative methods allowed the researcher to gather insight from different perspectives in keeping with the post-positivist epistemological approach. The design used for this research is illustrated in Figure 4.1.

Figure 4.1 *Mixed Methods Design*



(Note: Diagram inferred and informed by Creswell et al., 2003).

The findings from the quantitative and qualitative studies are then mixed and interpreted in the discussion and conclusions chapter (Chapter 9). The study includes a primary quantitative approach analysing the quantitative results and model testing through employing multi-variate analysis. The quantitative data were collected via an anonymous online survey that contained five globally used, reliable and valid questionnaires. The qualitative data were collected after the quantitative data through focus groups, with specific questions explored with three groups of school leavers.

In aligning with the post-positivist epistemological approach and using the concurrent transformational mixed methods design, the researcher's positionality is one of reflexivity and

critical awareness. This acknowledges that the researcher's background, experiences, beliefs, and biases, may shape the research process and interpretation of the data. The researcher has a background in youth facing organisations, having worked specifically with students that are transitioning into tertiary studies from high school. The researcher's experience is varied and spans several years, in various capacities, and has encountered varied and diverse groups of young people. However, by recognising the subjective nature of the interpretation of the results, the researcher continuously examines how this positionality may affect and influence the process, data collection, analysis, and interpretation. This approach also allows a stance of openness and receptivity of diverse experiences and perspectives, valuing the input of the high school students through the process of data collection. The triangulation of different sources of data and the tensions between different data obtained through the design also supported the researcher in the pursuit of a more comprehensive understanding of the research topic. The phases of this research are described in the following section.

4.3. Phases of the research

The first phase of research aimed to methodically investigate the literature through a scoping review, supported by the preliminary literature review in Chapter 2 and 3. In the final years of secondary school, career choice and decision making is emphasised consistently, with a measure of one's capabilities often defined by the subjects chosen, academic success or a sense of clear direction (Jung & McCormick, 2010; Kantamneni et al., 2016; Zychinski & Polo, 2012). The absence of this, may be interpreted as lack of focus, lack of direction, or an adolescent with no ambition or future. The researcher posits that it is possible that this pressure and confusion, along with a lowered perceived sense of control, may build a sense of reduced capability, thereby reducing the overall sense of control and self-efficacy in relation to career direction and possibly also mental health challenges associated with the transition and decisions taken at this developmental stage (Creed et al., 2004; Marcotte et al., 2018; Ozdemir, 2019; Saunders et al., 2000).

The key research gaps indicated in the preliminary literature review indicated there are:

- Lack of known research conducted with high school students, specifically with regards to the approach to the transition from school to tertiary studies or work along with mental health challenges, motivational constructs, and career indecision.
- Lack of known research conducted with this age-group and audience specifically with regards to depression, rumination, negative thinking along with levels of career indecision, self-efficacy, and perceived sense of control.

From the gaps identified in the literature review, the following high level research questions were constructed, from which the individual study questions for the various phases were devised.

High level research questions for the research:

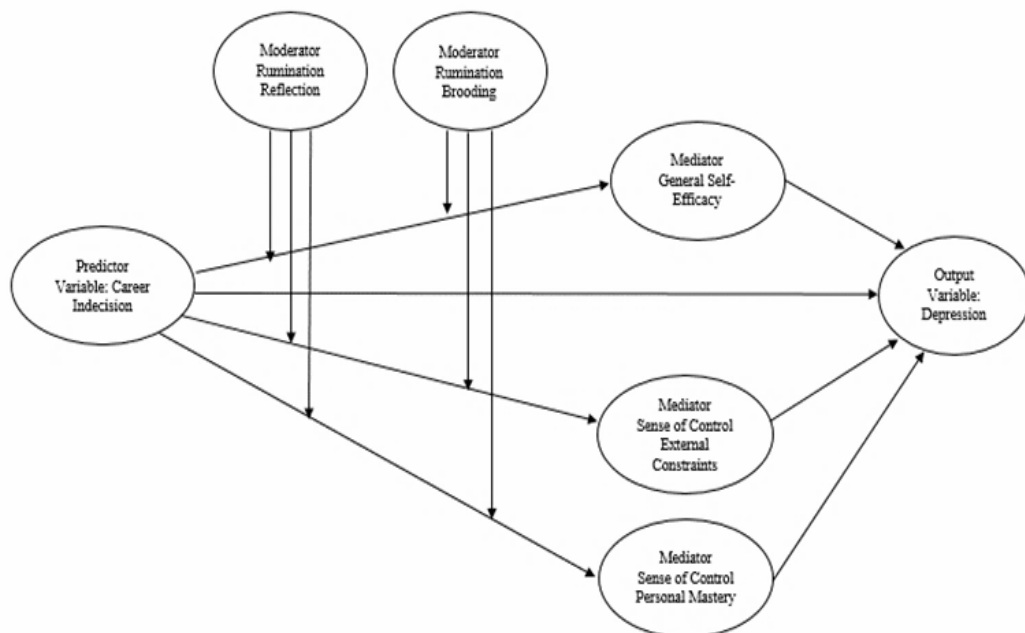
1. To what extent is career indecision and depression correlated in high school students in New Zealand?
2. How prevalent is career indecision and depression in these students?
3. What is the effect and relationship between career indecision, self-efficacy, sense of control, rumination, and depression?
4. How do these relationships support the indicative model proposed and what effects do these constructs then have on each other?
5. When exploring these relationships through focus group studies, how does the qualitative data support the proposed model?
6. What do the findings in relation to the model imply and suggest for future interventions and research?

The specific variables identified from the gaps and questions are career indecision, rumination, sense of control, self-efficacy and depression. This PhD study aimed to investigate the linkages and effects of the variables identified for the research specifically from a sample of New Zealand high school students. The variables were clustered within the domains of career

decision making, the key motivational constructs of general self-efficacy and sense of control, and the mental health constructs of rumination and depression.

The researcher posits a theoretical intersection of the constructs modelled in Figure 4.2. based on the hypothesised interrelatedness between the variables proposed to be investigated. The initial indicative theoretical model that was then tested follows in Figure 4.2. The findings from this study will further inform theoretical understanding regarding any inter-relatedness between these constructs and aimed to suggest a final model of interaction between these variables.

Figure 4.2 *Indicative Theoretical Model of the Possible Interactions Between the Variables Identified for the Research*



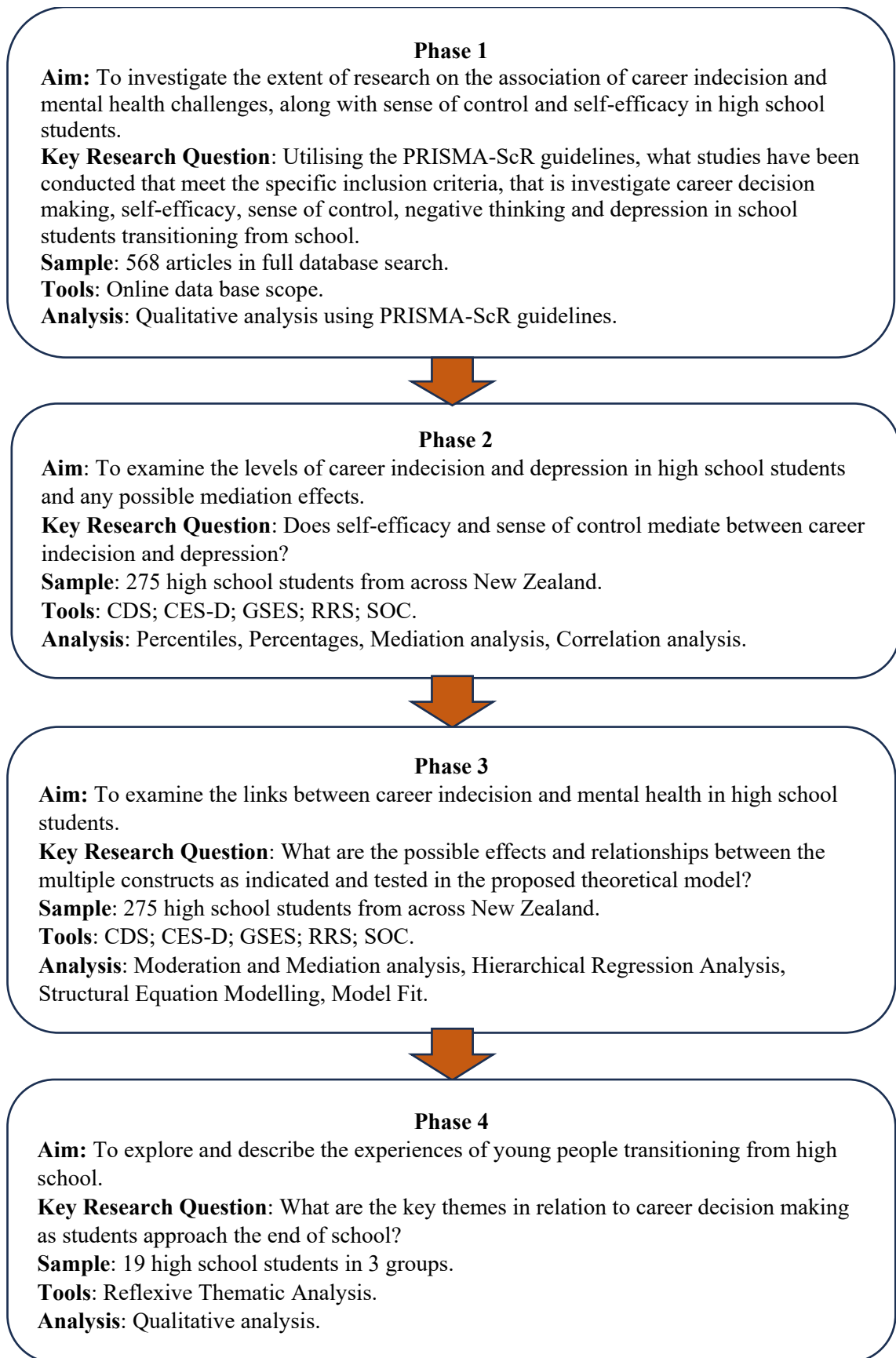
The phases of research are now described. Phase 1 systematically scoped the research in respect of career indecision and mental health in school leavers conducted to date through a scoping review. The scoping review examined the extent of existing research on the association of career indecision with depression, negative thoughts, or rumination, as well as role of self-efficacy and sense of control among school leavers. From the findings of the scoping review (Amaral et al., 2023), the researcher was able to propose a model for the constructs and how these

variables may interact. The basis of these highlighted and hypothesised relationships was then to be investigated using quantitative and qualitative methods through the next 3 phases. The findings from the various phases are discussed and integrated in the final chapter of the thesis (Chapter 9).

To investigate the proposed relationships and the posited model, the researcher collected anonymous online data from a representative sample of high school students across New Zealand, utilising five globally used, valid and reliable scales. Phase 2 investigated the possible mediation effects of sense of control and self-efficacy between career indecision and depression as reported by high school students. Phase 3 investigated the possible moderation and mediation effects of rumination on sense of control and self-efficacy as well as the relationships between career indecision, depression and rumination using structural equation modelling. A conceptual model was further developed from the above initial model, using the findings from the scoping review (Phase 1), further embedding the research findings from Phase 2, and was then tested for goodness of fit in Phase 3.

Phase 4 utilised qualitative research, and the findings illustrated the experiences of young people transitioning from high school to either tertiary studies or work. Focus groups were conducted with high school students, and data were analysed using reflexive thematic analysis and the key themes are illustrated using vignettes. Figure 4.3 below gives an overview of the phases of research undertaken for this thesis.

Figure 4.3 *An Overview of the Phases of the Study – Publications and Key Research Questions*



The research presents a final theoretical model in Chapter 9, derived from the quantitative findings and with reference to the key themes from the qualitative data, for the purposes of informing future research to further investigate the intricacies and interrelatedness of mental health constructs and career indecision along with self-efficacy and sense of control. The model findings provide direction for possible future interventions in schools to increase support for this crucial transition phase, ideally to be further researched for informing improvements in practice.

4.5. Methods Overview in Quantitative and Qualitative phases (Phases 2-4)

Each of the publications (phases) describe the specific methods employed for the distinct phases in detail (Chapters 5-8). The below sets out an overview of the mixed methods used in the theses, firstly the quantitative phase and then the qualitative phase, including data collection, procedure, and measures used.

4.5.1. Quantitative Data Collection

The quantitative phase employed largely convenience sampling whereby the researcher approached schools and youth organisations from across New Zealand and requested permission to send the link for the anonymous online survey to the head or principal for dissemination to students. These were students from multiple schools and youth organisations across New Zealand, who were in the process of completing their final two years of high school. All participants were at least 16 years of age in Year 12 or 13. There were subsequently two publications which comprised the quantitative phases of this thesis (Amaral et al., 2024a; 2024b).

4.5.2. Quantitative Procedure

Attempts were made to access schools and youth organisation representing the regions and diverse populations across New Zealand. The selection was not randomised, but the schools were not personally known to the researcher. Sampling of the organisations therefore used convenience, access, and snowball sampling. Principals and leaders consented to send the anonymous online Qualtrics questionnaire (<https://www.qualtrics.com>) link to their students or youth aged between 16 and 19 years. Students were informed that they could withdraw from the study any time up until the point they submitted their anonymous responses. There were no

incentives provided to schools or individuals to participate. The research was approved by Auckland University of Technology Ethics Committee (AUTEC), reference number 20/211. The approval letter can be found in Appendix A.

4.5.3. Quantitative Measures

There were five scales used with a total of 68 items for each participant to complete across the questionnaires and this took between 15 and 20 mins. The proposed scales are widely used globally and are all valid and reliable measures. Career indecision was assessed utilising the 18-item Career Decision Scale (CDS), a scale designed to measure career indecision and the antecedents to career indecision (Osipow, 1999). Discrete scores were generated, however career indecision averaged scores tended to approximate a continuous distribution. The CDS has been widely used across English-speaking countries and cross-culturally (Feldt, 2013; Meyer & Winer, 1993; Osipow & Winer, 1996). It assesses factors contributing to career indecision, with extensive evidence supporting the questionnaire's test-retest reliability, construct validity and concurrent validity (Feldt et al., 2010; Osipow & Gati, 1998; Osipow, 1999; Osipow & Winer, 1996; Stringer et al., 2012). Items employ a 4-point scale, ranging from 1 = *Not at all like me* to 4 = *exactly like me*. The scale included questions such as "I need more information about what different occupations are like before I can make a career decision" and "I want to be absolutely certain that my career choice is the "right" one. but none of the careers I know about seem ideal for me." Decision scores are the sum of scores on Items 1 and 2. Indecision scores are calculated as the sum of the scores on Items 3-18, with higher indecision indicated by higher scores. Cronbach's alpha and McDonald's omega for this study indecision scores were .87 and .85, respectively.

Depressive symptomatology or depressive symptoms were measured using the Centre for Epidemiological Studies Depression Scale (CES-D) scale (Radloff, 1977). The CES-D scale has been widely used globally to measure depressive symptoms across a wide range of age groups within the general population and is also considered an appropriate measure for adolescents (Bernaras et al., 2019; Blodgett et al., 2021). Discrete scores were generated, however depression averaged scores tended to approximate a continuous distribution. The scale has 20 items and includes 4 items (Items 4, 8, 12, and 16) that are positively worded and thus need to be reverse

coded prior to data analysis. The scale required the students to think about how often they felt like this in relation to the last week and included questions such as “I was bothered by things that usually don't bother me”, “I felt I was just as good as other people” and “I could not get going.” Items are answered by scoring the response to the items as: 0 = *Rarely (Less than 1 day)*, 1 = *Some (1-2 days)*, 2 = *Occasionally (3-4 days)*, and 3 = *Most (5-7 days)*. Scores above 16 to 20 indicate mild to moderate depression, whilst scores above 24 indicate severe depressive symptomatology (Radloff, 1977; Vilagut et al., 2016). Cronbach's alpha and McDonald's omega for this study indecision scores were .90 and .91, respectively.

Rumination or negative thinking was assessed utilising the Ruminative Response Scale (RRS)-short form (Treynor et al., 2003), a widely used measure of rumination, comprising 10 items that assess brooding and reflection (Parola et al., 2017; Topper et al., 2014). The RRS-short form is a 10-item scale that measures the individuals' propensity to ruminate. Rumination was hypothesised as a possible moderating effect on the relationship between career indecision and self-efficacy and sense of control. The scale comprises two subscales: brooding (five items) and reflection (five items). Discrete scores were generated, however rumination averaged scores tended to approximate a continuous distribution. To each statement in the scale “what you generally do, not what you think you should do when you feel down, sad or depressed” respondents rate items on a 4-point scale (1 = *almost never* to 4 = *almost always*). Questions such require the respondent to indicate how often they may feel the following “Think “what am I doing to deserve this?”, or “Think “Why do I always react this way?”. The scale is widely used over English-speaking countries and is a reliable and valid measure of rumination (Arana & Rice, 2020; Erdur-Bakera & Bugaya, 2010; Topper et al., 2014). The instrument has a high internal consistency and can be used in large scale screening. The RRS scores are separately analysed in respect of the two Sub-Scales – Brooding and Reflection. Each sub-scale comprised of 5 items with high scores indicating higher levels of brooding or reflection response styles. Over 200 papers referred to the distinction in the scale between the two factors, brooding and reflection, and analysed these factors separately (Whitmer & Gotlib, 2011). Cronbach's alpha and McDonald's omega for this study rumination scores were .81 and .82 respectively.

General self-efficacy was measured using The New General Self Efficacy Scale (Chen et al., 2001). This instrument is widely used and is considered a valid and reliable measure of general self-efficacy (Scherbaum et al., 2006). Discrete scores were generated, however self-efficacy averaged scores tended to approximate a continuous distribution. The scale includes questions such as “I will be able to achieve most of the goals that I set for myself” and “In general, I think that I can obtain outcomes that are important to me”. There are eight items employing a 5-point scale (ranging from 1 = *strongly disagree* to 5 = *strongly agree*), which are averaged to a total score where a high score indicates high general self-efficacy. Cronbach’s alpha and McDonald’s omega for this study indecision scores were .90 and .91, respectively.

Sense of control was measured with the 12-item Sense of Control scale (Lachman & Weaver, 1998) to assess participants’ level of perceived control over their future and lives. The scale comprises two sub-scales that measure perceived external constraint, and degree of personal mastery. Discrete scores were generated, however sense of control averaged scores tended to approximate a continuous distribution. The scale uses a 7-point scale (1 = *strongly agree* to 7 = *strongly disagree*) and has been widely used and is a valid and reliable measure of sense of control (Steptoe et al., 2007; Yu et al., 2018). This scale included questions such as “I can do just about anything I really set my mind to”, “When I really want to do something, I usually find a way to succeed at it” and “I often feel helpless in dealing with the problems of life”. To score the scale, each item is reverse scored and then the average of all items is calculated. The present study Cronbach’s alpha and McDonald’s omega personal mastery subscale scores were both .81 and were .86 and .87, respectively, for perceived external barriers.

4.5.4. Qualitative Procedure

The researcher approached the schools and youth organisations, through her networks, for their participation in the study. It is possible that some students participated in both the quantitative and qualitative phases, albeit that this is unknown. Only one school participated in both the quantitative and qualitative phases. Principals and the leaders of the youth organisations selected students to request them to participate in the focus groups. Students were informed as to the study's purpose, the voluntary nature of participation, confidentiality and the use of recording

and transcribing after the focus groups were completed. A total of 19 students participated in the focus groups, from three different regions in New Zealand. Two of the focus groups were online due to COVID-19 restrictions, and one of the groups was face to face. One group session occurred during high school time, the second group was composed of high school students in an after-school activity, and the final group was composed of a youth organisation involved in supporting a group of high school students after school.

Each of the focus groups had a variable number of high school students and the sessions were moderated by the researcher. The researcher took steps to avoid leading respondents, and the questions were reframed from time to time to seek out responses from various angles. The discussions followed a semi-structured format guided by questions that the researcher had sent out prior to the focus groups. Questions were formulated through consideration of prior research and informed by the findings of a scoping review in Phase 1. The questions were reflective of the constructs of career indecision, depression, rumination, self-efficacy, and sense of control in high school students.

Themes of the qualitative research questions:

1. How do students construct their ideas regarding what they want to pursue after school and how do they formalise the steps to take after leaving school?
2. What are the challenges or barriers that students perceive as hurdles to their pursuits after school?
3. How do students develop their mental constructs around believing they can achieve their goals and how does this make them feel when leaving school?
4. How do students develop and actualise their aspirations of future career and how are their actual choices different to these aspirations?

The focus group discussions explored these students' experiences, perceptions and emotions related to finishing school, making decisions around their careers, and possible studies after leaving school. The groups were recorded with the participants' consent, with audio

recordings transcribed verbatim to capture the participants' own words. The schools consent and focus group consent and information letters are included in Appendix B.

4.6. Ethics

Letters and information to the schools were provided and meetings with the school principals and/or counsellors were conducted if necessary to ascertain permission for access and any considerations specific to the school. Details of the quantitative scales intended to be used were described with the participating school and youth organisational leads. Qualitative questionnaires that were proposed for the focus groups or online, were shared with the schools and youth leads. Participant consent for the quantitative survey was linked to the survey as part of completion of the survey, with details at the head of the online questionnaire. Specific consent was obtained from the participants in the focus groups. The research was approved by Auckland University of Technology Ethics Committee (AUTEK), reference number 20/211. The approval letter can be found in Appendix A.

No clinical diagnosis was conducted through the research. All questionnaires were non-clinically based and valid for the age group and constructs concerned. The quantitative surveys were anonymous, and no personal details were obtained. There was unlikely to be any discomfort caused in the completion of the quantitative surveys. The participants chose to complete the survey and were anonymous to the candidate. The researcher acknowledges the potential bias in conducting the focus group sessions but was able to assure the schools of her own background in youth in respect of ethics and as a full-time employee of Youthtown Incorporated, and is trained in youth engagement, youth voice and centrality. The researcher is child protection trained and is also police vetted. There may have been some discomfort in the focus groups, as most likely the participants are known to the others in the group. Confidentiality in respect of the discussions and identity of those present, was emphasised to all participants. Participants were advised that if they needed some support, they were welcome to bring a support person (friend, parent, caregiver) who was able to remain outside whilst they are in the focus group. None was needed in this study. It was unlikely that any of questions would give rise to major discomfort, however, should this

have arisen, participants were advised of possible support, counselling options or assistance should they have needed to access this.

4.7. Summary

Multiple researchers have pointed out the need for more empirical research into the connections between career decision making, self-efficacy, sense of control and mental health factors, such as negative thinking, depressed mood, or symptomatology. Recent research points to the need for more culturally and geographically relevant investigation, more integration between personal and career counselling research and practice, as well as the need for preventative interventions that tackle both career decision processing and mental illness in students transitioning from schools to tertiary institutions or work (Blustein et al., 2019; Bullock-Yowell et al., 2015; Dieringer et al., 2017; Lee et al., 2016; Marcotte et al., 2018; New et al., 2017; Park et al., 2017; Saunders et al., 2000).

The present research used a mixed methods design to investigate connections between career decision making, self-efficacy, sense of control, rumination and depressive symptomatology specifically in high school students, in the New Zealand context, and to assess a proposed model of the constructs and possible relationships. The model presented in this thesis ultimately aimed to further inform the direction for preventative strategies, to further support the need for integrated vocational and mental health counselling in schools. In fact, the failure to date to integrate research focus on mental health and vocational decision making, is a failure to recognise the importance and significance of the career decision-making process for an adolescent in their transitional journey from school to work (Blustein et al., 2019; Bullock-Yowell et al., 2014; Krumboltz & Worthington, 1999).

Further, given the seriousness, pervasiveness, and growing presence of depressive symptomatology in young adults, the thesis also investigates lowered career self-efficacy, negative thinking, and career indecision, in transitioning from school to tertiary studies, and the hypothesised associated presence of depressive symptoms. Although there has been some research identifying a strong correlation between career indecision and depression, there is little

research identifying the role of key motivational constructs, such as self-efficacy and perceived sense of control, along with rumination as a cognitive construct, in influencing this relationship. (New et al., 2017; Rottinghaus et al., 2009; Walker & Peterson, 2012).

4.8. The Publication Chapters

This chapter outlines the overall methodology for the thesis, along with a brief description of the epistemological position, mixed method design, sampling and procedures used for data collection. The phases of the research are outlined. The next four chapters (Chapters 5-8) each present the individual publications that investigate the scope of research and the relationships through cross-sectional examination and analysis of the constructs career indecision, sense of control, self-efficacy, rumination, and depression in high school students as they approach the transition from high school to tertiary studies or employment. These chapters are outlined:

1. Chapter 5 is an article published in the Australian Journal of Career Development, titled **“Career indecision, depressive symptoms, self-efficacy and negative thoughts when transitioning from high school: A scoping review”**.
2. The publication titled **“Mediation effects of sense of control and self-efficacy on the relationship between career indecision and depression in high school students”** is presented in Chapter 6 and has been submitted to the Australian Journal of Career Development and is under review.
3. The publication in Chapter 7 titled **“A structural equation model analysis of the relationships between career indecision, sense of control, self-efficacy, rumination and depression in high school students”** has been published in Discover Psychology.
4. The final publication in Chapter 8 is titled **““Do I have to know?”: Students’ dreams, dilemmas, challenges, and uncertainties in the transition from high school.”** and has been submitted to the Journal of Applied Youth Studies and is under review.

Prelude to Chapter 5

Transitioning from high school is known to be challenging for students, however there is a paucity of research that investigates the prevalence of depression and career indecision amongst adolescents during the transitional phase of leaving secondary school and moving into tertiary studies or work. There is also no known research that has investigated the possible interrelatedness between career decision making, motivational constructs such as self-efficacy and sense of control and mental health. There is indicative research that suggests there may be relationships between depressive symptoms, negative thinking, and career indecision, along with lowered self-efficacy and perceived sense of control. Most of the research has been conducted with university students, does not include all these key constructs, and has used samples from the United States of America.

This first study was a scoping review and aimed to identify the gaps systematically across research to date, and to identify the known effects and relationships amongst these constructs. A scoping review was conducted using the adapted scoping review version of the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) methodology. Utilising the scoping review adaptation (PRISMA-ScR) guidelines, this scoping review examined the extent of existing research on the association of career indecision with depression, negative thoughts and the role of self-efficacy and sense of control among school leavers. The extensive database search indicated only nine studies met the specified inclusion criteria. Results from the studies indicated that more decided high school students tended to have more positive affect and higher levels of well-being. Conversely, levels of depression were found to be higher in less decided adolescents, with a direct relationship as well as a possible causal relationship indicated. The results indicate that integrated counselling in vocational and mental health support services is needed in schools through the leaving years and tertiary institutions as students commence study. Further research is needed to better understand the interrelatedness and specific relationships between these variables. The study in Chapter 5 was published in the *Australian Journal of Career Development* in 2023 (Amaral et al., 2023).

**Chapter 5: Career Indecision, Depressive Symptoms, Self-Efficacy and Negative Thoughts
When Transitioning From High School: A Scoping Review**

5.1. Introduction

Depression and subthreshold depression are pervasive mental health issues among young people (Keyes et al., 2019). The incidence of depressed mood and symptomatology among this population may be as high as 60%, leading to impaired school functioning and an increased risk of overall functional impairment (Carrellas et al., 2017). In fact, depression is estimated to be the leading cause of disease burden in individuals aged 14 years to 24 years, with few prevention or large-scale universal intervention programs in place (Perry et al., 2015; Werner-Seidler et al., 2017).

It has also been found that the prevalence rates of depressive symptoms and psychological distress increase during adolescence, and then these individuals are at greater risk of depression or depressive episodes in young adulthood (Avenevoli et al., 2015). Psychological distress or distressed mood is described as the presence of feelings of anger, sadness, or unhappiness. Distress may lead to depressive symptoms and thereafter to a major depressive disorder. With depressive symptoms often triggered by stressors or stressful events, end-of-year examinations are cited as a significant stressor for young people. This may exacerbate pre-existing symptomatology or trigger depressive symptoms in school leavers, particularly in cultures where university entrance is highly prized (Perry et al., 2015; Werner-Seidler et al., 2017). Similarly, transitioning from secondary school to vocations in the wider community or tertiary education is a daunting prospect, and stress, or symptoms of depression have been linked to these transitional phases (Boyras et al., 2016; Doane et al., 2014).

The importance of making a decision around a career, or what is next, is continually emphasised through the high school years (Perry et al., 2015). Career decision-making is the process of resolving internal and external conflict while determining a career direction (Bullock-Yowell et al., 2014). There are several aspects of indecision about career direction, such as being undecided regarding the subjects to include in later years of school, being undecided regarding career direction or interests, or struggling with decisions with respect to tertiary institutions, majors, and defined courses (Andrews et al., 2014; Womack et al., 2018). Some of this may be

temporary and resolve as young people transition, but some students remain undecided through the choices they make, from defining subject choices at school to entering tertiary studies or work (Bullock-Yowell et al., 2014; Krumboltz & Worthington, 1999).

Walker and Peterson (2012) have conducted one of the first studies to investigate the relationship between negative career thinking, career indecision, and depression in college students. Walker and Peterson (2012) found that dysfunctional career thoughts and career indecision were significantly related to depression, although they also concluded that this relationship is not fully understood, and causality has not been established. The researchers have suggested that there is a significant need to address mental health issues and career indecision using an integrated approach. Further research findings have suggested that depression and depressive symptomatology limit the ability for a young person to form good decisions and process their thinking around career choices (Paivandy et al., 2008; Saunders et al., 2000). Therefore, depression, depressive symptoms, and negative thinking may be both consequences and precursors to career indecision. Having clear career goals could reduce the prevalence of depressive symptoms (Rottinghaus et al., 2009). Regular calls have been made for further research to better understand the co-occurrence of depressive symptomatology and career indecision (Dieringer et al., 2017; Rottinghaus et al., 2009; Walker & Peterson, 2012).

A scoping review is best suited to map out a body of knowledge that has not yet been reviewed and to fill potential gaps in less-defined fields (Arksey & O'Malley, 2005). The present scoping review aimed to systematically establish what gaps may exist and to highlight possible areas for future research. Using the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA), the review methodically examines what studies have been specifically conducted across school leavers as they transition in relation to depressive symptoms, negative thinking, and career indecision. The review also explores evidence on sense of control and self-efficacy as potential mediating motivational constructs. Motivational constructs such as sense of control and self-efficacy are key deterministic factors influencing adolescent behaviour and decision-making and are explored as part of this review (Bandura, 1993). Expectations of adolescents around career choices, as well as contextual developmental pressures and future

orientation, including a sense of control over personal or external constraints and self-efficacy, are all likely to impact the well-being and mental health of the young person. Self-efficacy is the perception and belief of a person regarding their capabilities and skills to achieve and perform in a variety of different areas (Betz & Hackett, 2006). Bandura et al. (1999) suggested that a low sense of efficacy of one's ability to control events and the various challenges or aspects of life can lead to depression through unrealised aspirations. The present scoping review importantly includes all these key constructs as part of the search and review process.

The following key questions were used in the scoping review:

1. When depressive symptoms or negative thinking are examined, is career indecision also examined? What specific relationships, key findings, and interventions, if any, were described in these studies?
2. When depressive symptoms, negative thinking, or career indecision are examined, is self-efficacy or sense of control also investigated?
3. What is the scope and breadth of research conducted on these variables in the defined population?

Therefore, the objective of this scoping review is to describe and highlight the evidence and gaps regarding the association between career indecision and depression symptoms and/or negative thoughts, clarify concepts, and outline any possible mediating effects of self-efficacy and sense of control.

5.2. Method

This scoping review aimed to investigate the range of research that examines these constructs, given the importance of the developmental stage of adolescence. This review entailed searching for all sources of evidence that investigated depression or depressive symptoms and/or negative thinking, career indecision or decision, self-efficacy, and sense of control. The review considered the available range of study designs being used, including longitudinal, intervention trials, before and after studies and interrupted time-series studies. In addition, the database search

included quantitative correlative and exploratory studies and analytical cross-sectional studies along with qualitative studies and systematic and literature reviews.

The following steps were taken in this scoping review: 1) identifying the research questions and scope of the enquiry, particularly the constructs of interest; 2) defining the eligibility criteria; 3) searching the literature; 4) selecting the studies to be included in the full text review using PICO and SPIDER (Methley et al., 2014) methods; 5) extracting the results; 6) qualitatively analysing the selected studies; and 7) presenting the results. The overview of the results was informed by the PRISMA-ScR guidelines for scoping reviews (Joanna Briggs Institute, 2020). The search strategy and the results are outlined below.

Search strategy.

The search strategy aimed to identify published research studies and reviews. A preliminary search of the MEDLINE, OVID, EBSCO, and JBI Evidence Synthesis databases was conducted, and no systematic reviews or scoping reviews on the topic were identified. A detailed search using a wide range of text words (see Table 5.1) was used to develop a full electronic, online search strategy for the SAGE, Scopus via EBSCO, education journals via OVID, PsycInfo via OVID, EBSCO Wiley, Web of Science, Google Scholar, and NACADA databases. Databases were selected according to subject matter coverage, particularly education, vocational research, psychology, and mental health research, along with a full university academic library search. The full search of education journals via Ovid is included as an example in the Appendix. In each database, subsequent searches for sources of evidence that met the inclusion criteria were expanded, by using text words contained in the titles and abstracts of relevant articles and the index terms used to describe the articles. Specific search terms, filters and strategies were aligned to each database convention, and the Boolean operators “OR” and “AND” were used to combine the terms. The reference lists of the included sources of evidence were hand screened for additional studies. Studies published since 1990 were included to cover thirty years of research, ensuring coverage and depth to better identify gaps and highlight key findings. The full database search was conducted during June and July 2021.

Table 5.1 *Key Words and Key Variables Used in the Search*

Key words/variable search terms			
Career Indecision	Depression	School leavers	Self-efficacy
Career Indec*	Depress*	School leavers	Self-efficacy
Career choice	Depress* symptom*	School leav*	Career self-
Career thoughts	Depress* mood.	School	efficacy
Indecision	Rumination	students	Career thoughts
Vocational choice	Negative thoughts	High school	
Career decision	Negative affect	Young adults	
Career confusion		Adolesc*	

Note: The asterisk (*) serves as the truncation operator. The search words match if they start with the specified word prefix stated before the asterisk (*) operator. Example of search ERIC via OVID: ("indecision" or "career decision" or "career choice" or "vocational choice") AND ("depress*" or "depress* symptoms" or "rumination" or "negative thoughts").

Eligibility criteria

The following inclusion criteria were used in the search, screening, and selection of studies. The included populations were defined as school leavers or transitioning high school students and those students just entering tertiary studies. The populations age bracket was specified and included adolescents 15 to 20 years. The present review included all genders, races, and ethnicities and evaluated only research published in English. The research had to include the key criteria variables and contexts across mental health, career indecision, self-efficacy, and sense of control. Mental health constructs included depression, symptoms of depression; rumination; or negative thoughts and emotion, in the included population and as it related to transitioning from school, career decidedness or career decision-making. Career indecision has been defined as the state of confusion or difficulties associated with the pursuit of a career through first study or into work (Gadassi et al., 2015). Research that investigated the effects of self-efficacy and/or sense of control was also included.

The review specifically excluded studies of university or college students who were well past the post-high-school transition period as well as employed individuals. The review specifically excluded any research conducted in sample populations that investigated clinically depressed or major depressive disorders. Only studies that included all the key constructs under investigation, that is symptoms of depression and negative thoughts and/or emotion or rumination and career indecision were included. Studies of individuals in the early stages of high school and those making career-related decisions at younger ages were also not included. Finally, studies on gifted or disabled students were not included.

If the studies met the inclusion criteria after the title and abstract screening, they were selected for full text review. A total of 39 full text articles were qualitatively assessed against the inclusion criteria using both the PICO and SPIDER methods (Methley et al., 2014) based on the purpose of this review and key research questions outlined above.

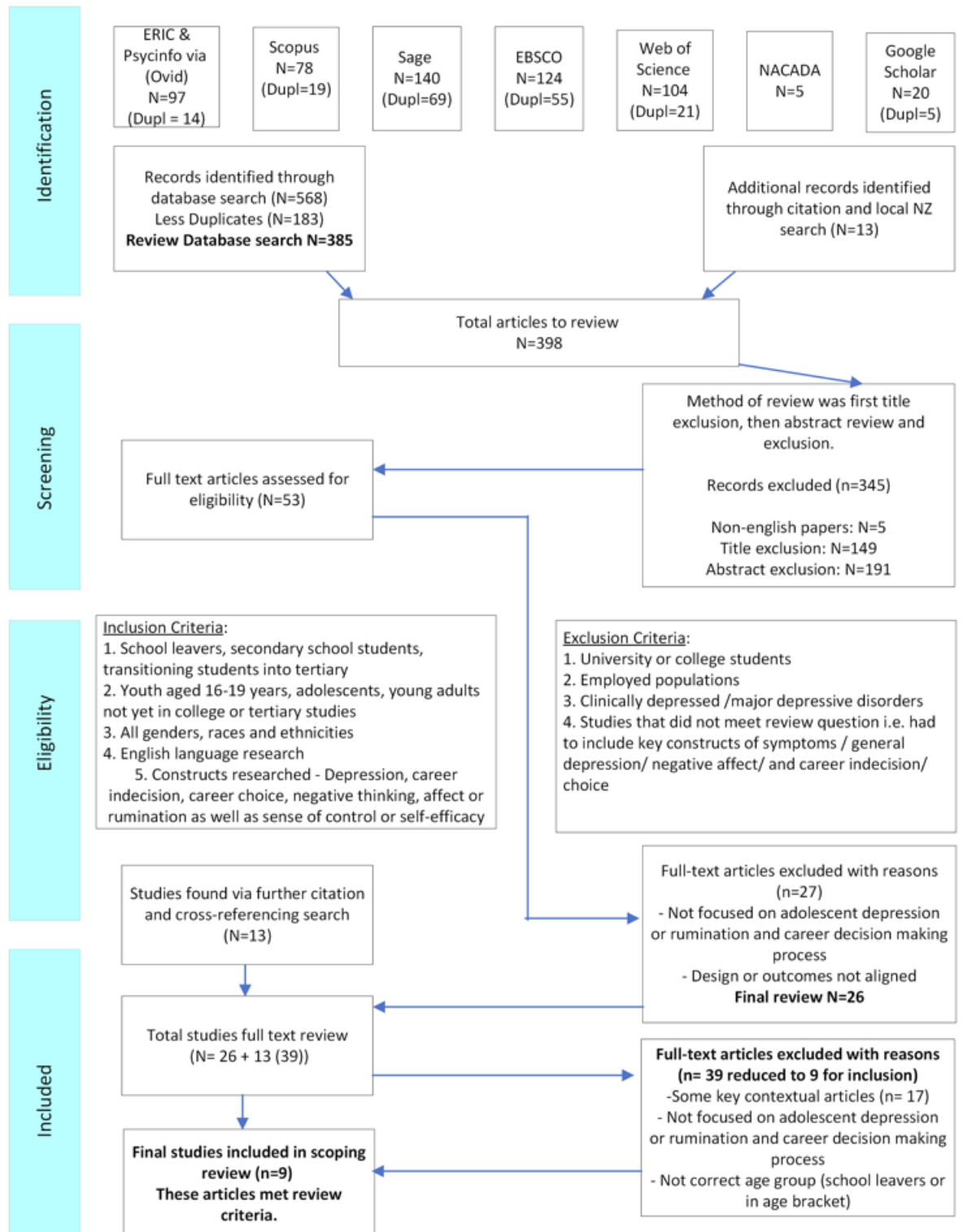
Each of the selected 39 studies included for the full text review were assessed according to the source methods, population, interventions, and key findings. The selection process for the data sources was entered into an Excel spreadsheet and mapped according to the PRISMA method (Joanna Briggs Institute, 2020). The results were synthesised to meet the objective of this scoping review. The results were tabulated and summarised in relation to the defined scope and gaps in the evidence in relation to each study's scope against the variables of career indecision, negative thinking, and depression specifically, as well as assessed against the extended effect of possible mediating variables of self-efficacy and sense of control, and the consistency of findings was noted. The reasons for excluding studies during the full text review were then recorded, leaving a final selection of studies meeting the inclusion criteria.

5.3. Results

As shown in the PRISMA-ScR diagram (Figure 5.1), a total of 568 articles were identified in the full database search. After all duplicates were removed, 385 articles remained, further citation and local search added 13 to extend review list to 398 articles. After title and abstract

review, 53 articles were qualitatively reviewed against the research questions using the PICO and SPIDER methods. The main reasons for exclusion were the sample or population criteria were not met, or the key constructs of depression; symptoms of depression; negative thoughts and career indecision; or decision-making were not included in the research. Twenty-six articles then remained, and an additional 13 articles were added after manually searching the reference lists of the initially included studies. A further full text review was conducted on the 39 studies. Nine studies were finally selected as meeting the objectives of this scoping review.

Figure 5.1 Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) Flow Diagram Used in the Search Strategy With Results



The full text review showed several articles that were partially in scope, but upon detailed review, it was determined that these studies did not investigate the constructs in the core defined

population, or they did not combine the constructs in a manner that answered the key research questions for the review. Of the 39 full text reviews, only 46% included the defined population of adolescents between 15 and 20 years of age or school leavers. A total of 72% of the studies in the full text review included a measure of career decision-making or vocational choice. As identified in the final full text review, only 33% of the studies included depression or psychological distress as key variables. Only eight studies (21%) specifically investigated the relationship between career indecision and symptoms of depression. Much of the research that included the key constructs in the review was across older, university-going samples, predominantly in the USA. None of the research studies included all the defined variables, that is, career indecision, depression, negative thinking, self-efficacy, and sense of control. The nine articles selected for final review met all the inclusion criteria based on the population, design, key phenomenon of interest, and key variables.

Table 5.2. lists descriptions of the final nine included articles, the characteristics of the studies, a description of the research designs, and relevant findings. Each of the studies is cited along with a description of the populations in the sample. The nine studies were fairly diverse, representing several countries, with three studies in the USA, all of which were college entrants. Two of the studies were in Australia, both with high school students. Of the nine studies, six were with high school students specifically in the leaving years. The final included studies had participants with the mean age between 15 years and 20 years, all included both genders, albeit most were skewed to female participants. One study was a qualitative study. The studies largely did not overlap in the use of scales, with specific variables examined by each study varying quite substantially, although all studies investigated a measure of career indecision or career choice, depressive symptoms; or negative emotion; and /or negative thinking. Some studies investigated sense of control or self-efficacy. Most studies were unique research contributions to the field, and all noted the relative lack of research into the relationship between career decision making and emotional factors, mental health, and negative thoughts.

Table 5.2 *Summary of the Review of Nine Articles Found to be in Scope*

Authors	Sample description	Description of Study	Results and described relationship between the constructs
Aguiar & Conceição, 2015	n = 9; 11th grade/Brazilian underprivileged students; 8 females, 1 male; mean age = 16.77 years.	Investigates youth perceptions of their mental health and career decision process. Qualitative study conducted during 9-week career guidance workshop. Interviews were before and after the program. Possible self-report and selection bias inherent in the qualitative study subjectivity was acknowledged.	Student needs are not limited to career guidance. Significant barriers impact motivational constructs. Emphasises the importance of good transition and the value of career counselling. Career choice difficulties may impact well-being. Student avoidance of career counselling as it is too confronting and created anxiety. Integrated career counselling intervention focussed on identity, support and confidence had positive outcomes.
Parmentier et al., 2021	n = 541; school leavers in Belgium, over 2 waves; mean age = 17.43 years.	Measuring the anticipatory emotions related to the future and career decidedness as the student's transition. Two waves, measured across 2 cohorts, across profiles, those with positive emotions, mixed and negative emotions. Possible channelling bias inherent in selection of students to profiles. Possible outcome reporting bias – career decidedness measured on 1-item scale and specific range of emotions selected.	Results highlighted the need for more research regarding emotions and career decision-making during the critical transition from school. Students with higher career decidedness were more likely to have positive anticipatory emotions. The study highlights the potential for positive intervention to increase a more positive career outlook and emotional well-being. Study acknowledges limitations given convenience sample and possible
Jung & McCormick, 2010	n = 492; Australian school students - grade 11; 57% female; mean age 15.92 years.	Research explores the occupation decision process in relation to the level of amotivation. Used several scales and assessed the relationships across several occupational factors and amotivation. Amotivation is related to sense of control and linked to self-efficacy. Possible outcome reporting bias – model was re-specified, part of larger study. May be confounding bias with complexity of amotivation construct.	Found a strong relationship between occupational amotivation and indecision; engagement - drop out of school may be related to amotivation. Amotivation may play a role in the prediction of indecision. Investigates role of expectancy for success and the impact of family members on occupational decision-making processes.

Authors	Sample description	Description of Study	Results and described relationship between the constructs
(Bullock-Yowell et al., 2014)	n=266; n=143 decided (mean age = 20.57) and n=83 undecided in USA; mean age = 19.68 years; sex distribution skewed toward females.	Students entering college were assessed for negative thinking, career decision-making difficulties and self-efficacy across the two groups (decided and undecided). Selection bias possible as credits/incentive offered for participation. Study acknowledged possible gender bias – predominantly female. Reliability of CDDQ (measures readiness to engage in decision making) scale lower than other scales.	Undecided-decided status determined to be predictor of career decision making self-efficacy. Undecided students appeared to have more negative thoughts and lower self-efficacy. Further, these students may experience heightened anxiety, stress and sometimes depression in relation to their undecided status.
(Lowe & Wuthrich, 2021)	n = 56; Australian high school students; 43 females/13 males; ages 17 & 18 years.	Quantitative/small sample; Final year students took part in 8-week program to reduce stress related to final exams and future education or employment options. Intervention was behavioural program designed to reduce stress compared with “usual care”. Possible design bias given small sample size /application of program and self-reporting bias.	Intervention resulted in reduced self-reported stress and distress, with increased self-efficacy; ideal space in schools to address sub threshold distress, depression and increase mental well-being. Reported improvements maintained over time. Overall mean averages of depression and anxiety appeared to also reduce after the intervention program but were not significant.
Smith & Betz, 2002	n = 405; USA entrant college students taking career dev. courses for credit; n = 276 females /n = 129 males; mean age = 18.8 years.	Strong quantitative design. Random calibration (n= 288) and validation (n= 117) sample groups. Six scales used. Two models tested to assess the pathways between efficacy and depression. Self-efficacy contributes to motivation to learn. Possible slight selection bias as participants were Psychology students and some received course credit for participation.	Career indecision directly related to depressive symptoms. Career decision self-efficacy related to career indecision. Self-efficacy and self-esteem strongly correlated to depression. Motivational constructs key. Two models tested via path analysis. Models were a good fit to data.

Authors	Sample description	Description of Study	Results and described relationship between the constructs
Saunders et al., 2000	n = 215; undergrad Psychology students in the USA; 74% women; mean age = 18.5 years.	This study acknowledges complexity of career indecision (CI) and emphasized the need for further research on CBT/cognitive restructuring. Also assesses the relationship between depression, negative or dysfunctional career thoughts, vocational ID, CI, and locus of control. Possible selection bias – sample representativeness. Study acknowledged complexity on interpreting outcomes.	Depression was significantly associated with career indecision; negative career thinking increases decision-making confusion. Counsellors should be aware of career decision making as it relates to depression. The findings suggest that depression can lead to career indecision and vice versa. Motivational constructs, locus of control, impact negative thinking, especially external thinking. A low vocational identity along with negative career thoughts could lead to higher state of career indecision as well as depression and anxiety.
Kulcsár, Dobrean, & Balázs, 2020	n = 384; high school students in Romania; 54% female; mean age = 17.9 years.	Worry assessed as a moderator in the relationship between career decision making difficulties and negative dysfunctional emotions; students completed a questionnaire; students also completed a career course; the association of career decision difficulties with psychological distress was examined among high school students, along with the sense of control. Possible outcome reporting bias due to exploratory design aspects – 6 models tested. Limitations acknowledged in study.	Career indecision contributed to psychological distress and mental health problems, and these relationships were significantly moderated by worry; career decision-making difficulties is a stressor that activates worry as a mediator, thereby leading to a negative emotional state. Results showed that career indecision increased nearer to the end of high school along with an increase in negative dysfunctional emotions. Researchers suggest that negative dysfunctional emotion more likely the consequence of career decision making difficulties.
Marcotte et al., 2018	n = 438; Canadian transitioning high school students; 52.4% female; age range 15-18, mean age = 16.2 years.	Investigated whether pre-transition depressive symptoms predict post-transition depressive symptoms? Double transition -school to tertiary and developmental to young adulthood. Examines pathways to depression and how symptoms may be predicted, especially when transitioning from school. Completed 3 consecutive studies – each study was 3 years and overall was a 9-year longitudinal study (2003-2012). Strong design but may include confounding bias – researchers observed post transition depression may be due to other factors.	Increasing mental health issues occur during the transition from school. The research suggests that positive intervention during the high school years can be implemented, and future episodes of depression can be better prevented. Transition is a key developmental period for young people, particularly with respect to career decisions. Not enough studies have examined pathways to depression. The study confirmed that the presence of symptoms of depression was a strong predictor for actual depression later or post transition. A model is suggested for understanding these predictive links with depression in this transitional stage.

Research question 1: When depressive symptoms or negative thinking were examined, was career indecision also examined? What specific relationships, key findings, and interventions, if any, were described in these studies?

The results of the nine studies included in this review indicated that there is evidence suggesting that career indecision, depressive symptoms and negative thinking are directly related. Specifically, the studies concluded that undecided students were more depressed than decided students. The findings also suggested that depression can lead to indecision. More specifically, of the nine final studies reviewed in this scoping review, certain claims were evidenced. Smith and Betz (2002) found that career indecision was directly related to symptoms of depression. Furthermore, negative thoughts about career decision-making were directly related to symptoms of depression. Saunders et al. (2000) examined students with a mean age of 18.5 years and found that depression was significantly associated with career indecision, and negative career thinking increased decision-making confusion. Further researchers showed that the state of indecision may result in heightened anxiety, stress and depression (Bullock-Yowell et al., 2014). Marcotte et al. (2018) conducted a longitudinal study and found that the transition from high school was a key developmental period for young people, particularly regarding occupation choice. The research showed that there are increasing mental health issues in this transition phase, suggesting that more interventions should be implemented to prevent further depression. Parmentier et al. (2021) found that students with less career-related indecision had a more positive outlook and higher levels of well-being. Kulcsar et al. (2020) investigated the relationship of worry as a moderator between career indecision and negative dysfunctional emotion. Career indecision in high school students and the effect of worry contributed to psychological distress and mental health problems in the study by Kulcsár et al. (2020).

Research question 2: When depressive symptoms, negative thinking, and career indecision were examined, were self-efficacy or sense of control also investigated?

The results of the studies that met the scoping review inclusion criteria showed that increased self-efficacy was associated with lowered levels of depression and lowered career

indecision. Results also suggested that increased motivation, sense of confidence in the future and sense of control increased career decision confidence and reduced impact on health and well-being. The nine studies reviewed revealed certain findings. In the study by Lowe and Wuthrich (2021), self-efficacy was hypothesised to be related to distress and anxiety, whereby increased self-efficacy would result in reduced emotional distress; in interventions designed to reduce stress in the last two years of high school there were lowered levels of distress and increased self-efficacy. The same study showed elevated levels of observed symptoms of depression in these high school students. Smith and Betz (2002) found that career indecision was directly related to depressive symptoms and that career decision self-efficacy was also directly related to career indecision. Lowered self-efficacy was also strongly correlated with depression. The mean age of students in the study was 18.8 years. Bullock-Yowell (2014) found that students with career-related indecision appeared to have more negative thoughts and lower self-efficacy. Few studies have also investigated sense of control, barriers, or locus of control along with the key defined variables in this review. In a small study by Aguiar and Conceição (2015), the positive impact of gaining confidence in the future was seen to positively influence the career guidance process and students felt less anxious. This study also investigated the impact of perceived and real barriers that impact motivational constructs. Amotivation was investigated by Jung and McCormick (2010) and was found to play a role in predicting career indecision and potential school dropout. Only 4 studies included an aspect of sense of control with both career indecision and depression (Aguiar & Conceição, 2015; Dieringer et al., 2017; Saunders et al., 2000; Smith & Betz, 2002). The evidence of the relationships was indicated in the research; however, the exact nature of the relationship has not been established, and establishing clear causality remains a key gap.

Research question 3: What is the scope and breadth of research conducted on these variables in the defined population?

The results of this scoping review showed that there are limited studies that focus on career indecision, depression, negative thinking, as well as sense of control and self-efficacy, particularly in high school students leaving school or transitioning into higher learning. The

results from the search indicated that only 2.2% or 9 of the 398 studies found in the search examined the relationship between career indecision and depression, and fewer also examined the possible impact of self-efficacy and sense of control in the transition from high school to vocational studies or work. More specifically, the findings presented in the final nine reviewed studies highlighted certain points of interest. Marcotte et al. (2018) suggested that not enough studies examined pathways to depression in the transitional stage from high school to vocational training or work. Marcotte et al. (2018) pointed out that the rate of recurrence of depressive symptoms was between 50% and 70% in adolescents, and that adolescents were reticent to seek help, suggesting that prevention programmes are important prior to transition (Marcotte et al., 2018). The results from this scoping review suggested that there is limited research available that investigated these variables in the defined population. The most significant finding of this review was that research into this defined population, that is, high school students in the transition from school to vocational studies or work, has been limited, particularly in relation to career indecision, negative thoughts, depression, self-efficacy, and sense of control. It was highlighted throughout the nine studies assessed that there has been limited research in this population and that more research and intervention studies are needed to understand the pathways to depression in the context of transition and career decision-making.

The results of this scoping review suggested that there could be a direct and measurable relationship between career indecision and negative thinking or symptoms of depression. The review findings further specified that career decision difficulties could act as a stressor, which in turn may lead to negative emotions or distress. The results of the review also indicated a significant relationship between negative thinking and career indecision, whereby negative thinking could increase career confusion and subsequent distress. The results from the review identified the relationship between self-efficacy and career indecision, as well as the impact of lowered self-efficacy on negative career thoughts. Sense of control, barriers, and perceived external factors were also identified as impacting both career decision-making and mental health. The results of the review illustrated that there is an existing gap in the breadth and depth of the

research around students transitioning from high school and their career decision-making, rumination, negative thinking depressive symptomatology, self-efficacy, and sense of control.

5.4. Discussion

The purpose of this scoping review was to establish the extent of research on the relationships among career indecision, negative thinking, and depression in school leavers transitioning into vocational training or work. This review also examined the impact and possible effects of self-efficacy and sense of control on career indecision and depression in school leavers. A significant gap was identified in the research conducted to date in terms of the impact of the process of career decision-making and transitioning from school on mental health, particularly in reference to symptoms of depression and negative thoughts or rumination. The findings further suggested that key researchers in the field have identified the need for greater awareness of the impact of career confusion, indecision, and processing on young people. The complexity of making career choices after school likely adds to adolescent confusion, distress, negative thinking, and hopelessness (Dieringer et al., 2017; Rottinghaus et al., 2009). The studies identified in the review support the need for more integrated approaches in both research and counselling at schools and in postschool settings. Globally, there is a distinction drawn between the practice of career counselling and clinical or personal counselling, and this distinction spills into the research domain as well as counselling interventions (Blustein et al., 2019; Dieringer et al., 2017; Rottinghaus et al., 2009). Blustein et al. (2019) presented a strong case for a more integrated approach both in counselling practice and research involving career development, processing and the interconnectivity of well-being or mental health and work.

Based on our scoping review, there is evidence to suggest that career indecision and depression are directly related (Aguilar & Conceição, 2015; Gadassi et al., 2015; Saunders et al., 2000; Smith & Betz, 2002), whereby students in schools or transitioning out of school who were more decided were significantly less depressed than those who were undecided. Positive interventions in the high school years addressing transition stressors, including career choice, may minimise future depressive episodes (Marcotte et al., 2018; Parmentier et al., 2021). The review results indicated that leaving school is a key transitional period for young people and that pressure

around career choice processing is significant for them in this stage (Aguiar & Conceição, 2015; Jung & McCormick, 2010; Kulcsár, Dobrean, & Gati, 2020; Lowe & Wuthrich, 2021; Marcotte et al., 2018). Studies with positive interventions to address career indecision in the transitioning phases showed reduced symptoms of depression after the interventions. Similarly, increased career indecision resulted in increased symptoms of depression (Anghel & Gati, 2021). The review results showed that negative career thoughts increase decision-making confusion, and undecided students have higher levels of negative thoughts and lower self-efficacy.

Several of the studies in scope showed that increased negative career thoughts are linked to increased negative affect or distress (Paivandy et al., 2008; Saunders et al., 2000; Walker & Peterson, 2012). Furthermore, interventions to increase self-efficacy and sense of control over exams and future employment options showed reduced self-reported distress (Lowe & Wuthrich, 2021). Results indicated that lowered self-efficacy, career indecision and depression are highly correlated, with self-efficacy impacting the motivation to learn and negative thinking patterns (Saunders et al., 2000; Smith & Betz, 2002). The interrelationship between career decision-making and mental health is discussed below with specific reference to career indecision, mental health constructs, that is, depression or negative thinking, and motivational constructs self-efficacy and sense of control.

Career exploration and the impact of indecision on mental health

The results from the nine reviewed articles suggested that career decision processing-related difficulties are strongly correlated with mental health concerns and that career counsellors in schools and tertiary schools should be better equipped to identify these issues and support students (e.g., Anghel & Gati, 2021; Gadassi et al., 2015). The complexities of transitioning from school along with the changing nature of work add to the complexities in career decision processing, as well as potential mental health issues. The need for integrated counselling in schools and universities is expressed and tabled within the reviewed sources. The results, in this scoping review, suggested that a better understanding of the rise of symptoms of depression in high school students and the associated levels of career uncertainty and indecision will assist in providing better preventative care for students before they reach vocational training or work.

Marcotte et al. (2018) conducted an extensive longitudinal study and found that mental health indicators increased in the transition from high school; they also suggested that there is insufficient research examining the pathways to depression around this transitional stage to introduce preventative measures earlier on. Marcotte et al. (2018) further suggested that making choices and decisions as related to career path and direction are particularly stressful and can lead to anxiety and depression, in turn making decisions more difficult. This transition stage is complex; the results from the present scoping review showed that there may be increasing mental health issues through this time, and there are not enough studies investigating the impact of career choice difficulties on mental health (Lowe & Wuthrich, 2021; Marcotte et al., 2018).

Of the nine studies in the review, eight studies supported the need for further research into mental health concerns directly associated with the transition from school and career decision processing. In the study conducted by Parmentier et al. (2021), school leavers with lower levels of indecision had a more positive outlook and higher levels of well-being. The results from this scoping review suggest that there is very little published research that examines depression, depressive symptoms, and negative thinking alongside career decision-making. There is also limited research investigating self-efficacy or sense of control and how this affects career decision-making, particularly in school students transitioning from school.

The additional impact of self-efficacy and sense of control

This scoping review also aimed to investigate the possible impact of self-efficacy and sense of control on students' transitions, particularly in relation to career decision-making, negative thinking, and depression. The review results show that increased self-efficacy contributes to the motivation to learn and is directly associated with reduced mental distress and depression. The results of the review also showed that there is likely a direct relationship between lower self-efficacy and career indecision and depressive symptoms (Smith & Betz, 2002). In this scoping review, the results show that low social and academic self-efficacy contributed to later depression (Smith & Betz, 2002). Furthermore, the results of the review indicate that there is very little research exploring the relationship between self-efficacy and career indecision in relation to depression or negative thoughts. There was no research that explored all of these constructs and

the impact of sense of control. This review suggests that there remains a significant gap in the research regarding the links between these constructs and transitioning from school and career decision-making in adolescents.

Impact on High School Students

Depressive symptoms have also been linked with high school drop-out, whereby one out of four high school dropouts had significant depressive symptoms in the three months prior to leaving school (Dupéré et al., 2018). In the review results, the study by Jung and McCormick (2010) indicated that there are links between amotivation, indecision, drop out and disengagement. Ultimately, “investments in comprehensive mental health services are needed in schools struggling with high dropout rates, the very places where adolescents with unmet mental health needs tend to concentrate” (Dupéré et al., 2018, p. 205). The scoping review results demonstrated that there is a gap in the research into the mechanisms underlying the relationship between career indecision and depressive symptoms, particularly in school leavers. The review findings suggest there are indications of the value of interventions at school that could increase self-efficacy, reduce stress, reduce worry, and may minimise the advent of increased mental distress, as well as the onset of anxiety and depression. The review findings also suggested that more research is needed into the interrelatedness of emotion and career processing in school leavers as they approach transitioning.

The present scoping review may have been limited by the fact that it was restricted to English language research, particular databases chosen for the search and key words that ultimately may have been further substituted with further synonyms. This scoping review was further limited by the nature and specificity of the inclusion and exclusion criteria. The research findings may be limited with respect to the qualitative nature of the assessment of the eligible sources of evidence. The review may be limited in that only completed and published studies were included, therefore studies included may be subject to publication bias. Finally, this review may also be limited by the chosen scope overall, the specified inclusion criteria or the limitations around ethics that are inherent in the field of study, particularly with respect to the age group defined in this review.

5.5. Conclusion

Despite the stated limitations, the results from the scoping review revealed that although there is some research that investigates the relationship between depression and career decision-making, there is no research investigating the interrelatedness among depression, negative thinking, self-efficacy, sense of control and career indecision in school leavers as they transition into vocational training or work. The pressure to choose a path, along with perceived barriers or lowered career self-efficacy, as well as the development of negative thoughts, is not only a cognitive journey but also an emotive journey. The review findings suggested that there are very few studies that explored depressed mood or symptoms among school leavers with career-related indecision (Park et al., 2017; Rottinghaus et al., 2009; Saunders et al., 2000; Walker & Peterson, 2012). The research is therefore currently limited in scope and breadth.

In conclusion, the review results suggested that there is a direct relationship between career indecision and depression and/or negative thinking. However, there are gaps in the research with respect to school leavers particularly and the possible further impact and effect of self-efficacy and sense of control on career decision making in relation to depression, as well as negative thinking in school leavers. These constructs have not yet been integrated into comprehensive research studies, and thus, the exact nature of the relationships between these constructs and their influence on the adolescent developmental stage of transitioning out of school have yet to be fully elucidated. Further studies need to be conducted to explore the exact nature of the relationships between the constructs of career indecision or choice processing, depression symptoms, rumination or negative thinking, self-efficacy, and sense of control in school leavers as they transition.

Prelude to Chapter 6

The results discussed in Chapter 5 confirmed the hypothesised gaps using a scoping review with a systematised search strategy. So, this is how the first phase of study in Chapter 5 was more robust than the literature review Chapters 2 and 3, which were narrative. The findings from the review indicate a clear link between uncertainty around career choices and feelings of depression or negative thinking. However, there are notable gaps in the research to date, particularly concerning the impact of self-efficacy and a sense of control on career decision making amongst school leavers and how these factors may relate to depression or negative thinking in this age group. Comprehensive studies integrating these factors are lacking, leaving the interrelatedness and dynamics of these relationships during this critical period of transitioning out of secondary school unclear. From the scoping review results, it is indicated that future research is needed to investigate how career indecision, depression symptoms, negative thought patterns, self-efficacy, and sense of control, may interrelate and affect one another in this transition phase for secondary school leavers.

Therefore, there is emerging evidence that mental health concerns can arise from the process of deciding on tertiary studies or a career after school. This next phase of the study described in the present chapter, examined the potential mediating role of self-efficacy and sense of control with respect to the association between career indecision and depression among a sample of high school students in New Zealand. Participants were 315 high school students from New Zealand aged between 16 and 19 years. The final sample analysed comprised 275 participants' data. Analysis assessed the hypothesised mediation effects of sense of control and general self-efficacy. Over 50% of students reported severe symptoms of depression. Over 70% of the students indicated significant career indecision. Results indicate that self-efficacy and perceived external constraints were significant mediators in relation to the relationship between career indecision and depression. These findings have implications for the development of comprehensive integrated counselling interventions in vocational guidance services and mental health support within high schools to promote students' well-being and successful transition from school. A manuscript of the study reported in this chapter has been submitted for publication in

the Journal of Community and Applied Social Psychology and is under review (Amaral et al., 2024b).

Chapter 6: Mediation Effects of Sense of Control and Self-Efficacy Within the Relationship Between Career Indecision and Depression in High School Students

During adolescence, young people face numerous challenges and stressors, including the transition from secondary school to work or tertiary education. This transitional period involves key decisions such as choosing career paths, selecting courses, and planning for future education or training. Career decision making is a complex process influenced by multiple contributing influences, including personal, social and environmental factors (Carrellas et al., 2017). High levels of indecision have been linked to negative emotions and low self-esteem (Creed et al., 2005). Mental health concerns and career indecision are both key areas of concern for schools and their students, given that research having indicated that worry, anxiety, depression, hopelessness and negative thinking are related to career indecision (Kulcsár et al., 2020; Marcotte et al., 2018; Saunders et al., 2000). Marcotte et al. (2018) have suggested that there are increasing mental health issues that can arise in the transition from high school and that interventions can be implemented during high school which may prevent future episodes of depression.

Dysfunctional career thinking, such as negative or unrealistic career beliefs, has been shown to influence the decision-making process and can contribute to career indecision, which may increase psychological distress (Carrellas et al., 2017; Masselink et al., 2018). Further, dysfunctional career thinking, low self-efficacy, and a sense of lack of control over external barriers may exacerbate career indecision with possible implications for mental health outcomes. Lowered self-efficacy, or the belief in one's own ability to achieve set goals or perform, is linked to increased distress and depressive symptoms (Hickey et al., 2017). Understanding the interplay between these factors may provide insights into the potential mechanisms through which career decision making may impact psychological distress in students leaving high school.

Research on the relationship between career decision making and mental health outcomes, particularly depressive symptoms, has largely been limited to investigations in tertiary students. Some studies have suggested that career decision-making difficulties are associated with increased depressive symptoms, while other studies have found positive correlations between career indecision and anxiety or negative thinking (Kulcsár et al., 2020; Xu & Tracey, 2017). Self-efficacy has been positively linked to proficient career decision making, perceived academic

success, problem-solving capability, goal achievement, resilience and actual academic attainment (Bandura & Locke, 2003; Pastorelli et al., 2001; Rottinghaus et al., 2009; Scherbaum et al., 2006). Sense of control and perceived barriers and the perceived lowered chances of entering specific careers has been shown to be linked with lowered self-efficacy, career optimism and lowered career self-efficacy (Anderson & Betz, 2001; Duffy, 2010; Ganske & Ashby, 2007; Lent et al., 2017). Lowered sense of control in Australian high school students has also been linked to increased stress over future employment and heightened distress (Lowe & Wuthrich, 2021; McGraw et al., 2008). In other words, more proficient career decision-making is linked with higher self-efficacy, better resilience and positive academic outcomes, whereas career indecision and lower self-efficacy is associated with poor sense of control, perceived career barriers and negative emotions (Kulcsár et al., 2020; Marcotte et al., 2018; Saunders et al., 2000; Smith & Betz, 2002).

During adolescence, rates of depression and distress may increase, making it crucial to identify significant risk factors that may trigger or exacerbate these symptoms (Hickey et al., 2017). Depressive symptoms or sub-threshold depression may also be described as psychological distress, characterised by feelings of anger, sadness or unhappiness and can lead to more severe depression (Carrellas et al., 2017). Sub-threshold depression or depressive symptomatology, which is not routinely measured, may be missed during the clinical assessment process. Further, rates of depression amongst young New Zealanders, as evidenced by the Youth19 study, have steadily increased and are more severe amongst Māori and female students (Fleming et al., 2020). Overall rates of depression in adolescents are shown to be increasing in Australia and New Zealand (Fleming et al., 2022; Singh et al., 2019), although it is also possible that it is the diagnostic and reporting rates that may have increased, rather than true prevalence (Bor et al., 2014; Thapar et al., 2012). Fleming et al. (2022) reported that between 2012 and 2019 there have been “rapid increases in symptoms of depression (13.0% to 22.8% RADS-SF)” across secondary school students in New Zealand (Fleming et al; 2022, p.426).

Given the potential impact of career decision making on psychological distress and depressive symptoms, it is important to examine this relationship in the context of high school students, who are undergoing a critical transition period in their lives. High school students face

unique challenges such as academic pressures, peer relationships and career-related decision making that can impact their mental health and well-being (Wuthrich et al., 2020). It is challenging to address the levels of both career indecision and depression in adolescents, as often those who most need the interventions never receive them (Chiesa et al., 2016; Cuijpers, 2022). Moreover, the cultural context and educational system in New Zealand may have specific implications for career decision making and students' mental health, warranting a closer examination of these factors. However, there are very few studies that specifically investigated the relationship between mental health and career decision making in high school students (Amaral et al., 2023).

This study explored the relationships between career decision making, self-efficacy, perceived sense of control, and depression in high school students in New Zealand in order to contribute to the understanding of the role that career decision processing and indecision plays as a potential risk factor for depressive symptoms in high- school leavers. This study aimed to answer the following research questions:

- 1) What is the prevalence of career indecision and depression in high school students across New Zealand, and to what extent do more undecided high school students have more severe depressive symptoms?
- 2) What associations exist between career indecision, self-efficacy, sense of control and depression in high school students?
- 3) To what extent is career decidedness and depression mediated by self-efficacy and sense of control in relation to personal mastery or sense of control over perceived external constraints?

6.1. Method

Participants

Participants were 315 students, from multiple schools and youth organisations across New Zealand, who were in the process of completing high school. The data were collected between November 2020 and October 2021. All participants were at least 16 years of age. More

than half of the participants (50.8%, $n = 160$) identified as female, 45.1% ($n = 142$) as male, around 2.9% ($n = 9$) as gender neutral, and 1% ($n = 3$) were under the category of “other”. Further, more than half of the participants (53.7%, $n = 169$) identified as New Zealand (NZ) Europeans, 19.4% ($n = 61$) were Pasifika, 13.7% ($n = 43$) were Māori, 5.1% ($n = 16$) were Asian, and 7.3% ($n = 23$) identified as “Other”. Of the 315 participants, 39.4% ($n = 124$) were aged between 17 and 18, while 31.7% ($n = 100$) were aged 18 years and above, and the remaining participants (28.9%) were aged between 16 and 17 years old ($n = 91$).

Procedure

Attempts were made to access schools and youth organisations representing the socioeconomic range spectrum of New Zealand. The selection was not randomised, but the schools were not personally known to the researchers. Sampling of the organisations therefore used convenience, access, and snowball sampling. Principals and leaders consented to send the anonymous online Qualtrics questionnaire (<https://www.qualtrics.com>) link to their students or youth aged between 16 and 19 years. Students followed the identical order of questions and questionnaires on mobile or web through the link. Students were informed that they could withdraw from the study at any time up until the point they submitted their anonymous responses. There were no incentives provided to schools or individuals to participate.

Measures

Career indecision was assessed utilising the 18-item Career Decision Scale (CDS), a scale designed to measure career indecision and the antecedents to career indecision (Osipow, 1999). The CDS has been widely used across English-speaking countries and cross-culturally (Feldt, 2013; Meyer & Winer, 1993; Osipow & Winer, 1996). It assesses factors contributing to career indecision, with extensive evidence supporting the questionnaire’s test-retest reliability, construct validity and concurrent validity (Feldt et al., 2010; Osipow & Gati, 1998; Osipow, 1999; Osipow & Winer, 1996; Stringer et al., 2012). Items employ a 4-point scale, ranging from 1 = *Not at all like me* to 4 = *exactly like me*. Decision scores are the sum of scores on Items 1 and 2. Indecision scores are calculated as the sum of the scores on Items 3-18, with higher indecision indicated by

higher scores. Cronbach's alpha and McDonald's omega for this study indecision scores were 0.87 and 0.85, respectively.

Depressive symptomatology or depressive symptoms were measured using the Centre for Epidemiological Studies Depression Scale (CES-D) scale (Radloff, 1977). The CES-D scale has been widely used globally to measure depressive symptoms across a wide range of age groups within the general population and is also considered an appropriate measure for adolescents (Bernaras et al., 2019; Blodgett et al., 2021). The scale has 20 items and includes 4 items (Items 4, 8, 12, and 16) that are positively worded and thus need to be reverse coded prior to data analysis. Items are answered by scoring the response to the items as: 0 = *Rarely (Less than 1 day)*, 1 = *Some (1-2 days)*, 2 = *Occasionally (3-4 days)*, and 3 = *Most (5-7 days)*. Scores above 16 to 20 indicate mild to moderate depression, whilst scores above 24 indicate severe depressive symptomatology (Radloff, 1977; Vilagut et al., 2016). Cronbach's alpha and McDonald's omega for this study indecision scores were 0.90 and 0.91, respectively.

General self-efficacy was measured using The New General Self Efficacy Scale (Chen et al., 2001). This instrument is widely used and is considered a valid and reliable measure of general self-efficacy (Scherbaum et al., 2006). There are eight items employing a 5-point scale (ranging from 1 = *strongly disagree* to 5 = *strongly agree*), which are averaged to a total score where a high score indicates high general self-efficacy. Cronbach's alpha and McDonald's omega for this study indecision scores were 0.90 and 0.91, respectively.

Sense of control was measured with the 12-item Sense of Control scale (Lachman & Weaver, 1998) to assess participants' level of perceived control over their future and lives. The scale comprises two sub-scales that measure perceived external constraint, and degree of personal mastery. The scale uses a 7-point scale (1 = *strongly agree* to 7 = *strongly disagree*) and has been widely used and is a valid and reliable measure of sense of control (Steptoe et al., 2007; Yu et al., 2018). To score the scale, each item is reverse scored and then the average of all items is calculated. The present study Cronbach's alpha and McDonald's omega personal mastery subscale scores were both 0.81 and for the second subscale, individually 0.86 and 0.87, respectively, for perceived external barriers.

Data Analysis

A total of 430 students clicked on the link to the anonymous survey. Of those, 115 did not attempt to complete any of the scales and were excluded. 315 students provided complete responses on at least one of the questionnaires. A further 40 responses were excluded due to missing data exceeding 50%. In the remaining dataset, less than 1% of the data were missing. Little's MCAR test indicated that there was no evidence against the null hypothesis that these data were completely missing at random. As a result, missing responses were imputed, using subscale mean imputation. CES-D guidance recommended not imputing data if more than 4 answers were missing of the 16 on the scale, and this was applied. Data quality control included examining scatter plots, calculating standard deviations and means, and confirming that the data followed a normal distribution. A final total of 275 fully completed responses across all 5 scales were used for data analysis. SPSS (Statistical Package for Social Sciences, version 28) was used for correlational analyses to assess the relationships between the constructs, career indecision, depression, rumination, sense of control and self-efficacy. Participants with missing data were excluded from the analysis, leaving a group of 275 participants.

To test the hypothesis that sense of control and self-efficacy mediate the relationship between career indecision and depression, mediation analysis was conducted. Based on previous research and identified gaps, this was proposed to be sense of control and/or self-efficacy (Duffy, 2010; Hui et al., 2018; Jose & Weir, 2013; Marcionetti, 2014; Smith & Betz, 2002b; Stărică, 2012; Yu et al., 2018). The mediation analysis first required that there was a significant relationship between career indecision and depression, which was the case between career indecision and depression. Then the mediator effects were introduced, sense of control and self-efficacy, and the direct effect was re-assessed. This effect should be reduced, indicating partial mediation or non-significant and indicates a significant mediator effect. The indirect effect was calculated using Process Hayes Macro, and then PROCESS by Hayes (2013) model 4 was applied. PROCESS does not have any specific requirements with regards to kurtosis or normal distribution of the data, although skewness and kurtosis were not elevated in this dataset.

6.2. Results

The mean score of 37.47 by participants in this study on the CDS (career indecision) scale was between the 77th (in the second last year of school) and 85th (in the last year of school) percentile. According to normative data for this age group, indicative scores should be around 30 for the group in the second last year of school and around 26 for students in the last year of school (Feldt et al., 2010; Jurgens, 2000; Meyer & Winer, 1993; Osipow, 1987). The average CES-D scores in the present study were above the cut-off scores indicating severe depression. In this study, 78.7% of the participants scored at or above 16, scores greater than 16 may be interpreted as indicating mild to moderate symptoms of depression, whilst scores above 21-24 indicate that there may be elevated or severe levels of depressive symptomatology (Crawford et al., 2020; Radloff, 1977; Vilagut et al., 2016). Table 6.1 shows the descriptive statistics across the scales. The scores above the defined scale norms are highlighted as shown in Table 6.2 below, which sets out the range of scores as percentiles.

Table 6.1 *Descriptive Statistics Across the Scales*

Scale	N	Mean	SD	Min	Max
<i>CDS (Indecision)</i>	275	37.47	9.15	16	64
<i>CES-D (Depression)</i>	275	25.16	11.47	1	53
<i>GSES (Self-Efficacy)</i>	275	3.47	0.81	1	5
<i>SC-Int (Sense of Control Personal Mastery)</i>	275	5.56	1.02	1	7
<i>SC-Ext (Sense of Control External Constraints)</i>	275	4.21	1.21	1	7

Table 6.2 *Percentile Scores for Depression, Career Indecision, Self-Efficacy, Sense of Control*

Percentiles	CES-D Depression	CDS Indecision	GSES Self-Efficacy	SOC – External Barriers	SOC – Personal Mastery
10	10.0	25.0	2.50	2.61	4.25
20	15.0	29.2	2.75	3.13	4.75
30	18.9	33.0	3.00	3.63	5.25
40	22.0	36.0	3.25	4.00	5.50
50	26.0	38.0	3.50	4.25	5.75
60	28.0	39.0	3.75	4.63	6.00
70	30.1	42.0	3.95	5.00	6.25
80	33.0	45.0	4.13	5.25	6.50
90	42.7	48.4	4.53	5.75	6.75

Note: Items in **Bold** indicate scores above the stated cut-off level for elevated and possibly severe symptoms of depression (Blodgett et al., 2021; Radloff, 1977).

Note: Items in *Italics* indicate levels of career indecision above the norm for this age group (Osipow, 1987).

Table 6.3 *Correlation Analysis Results*

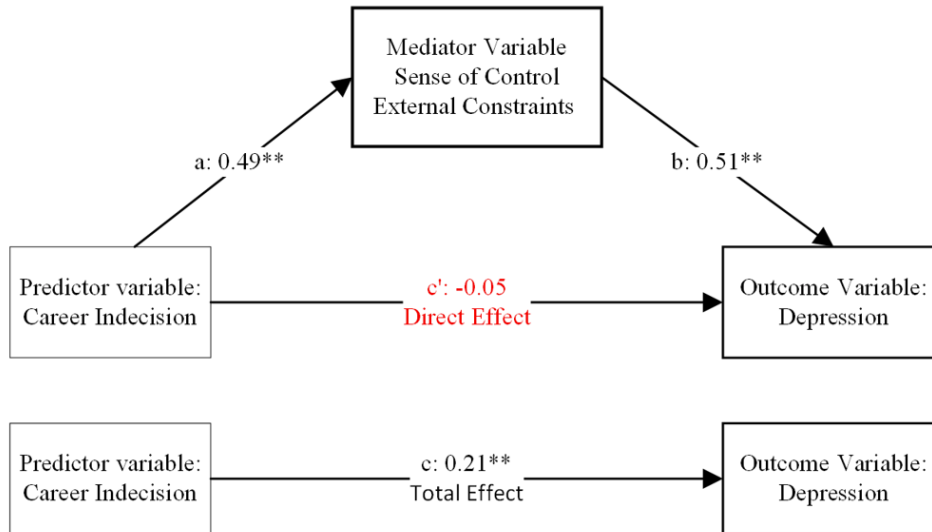
Scale	1.	2.	3.	4.	5.
1. Depression	-				
2. Career Indecision	0.21*	-			
3. Self-Efficacy	-0.35**	-0.26**	-		
4. External Constraints	0.49**	0.49**	-0.37**	-	
5. Personal Mastery	-0.28**	0.01	0.49**	-0.07	-

** Correlation is significant at the 0.01 level (2-tailed), $n=275$

Mediator analysis

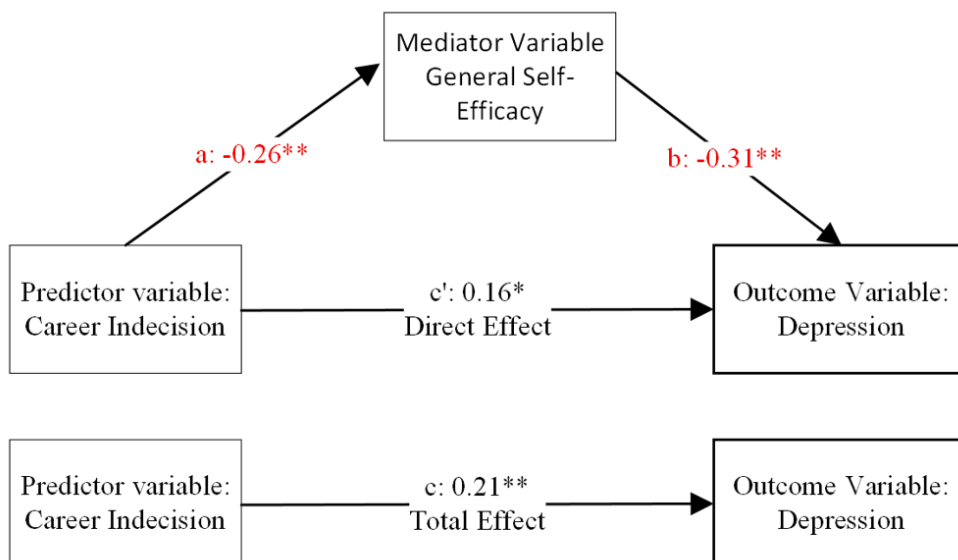
Following the guidelines proposed by Frazier et al. (2004) for testing a mediator hypothesis, several steps were taken. Firstly, the association between career indecision (predictor) and depression (dependent variable) was assessed. Secondly, the relationship between career indecision and the proposed mediators, sense of control over perceived *external constraints*, as well as *self-efficacy*, was examined. Thirdly, the links between depression and the mediators' *external constraints* and *self-efficacy* were explored. Finally, by accounting for the mediator effect, it was anticipated that the relationship between career indecision and depression would significantly decrease (Frazier et al., 2004). The correlations are all significant between career indecision, self-efficacy, sense of control – external barriers and constraints and depression, thereby meeting the first three criteria (Table 6.3). The mediation analysis revealed a significant indirect effect of career indecision on depression through the mediator variables. The total effect (c) is the combined influence of the direct effect between career indecision and the indirect effect flowing through the mediator. In the first pathway analysis, the total effect (c) sense of control (perceived external constraints) was significant ($\beta = 0.21$). In this analysis, the mediation is full, as the direct effect ($c' = -0.05$) measured was not significant (Fig. 6.1). In the second analysis (Fig. 6.2), self-efficacy partially mediated the relationship between career indecision and depression. The total effect (c) was $\beta = 0.21$ and was significant ($p < 0.001$) and the direct effect (c') was $\beta = 0.16$ and was significant ($p < 0.05$).

Figure 6.1 Mediation Analysis Using PROCESS by Hayes (2013) – Sense of Control (External Constraints)



** Significant at the $p < 0.001$ level

Figure 6.2 Mediation Analysis Using PROCESS by Hayes (2013) – General Self-Efficacy



** Significant at the $p < 0.001$ level.

* Significant at the $p < 0.05$ level.

6.3. Discussion

The present study investigated the levels of career indecision and depression in high school students in New Zealand, as well as the relationships between these constructs. We postulated two models whereby sense of control and general self-efficacy were proposed to mediate the relationship between career indecision and depression. The results from the present study showed that the levels of career indecision and depression in this sample of high school students from across New Zealand are concerning. The levels of career indecision indicated by the scores of the participants in this study are high compared to expected levels in norms in the CDS Manual (Osipow, 1987) as well as in comparison with students in school or college (Feldt et al., 2010; Meyer & Winer, 1993; Osipow & Gati, 1998; Osipow & Winer, 1996; Saunders et al., 2000). In this study, the mean scores were well above the norm, suggesting high levels of indecision.

Similar levels of career indecision have been described in prior studies as extreme or chronic indecision (Kelly & Pulver, 2003; Meyer & Winer, 1993). Analysis of the two proposed models highlighted the possible mediating effect that perceived external constraints and self-efficacy has on levels of depression in this sample of high school students in New Zealand. Previous studies have shown that self-efficacy in relation to career decision making has been consistently correlated with career indecision, whereby there is evidence that lowered self-efficacy was related to career indecision (Crişan & Turda, 2015; Guay et al., 2003; Stărică, 2012).

Career indecision and depression represent two critical constructs in vocational and personal counselling psychology. Career decision making is a key aspect to transitioning successfully from secondary school into tertiary education or the workplace and is part of the lifelong journey (Blustein et al., 2019; Park et al., 2017). Depression is reported to be steadily rising, with concerns around anxiety and symptoms of depression in adolescence increasing globally and, more specifically, across Australia and New Zealand (Blodgett et al., 2021; Boyd et al., 2000; Denny et al., 2018; Thapar et al., 2012). There are also reports of increased mental health concerns through the transition from secondary school to higher education (Bubić & Ivanišević, 2016; Marcotte et al., 2018; Parmentier et al., 2021).

In the present study, depression was indicated to be at high levels, with 78.7% of the secondary school students scoring above 16 on the CES-D scale, indicating moderate to severe depressive symptomatology. In a large study across 2068 university students in China, 32.7% of the students had scores above 16 on the scale (Jiang et al., 2019). In a study across the Australian general adult population, the mean score for the CES-D 20 was 10.24 (Crawford et al., 2020). In a large systematic review across 13 finally included studies, the CES-D was found to be an appropriate measure for adolescents under 18 years in western countries (Blodgett et al., 2021). The results of the present study are discussed in relation to the three key research questions articulated above.

What is the prevalence of career indecision and depression in high school students across New Zealand, and to what extent do more undecided high school students have more severe depressive symptoms?

The findings of this study revealed that levels of career indecision and depression amongst the participants were high in comparison to expected norms in general populations (Blodgett et al., 2021; Osipow, 1999; Radloff, 1977). The average scores on the career indecision scale (CDS) were significantly higher than the normative data for this age group as set out in the Career Indecision Scale manual across high school students in the USA, indicating high levels of career indecision (Osipow, 1987). Other research studies using the same measure of career indecision yielded similar mean scores to those of the reference group set out in the scale manual (Feldt et al., 2010; Meyer & Winer, 1993; Osipow, 1987; Osipow & Gati, 1998; Saunders et al., 2000; Smith & Betz, 2002). Studies investigating career indecision in distinct groups of undecided participants, as opposed to randomly selected participants, have reported scores in the upper percentiles, similar to the scores in the current study (Jurgens, 2000; Kelly & Pulver, 2003).

The scores on the Centre for Epidemiological Studies Depression Scale (CES-D) indicated relatively elevated levels of depressive symptomatology in these high school students. Scores on this scale above the threshold of 16 indicate the presence of depression symptoms also known as sub-threshold depression, with most studies that use the scale reporting results for one cut-off point of 16 (Vilagut et al., 2016). In the present study, scores above the threshold of 16

were found in 78.7% of the participants, suggesting the need for further research and more preventative action in high schools in New Zealand. In a comparable study in the USA across 388 university students, the mean score on the CES-D was 15.95, with those students who were more undecided as to their career, having a higher mean score (18.32) (Rottinghaus et al., 2009). Reports in Australia suggest that levels of depressive symptoms in young people are high, up to 40%, with increasing levels of depression through middle adolescence into the early twenties (Horstmanshof et al., 2008; McGraw et al., 2008; Nehmy, 2010).

The results of the current study show that students who had higher levels of career indecision also had higher levels of depressive symptoms. Depression and career indecision have been shown to be associated by prior studies, although most of these studies have been conducted with students in tertiary institutions (Dieringer et al., 2017; Saunders et al., 2000; Walker & Peterson, 2012). Results from an Australian study show that school leavers with concerning levels of depression and anxiety, maintained these levels into their first year of university study (McGraw et al., 2008). Further, during the transition from school to tertiary education there are studies that have reported increases in mental health disorders culminating in a demand for mental health support in university counselling centres (Marcotte et al., 2018). The results from the present study show the prevalence of concerning levels of depression and high levels of career indecision in a diverse sample of high school students in New Zealand.

What associations exist between career indecision, self-efficacy, sense of control and depression as measured by four scales in high school students?

The results from the correlation analyses suggest that career indecision is related to depressive symptoms, and that general self-efficacy and sense of control are associated with career indecision and depression in high school students. The findings indicate that, as students are approaching the end of their high-school years, they are indecisive as to what they wish to pursue when they leave school. This is correlated significantly with levels of depression in these students, whereby the more undecided the students were, the higher the levels of depression.

Further, the impact of levels of self-efficacy and their sense of perceived external constraints, has a significant effect, particularly in relation to the presence of depressive symptomatology. In this study, perceived sense of control over external constraints was found to be significantly related to both career indecision and depression. Levels of general self-efficacy were also significantly related to career indecision and depression, with lowered levels of self-efficacy correlated to heightened depression and significant career indecision. In prior studies, self-efficacy has been found to have a crucial role in motivating an individual to explore various career pathways (Al-Bahrani et al., 2021; Betz & Hackett, 2006; Chiesa et al., 2016). Self-efficacy pathways to depression and the relationship with career indecision has been established by some studies, albeit with older students in college (Kulcsár et al., 2020; Rottinghaus et al., 2009; Smith & Betz, 2002).

Sense of control, specifically perceived external barriers and constraints, has been explored to a lesser extent. Intolerance of uncertainty or the fear of the unknown and worry with regards to the future has been measured in relation to career indecision (Arbona et al., 2021). This study involved college-aged students but did reveal that career uncertainty was related to anxiety and career decision making difficulties.

Results from the studies examined in a scoping literature review conducted by Amaral et al. (2023) showed that there were limited studies investigating depression, career indecision and sense of control in high school students. Those that were found in the scoping review, albeit mainly with college students, suggested that there is a relationship between sense of control, depression and career decision making (Duffy, 2010; Hirschi, 2011; Kulcsár et al., 2020; Lowe & Wuthrich, 2021; Vignoli, 2015). The results from these studies suggested that a limited sense of control over students' context or perceived constraints to their future career opportunities has an impact on their well-being, levels of anxiety, depression, and distress. The results from the current study support these findings, although this research uniquely combines multiple constructs to assess the impact these have and the relationships between career indecision and depression, when including sense of control and self-efficacy.

To what extent is career decidedness and depression mediated by self-efficacy and sense of control in relation to personal mastery or sense of control over perceived external constraints?

Both mediation model analyses produced significant results supporting the hypothesis that sense of control over perceived external constraints and general self-efficacy mediate the relationship between career indecision and depression. The results of the model showed that perceived external barriers may fully mediate the relationship between career indecision and depression, whilst general self-efficacy may partially mediate the relationship between career indecision and depression. These findings suggest that individuals who perceive higher external barriers and those who have low general self-efficacy may be more likely to experience depressive symptoms in the context of being undecided as to their career path. The results of the mediation analysis may assist in explaining the significance of the relationship between career indecision and depression.

Rottinghaus et al. (2009) found that students who had a firm idea of their career pathway were significantly less depressed than those who had not yet decided on a career trajectory, and that sense of control may have a significant effect on the individual's perceived capability to overcome indecision. Duffy (2010) identified the importance of sense of control and the role of counselling in addressing this proactively so that students felt they influenced their future pathways and decisions associated with careers. Arbona et al. (2021) suggested career interventions may be improved by adding a focus on assisting students to cope with uncertainty through the career decision-making process. Sense of control has also been linked to career indecision and depression (Aguiar & Conceição, 2015; Lowe & Wuthrich, 2021), but has not yet been directly investigated as a mediating effect between career indecision and depression in high school students.

Appropriate interventions that address specific perceived barriers with options of how to overcome these barriers may impact high school students' perceptions of these barriers, thereby increasing their sense of control and perceived opportunity to pursue career opportunities. Informed career decision making is foundational to vocational psychology, but may require a more individualised and integrated approach, ensuring that mental health factors are considered,

and emotional support given in the process of assessing careers, breaking down perceived barriers and addressing mental health concerns (Marcotte et al., 2018; Parmentier et al., 2021). The findings of the present study add to studies conducted by Bullock et al. (2014) and Lowe and Wuthrich (2021) who suggested that increased self-efficacy and sense of control over employment and academic achievement may assist with mental well-being and sub-threshold depression. The present study also supports the call for further research into the role of emotions and career indecision in high school students as they transition. Having a firm idea of their career trajectory enables students to have a more positive outlook, which likely enhances their wellbeing (Jung & McCormick, 2010; Kulcsár et al., 2020; Parmentier et al., 2021). There are relatively few research studies that purposefully investigated the relationships between career indecision or vocational choice and the rise of symptoms of depression in this age group.

6.4. Limitations and Conclusion

This cross-sectional nature of the study does not allow for causal inference with regards to the role of career indecision, self-efficacy, and sense of control to depression. However, the results provide evidence suggesting the importance of understanding the interaction and impact of career indecision, general self-efficacy, perceived sense of control and depression in high school students preparing to transition from school into tertiary studies. The results of the present study may be limited by the sample size, albeit it was within the 5% margin of error at the 95% confidence interval based on schools' data (Education Counts, 2023). The results with studies involving more divergent samples from other countries would need to be replicated. Future research should ideally be longitudinal to further investigate the full impact and possible causality of these factors. Future studies should also further assess the interrelatedness of mental health, specifically levels of depression, negative emotions anxiety and career-decision processing in school leavers. Additionally, the study also relied on self-report measures, which may be subject to response bias, although all scales were established, reliable and valid measures.

This study contributes to a deeper understanding of the levels and interaction of career indecision with depression through self-efficacy and sense of control. We found a significant relationship between career indecision and depression in high school students and that self-

efficacy, and perceived external constraints may play a significant mediating role in this relationship. Levels of career indecision and depression in these high school students were also markedly high. These findings contribute to our overall understanding of psychological factors that may be associated with career indecision and have important implications for career counselling and intervention efforts aimed at promoting improved well-being for high school students. Schools and educational institutions play a crucial role in promoting mental wellbeing and positive mental health in students (Denny et al., 2018; Denston et al., 2022). Specific interventions that target career decision making, self-efficacy, and perceived sense of control may be beneficial in reducing psychological distress and preventing the development of depressive symptoms in this population (Ogbuanya et al., 2018; Vignoli, 2015). The provision of personal counselling and support to high school students in relation to career decision making may further help reduce anxiety and negative career emotions and thoughts. The relationship between career indecision and depression is complex and multifaceted. Perceived lack of control over external barriers may be bidirectional in effect and may significantly contribute to career indecision and also subsequently increase the risk of depressive symptoms and negative thinking. Further research is needed to investigate this more fully.

Prelude to Chapter 7

In Chapter 6, the second phase of the research the study results enhanced our understanding of the intricate dynamics between career indecision and depression, particularly concerning the roles of self-efficacy and sense of control. The study's findings indicate a notable association between career indecision and depression among high school students, with self-efficacy and perceived external constraints emerging as significant mediators in this association. The results from the data collected from the sample of high school students in New Zealand also indicate that levels of career indecision and depression were notably elevated.

The next phase of the study in Chapter 7 builds on the results from the previous phase and further examined the links between career-decision making, motivational constructs of self-efficacy and sense of control alongside mental health constructs, rumination, and depression. The interaction dynamics between career indecision, general self-efficacy, sense of control, rumination, and depression in 275 high school students were assessed utilising structural equation modelling (SEM). The results indicated that perceived external constraints acted as a significant mediator between career indecision and depression. Ruminative brooding significantly moderated the link between career indecision and perceived external constraints. The theoretical model was then adjusted based on the results from the mediation and moderation analysis and the model was then tested for goodness of fit. The results indicated a strong fit of the data to the model. The study findings highlight the intricate relationships between students' mental health, perceptions of external barriers, and career decision making, emphasising the necessity of providing targeted interventions for high school students that concurrently address mental health concerns alongside career decision making. The study in this chapter was published in *Discover Psychology* in 2024 (Amaral et al., 2024a).

Chapter 7: A Structural Equation Model Analysis of the Relationships Between Career Indecision, Sense of Control, Self-Efficacy, Rumination and Depression in High School Students

Career-decision making, and mental health are connected, even though they are often treated as distinct areas of concern (Dieringer et al., 2017). The career-decision making process is part of the major transitional process involved in young adulthood. During senior high school years, deciding on a career becomes increasingly emphasised, at a time where students' may assess their capabilities by the subjects they study, their sense of direction, or perception of success (Parmentier et al., 2021; Vignoli, 2015). Any resulting pressure and confusion may build a perceived sense of reduced capability, thereby reducing the sense of general self-efficacy, and placing additional stress on the school leaver (Betz & Hackett, 2006; Lowe & Wuthrich, 2021). Multiple researchers have pointed out the need for more empirical research into the connections between career decision-making, career self-efficacy and mental health factors. There has also been a call to recognize the need for integration between personal and career counselling as well as for preventative interventions that tackle both career-decision making and mental illness (Blustein et al., 2019; Bullock-Yowell et al., 2015; Dieringer et al., 2017). There is evidence to indicate that the lack of integration in research focus on mental health and vocational decision-making suggests a failure to recognise the emotional, cognitive significance of the career decision-making process for an adolescent in their transitional journey from school to work (Blustein et al., 2019; Bullock-Yowell et al., 2014; Dieringer et al., 2017a; Marcotte et al., 2018). As there is increased external pressure on school leavers to decide what to do next, this may result in increased anxiety, stress, or negative thoughts, and ultimately may trigger depressive symptoms (Anghel & Gati, 2021; McGarity-Palmer et al., 2019).

The current study was situated within the context of New Zealand high school students approaching the transition from school, and aimed to explore levels of depressive symptomatology, rumination and career indecision, whilst also investigating the linkages and effects of rumination, self-efficacy and sense of control. The impact and prevalence of depression in the New Zealand population are well documented, however there are no known studies investigating levels of depression and career indecision alongside the challenges experienced through the transition from school to work or tertiary studies. A large-scale study conducted over several years that has indicated

that levels of depression in New Zealand are high in youth, particularly in Māori and Pacific populations, who represent around 30% of the general population of New Zealand (Fleming et al., 2022).

Depressive symptomatology or sub-threshold depression is the presence of depression symptoms resulting in specific symptomatology which then may result in impaired functioning, lowered functioning, lowered quality of life or mild depression, but do not meet the diagnostic criteria for a major depressive disorder in the DSM system (Avenevoli et al., 2015; Fleming et al., 2022; Volz et al., 2023). These conditions can be defined by a specific threshold or cut-off score, on a valid self-rating depression scale (Volz et al., 2023). Rates of depression, depressive symptomatology and distress have consistently been shown to increase during adolescence (Hickey et al., 2017). Given the potential harm that can arise during adolescence and persist into adulthood, there is a growing emphasis on prevention and the imperative of gaining a deeper understanding of significant risk factors that can trigger or worsen depressive symptoms. Early intervention can mitigate the rates of psychological distress and the subsequent development of depressive symptoms (Carrellas et al., 2017; Masselink et al., 2018). The presence of depressive symptomatology is closely linked to the onset of full-blown depression, which can result in functional impairment and the increased risk of subsequent depressive episodes in adulthood (Balázs et al., 2013; Marcotte et al., 2018). The early identification and treatment of depressive symptoms decreases the burden of later depression and suicide risk (Balázs et al., 2013; Werner-Seidler et al., 2017).

There is a paucity of global research that examines depressive symptoms, negative thinking, or mental distress alongside career indecision, transitioning from high school alongside self-efficacy and sense of control (Amaral et al., 2023; Dieringer et al., 2017; Thompson et al., 2019). Further, there is often a distinction drawn between career counselling and personal counselling, which is evident in the way in which research and counselling interventions have approached the topic, separating career- decision making from mental health concerns (Blustein et al., 2019; Dieringer et al., 2017b; Rottinghaus et al., 2009). Depressive symptoms, including negative thinking, have also been linked with dropping out of high school whereby one out of four adolescents had significant

depressive symptoms in the 3 months prior to leaving school (Dupéré et al., 2018). It is equally notable that early drop out of school has also been closely linked to career indecision and low self-efficacy (Dupéré et al., 2018; Lam & Santos, 2018). Beck's cognitive model of depression identifies three cognitive patterns leading to depression, the way the individual views the self, the world, and the future in a negative way (Beck & Dozois, 2011; Dieringer et al., 2017). This biased interpretation of events is likely to exert an adverse influence on emotional state and motivation, further negative thinking or cognitions can impact affect, motivation levels, and behaviours (Boyras et al., 2016; Dieringer et al., 2017a; Ward et al., 2003). Negative thinking may thus also influence perceived sense of control over external barriers, as a student approaches the end of high school and may also feel pressured to make career decisions through the transition into work or study.

Rumination and negative thinking have been identified as two key risk factors for depression in youth (Gepty et al., 2019; Nolen-Hoeksema et al., 2008). Rumination is defined as repetitive, often negative, thoughts and may occur in response to mood fluctuations, negative events, or lifestyle challenges (Jose & Brown, 2008; Nolen-Hoeksema et al., 2008). An individual may repetitively think about and analyse the causes, responses, and possible consequences of events or their mood states (Nolen-Hoeksema et al., 2008). Researchers have found that rumination can precede depression and may worsen depressive symptomatology, drive negative thought processes, and impair problem-solving capability (Di Schiena et al., 2013; Gepty et al., 2019; Nolen-Hoeksema, 2000). Difficulties with making choices as to what to do after school may give rise to irrational career thoughts or negative thinking patterns (Ulas-Kilic et al., 2020). Rumination is included in the hypothesised model as a hypothesised moderator effect between career indecision and sense of control as well as self-efficacy. Rumination and ruminative responses have also been found to prolong depression and depressed mood (Lei et al., 2017; Nolen-Hoeksema, 2000). There are no known studies that investigate rumination, depression, and career indecision in school leavers as they transition out of school (Amaral et al., 2023).

Walker and Peterson (2012) conducted one of the first studies to investigate the relationships between negative career thinking, career indecision, and depression in college students. Walker and

Peterson (2012) found that dysfunctional career thoughts and career indecision were significantly related to depression, although they also concluded that this relationship is not fully understood, and causality has not yet been established. The researchers have suggested that there is a significant need to address mental health issues and career indecision using an integrated approach. This is in addition to the fact that the working environment is evolving rapidly, with new careers and significant change forces impacting on old or traditional careers (Blustein et al., 2019; Hui et al., 2018). Research has also found that young people often make career choices on the basis of limited information, confined perceptions to their abilities as well as perceived barriers in pursuing those career choices (Aguar & Conceição, 2015; Chircu, 2014; Praskova et al., 2015). Students in New Zealand are expected to make subject choices 3 years prior to leaving school, and as they progress, they drop further subjects through to the last year of school. This may also affect opportunities for entering tertiary studies, or careers that are founded on certain subject requirements in school (Anghel & Gati, 2021; Bullock-Yowell et al., 2014; Lowe & Wuthrich, 2021; Marcotte et al., 2018; Masselink et al., 2018; McGarity-Palmer et al., 2019; Vignoli, 2015).

Career-decision making is the process of seeking to resolve internal and external conflict whilst determining a career direction (Bullock-Yowell et al., 2014). Vocational theories offer a basis on which counsellors and researchers can investigate and understand the process and concerns that individuals face when making career-related choices and decisions (Blustein et al., 2019). Blustein et al. (2019) suggested that a key shortcoming in the theory to date is that there is a prevalent assumption that individuals can shape their careers and exercise their free will, uninhibited, in so far as choices are concerned. Blustein et al. (2019) further suggested that this assumption has been indicative of a middle-class bias throughout the field and theories developed until now. There is also a dearth of research investigating this decision-making process alongside aspects of emotion and affect, and the impact that negative affect may have on the individual as a result of career indecision. There is often a degree of confusion that is associated with the decision-making process, which may be a result of negative thoughts, perceived locus or sense of control, self-efficacy, possible obstacles and knowledge or information of specific careers (Bertoch et al., 2014; Walker & Peterson, 2012). The

transition from high school is particularly challenging, with some international studies indicating links between leaving school, negative thinking, reduced sense of control, lowered self-efficacy and mental health challenges (Bertoch et al., 2014; Walker & Peterson, 2012).

General self-efficacy is a valuable area of focus in research and pertains to one's expectations around capability to perform and achieve in new situations and is a more "trait-like" belief in an individual's competence (Scherbaum et al., 2006). Self-efficacy may be described as a person's evaluation of his or her ability to perform a given skill or behaviour, self-efficacy expectations are concerned not with an individual's actual skills but with their perceptions of their capabilities (Betz & Hackett, 2006; Garcia et al., 2015). Self-efficacy has been linked to career decision making, perceived academic success, performance, problem solving capability, goal achievement, resilience, and achievement (Bandura & Locke, 2003; Pastorelli et al., 2001; Rottinghaus et al., 2009; Scherbaum et al., 2006). Research has showed that strong career self-efficacy is closely linked to investigative and enquiring behaviours, whereby individuals seek alternatives and perceive them to be viable options (Dik et al., 2008; Shukla & Katepeth, 2016). Shukla and Katepeth (2016) emphasised the importance of thought processes that shape the career decision making process, self-esteem, and self-efficacy. Self-efficacy has further been found to be significant in the process of making career decisions in relation to young people's ability and self-confidence in respect to identifying and pursuing career paths (Betz & Hackett, 2006; Crişan & Turda, 2015). Self-efficacy is included in the proposed model for testing as a hypothesised mediator effect between career indecision and depression.

Sense of control and perceived barriers or lowered chances of entering specific careers is shown through research to be closely linked with lowered self-efficacy and lowered career self-efficacy (Anderson & Betz, 2001; Ganske & Ashby, 2007; Lent et al., 2017). Sense of control has been linked to career indecision in so far as influencing expectations of adolescents around career choices, as well as contextual developmental pressures and future orientation (Duffy, 2010; Hui et al., 2018). Factors such as a sense of control over personal or external constraints and self-efficacy, may impact the well-being and mental health of the young person. Sense of control is considered less

as a characteristic and more as a perception in association with the context that the individual is in at a particular time (Lachman & Weaver, 1998). Students in the final years of school have been found to have higher levels of stress and lowered sense of control over exams and future employment (Lowe & Wuthrich, 2021). Sense of control or locus of control has also been found to influence negative thinking and motivation, and further linked to symptoms of depression in the pursuit of a career decision (Saunders et al., 2000; Smith & Betz, 2002). Further research findings conducted across high school students in France reported uncertainty in relation to future employment and fear of failure (Vignoli, 2015). Vignoli (2015) suggested that a greater emphasis on personal counselling in the high school years may reduce anxiety and dysfunctional career emotions and thoughts. Sense of control is included in the proposed model for testing as a hypothesised mediator effect between career indecision and depression.

Transitioning from high school into tertiary studies or work is a key developmental step into adulthood, and there are increasing mental health issues arising in the transition (Marcotte et al., 2018). Marcotte et al. (2018) conducted a longitudinal study investigating depressive symptoms in relation to transitioning from school to college in a longitudinal study in Canada. Interventions during high school were shown to be effective in preventing future episodes of depression by supporting students during this transition period of considering potential occupations (Marcotte et al., 2018). According to Blustein et al. (2019), less than 20% of all vocational research is conducted on high school students. Further, adolescence offers a unique, critical window for intervention, which capitalises on ongoing neurodevelopmental processes to facilitate brain plasticity and lessens the impact of neural vulnerabilities to depressive symptomatology (Hickey et al., 2017). In schools, there is an opportunity for comprehensive interventions that enhance coping skills related to negative thinking and rumination, benefiting students' mental health.

This study specifically investigated the relationships between career decision making, rumination, self-efficacy, sense of control and depressive symptomatology in high school students. Although there is some evidence suggesting that there is a relationship between career decision-making and mental health, most studies have been conducted in samples in Europe and the USA, with

no known studies being done in New Zealand (Amaral et al., 2023). As mentioned above, it is known that New Zealand has a concerning high prevalence of depression in high school students, but there is no research linking this to transitioning out of school and career decision making, therefore it is important that more research is conducted in this population, with a view of highlighting possible mitigating factors and intervention opportunities (Fleming et al., 2022).

This study aims to fill the identified research gap concerning secondary school students as they approach transitioning out of school (Amaral et al., 2023). Specifically, the present study investigated career indecision, along with the connection with depression symptoms, rumination, and the impact of sense of control and self-efficacy. The proposed theoretical model uniquely integrates these important facets based on both the cognitive theories of depression as well as career-decision making, along with research findings elsewhere in the world that align sense of control and depression or decision-making. It is also based on those studies to date that show linkages between career indecision, self-efficacy and depression, albeit that these are generally from data collected in tertiary aged students (Duffy, 2010; Lachman & Weaver, 1998; Saunders et al., 2000; Smith & Betz, 2002).

The purpose of the present study was to investigate and test a proposed theoretical model, based on indicative gaps in the research to date in this population and purported relationships previously shown between some of the variables in older populations in other countries. The conceptual model was tested using moderation and mediation analysis, as well as generating a structural equation model (SEM), to investigate possible relationships between constructs, and to assess the interrelatedness and levels of career indecision, general self-efficacy, sense of control, rumination, and depressive symptomatology, in school students in the last 2 years of high school. The research is vital to further inform the direction for preventative strategies, to additionally support the identified need for integrated vocational and mental health counselling in schools, as well as suggesting ways to reduce drop-out rates in schools and tertiary institutions through raising awareness of the importance of addressing these constructs collectively and holistically (McGraw et al., 2008; Rottinghaus et al., 2009). There is limited published research that has examined depressive symptomatology alongside sense of control, general self-efficacy, and career indecision (Amaral et

al., 2023). Given the seriousness, pervasiveness, and growing presence of depressive symptomatology in young adults, this research aims to investigate self-efficacy, negative thinking (rumination), sense of control and career indecision, specifically as youth are transitioning from school to tertiary studies, to investigate the possible associated development and incidence of rumination and depressive symptoms.

7.1 Method

Participants

Participants were 315 high school students in their final years, from multiple schools and youth organisations across New Zealand. The data were collected between November 2020 and October 2021, with the bulk of the data collected May 2021 to October 2021. All participants were at least 16 years of age. More than half of the participants (50.8%, $n = 160$) identified as female, 45.1% ($n = 142$) as male, around 2.9% ($n = 9$) as gender neutral, and 1% ($n = 3$) were under the category of “other”. Further, more than half of the participants (53.7%, $n = 169$) identified as New Zealand (NZ) Europeans, 19.4% ($n = 61$) were Pacific peoples, around 13.7% ($n = 43$) were Māori, 5.1% ($n = 16$) were Asian, and approximately 7.3% ($n = 23$) identified as “other”. Of the 315 participants, 39.4% ($n = 124$) were aged between 17 and 18, while 31.7% ($n = 100$) were aged 18 years and above, and the remaining participants (28.9%) were aged between 16 and 17 years old ($n = 91$).

Procedure

Schools and youth organisations were approached and invited to participate in the research, mainly based on location. Attempts were made to approach schools representing the spectrum of socioeconomic range within the country. There were no incentives provided to schools or individuals to participate. The selection of schools and youth organisations was not randomised but were not personally known to the researchers. Convenience sampling of the organisations was used, followed by snowball sampling. Principals and leaders were required to agree to send the anonymous online

Qualtrics questionnaire link to their students or youth in the required age group of between 16 and 20 years. Once participants were sent the survey link, the online survey included information and a consent form at the outset of the survey. The students were asked for their ethnicity, their gender, and their age. Students had to be at least 16 years old to participate in the research and had to be completing their final 2 years of school. Students were informed that they could withdraw from the study any time up until the point where they submitted their anonymous responses. Participants took on average 15 min to complete the surveys. Of the total of 430 participants who had received the questionnaire, 315 students provided complete responses (response rate = 73%) on at least one of the five questionnaires. Data from these students were carried forward to statistical analyses.

Measures

Career indecision was assessed utilising the Career Decision Scale (CDS), a scale designed to measure career indecision and the antecedents to career indecision (Osipow, 1999). The scale comprises 18 items, and measures career certainty (2 items) and indecision (16 items). Items are on a 4-point scale, ranging from 1 = *Not at all like me* to 4 = *exactly like me*. Decision scores are the sum of scores on items 1 and 2. Indecision scores are calculated as the sum of the scores on items 3-18, with higher indecision indicated by higher scores. The CDS has good test-retest reliability and good construct validity (Osipow & Winer, 1996). It is widely used as a quantitative measure of indecision in adolescents and is a good estimate of career indecision (Nasab et al., 2015; Park et al., 2017). Cronbach's alpha and McDonald's omega for this study indecision scores were .87 and .85, respectively.

Depression or depressive symptoms were measured using the Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977). The CES-D scale has been widely used globally to measure depressive symptoms across a wide range of age groups, has been cited over 61,000 times and is considered appropriate for adolescents (Bernaras et al., 2019; Blodgett et al., 2021; Gadassi et al., 2015). The scale has 20 items and includes 4 items (Items 4, 8, 12, and 16) that are positively worded and need to be reverse coded prior to data analysis. Items are answered by scoring responses

to the items as: 0 = *Rarely (Less than 1 day)*, 1 = *Some (1-2 days)*, 2 = *Occasionally (3-4 days)*, and 3 = *Most (5-7 days)*. In the CES-D scale, data were imputed providing no more than 4 items were missing. Scores were computed as the sum of the items and scores above 16 to 20 indicate mild to moderate symptoms of depression, whilst scores above 24 indicate severe depressive symptomatology (Radloff, 1977; Vilagut et al., 2016). The CES-D scale has good internal consistency (Cronbach's $\alpha = .85$ in general population samples) and test-retest reliabilities (average $r = .57$ after 2–8 weeks) (Radloff, 1977). Cronbach's alpha and McDonald's omega for this study indecision scores were .90 and .91, respectively.

General self-efficacy was measured using the New General Self Efficacy Scale (GSES) (Chen et al., 2001). This instrument is widely used and is considered a valid and reliable measure of general self-efficacy (Scherbaum et al., 2006). The scale measures the individual's perceptions of their abilities to perform and achieve capability goals across a variety of situations. The scale is reliable and has high content and predictive validity (Chen et al., 2001; Scherbaum et al., 2006). There are eight items measured on a 5-point scale (ranging from 1 = *strongly disagree* to 5 = *strongly agree*), which are then averaged to a total score, a high score indicates high general self-efficacy. The internal consistency of the responses to these items range from 0.85 to 0.90 and the stability coefficients have ranged from $r = 0.62$ to $r = 0.65$ (Chen et al., 2001). Cronbach's alpha and McDonald's omega for this study indecision scores were .90 and .91 respectively.

Rumination or negative thinking was assessed utilising the Ruminative Response Scale (RRS)-short form (Treyner et al., 2003), a widely used measure of rumination, comprising 10 items that assess brooding and reflection (Parola et al., 2017; Topper et al., 2014). The RRS-short form is a 10-item scale that measures the individuals' propensity to ruminate. The scale comprises two subscales: brooding (five items) and reflection (five items). To each statement in the scale "what you generally do, not what you think you should do when you feel down, sad or depressed" respondents rate items on a 4-point scale (1 = *almost never* to 4 = *almost always*). The scale is widely used over English-speaking countries and is a reliable and valid measure of rumination (Arana & Rice, 2020; Erdur-Bakera & Bugaya, 2010; Topper et al., 2014). The instrument has a high internal consistency

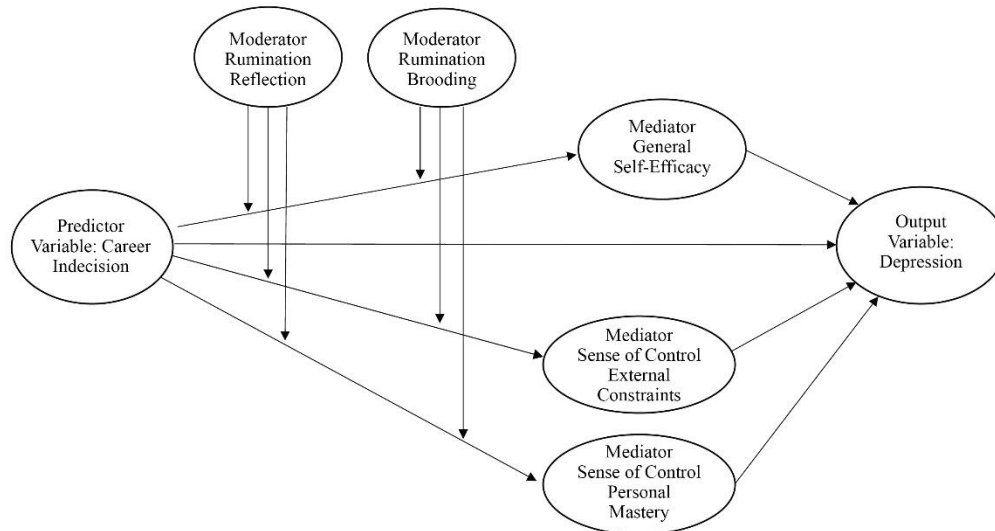
and can be used in large scale screening. The RRS scores are separately analysed in respect of the two Sub-Scales – Brooding and Reflection. Each sub-scale comprised of 5 items with high scores indicating higher levels of brooding or reflection response styles. Over 200 papers referred to the distinction in the scale between the two factors, brooding and reflection, and analysed these factors separately (Whitmer & Gotlib, 2011). Cronbach's alpha and McDonald's omega for this study rumination scores were .81 and .82 respectively.

Sense of control is measured with the Sense of Control (SOC) scale (Lachman & Weaver, 1998) and was utilised to assess the level of perceived control the participants have over their future and their lives. The scale measures two factors and comprises of two sub-scales which measure these factors, perceived constraints, and the degree of personal mastery. The scale has 12 items and uses a 7-point scale (1 = *strongly agree* to 7 = *strongly disagree*). The scale has been widely used and is a valid and reliable measure of sense of control (Steptoe et al., 2007; Yu et al., 2018). To score the scale, each item was reverse scored and then the average of all items was calculated. Cronbach's alpha and McDonald's omega for this study personal mastery scores were .81 and .81, respectively. Cronbach's alpha and McDonald's omega for this study perceived external barrier scores were .86 and .87, respectively.

Data analysis

The study aims to investigate and establish the possible relationships between the multiple constructs illustrated in the hypothesised model below. The researchers constructed the indicative model (Figure 7.1), based on the relevant literature, theory and identified gaps in the research conducted to date (Amaral et al., 2023). The proposed conceptual path model comprises of five key constructs and possible relationships and effects. This model indicates the possible moderation effect of rumination or negative thinking between career indecision and self-efficacy and perceived sense of control over possible external barriers. The model also indicates the purported mediating effects of sense of control and self-efficacy between career indecision and depressive symptomatology. Based on hypothesised relationships between the variables and theories by Nolen-Hoeksema on rumination, Beck's theories on cognition, depression and Bandura's self-efficacy, the model aims to add to existing findings and combines constructs to explore the linkages and effects in a novel way (Amaral et al., 2023).

Figure 7.1 *Proposed theoretical model*



The key research questions are:

1. As shown in the model (Figure 7.1), does rumination moderate the effect of career indecision on the following constructs - perceived sense of control over external barriers, personal mastery, and general self-efficacy? In the postulated model, are these constructs also mediators between career indecision and depression?
2. After testing for moderation and mediation effects, using SEM testing, is the model a good fit to the data and does the model explain the possible relationships between the hypothesized constructs?

The model postulates relationships between the following constructs in the model, career indecision, sense of control, general self-efficacy, rumination, and depressive symptoms. The mediator effect of sense of control and self-efficacy is hypothesised in the postulated model to influence the relationship between career indecision and depressive symptomatology. It was postulated that both measured aspects of rumination on the RRS, brooding and reflection, possibly moderate between career indecision and sense of control and general self-efficacy. It is possible that

the model could have been hypothesised to include rumination as an outcome in the same way as depression. However, previous research involving older students suggests that negative thinking may also be linked to career indecision. Future research may take other interactions into account.

A total of 430 students clicked on the link to the anonymous survey. Of those, 115 did not attempt to complete any of the scales and were excluded. A further 40 responses were excluded due to missing data exceeding 50%. In the remaining dataset, less than 1% of the data were missing. Little's MCAR test indicated that there was no evidence against the null hypothesis that these data were completely missing at random. As a result, missing responses were imputed, using sub-scale mean imputation. CES-D guidance recommended not imputing data if more than 4 answers were missing of the 16 on the scale, and this was applied. A final total of 275 fully completed responses across all 5 scales were used for data analysis. SPSS (Statistical Package for Social Sciences, version 28) was used for correlational analyses to assess the relationships between the constructs, career indecision, depression, rumination, sense of control and self-efficacy. Before conducting the SEM model analysis, data were tested for the possible moderation and mediation effects using relevant guidelines (Frazier et al., 2004). Hierarchical multiple regression assessed the extent of possible moderation effects of Rumination (Brooding) and Rumination (Reflection) as postulated in the model illustrated in Fig. 1. The results from the moderation testing then directly informed the final model testing. To test whether the assumptions for mediation analysis were met, mediation analysis on sense of control and self-efficacy data was separately conducted using PROCESS Hayes (Hayes Andrew F., 2013). Data were centred prior to SEM in order to reduce multicollinearity and to improve model stability. The theoretical model was then tested using structural path analysis in AMOS (Analysis of Moment Structures, version 27). Model fit was evaluated with various fit indices, RMSEA (cutoff value close to 0.06), CFI (cutoff value close to 0.95) and SRMR (cutoff value close to 0.05) (Hooper et al., 2008).

7.2 Results

Data from 275 respondents with all scales fully completed were used in the final analysis. The data were normally distributed and showed significantly high levels of career indecision, ruminative brooding, and depression, relative to normative reference scores on each scale. General self-efficacy levels were lower than in similar general population studies. Population mean scores have been measured at between 3.80 and 3.90, as compared with a lower mean score of 3.47 on the present study (Chen et al., 2001). The descriptive statistics with normative reference scores are shown in Table 7.1.

Table 7.1 Descriptive statistics (sub-scales shown separately)

<i>Scale</i>	<i>N</i>	<i>Mean</i>	<i>*Norm</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
<i>Career Indecision (CDS)</i>	275	37.47	30	9.15	16	64
<i>Depression (CES-D)</i>	275	25.16	16	11.47	1	53
<i>General Self-Efficacy (GSES)</i>	275	3.47	3.8	0.81	1	5
<i>Sense of Control Personal Mastery (SC-In)</i>	275	5.56	-	1.02	1	7
<i>Sense of Control External Constraints (SC- Ext)</i>	275	4.21	-	1.21	1	7
<i>Rumination – Brooding (RRS-Br)</i>	275	12.28	9	3.39	5	20
<i>Rumination – Reflection (RRS-Rf)</i>	275	11.80	9	3.12	5	20

Note: *Normative scores are stipulated norms or cut-off scores for the scales (Chen et al., 2001; Radloff, 1977; Topper et al., 2014; Vilagut et al., 2016)

The results from the correlational analysis show statistically significant relationships between the constructs. There was a statistically significant correlation between career indecision and depression scores, indicating that students with higher levels of career indecision tended to have greater levels of depressive symptoms. There was a significantly strong correlation between rumination and depression, and this was expected given previous studies (Nolen-Hoeksema, 2000). Of particular interest are the relationships indicated between symptoms of depression, perceived sense of control over external constraints and career indecision. Lachman and Weaver (1998) found a significant correlation between depression and perceived external constraints (0.48) mirrored by the results from the present study. The significance between self-efficacy and depression and career indecision mirrors previous studies, even though most prior research investigating these constructs

involves tertiary education students (Amaral et al., 2023). Correlation data from the present study are tabulated in Table 7.2.

Table 7.2 Correlation analysis results (sub-scales shown separately)

Scale	1.	2.	3.	4.	5.	6.	7.
1. Depression	-						
2. Career Indecision	0.21*	-					
3. General Self-Efficacy	-0.35**	-0.26**	-				
4. External Constraints	0.49**	0.49**	-0.37**	-			
5. Personal Mastery	-0.28**	0.01	0.49**	-0.07	-		
6. Rumination - Brooding	0.51**	-0.02	0.01	0.13*	-0.01	-	
7. Rumination - Reflection	0.46**	-0.03	-0.02	0.13*	-0.06	0.61**	-

** Correlation is significant at the 0.01 level (two-tailed), $n=275$

* Correlation is significant at the 0.05 level (two-tailed), $n=275$

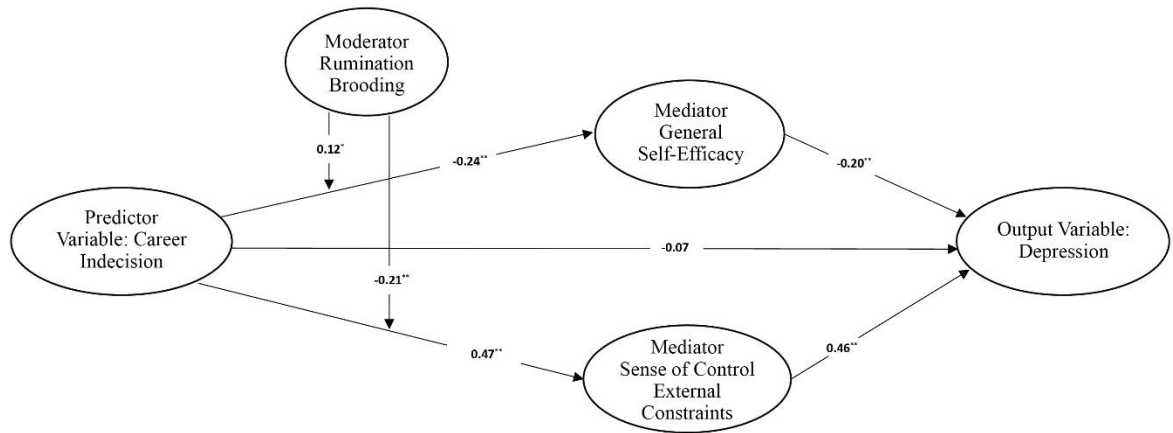
Assumptions for the mediation effect were tested before the SEM and in the regression analysis, sense of control (perceived external constraints) was found to significantly mediate the relationship between career indecision and depression ($\beta = 0.51$), while general self-efficacy partially mediated this connection ($\beta = -0.31$). The data showed that sense of control and general self-efficacy reduced the strength of the relationship between career indecision and depression. The β -value dropped for career indecision from 0.21 to -0.04 when sense of control (external barriers and constraints) was included and from 0.21 to 0.13 when general self-efficacy was included. This confirms the fourth criterion for mediation by Frazier et al. (2004).

Moderation testing was then conducted to investigate the effect of rumination on sense of control and general self-efficacy based on the hypothesis that rumination, or negative thinking, may moderate the relationship between career indecision and these constructs. Firstly, product terms were created in SPSS for Career Indecision (CDS) and both aspects of rumination (reflection (RRF) and brooding (RRB)). This step was conducted to investigate the significance of the moderation effects before conducting SEM analysis on the model and non-significant moderation effects were not included in the model testing (Frazier et al., 2004). The results showed that only the indirect effect of career indecision through ruminative brooding (moderator variable) on sense of control, specifically perceived external constraints, was significant. Career indecision had a positive standardized coefficient ($\beta = 1.166$), ruminative brooding also showed a positive standardised coefficient ($\beta = 0.929$), both indicating that greater indecision and ruminative brooding was associated with heightened

perception of perceived external constraints. The interaction term, brooding and career indecision, yielded a negative standardised coefficient ($\beta = -1.042$), indicating that the impact of career indecision on perceived external constraints is significantly moderated by brooding tendencies ($p < 0.001$). There were smaller effects measured of ruminative brooding on general self-efficacy and both these moderation effects were included in the final model testing. In contrast, the moderation effects of ruminative reflection were insignificant on perceived personal mastery, perceived external constraints and general self-efficacy.

Goodness of fit and testing theoretical model

The researchers then conducted SEM analysis and the model analysed was adjusted to exclude any non-significant moderation or mediation relationships as determined by the initial testing described above. Means were centred before analysis and centred variables were used in the final testing. Centring assists with reducing multicollinearity were implemented to improve the stability of the model. Based on the results and fit indices, the adjusted Model A, as schematically depicted below in Figure 7.2 was found to be an overall good fit.

Figure 7.2 Standardised regression weights and SEM analysis -adjusted Model A

** Significant at the 0.01 level.

* Significant at the 0.05 level.

Results from the goodness of fit testing in AMOS is shown in Table 7.3.

Table 7.3 Goodness-of-fit results

Goodness of fit measure	Model Value
Goodness of Fit (GFI)	0.988
Adjusted Goodness of Fit (AGFI)	0.907
Standardised Root Mean Square Residual (SRMR)	0.045
Comparative Fit Index (CFI)	0.970
Root Mean Square Error of Approximation (RMSEA)	0.111

The GFI (Goodness of Fit Index) is 0.988, suggesting an overall good fit to the data, the AGFI (Adjusted Goodness of Fit Index) is 0.907. The SRMR (Standardised Root Mean Square Residual) value is 0.0453, indicating that the model is demonstrating a strong fit to the observed relationships in the data. The CFI (Comparative Fit Index) value is 0.970 and indicates a strong fit of the SEM to the data. Both GFI and CFI indices had values higher than 0.950, indicating an overall good model fit (Hooper et al., 2008). RMSEA (Root Mean Square Error of Approximation) was 0.111, with the lower confidence interval at 90% also at 0.043, the upper level of confidence interval is 0.190. RMSEA values may be more sensitive in smaller sample sizes such as in this study, so whilst RMSEA indicates that there may be some room for

improvement in the model, when taken alongside the other fit indices and theoretical considerations, the data is an overall good fit. Regression weights are shown in the model (Figure 2). The adjusted Model A was found to be a good fit to the data, noting that the sample size can affect the SEM analysis given the complexity of the modelling.

7.3 Discussion

The final SEM has provided insights into the possible relationships between mental health constructs and career decision making. Although the data are cross-sectional, which therefore precludes suggesting causality, the model results suggest that it is reasonable to hypothesise that sense of control over perceived external constraints plays a significant role in the relationship between career indecision, rumination, and depression. Further, ruminative brooding was found to moderate the relationship between career indecision and perceived external constraints. Levels of career indecision, depression and rumination in the study were elevated, underscoring the importance of understanding the complex relationships between mental health challenges that impact on career-decision making when students are transitioning out of school. The study's findings support previous research indicating a significant association between rumination and depression (Nolen-Hoeksema, 2000). Further, the significant correlation between ruminative brooding and depression symptoms emphasises the relevance of negative thinking traits in contributing to psychological distress (Bullock-Yowell et al., 2014; Nolen-Hoeksema et al., 2008). The associations between career indecision, ruminative brooding, and perceived external constraints, highlights the importance of targeting negative thoughts and emotions through structured interventions aiming at alleviating depressive symptoms and problem-solving perceived barriers, as students struggle with career indecision.

The mediation analysis demonstrated that students' perceived sense of control over external constraints and general self-efficacy, played a significant role in mediating the relationships between career indecision and depression, in these school leavers. Together these mediating variables explained a significant proportion of the variance in depression scores. These findings suggested that individuals who are indecisive as to their career pathways may be more

vulnerable to experiencing depressive symptoms when they perceive reduced control over external factors or have lower general self-efficacy beliefs. In the analysis, ruminative brooding emerged as a significant moderator, affecting the relationship between career indecision and perceived external constraints. Students who engaged in more brooding rumination were more likely to have higher perceived external barriers when grappling with career choices.

Moreover, in the present study the overall reported levels of depression were highly elevated. According to Radloff (1977) only 21% of the general population scored at or above 16 in the validation testing for the scale. The CES-D scale has been validated and used across multiple studies involving adolescents, with reference levels and proposed cut-off scores still being used (Bernaras et al., 2019; Blodgett et al., 2021; Vilagut et al., 2016). In the present study, 78.7% of the participants scored at or above 16. According to Radloff (1977), these levels are significant and indicate the need to seek further assessment or intervention for depression. The levels observed in the Youth2000 study over the years 2001 to 2019 in New Zealand show increasing levels of depression symptoms, albeit a different measure was used. In contrast to the present study that used the CES-D, the Youth2000 study used the Reynolds Adolescent Depression Scale (RADS-SF) (Fleming et al., 2022). In New Zealand, there are indications that Pacific and Māori youth experience higher levels of depression. High levels of depressive symptomatology may impact school functioning and has also been associated with increased risk of overall functional impairment (Carrellas et al., 2017). Depression can become more debilitating or inhibiting as time progresses or circumstances or lack of support continues (Hickey et al., 2017). Equally, the levels of career indecision were significantly higher than the expected levels as measured in a similar aged population (Jurgens, 2000; Meyer & Winer, 1993). Assessing symptoms of depression during career counselling and through the process of career decision making has been suggested in previous research along with support for more holistic treatment (McGraw et al., 2008; Rottinghaus et al., 2009). The research highlights further research is needed to assess interventions that address career indecision, negative thought patterns or rumination, and depression may indicate further support for more integrated counselling approaches in high schools. Walker and Peterson (2012) have indicated that it is likely that the presence of symptoms of depression and negative thinking inhibits the ability for students to form decisions and to solve

career decision-making problems. Further, research findings have suggested that depression and depressive symptomatology limit the ability for a young person to form good decisions and process their thinking around career choices (Paivandy et al., 2008; Sampson et al., 2009; Saunders et al., 2000). Depression, depressive symptoms, rumination, and negative thinking may be both consequences and precursors to career indecision.

In this present study, the scale to measure rumination was selected as it was useful for assessing rumination at a specific time period (approaching the end of secondary schooling) (Topper et al., 2014). Levels of rumination, particularly brooding, were high. Over 76% of the participants scored over the recommended scale cutoff score of 9 (Topper et al., 2014). Measuring rumination is useful to predict symptoms of anxiety and depression over time (Mezulis et al., 2014; Nolen-Hoeksema, 2000; Topper et al., 2014). The transition from high school into work or tertiary study has been linked to negative anticipatory emotions and career indecision (Parmentier et al., 2021) and therefore, the findings from the present study may give further insight for helping school leavers cope better and adapt through this transition. The results of the present study are explored in more detail below.

Key findings

The results from the present study indicated that undecided students who have heightened perceived external constraints as indicated on the sense of control scale, have higher levels of depressive symptomatology and the mediating effect of perceived external constraints was significant. Sense of control refers to the level at which students may feel they have control over barriers and is based on perceptions, rather than an innate trait characteristic. Therefore, this tool assessed sense of control at a specific time-point in a particular context, such as the transitional point of leaving school (Duffy, 2010; Lachman & Weaver, 1998; Steptoe et al., 2007). The results further show that general self-efficacy has a significant mediator effect between career indecision and depressive symptomatology. As a significant determinant of one's performance of a given behaviour, self-efficacy functions separately from the abilities that one possesses, although both skills and self-efficacy beliefs are necessary for competent functioning (Betz & Hackett, 2006; Smith & Betz, 2002).

The results show that ruminative brooding has a significant moderating effect on perceived external barriers. The results may imply that students who tend to engage in ruminative brooding through their career decision making process may be more likely to perceive external constraints which may lead to a reduced sense of control over external factors. Increased brooding may result in a reduced sense of control. Students in the Youth2000 study have reported rising levels of anxiety and concern around access to food, cultural barriers, impacts of racism and income distribution (Fleming et al., 2022). There may be some uniquely perceived barriers in New Zealand given the degree of distance or remoteness of the region and its history of colonisation. Rumination may present before depression and the tendency to ruminate is also known to exacerbate symptoms of depression, it impairs problem solving and increases negative thinking (Nolen-Hoeksema et al., 2008). The results from the present study support these findings and further relate these constructs to career decision making. It is possible that given that brooding rumination involves repetitive negative thoughts, this may exacerbate the negative aspects around career related challenges and perceived barriers contributing to possible depressive symptomatology. Bandura has argued persuasively for the importance of self-efficacy in mental health and wellbeing, including reference to anxiety and depression (Bandura, 1995). Bandura's theory of self-efficacy also describes a model of depression whereby perceived self-efficacy is critical to an individual's sense of control over their future and impending academic achievement (Bandura & Locke, 2003). This sense of control and adaptation is an important defence against symptoms of depression. It may be that career confusion and indecision along with associated pressure through the process of career choice and perceived barriers, has a significant impact on distressed mood, negative affect, and depressive symptomatology.

The SEM analysis indicated an overall good fit to the revised model, whereby statistically significant paths were observed between career indecision, and general self-efficacy, as well as ruminative brooding, perceived sense of control over external barriers and depression symptoms. This suggests there is support for the proposition that when students who are undecided as to their career pathways as they are transitioning from school, who are also ruminative brooders, may have increased perceived external barriers. Further, if these students are undecided, perceived

external barriers may significantly explain the relationship between career indecision and depression.

The SEM analysis suggested that the relationships between the constructs are significant in their interactivity between career indecision and depression. The internal dynamics of general self-efficacy representing an individual's belief in their capabilities to perform and overcome challenges, interacted with perceived external barriers in mediating the relationship between career indecision and depression. It is possible that as career indecision heightens, feelings of doubt and uncertainty, diminished self-efficacy and perceived external constraints, act as intermediary forces that amplify the impact of indecision on mental well-being, ultimately contributing to the possible development of depression. The SEM results suggest that the role of ruminative brooding moderates between career indecision and both self-efficacy and perceived external constraints. This implies that ruminative brooding intensifies the negative effect of career indecision on self-efficacy and heightens perceived external constraints. This may further increase the vulnerability of these students to developing depressive symptoms.

The results from the model analysis also suggest that rumination and sense of control over perceived external barriers may contribute to symptoms of depression within the workings of the overall model. Adolescents who engage in brooding rumination may have a heightened vulnerability to negative emotions and this may make them more susceptible to developing symptoms of depression (Lei et al., 2017; Nolen-Hoeksema et al., 2008). Further, school leavers who are indecisive as to their careers, who also ruminate, and who perceive they have lowered control over external barriers, may be more vulnerable to depression. A large study involving 17,348 university students from 23 countries indicated that students who reported low sense of control tended to also show depressive symptoms (Stephoe et al., 2007).

The collective findings from the SEM analysis may provide a deeper insight into the possible relationships between the constructs and the interplay between career indecision and depression. The results may also indicate the multifaceted interconnections between cognitive processes, the possible impact of lowered self-efficacy, the indicated role of perceived external barriers and trait factors such as rumination with overall emotional well-being. Developing a

holistic understanding of these factors will be important in the development of targeted interventions.

The model that was developed in the present study highlights novel linkages between career decision-making and mental health. The evidence from testing the suitability of this model provides directions for how to integrating theoretical approaches in vocational and clinical counselling. Further research is needed to investigate these relationships more deeply. Due to the harm that depression and rumination can cause, both in adolescence and in later adulthood, there is an increased focus on prevention and therefore a need for a deeper understanding of identifying significant risk factors that may trigger the onset of depressive symptoms (Carrellas et al., 2017; Masselink et al., 2018). Possible interventions that focus on enhancing self-efficacy as it impacts career decision making, assisting in alleviating perceived external constraints through problem solving techniques and awareness along with developing stronger coping mechanisms via positive psychology approaches. It is further important to consider mitigating the potential amplification effects of rumination, and how they may disrupt the negative cycle which possibly leads to the development of depression in high school students as they transition from school. The results support previous calls for integrated approaches to mental health and vocational guidance, particularly given the importance of the transition point from school to study or work. Further research internationally and in New Zealand may yield further insights relating to diverse cultural landscapes.

Limitations of the present study

The possible limitations of the present study should be acknowledged. The sample may not fully represent the diverse population of school students transitioning from school across the entire country. To enhance the generalisability of the findings of the present study, similar research should be conducted in other countries. The good fit indices suggest that the model may be plausible and previous research and theory supports the considerations for the current study modelling. However, the present study relies on cross-sectional data, which limits establishing causality. This could be addressed through testing the reported model using a longitudinal study design. The study relies on self-reporting scales, which may introduce potential bias. Further

validation and refinement of the SEM would be crucial in developing a targeted and more evidence-based effective counselling intervention programme for school leavers as they transition from school to work or tertiary studies.

7.4 Conclusion

The results of the present study show that there may be possible intricate and significant relationships between the constructs in the postulated model. The research aimed to advance the understanding of the complexity and the interplay between these key variables. The results indicate possible actionable response pathways and interventions for schools and educational counsellors to work on, to foster a more supportive environment that holistically addresses both career indecision and mental health. A more integrated approach may focus on increasing self-efficacy, whilst recognizing the impact of perceived external constraints and working to assist in resolving these. Equally, future counselling practice should ensure that counsellors who provide career guidance are better equipped to identify and respond to ruminative patterns or negative thinking, as well as mental distress associated with career decision making. Equipping students with mindfulness techniques to reduce stress and manage negative thinking patterns may also mitigate the inductive relationships between career indecision, rumination, and depression. It is hoped/envisioned that if these factors are addressed in an integrated manner, this will lead to more psychologically healthy and confident school-leavers. This would lay a healthy foundation from which adolescents/young people could embark on a journey beyond high school, enabling them to better navigate career decision making with increased resilience and reduced emotional distress.

The present study findings support previous calls for a synthesis in provision of career counselling and integrated personal counselling, ensuring a greater awareness, as well as training, in mental health issues, at the high school level, as well as in entry level tertiary settings (Blustein et al., 2019; Walker & Peterson, 2012). Future research could involve a larger sample and longitudinal methodologies to further investigate the impact and possible causality of these factors, and to assess the interrelatedness of mental health and career processing in school leavers.

Prelude to Chapter 8

The findings from the third phase of the study suggest intricate linkages and effects in high school settings amongst key variables, emphasising the need for a more comprehensive approach to address career indecision, self-efficacy, sense of control over external barriers, and negative thinking. From the study results there are possible pathways that can be identified for high schools and education counsellors to cultivate a more supportive environment, including for example, enhancing self-efficacy, addressing perceived external constraints, and equipping students to develop more positive approaches to decision making around the transition. From the model testing and the goodness of fit data, it is indicated that there is substance to the hypothesised relationships between career indecision and the motivational constructs of self-efficacy and sense of control, interacting with mental health constructs. The effect of ruminative brooding is also shown to impact on the relationship between career indecision and sense of control over external constraints.

The last phase of the study aimed to enrich the quantitative findings through adding a qualitative phase. This qualitative phase aimed to investigate and describe the experiences of young people transitioning from high school to tertiary studies or working in New Zealand. Focus groups were conducted with 19 high school students, and the data were analysed using reflexive thematic analysis. Themes were identified, grouped, and described, and the students' perspectives were expressed through vignettes. Four key themes and patterns were identified: career decision-making difficulties, perceived external barriers and pressures, self-efficacy, and emotions around the transition, and reaching for dreams. The students were largely undecided about their career paths; they had mixed emotions and varying degrees of self-belief and confidence. Most students believed that there were significant insurmountable restrictions or barriers ahead as they approached the end of school. This caused participants to feel distressed. Many participants stated that they dreamed of alternatives to what was perceived as attainable or realistic in their minds. This study provides fresh insights into students' experiences as they navigate the transition from high school to study or work. The novel perspectives on perceived barriers to aspirations, lowered

confidence, and increased anxiety or negative feelings at this time provide valuable directions for counselling interventions to support students as they navigate this key transitional phase. The study reported on in this chapter has been submitted to *Social Psychology of Education* and is currently under review (Amaral et al., 2024c).

Chapter 8: “Do I have to know?”: Students’ dreams, dilemmas, challenges, and uncertainties in the transition from high school.

Adolescence is a period of exploration, self-discovery, and identity formation (Stringer et al., 2012). The transition from adolescence to young adulthood is a pivotal stage in a young person's life and is marked by a series of decisions that shape their future. Transitioning from secondary school to vocations in a wider community or tertiary education is daunting (James et al., 2021; Lindstrom Johnson et al., 2016). During this phase, many young people choose career paths. However, this process is seldom straightforward, and numerous factors may challenge it, including reduced self-efficacy, negative thinking patterns, distress, and perceived external barriers and pressures (Amaral et al., 2023). Environmental uncertainty, unpredictability, perceived barriers, and a lack of access to relevant information may further exacerbate the career decision-making process (Blustein et al., 2019). One recently emerging environmental factor is the COVID-19 pandemic. The full impact of COVID-19 on school students is not yet fully understood, particularly its impact on career decision-making and mental health through the transition from school to tertiary education or finding work. It is likely that this may have affected the sense of control and self-efficacy, which are key deterministic factors influencing adolescent behaviour and decision-making in this transition phase (Bandura, 1993).

High expectations of high school students around career choice, as well as contextual developmental pressures, sense of control over personal or external constraints and self-efficacy, may impact on their well-being and mental health. The confluence of negative thoughts, rumination, perceived self-efficacy, perceived barriers and career indecision have been found to have a significant impact on young people as they leave school, possibly leading to the development of depressive symptomatology (Smith & Betz, 2002; Walker & Peterson, 2012). Furthermore, evidence indicates that there are significant interactions between career indecision, self-efficacy, and depression or negative thinking (Anghel & Gati, 2021; Dieringer et al., 2017; Walker & Peterson, 2012). Nonetheless, Amaral et al. (2023), in their scoping review, found that little research had been conducted specifically involving high school students and career indecision, self-efficacy, sense of control, and mental health. In the following sections, some of the areas that have been investigated in previous studies are revisited. The rationale for developing

this background is to ascertain that the current information is fragmented and unclear, justifying an inductive approach to exploring the area, rather than testing an established supposition. Therefore, this study aimed to inductively explore this critical transition phase specifically with high school students, from rural and urban settings, using reflexive thematic analysis.

Career exploration and indecision

Career exploration is central to career development theory and may be described as purposeful behaviours and cognitive processes related to accessing information about careers and occupations (Jiang et al., 2019). The importance of making career decisions is continually emphasized in high school (Corrieri et al., 2014; Newcomb-Anjo et al., 2017). In New Zealand, at the age of 14 or 15 years, all students decrease the number of subjects they elect to take further, a process that may result in reduced career choices later in high school. Furthermore, young people make career choices based on limited information or perceptions of career barriers and abilities. Blustein et al. propose that school students looking to make a decision in relation to their career choice should be given the opportunity to think of every possible avenue of interest, rather than having a confined list of traditional careers (Blustein et al., 2019).

Career indecision is the process of resolving internal and external conflicts while determining one's overall career direction (Bullock-Yowell et al., 2014; Penn & Lent, 2019). There are several aspects to 'undecidedness:' a young person may be unsure which subjects they wish to take in their senior years; they may be unclear about their career direction or interests; or they may struggle with decisions about particular institutions, majors, and courses (Andrews et al., 2014; Bullock-Yowell et al., 2014; Womack et al., 2018). Some indecisions may be temporary and resolved as young people transition; many remain unsure about their choices, from selecting subjects at school to entering tertiary studies or work (Bullock-Yowell et al., 2014; Vignoli, 2015), leading to negative thoughts about future possibilities or opportunities.

Traditionally, there has been a distinction between career, youth and clinical counselling, which has impacted research and practice (Blustein et al., 2019; Dieringer et al., 2017; Rottinghaus et al., 2009). Blustein et al. (2019) have made a strong case for a more

integrated approach both in counselling practice and research involving career development. Blustein et al. (2019) suggested that there is a prevalent assumption that individuals are uninhibited in choosing a career, which is indicative of a middle-class bias throughout the field. Furthermore, less than 20% of all vocational research is conducted among high school students (Blustein et al., 2019). There is, therefore, a relative dearth of research involving adolescents or school leavers, career exploration, and indecision, specifically alongside motivational and emotional states (Amaral et al., 2023; Jiang et al., 2019). Career indecision or confusion may also result from negative thoughts, perceived lack of sense of control, lowered self-efficacy, possible obstacles, and possible access barriers such as rural locations; therefore, a more integrated approach is needed in research and practice (Bertoch et al., 2014; Jiang et al., 2019; Maire & Cuervo, 2024; Walker & Peterson, 2012).

Self-efficacy and affective state

Self-efficacy is the perception and belief of a person in terms of their capabilities and skills to achieve and perform in a variety of areas (Betz & Hackett, 2006), and is critical in career decision-making (Betz & Hackett, 2006). Furthermore, career indecision is strongly and inversely related to career self-efficacy, whereby less confident individuals are less decisive (Penn & Lent, 2019). The pressure to choose a path, along with perceived barriers or lowered career self-efficacy, as well as the development of negative thoughts, is not only a cognitive journey but also an emotive one. Difficulties in the decision-making process and the associated perception of hopelessness, in tandem with a sense of restriction around career dreams, possibilities, and opportunities, may impact mental health and career choices (James et al., 2021; Rottinghaus et al., 2009; Vignoli, 2015).

Lower self-efficacy, reduced sense of control, and negative career thinking have been correlated with career decision-making difficulties. Marcott et al. (2018) suggested that decisions related to career pathways are particularly stressful and can lead to anxiety and depression, which in turn adversely affect decision-making. However, very few studies have explored the pathways that lead to depression and the role of emotional affect in the transition

from school; a scoping review by Amaral et al. (2023) found that few studies have explored the subsequent presence of depressed mood or rumination, should students transition from school be indecisive when choosing their career path. Walker and Peterson (2012) suggested the need to ensure that career counsellors are adequately equipped to identify potential psychological difficulties associated with career identity formation and decision-making. Several authors (e.g., Dieringer et al., 2017; Park et al., 2017; Blustein et al., 2019) have called for more careful attention to individuals showing signs of anxiety or negative thoughts about career choices and decision-making, suggesting a more integrated approach to career guidance with personal counselling alongside career counselling.

Perceived barriers and restrictions

There is no known research investigating sense of control as a core construct because it intersects career indecision, self-efficacy, distress, negative affect, and depression (Amaral et al., 2023). Amaral et al. found references to perceived barriers, sense of personal control, hopelessness, and locus of control in 12 reviewed studies. However, only four studies included sense of control with both career indecision and depression (Aguiar & Conceição, 2015; Dieringer et al., 2017; Saunders et al., 2000; Smith & Betz, 2002). The impacts of environmental uncertainty, unpredictability, and perceived barriers further exacerbate this process (Blustein et al., 2019). The expectations placed on adolescents regarding career choice, decision and choice anxiety, contextual developmental pressures, a sense of control over personal or external constraints, and self-efficacy are all likely to have a psychological impact (Duffy, 2010; James et al., 2021; Marcionetti & Rossier, 2021; Ulas & Yildirim, 2019).

This study explored the barriers and undecidedness regarding careers when transitioning from high school. The authors laid out the key concepts of career indecision, affective state, sense of control, and self-efficacy to understand challenges during the transition and subsequently described the methods and analysis used to collect stories of students from New Zealand navigating this phase. Transitioning from school is complex and qualitative methods are appropriate for exploring this experience. To gain a deeper understanding of the perspectives of

transitioning school leavers, this study employed reflexive thematic analysis. Data were collected from transitioning high school students to examine their perceptions of their decision-making experiences. The findings of the present study have implications for improving mental health support along with career guidance counselling in schools.

Four key research questions guided the study:

1. How do students construct their ideas regarding what they want to pursue after school and how do they formalize the steps to take after leaving school?
2. What are the challenges or barriers that students perceive as hurdles to their pursuits after school?
3. How do students develop their mental constructs around believing they can achieve their goals, and how does this make them feel when leaving school?
4. How do students develop and actualize their aspirations for future careers, and how are their actual choices different from these aspirations?

8.1. Method

Research design.

To gain a deeper understanding of the perspectives of school leavers transitioning from school to either work or tertiary studies, the present study recognized the complexity of human subjectivity and the meaning behind experiences and supported an inductive methodology of engaging with the data in a collaborative and interpretative way (Smith, 2011). The researchers used Reflexive Thematic Analysis (RTA) to explore and understand the lived experiences of high school students regarding their career decision-making and mental health. RTA was used because it requires the researcher to engage, reflect on, and interpret participants' experiences while conducting the analysis in a thoughtful and considered manner (Bradbury-Jones et al., 2017). Braun and Clarke (2023) provided recommendations for good practices when conducting RTA.

RTA employs an inductive and exploratory approach, with researchers first engaging deeply with the dataset to become familiar with the content, and then generating labels or codes with the research questions in mind. Patterns or significant themes were developed to represent

the data. Finally, the themes are refined and named (Braun & Clarke, 2023). This approach aims to uncover rich personal narratives and meanings, recognising that they may be shaped by individual contexts and perspectives (Nizza et al., 2021). In this study, the RTA method was employed, whereby the researchers identified themes or codes through organic, interpretative engagement with the data obtained from the focus group transcripts without any preconceived categories or codes (Braun & Clarke, 2023). The researcher reflexively identified themes and patterns in the data.

Participants and Procedure

The lead researcher contacted schools and youth organisations for permission to invite students to participate in the focus groups. The sampling was therefore convenient and high school students identified by the school were recruited. The principal and youth organisational leads identified the students and requested their participation and consent. The key inclusion criteria were that the students must be at least 16 years old and within the final two years of schooling. The cohorts ranged in age from 16 to 18 years. The participants came from diverse backgrounds and cultural groups in New Zealand. Participants were from three geographic regions in New Zealand, the regions would be considered as varied, one regional small town, one small city and one large city. The latter was in person, whilst the former two focus groups were online. The groups comprised of both genders by observation, however gender was not disclosed.

This study was approved by the authors' institutional ethics committee. Students were informed of the purpose of the study, the voluntary nature of participation, confidentiality, and the use of recording and transcribing after the focus groups were completed. Nineteen students from three different regions in New Zealand participated in the focus groups. Two of the focus groups were online owing to COVID-19 restrictions, and one of the groups was face-to-face. One group occurred during high school, the second group was composed of high school students in an after-school activity, and the final group was composed of a youth organisation involved in supporting a group of high school students after school.

Three focus groups were conducted, each with a variable number of high school students, and moderated by the primary researcher. Focus groups were chosen because they provide the opportunity to observe students together and data can be enriched through interactive opinions and experiences. The researcher took steps to avoid leading respondents, and the questions were reframed to seek responses from various angles. The discussions followed a semi-structured format guided by questions sent by the researcher prior to the focus groups. The questions were formulated by considering prior research and informed by the findings of a scoping review conducted across the constructs of career indecision, depression, rumination, self-efficacy, and sense of control among high school students (Amaral et al., 2023). The discussions explored the students' experiences, perceptions, and emotions related to finishing school, making decisions about their careers, and possible studies after leaving school. The groups were recorded with the participants' consent, and audio recordings were transcribed verbatim to capture their own words. Examples of questions and probes are listed in Table 8.1.

Table 8.1 *Semi-structured focus group guiding questions and probe examples*

-
1. Have you decided on a career or what you want to do after school?
(Probe: What does success look like for you?)
(Probe: How decided to do you feel in terms of career choice?)
 2. If you were free to choose any career you want without any restriction at all, so no money restrictions, no place restrictions, what would you choose?
(Probe: That is, what you would do if you had all the money in the world and no barriers at all what would you do? No restrictions...)
(Probe: If you were dreaming, would it be something different?)
(Probe: If you were describing the restrictions, what could they be?)
 3. What does the future look like for you? How do you feel about the future?
(Probe: After this year?)
 4. How does leaving school feel?
(Probe: How are you feeling about it?)
 5. Do you believe your school supports you, is there something that would make it easier or help you achieve your goals?
(Probe: what would help you achieve your goals?)
-

Data Analysis

Using RTA, the researcher was first immersed in the data and the transcripts were read several times. No specific software was utilised. Themes and repeated words were captured via highlighting text and capturing on excel. It is important to suspend preconceived theories and

assumptions. To achieve this, the researcher focused on repeated and key words when drawing up the inductive themes, considering the features and patterns relevant to the research questions. Patterns emerged through the capturing of the individual words. These themes were captured in a word table. Thereafter, broad summaries for each candidate theme were created to highlight the key characteristics and contexts. In this inductive analysis process, the data were grouped into meaningful segments with no preconceived ideas in the categories. Categories that emerged from the data were represented by common themes and patterns. Data were reviewed for each of the three regions represented by the groups, then for key similarities, differences, and trends.

Thereafter, the researcher reviewed the emergent themes in relation to the specific research questions. Through further reflexive and recursive engagement with these initial patterns, four final intersecting key themes emerged. The final key themes were refined into core concepts and named accordingly. The researcher developed two vignettes from each of the key themes using extracts from the data and verbalized experiences of the students to illustrate these themes, enabling a deeper understanding of the context of these transitioning students' lives from their perspectives. The inclusion of words verbatim allows for exact representation of the sentiments of the participants. These insights were combined with those of previous research to create a holistic understanding of the data.

8.2. Results

The initial groupings of themes emerging from the data are presented in Table 8.2.

Table 8.2 *Initial Data Summaries From Each Group of Students During Analysis*

<i>Emerging themes</i>	<i>Group 1 – Regional small town</i>	<i>Group 2 – small city</i>	<i>Group 3 – large city</i>	<i>In their words...</i>	<i>Summary</i>
Career Choices and Uncertainty	Varying certainty levels; hard to envision future; difficulty in deciding.	Mostly undecided; procrastinating decisions for the future.	Undecided; confusion.	“I am a little scared, not going to lie.”; “I am not too sure at the moment.”; “No, not decided”; “Difficult to make this decision.”; “Gotta try find a job. Something you like...”	Largely undecided as to career or steps after school.
Stress, Anxiety and Pressure in transition (Mental Health)	Pressure and uncertainty; mixed sentiments; social pressure to decide.	Leaving school emotions; excited and nervous; pressure to decide.	Pressure from family; Uncertainty and fear; pressure to make money.	“Pressure to make decisions around future.”; “Expected to have a reasonably clear direction.”; “People expect me to have my mind made up.”; “Pressure to make money.” “I think a lot of us students do get quite stressed out because we don’t know what the future holds.”	Overall stress and distress in the final years of school.
Support in schools	Mixed access to resources – not everyone asks.	Time management skills and decision making.	Lack of support and no reflection of “me” in counsellors or teachers.	“Many students don’t reach out for support.”; “They care about stats.”	Support to transition as an individual lacking.
Barriers And Challenges	Financial, leaving regions is scary as there are no study options in some areas and must leave, COVID-19.	Barriers to specific fields; uncertainty	Financial constraints, COVID-19; school assistance; needing to find work.	“Cost of education and living expenses.”; “Financial constraints.”; “School stops you. School.” The future looks “challenging”	Multiple barriers – mostly external.
COVID-19	Impact on opportunities.	Not much impact.	Some impact – did not enjoy studying at home.	“Limited opportunities to visit universities.”; “It’s made things more complicated.”; “Did not study much...”	Variable – research took place at a time of lowered restrictions/ some areas had had no cases at all; may be a barrier.
<i>Emerging themes</i>	<i>Group 1 – Regional small town</i>	<i>Group 2 – small city</i>	<i>Group 3 – large city</i>	<i>In their words...</i>	<i>Summary</i>

Self-Belief	Varying levels of self-confidence.	Reasonable self-belief but some lowered efficacy.	Lack of self-belief / overall not that confident.	“Not everyone had the confidence in their ability.” “Lack of self-belief.” “I don’t even have a university entrance.”	Differentials on career vs. ability / dreams – linked to some areas of lowered self-efficacy.
Improvement in supporting career decision making.	More exposure to various careers, more varied tertiary information.	Time management skills and information.	More diverse and inclusive teachers / schooling.	“University representatives visiting the schools” Help us “Pick subjects that interest them”; “...teachers that look like us” “School stops you.”	Skills, information and systemic – earlier focus before subject choice.

Four key themes were identified from the data. The first theme was *Career decision making difficulties* where the levels of indecision were reasonably high, with many students alluding to difficulties in making decisions. *Perceived external barriers and pressure* to decide was the second theme, which focused on the key features of the focus group discussions, with multiple external barriers tabulated as concerns. *Self-efficacy and feelings around transition* and perceived support indicated the third theme, whereby students felt that they needed to move in a particular direction because of self-belief or efficacy barriers. Equally, academic, and individual support from students' perspectives in schools seemed to be variable and inequitable. The fourth theme, *reaching for dreams* in terms of what they really want to 'be' after school, reflected ideas that seemed intangible and associated emotions. The gap between pursuing dreams and what students believed was expected or realistic was too wide. The key themes and their associated vignettes are listed in Table 8.3.

Table 8.3 *Final intersected themes and associated vignettes*

THEMES	VIGNETTE 1	VIGNETTE 2
1. Career Decision Making Difficulties	"Do I have to know?"	"Now, that's a good question!"
2. Perceived Barriers and Pressure	"I will just see what happens..."	"Gatekeepers of dreams"
3. Self-Efficacy and Feelings Around Transition	"A few 'knock-backs'"	"It feels scary... stressful actually."
4. Reaching for Dreams	"I just need to get a job. Any job"	"Get real – the gift of no limitations"

Career Decision Making Difficulties

Students expressed varying degrees of uncertainty. While some felt more decided, others acknowledged the difficulty in envisioning their future careers, commented that the unpredictability of the world made career predictions difficult, and mentioned keeping their options open. For instance, by possibly taking a gap year to gain better clarity around what was next. These ideas are best expressed in the following vignettes.

1. "Do I have to know?"

Tom was fast approaching the end of school... What now? Why does everyone keep asking me what I am going to do next? I have no idea...I think about it all the time, but really, I do not know

what I want to do after school. No one asks me what I want to be anymore. I liked it much more when I was young, and I felt like I could be anyone I wanted. I was encouraged to try new things and discover what I liked. The last few years have been all about what subjects I can do, what I want to do after school, and what degree am I going to study. I honestly feel so confused. I don't know, I just don't know.

2. "Now, that's a good question!"

I'm Fabio, and I'm in Year 12. Everyone keeps asking what are you going to do when you leave school? They're really putting pressure on us Year 12s now. Career counselling is good for support, but really, it's for the ones that have a clear mindset, to make sure they have the right subjects and things. But if you don't? Like me? Even my friends' parents are like, "So, what do you want to do?" and "I'm like, I don't know?" Or I just joke and say, 'You know, that's a very good question!' You know, from Year 10, we have to be more specific about our courses. And so, it gets hard like, "Okay. Now, you need to have an idea of what you're going to go into." And then it just gets increasingly difficult. By Year 13, you're expected to know exactly what you're doing, and then many people don't know. Perhaps I will just go with my friends and see what happens.

Perceived barriers and pressure

Several students expressed concerns regarding access to universities, family expectations, financial issues, the effects of COVID-19, relocation problems, and academic achievement. Some students also said that they felt pressurized to know what to do next and that they needed to decide that there was an expectation to have made up their minds. Most students from the group supported outside school felt that they just needed to find work. These students spoke about their lack of access to equipment, space, or opportunities, which limited their ability to pursue passion. Students also spoke about time management as a barrier to a busy schedule. Financial constraints were a significant barrier. There was significant pressure to make money and contribute to households. The following vignettes illustrate this.

1. "I will just see what happens..."

I am Jules, I am in a small town in New Zealand, and we don't have universities or tertiary places to study here; we are fortunate because we have had no COVID-19 cases here at all, but we have been stuck here; we have been locked away from the world. I am finishing school this year, and I need to go and study somewhere, I think? I don't even know what to study; I am so afraid of leaving here; this is my home, but if I want to study, I need to leave this place. There are no universities here... Because of COVID we did not have any tours; we did not get the chance to go and see any places to study. I think I will just go to the closest one...I really don't know.

2. "Gatekeepers of dreams"

My name is Victor. I wish I could do what I really want to do, but honestly, I need to take care of my family, which is expected of me. I take care of my siblings, make sure they are ok and get them to school every day. I cannot take up that trade offer; I cannot get to the shifts in time, but that is ok, as my family is first and most important to me. I don't think they understand that. In fact, there are no teachers who look like "us" or understand what we are about, we need more Polynesian teachers. 'Cause at the end of the day, it's like, they'll understand us, same culture. You know, school stops you and you know how it is. They only care about a few select people, the top students.

Self-efficacy and feelings around transition

Students had mixed sentiments around leaving school; some were excited and looking forward to attending university, while others felt afraid, lacked self-belief, and felt nervous about the unknown. A few students expressed particular concerns about leaving familiar environments and support systems. When speaking to their peers, a few students felt that not everyone was confident in their ability to achieve their goals. The students spoke about the need for more help and motivation during this stage. A few students made light of the situation, and there was some banter as they settled into the discussion, which may have indicated a coping mechanism or way to downplay their feelings about this topic. Several students said that their immediate focus was on finding work rather than pursuing opportunities aligned with their interests or passions. These vignettes best expressed the following sentiments:

1. A few “knock backs”

My name is Savannah; I am staring down the tunnel at the end of school... There are so many things to think about. I mean university is expensive. How am I going to be able to afford that? Then, there is COVID, and I maybe wanted to do my OE (*Overseas Experience*), but that’s not going to happen. I am afraid. What if I don’t get enough marks? I am nervous about leaving school. It is a bit different from being in your own home, and you’ve kind of got to venture out and do your own thing. So, I am a bit anxious about that, but it should be good, hopefully. I don’t know what is to come.

2. “It feels scary... stressful actually.”

I am Dianna. I’m okay to leave school. I don’t like school, but you know it’s pretty scary. You know, school is a place you go to every day, and then it all ends, and you leave. You don’t know where you are going.” I must find a job. Maybe something I like? Its challenging. Actually, it’s all a bit stressful. I don’t really know what I am good at. Math and me, well, I didn’t do the right subjects, and now I don’t think I can actually do what I maybe want to do. I’m not that good, anyhow. I feel confused and anxious. Perhaps I will just get a job.

Reaching for dreams

Without any barriers or restrictions, would you do something different: most said “100% yeah.” Students discussed their perceived barriers and suggested that there were challenges in achieving their career goals, including financial constraints, and that they may not be able to access their chosen courses or universities. For many, the reality was the need for money to ensure financial stability. This stands in the way of pursuing dreams and introduces negative thinking patterns and emotions. Many students had quite different aspirations once the researcher mentioned that there would be no barriers and that they could choose anything they wanted. The gap in pursuing aspirations was significant. The following vignettes best illustrate this:

1. “I just need to get a job. Any job”

My name is Jake, and I am Samoan. When I think about what I want to be, I wish I could be an engineer, but I cannot. I do not have a UE (*university entrance*). I am not good enough, and I do

not have sufficient academic marks. I wish someone helped me earlier. Now, it is my final year and I have no choice but to go out and find a job. Any job. It doesn't matter as long as I can earn money. I must help my family, and they need me to go out and work. I don't mind helping them, family first but it makes me feel low. If I paused and wished hard, I would become a civil engineer. I would attend university to study. So, I wish it was more about what I want to be as opposed to what is next, and what can I do next? This makes me feel sad.

2. "Get real – the gift of no limitations"

I am Thane. I love playing online games. I am very passionate about PlayStation. I hope that I can do something in this area. I could code or design games, but don't have that choice. I do not even know where to start; in fact, I don't even talk about it. I don't know how to get to that, I don't have anyone to help me. I just need to get a job and earn money. Dreaming about a job that I would love is not real and I cannot think about it. I will get a job at a supermarket or something. I can still play the games I guess, but I am not smart enough to do anything else.

8.3. Discussion

The qualitative approach taken in this study unveiled the issues faced by secondary school students as they transitioned from school to either tertiary study or a career trajectory. The qualitative approach enabled me to consider key themes and create a more detailed theoretical foundation to describe the issues at hand. The findings created a unique window into their perspectives on career aspirations, dreams, perceived barriers, restrictions, and challenges, and how they felt about leaving school. These students expressed concerns about leaving school, particularly regarding perceived barriers and challenges. They indicated that leaving school was both exciting and confusing, but most were uncertain about what they were going to pursue when leaving school. Furthermore, many students believed that they were unable to pursue the careers of their dreams, this made them feel inferior and down. When asked whether they could choose something without restrictions, most students said they would choose something different. They then spoke about why they felt that they could not pursue the career of their dreams. Perceived constraints are sometimes related to school barriers, lack of cultural understanding, academic

achievement, financial constraints, access to information, family pressure, self-efficacy, and confidence-related reasoning. The RTA approach allowed us to strike a balance between convergence of accounts by the students along with recognising the individuality embedded in the unique experiences of each student who participated by recognising patterns and constructing themes and then describing these through vignettes (Bradbury-Jones et al., 2017; Braun & Clarke, 2023). Bradbury-Jones et al. (2017) noted that qualitative research is founded on flexibility and allows the deviation and adaptation of designs. The reflexive approach adopted in the present study and the themes covered in the results ensured that the themes were rich and reflective of the diversity and similarities of the experiences.

The students expressed significant career indecision, with many seemingly having difficulty choosing what to do after school. The first theme focused on this difficulty and highlighted the uncertainty and indecision among students, as reflected in the data. The vignette expressed the turmoil as well as the difficulties choosing or deciding on future options, with some simply stating that it was necessary to “just get a job.” During the later years of secondary school, students evaluate their context and begin formulating ideas around their future potential career options, setting goals, and assessing avenues available to them; career indecision is the failure to make a choice in relation to career direction (Guay et al., 2003). Negative thinking, along with perceived barriers and a locus of control, is likely to exert a significant influence on career decision-making processes (Dieringer et al., 2017; Ulas & Yildirim, 2019). Decision making affects all facets of choosing one’s path after secondary school, including tertiary education, employment options, and career pursuits (Bańka & Hauziński, 2015; Bullock-Yowell et al., 2014; Dik et al., 2008). This transition point addresses the various challenges, mental health difficulties, and dilemmas associated with determining one's post-secondary school trajectory.

In the present study, many students articulated completely different career directions when asked what they would choose if they had no barriers. In most instances, the careers they dreamed of, or aspired to be, were tangible and realistic. They understood that if things were different, they could have pursued these interests and pathways. The students recognized that some of the barriers were related to family needs and financial constraints, but they also spoke

about aspects that could be improved. Some of the students suggested that the school could do more; these students suggested that schools were well positioned to listen to their needs or recognize their voices. Career indecision seemed prevalent among the students in the focus groups; however, when asked what they would do unhindered, most of them said that they would choose to pursue a career aligned with their interests. This raises the question of whether career indecision is, in fact, the only core concern or whether it is their sense of perceived control over external constraints or perceived barriers along with negative emotions that is important for guidance counsellors to understand. Duffy (2010) suggested that students who felt that they had more personal control were more likely to view themselves as more adaptable and as having a more positive outlook on their future careers. Ulas and Yildirim (2018) found that perceived career barriers had a significant effect on self-efficacy and that hopelessness mediated the relationship between locus of control and career decision-making self-efficacy.

The third theme revealed how students felt and their sense of self-efficacy regarding their capabilities. They expressed excitement, worry, anxiety, and nervousness about the transition, as well as talking about what they felt they could achieve. This is expressed through the vignettes and expressions such as “I really don’t know what I am good at” and “It’s scary...stressful actually.” They also talked about the limitations, their perceptions of their coping abilities, and their beliefs about achieving or going ahead with their plans, which indicated some levels of reduced general self-efficacy. Reduced self-efficacy has been linked to depression, reduced life satisfaction, perceived external barriers, and hopelessness (Lowe & Wuthrich, 2021; Marcionetti & Rossier, 2021; Ulas & Yildirim, 2019). Furthermore, it is likely that negative thought patterns develop as students try to work through the perceived limitations of what they believe they can do after school, as opposed to what they really want to do. Rumination or negative thought patterns, particularly in relation to worry and anxiety around future outcomes has been established as a predictor of career indecision, whereby it has been suggested that career choice interventions may be improved by uplifting techniques around coping with uncertainty (Arbona et al., 2021).

The fourth theme highlighted the gap between the students’ aspirations and what they believed was realistically achievable. The vignettes demonstrate how students may feel forced to

choose a future course of action and this may be associated with what is practical over what they really want to do or what their passions are. This may be the result of perceived barriers or a perceived sense of control, as expressed in the second theme, or self-efficacy, as expressed in the third theme. The importance of this theme illustrates that the students did not necessarily align their plans and career decisions with what they really wanted to do. Furthermore, it has been suggested that hopelessness, career concerns, and distress are associated with career decision-making difficulties, and that aspirations are likely limited by lowered self-efficacy, perceived external barriers, and hopelessness (Dieringer et al., 2017; Ulas & Yildirim, 2019).

Certainly, the relationship between career indecision and self-efficacy has been researched (Kulcsár et al., 2020; Park et al., 2021) and documented. However, research on the interplay between self-efficacy and sense of control as it relates to career indecision, career dreams, negative thinking, and perceived barriers is sparse. The present study makes a unique contribution to the field by investigating all these constructs, as they may occur in combination or as they may correlate through the process of discovering and choosing a career direction as high school students transition into work or tertiary studies. Interventions that focus on strengthening self-efficacy, along with techniques to increase coping with uncertainty and negative cognitive patterns, may assist students in the transition phase from high school to post-secondary school pursuits. Additionally, working through students' perceived barriers in detail as they work to establish a career pathway may assist with perceived external constraints and create space for students to focus on interests, passions, and career opportunities that are more aligned with their dreams and aspirations.

The analysis in this study revealed not only distinct themes but also how connected the themes were within the experiences of the individuals as well as a group, through the shared experience of navigating the transition phase out of high school and into future studies or careers. The details are individually poignant, but the narratives and themes are combined to present a shared experience of confusion, anticipation, uncertainty, excitement for the change, personal dilemmas, and perceived challenges. Significantly, the research findings yielded answers to the

questions that guided the study and provided insights into possible interventions and support for students as they left high school.

Limitations and Future Research Directions

Blustein et al. (2019) also called for more holistic and integrated counselling approaches for students. Future studies should focus specifically on high school students and their experiences of the transition phase out of school, along with exploring possible intervention opportunities around problem solving, mindfulness, and coping techniques, with specific attention given to unpacking perceived barriers, locus of control, and self-efficacy. Possible limitations of the study may include moderator bias, whereby the lead researcher was also the moderator, and the moderator's style may have influenced the students' responses. The RTA focus of the study allows for both attention to detail and individuality, along with the commonalities of experiences, but it is likely not generalisable across the total population. RTA may also result in researcher bias owing to confirmatory and interpretative biases. Group dynamics can influence the results in a focus group setting, whereby some students may have been more confident, and others may have provided answers that were perceived as desired or socially acceptable.

8.4. Conclusion

The results of the present study provide deeper insights into the complexities and interrelated nature of career indecision, self-efficacy, sense of control, and anxiety for school leavers, and present relevant findings for further research in other international settings. The youth are calling for more integrated, universal, and holistic support in schools. The results suggest that a more detailed conceptual framework should be developed to cement our understanding of the interrelatedness of the issues in this research area. Future research could involve a deeper understanding and longitudinal analysis of these constructs and how they relate to school leavers. Interventions could be evaluated to ensure effective improvements in the mental well-being, career decision-making, and self-efficacy of high school students. Equitable access to these interventions should be provided to all students through policy changes. Further, researching the true impact of inconsistent and variable mental health support and coping strategies alongside

career choice in schools for transitioning students may provide deep insights and strategies for supporting and ensuring positive transition outcomes.

Specifically, improved guidance programs may be introduced that proactively assist students in exploring their interests earlier in the high school years, providing holistic techniques that assist students in their decision-making process alongside normalising uncertainty, resolving negative thinking, and improving self-efficacy. Students in senior high school may benefit from mindfulness techniques that assist in indecision, decision-making, alongside possibly reducing negative thought patterns and anxiety in relation to uncertainty in the future (Galles et al., 2019). It is also possible that introducing problem-solving skills may help students with career decision making and overcoming perceived barriers (Akyol & Bacanli, 2019). Involving family and community support structures in the career decision-making process may also improve the sense of control over perceived barriers and provide a more supportive environment (Singh et al., 2019). Peer mentorship programs, whereby mentors support younger students through the decision-making phases in high school, may also provide additional support to mental health and strengthening self-efficacy (Deane et al., 2017; Duffy, 2010). Although New Zealand may have specific populations, the need for diversity awareness and barriers associated with different cultural groups is universal. Diversity and inclusion initiatives should ensure that all students have equal access to career information, methods, and avenues to address perceived barriers and emotional support for all students as they navigate the crossroads and uncertainty associated with leaving high school (Boyras et al., 2016; Fleming et al., 2014; Lee et al., 2016).

Chapter 9: Discussion, Implications and Conclusion

9.1. Chapter Overview

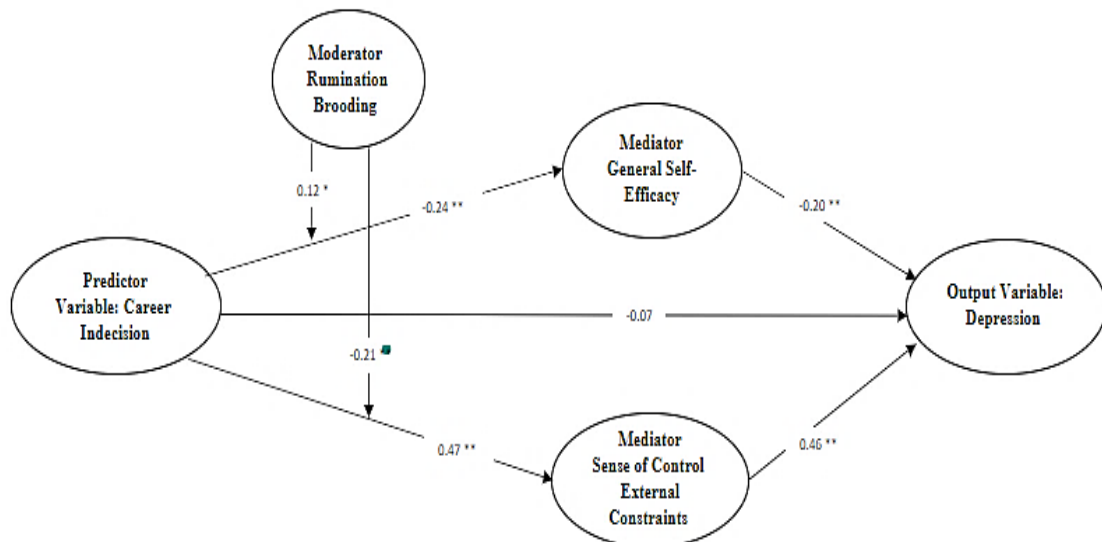
This chapter concludes the thesis with an overview of the findings of each of the four studies, the collective findings are then interpreted and critically discussed, strengths and limitations are outlined, with suggestions for possible interventions and future research. The current research aimed to advance theoretical understanding of the linkages and relationships between career indecision, self-efficacy, perceived sense of control, rumination and depression in high school students transitioning from secondary school to tertiary studies or work. This work also aimed to propose and test a model. Implications from these findings for policy makers, education agencies, school principals, career guidance counsellors and school support agencies and future research are also discussed.

The thesis addressed specific research questions through four separate studies submitted for publication. The first of these was a scoping review (Amaral et al., 2023) which aimed to definitively investigate the proposed gap in the existing research. From the scoping review, a proposed model was developed by the researcher. The purported model theorised the relationships between the constructs. For this research, career indecision was an input variable, self-efficacy, and sense of control were proposed mediator variables and rumination was proposed as a possible moderator variable, with depression as the proposed output variable. The model was then tested through quantitative methods in the following two studies. The second and third quantitative studies analysed data collected from 315 high school students who completed 5 scales online anonymously from schools across New Zealand. The final sample analysed comprised 275 participants' data. The fourth and final study involved thematic reflexive analysis of data collected in focus groups from 19 high school students from three areas of New Zealand.

The findings from these studies showed that there was support for the proposed model hypothesised by the researcher. The results of the thesis indicated that the role of mental health as it relates to career indecision and motivational factors is significant. Stress associated with career indecision and decision making has been shown to be related to worry and has been shown to precipitate anxiety and depression, underscoring the need for further exploration into the emotional dimensions of career transitions, particularly in high -school students (Marcotte et al.,

2018). This transition from adolescence to young adulthood marked by the establishment of a vocational identity has been suggested to pose challenges as theorised by Erikson and supported by contemporary research (Porfeli et al., 2011; Stringer et al., 2012). The quantitative and qualitative findings of the present thesis, when interpreted together, suggest that there are key interactions between career indecision, rumination, sense of control, particularly perceived external constraints, self-efficacy, and depression in students transitioning from high school into tertiary studies or work. These directional relationships, effects and findings are represented in a final refined theoretical model framework (see Figure 9.1).

Figure 9.1 *Final Model – Findings*



The qualitative themes are integrated into the above model in section 9.3. using key thematic constructs from the results of the qualitative phase of research in the thesis. Then the integrated findings from both quantitative and qualitative phases are illustrated visually, as was presented in the 2023 ‘3 Minute Thesis’ Auckland University of Technology Competition (Amaral, 2023, August 4). This was done to enhance the deeper understanding of the findings when the results of the four studies in this thesis are collated and interpreted. A summary of the findings of the four studies in this thesis is in Table 9.1.

Table 9.1 *Summary of the Phases of Research and Key Findings*

Phase 1: Career Indecision, Depressive Symptoms, Self-Efficacy and Negative Thoughts when Transitioning from High School: A Scoping Review (Amaral et al., 2023)			
Research Aim	Research Questions	Summary of Findings	Implications and Further Research
To investigate the extent of research on the association of career indecision and mental health challenges, along with sense of control and self-efficacy in high school.	When depressive symptoms or negative thinking are examined, is career indecision also examined? What specific relationships, key findings, and interventions, if any, were described in these studies?	<ul style="list-style-type: none"> • Career indecision, depressive symptoms and negative thinking are directly related. • Students who were undecided were more depressed than students who were more decided. • Negative thoughts increased career decision making confusion and were related to depression. • Students who were more decided had higher levels of wellbeing. 	Further research is needed to establish causality. There was only one study, by Marcotte et al. (2018), that was longitudinal. This study recommends further research and suggests that there is a need for preventative interventions in schools to address the high recurrence rates of depression amidst the transition challenges from school in adolescents. There is limited understanding of these variables in the defined population of school leavers.
	When depressive symptoms, negative thinking, or career indecision are examined, is self-efficacy or sense of control also investigated?	<ul style="list-style-type: none"> • Increased self-efficacy and lower levels of depression were correlated, along with reduced career indecision. • Perceived control over the future was associated with increased career decision confidence and less anxiety. • Only 4 studies included a focus on sense of control alongside career indecision and depression. 	Sense of control and perceived barriers emerged as key factors influencing career decision making and mental health, albeit there were very few studies that investigated this. Self-efficacy and the relationship between career indecision and depression was indicated however the findings suggest the need for more research to investigate this specifically.
	What is the scope and breadth of research conducted on these variables in the defined population?	<ul style="list-style-type: none"> • There was a dearth of research focussed on the interplay between these variables. • Of the 398 studies found, only 2.2% (n = 9) focussed on the relationship between career indecision and depression, with even fewer looking at the added effects of self-efficacy and sense of control. 	There is a dearth of research available in the defined population investigating career indecision, depression and self-efficacy, sense of control and negative thinking or rumination. Further research is needed, causality and longitudinal research that investigates preventative interventions in schools is suggested.

Phase 2: Mediation effects of Sense of Control and Self-Efficacy on the relationship between Career Indecision and Depression in High school students

Research Aim	Research Questions	Summary of Findings	Implications and Further Research
To explore the relationships between career decision making, self-efficacy, perceived sense of control, and depression in high school students.	What is the prevalence of career indecision and depression in high school students across New Zealand, and do more undecided high school students have more severe depressive symptoms?	<ul style="list-style-type: none"> ● Levels of career indecision and depression are high in relation to normative data when assessing the scores on the depression and career indecision scales. ● 78.7% of the students indicated moderate to severe depressive symptomatology. ● Students who were more depressed were also more undecided. 	The sample size may be a limitation, as well as generalisability to other geographic regions. The results from this study suggest that interventions are needed in New Zealand in high schools to address levels of depression and career indecision as students approach their leaving years and transition from school to work or tertiary studies.
	What associations exist between career indecision, self-efficacy, sense of control and depression in high school students?	<ul style="list-style-type: none"> ● Correlations between career indecision, self-efficacy, sense of control over perceived external constraints and depression were all significant. ● Sense of control over perceived external constraints significantly mediated the relationship between career indecision and depression. ● Self-efficacy partially mediated this relationship. 	The significance of perceived external constraints suggest that appropriate interventions should be introduced and researched to see if equipping the students to better navigate, cope and work through these perceived constraints assists with increased career decision confidence and reduced depression. Increasing self-efficacy may also assist.
	To what extent is career decidedness and depression mediated by self-efficacy and sense of control in relation to personal mastery or sense of control over perceived external constraints?	<ul style="list-style-type: none"> ● Both mediation model analyses supported the hypothesis that sense of control over perceived external constraints and general self-efficacy mediates between career indecision and depression in school students transitioning from high school. 	The results may explain the relationship between career indecision and depression, adding a deeper understanding the complexity of the factors that may be affecting high school students in this transition stage. Further research is needed to assess causality and to introduce possible integrated and more holistic interventions.

Phase 3: A Structural Equation Model Analysis of the Relationships Between Career Indecision, Sense of Control, Self-Efficacy, Rumination and Depression in High School Students

Research Aim	Research Questions	Summary of Findings	Implications and Further Research
To investigate the possible relationships and affects between the multiple constructs as indicated by the proposed theoretical model (specifically between career indecision and depression, with rumination, sense of control and self-efficacy as moderating or mediating in the proposed model?)	<p>A postulated model is tested - does rumination (Brooding and Reflection) moderate the effect of career indecision on the following constructs:</p> <ol style="list-style-type: none"> 1. Perceived sense of control over external barriers and / or personal mastery 2. General self-efficacy? 	<ul style="list-style-type: none"> ● Only the indirect effect of career indecision through ruminative brooding (moderator variable) on sense of control, specifically perceived external constraints, was significant. ● Reflection did not significantly moderate the relationship between career indecision and self-efficacy or sense of control. 	Ruminative brooding emerged as a significant moderator, affecting the relationship between career indecision and perceived external constraints. Students who engaged in more brooding rumination were more likely to have higher perceived external barriers when grappling with career choices. Strengths based interventions may assist and further research is needed.
	In the postulated model, are these constructs also mediators between career indecision and depression?	<ul style="list-style-type: none"> ● Sense of control, particularly perceived external constraints, was found to significantly mediate the relationship between career indecision and depression. ● General self-efficacy partially mediated this connection. ● Rumination did not mediate the relationship between career indecision and depression. 	The mediating variables of sense of control over external constraints and self-efficacy explains a significant proportion of the variance in the depression scores. The findings should be investigated further to ascertain whether students who are indecisive as to their career pathways, are more vulnerable to experiencing depressive symptoms when they perceive reduced control over external factors or have lower general self-efficacy beliefs.
	After testing for moderation and mediation effects, using SEM, is the model a good fit to the data and does the model explain the possible relationships between the hypothesised constructs?	<ul style="list-style-type: none"> ● The model was adjusted post the mediation and moderation analysis. ● The Model was found to be an overall good fit to the data. ● The CFI (Comparative Fit Index) value was 0.970 and indicated a strong fit of the SEM to the data. 	Data is cross sectional and so further research is needed to understand the intricacies of the relationships. Findings suggest there is support for the proposition that when students who are undecided as they are transitioning from school, who are also ruminative brooders, may have increased perceived external barriers. Preventative interventions should be tested.

Phase 4: “Do I have to know?”: School Students’ Career Decisions, Dilemmas, and Mental Wellbeing when Transitioning from High School

Research Aim	Research Questions	Summary of Findings	Implications and Further Research
To explore the barriers and undecidedness regarding careers when transitioning from high school through the perspectives of transitioning school leavers in focus groups.	How do students construct their ideas regarding what they want to pursue after school and how do they formalize the steps to take after leaving school?	<ul style="list-style-type: none"> ● There was a varying degree of career certainty, with most students indicating that they were largely undecided. ● This uncertainty meant that confusion emerged as a key theme. ● Mixed access to resources and perceived lack of support in schools. 	The findings and themes suggest that there was confusion and indecision as to what was next. This needs further investigation; more practical guidance seems to be needed. Students seemed not to be equipped to work through this confusion and indecision well.
The study employed reflexive thematic analysis and vignettes were constructed from the emergent themes to illustrate the themes.	What are the challenges or barriers that students perceive as hurdles to their pursuits after school?	<ul style="list-style-type: none"> ● Financial constraints were perceived to be significant. ● Not having the correct academic ability or subjects was also noted as barriers. ● Lack of support by teachers and a disconnect between this and culture. ● Perceived barriers to certain fields or aspirational careers. 	Interventions that introduce problem solving, access to information, greater individual support in navigating the career related decisions and the transition need to be investigated and researched.
	How do students develop their mental constructs around believing they can achieve their goals, and how does this make them feel when leaving school?	<ul style="list-style-type: none"> ● The beliefs and thinking around what was expected or perceived capabilities. ● This was often related to the school’s expectations or subject capabilities. ● Both may relate to lowered self-efficacy and perceived barriers. ● Students felt stressed - the perceived barrier gap was unfair /demotivating. 	Possibly introducing strengths based coping techniques, building self-efficacy in schools more universally, relatable role models and careers, with problem solving workshops in schools to break down the perceived barriers and increase efficacy. Linking interventions that focus on wellbeing may also improve the outlook.
	How do students develop and actualize their aspirations for future careers, and how are their actual choices different from these aspirations?	<ul style="list-style-type: none"> ● The gap between what students felt that they could do as opposed to what they really wanted / aspired to be. ● This seemed to contribute to the sentiments of “just getting a job”. ● The expectations of others, self and perceived barriers were common themes. 	More research is needed to understand the emergent key role of perceived external constraints. If these can be addressed, will aspirations be more aligned with career decision making?

9.2. Contribution of Present Thesis

This thesis makes a strong contribution to existing research through the findings of the four studies by investigating and establishing links between career indecision, motivational constructs and mental health in secondary school leavers, at a critical transition point into work or tertiary studies. From the literature review, the aims of the scoping review (Amaral et al., 2023) were developed. From the findings of the scoping review, a theoretical model was posited for investigation through the quantitative studies, the findings of which were shown in Figure 9.1. above.

The constructs investigated in this thesis were modelled in a unique way and the combined findings from the results in the quantitative studies suggest that there are significant relationships between career decision making, the impact of perceived external constraints, self-efficacy, ruminative brooding (also known as negative thinking) and depressive symptomatology. Although there is prior research that suggests that there are relationships between one or other of the constructs, this thesis investigated the relationships and effects in a novel way. The proposed model identifies key constructs and the possible effects that these have in relation to each other, which is a novel contribution to the understanding of the relationship between career indecision and depressive symptomatology. The model was also assessed for goodness of fit, and the findings indicated that the data were a good fit to the model. Overall, the findings suggest that the last two years of school represent a complex transitional period for school leavers, and the constructs identified, and the relationships that are indicated suggest that there may be a variety of interventions needed to reduce career indecision and improve mental health. Further longitudinal research is needed into what interventions may work preventatively and ultimately improve mental wellbeing for these students. The importance of this work is in ensuring greater attention is given to all students as they work through career decision making, in supporting their mental health as well as providing key coping skills to do so in the transition from school to tertiary studies or work.

9.2.1. Phase 1 - Summary of the Scoping Review Findings

The scoping review (Amaral et al., 2023) was published in the *Australian Journal of Career Development* with the title “**Career indecision, depressive symptoms, self-efficacy and negative thoughts when transitioning from high school: A scoping review.**”. This study aimed to assess the research landscape with regards to the hypothesised connections between career decision making, sense of control, self-efficacy, negative thinking and depression in high school students, during their transition to tertiary studies or work. The study identified a significant research gap in understanding these processes as they are related to each other in high school students approaching transition from school, particularly in respect of career decision-making and mental health, signalling the need for a more integrated approach in both research and intervention settings.

The studies included in the scoping review, found that career indecision was significantly correlated with increased depressive symptoms in high school students, suggesting a relationship between career indecision and mental health. Leaving high school emerged as a key transitional period and several studies showed heightened anxiety and stress around the process of deciding what to do when leaving school. There were initial key findings in the studies that met the inclusion criteria, suggesting that positive interventions addressing career related stresses were associated with reduced depressive and anxiety symptoms, implying that there is potential for early preventative measures.

The findings from the review also indicated that negative career thoughts were linked to increased decision-making confusion, with undecided students showing higher levels of negative thoughts and lowered self-efficacy. The studies also showed that more negative career thoughts were associated with heightened negative emotions and distress. Depressive symptoms were linked to high school dropout and career indecision, suggesting the broader implications for mental health and academic or school attendance outcomes. Positive outlook and increased well-being were associated with lower levels of career indecision, suggesting that there is a wider impact of this career decision processing on students’ lives in this transitional phase. The fully

reviewed findings are illustrated in Figure 9.2 and a detailed summary of the scoping review findings of the 39 articles that were studied are in Appendix C.

Figure 9.2 *A Collated Construct Summary From the Scoping Review of the 39 Articles After Title and Abstract Exclusion*



Note: The numbers indicate the number of articles the constructs were investigated.

Overall, the findings from the scoping review underscore the proposed need for integrated counselling and support approaches in secondary schools, recognising that there is an interconnectedness between career decision-making, motivational constructs, and mental health. The results from the scoping review suggest that there is a need for further research into the emotional aspects of career indecision, as well as the possible development of targeted interventions to enhance self-efficacy and to address perceived sense of control in order to reduce

stress and minimise mental distress during the critical transition stage from school into study or work.

The study acknowledges the limitations around language restrictions, specific databases chosen for the search and potential publication bias. The qualitative nature of evidence assessment and the exclusion of ongoing studies were also noted as possible constraints. The scoping review contributed valuable insights into the complex relationship amongst the constructs of career indecision, negative thinking, self-efficacy and depression in high school students. By addressing these intricacies, the study calls for a more nuanced and integrated approach to research, personal counselling, and career counselling, along with positive interventions for young people. This will ensure that there is a comprehensive support put in place for students as they navigate the challenges of career decision-making and mental health concerns during this crucial transitional phase.

9.2.2. Phase 2 – Career Indecision and Depression and The Mediation Effects of Sense of Control and Self-Efficacy

The paper titled “**Mediation effects of Sense of Control and Self-Efficacy on the relationship between Career Indecision and Depression in High school students,**” currently under review, presented the investigation of the mediation effects and relationships between career indecision, depression, self-efficacy, and sense of control amongst high school students in New Zealand. Data were collected from students in their final years of school as they approached the transition phase from school to work or to studies. Career decision-making is considered a pivotal aspect of transitioning from school into adulthood and formed the cornerstone of the theoretical foundation for the research. The data revealed key findings, some of which are supported by previous research, particularly when considering the individual scales and prior observed levels of career indecision and depression in school going students. The observed high levels of career indecision in the study exceed typical benchmark levels and would be described as extreme or chronic (Kelly & Pulver, 2003). Similarly, levels of depression and symptoms of depression was investigated with these students using a globally recognised and established scale. Levels of symptoms of depression in this study were found to be high overall, with 78.7% of the

students scoring above the cutoff for mild to severe depression. These levels surpass expected norms utilising the same scale in international studies (Blodgett et al., 2021). Depression has been identified as a steadily rising concern globally and research suggests that there are increasing levels of anxiety and depressive symptoms in adolescence in Australia and New Zealand (Blodgett et al., 2021; Fleming et al., 2022; Reavley & Jorm, 2011; Thapar et al., 2012). Theory acknowledges the critical role of mental health in the overall well-being of adolescence, particularly during this transitional phase, such as the shift from high school to tertiary education or employment (Bandura et al., 1999; Bandura & Locke, 2003).

There were 430 respondents to the anonymous online survey in the quantitative study phases (Phase 2 and 3). Ultimately there were 315 students who provided completed surveys, from multiple schools and youth organisations across New Zealand, who were in the process of completing high school. The data were collected between November 2020 and October 2021. More than half of the participants (50.8%, $n = 160$) identified as female, 45.1% ($n = 142$) as male, around 2.9% ($n = 9$) as gender neutral, and 1% ($n = 3$) were under the category of “other”. Further, more than half of the participants (53.7%, $n = 169$) identified as New Zealand (NZ) Europeans, 19.4% ($n = 61$) were Pasifika, 13.7% ($n = 43$) were Māori, 5.1% ($n = 16$) were Asian, and 7.3% ($n = 23$) identified as “Other”. Of the 315 participants, 39.4% ($n = 124$) were aged between 17 and 18, while 31.7% ($n = 100$) were aged 18 years and above, and the remaining participants (28.9%) were aged between 16 and 17 years old ($n = 91$). The final sample analysed comprised 275 participants’ data. The results of this study also showed a correlation between students that were undecided, with perceived external barriers with lowered sense of control, and those who showed symptoms of depression. The descriptive statistics reported in Chapter 7 (Table 7.1.) indicated the significance of the mean scores from the measures used in the study.

This study provided a deeper understanding of the exploration of career decision-making in high school students by including the measures of general self-efficacy and sense of control as critical constructs. Self-efficacy is a central concept in career decision-making and is in line with established theory which posits that self-efficacy plays a crucial role in motivating individuals to confidently explore diverse and varied career pathways (Kulcsár et al., 2020). The results showed

a correlation between lowered self-efficacy and heightened symptoms of depression, as well as significant career indecision. The findings of the present study resonate with previous research linking self-efficacy to both aspects, however in most previous studies these relationships were independently investigated and not considered in unison (Galles et al., 2019; Jo et al., 2016; Lowe & Wuthrich, 2021; Stărică, 2012; Wuthrich et al., 2020).

Sense of control, particularly over perceived, external constraints emerged as a critical focal point in the study. The study results align with theoretical perspectives that acknowledge the impact of perceived external barriers on adolescent's perceptions and career indecision (Creed et al., 2005; Duffy, 2010; Lowe & Wuthrich, 2021). This contributes uniquely to the known research with transitioning school students, in establishing the link between sense of control, career indecision and mental health challenges, particularly depression. The present study also tested a proposed mediation model using the same data collected from these high school students, using the mediation testing principles of Fraser (2004). The results contributed to the known theoretical landscape by establishing that perceived external barriers were a significant mediator in the relationship between career indecision and depression for these high school students. This may shed light on the nuanced way in which a limited sense of control over external factors may contribute to mental health challenges in high school leavers as they transition from school into work or study.

The findings support previous calls for interventions that support students to cope or address specific perceived barriers, which may proactively influence a more positive approach to career decision-making (Duffy, 2010; Galles et al., 2019; Lachman & Weaver, 1998). These interventions may shape the perceptions of barriers and perceived control over their future pathways, also increasing positive mental health and overall well-being. The results from the study also support the theoretical proposition that enhancing self-efficacy and sense of control in the career decision-making process which may positively impact mental well-being and alleviate symptoms of depression (Bradbury-Jones et al., 2017; Smith & Betz, 2002).

In summary, the results from this phase of the thesis research, suggest that integrating perspectives from vocational and personal counselling psychology may better elucidate the

intricate relationships between career decision making and depression, self-efficacy, and sense of control amongst high school students who are approaching the transition from school into work or study. Research to date has often been limited in terms of the vocational guidance focus when investigating career decision-making in high school students, as opposed to an integrated approach across career decision-making and mental health (Amaral et al., 2023).

9.2.3. Phase 3 - Proposed model of the relationships between career indecision, motivational constructs, and depression in high school students

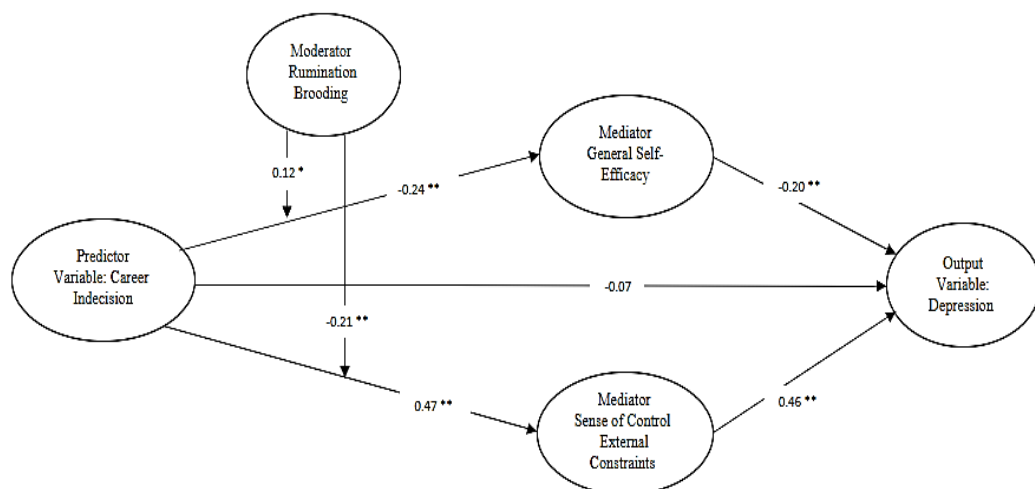
The third phase of research currently under review for publication “**A Structural Equation Model Analysis of the Relationships Between Career Indecision, Sense of Control, Self-Efficacy, Rumination and Depression in High school students**” explored the data further. This study utilised structural equation modelling (SEM) to investigate the complex dynamics between career decision-making, depression, rumination, sense of control and self-efficacy in high school students as they transitioned from school. The study refrains from implying causation, given the cross-sectional nature of the data collected, but emphasises the need for a deeper understanding of the significant and intricate relationships observed.

The results from this phase of the research also revealed relationships between career indecision and depression symptomatology, considering the roles of rumination, sense of control, and self-efficacy. The overall model was significant. Findings also revealed significant associations between rumination and depression alongside elevated levels of career indecision in the students approaching the transition from school into work or study. Ruminative brooding was identified as a key moderator variable, significantly influencing the link between career indecision and perceived external constraints measured under sense of control. The mediation effects in the proposed model supported the findings in the second phase of the thesis and further highlighted the crucial role of the students’ perceived sense of control, along with general self-efficacy in mediating the relationships between career indecision, and levels of depression. The study suggests that indecisive individuals may be more susceptible to depressive symptoms when facing reduced perceived control over external factors or lowered general self-efficacy beliefs. The role

of perceived constraints in relation to career decision making and depression along with ruminative brooding, are novel findings, particularly in students transitioning from school to work or studies. Ruminative reflection did not have a significant relationship with career indecision and self-efficacy. The assumption that reflective thinking may have moderated between career indecision and self-efficacy, or sense of control was not found to be significant. This may suggest that reflective thinking may have a more adaptive mindset, managing external constraints more effectively possibly with more of a problem-solving approach. These findings then would support the introduction of cognitive shaping techniques, problem solving skills, community and engaging with families to support secondary students at school through this transitional phase. These approaches may include positive systems changes in secondary schools to increase access to integrated psychology interventions, more information, awareness of the pace of technological change, mindfulness programmes, or cognitive restructuring.

Further research is needed to investigate the nature of the relationships between these constructs at a deeper level, longitudinal studies are suggested with possible universal interventions that may influence these constructs positively for school leavers. The model results support the call for more integrated research across career guidance interventions alongside positive mental health support in schools. The findings are repeated for ease of reference again in Figure 9.3.

Figure 9.3 Standardised Regression Weights and SEM Analysis of the Model Constructs



** Significant at the 0.01 level.

* Significant at the 0.05 level.

The findings align with some theoretical positioning around the importance of locus of control and depression (Jose & Weir, 2013; Steptoe et al., 2007). The findings of a significant role of sense of control as a mediator in the relationship between career indecision and depression aligns with the theoretical positioning about the importance of locus of control and career indecision (Kırdök & Harman, 2018).

The results from the study also underscore the importance and significance of the role of self-efficacy in mental health in school going students, particularly in respect of career decision-making and leaving school which supports the literature (Bandura et al., 2001; Creed et al., 2005). Bandura (2001) suggested that individuals with higher self-efficacy beliefs have greater academic achievements, and that this increased self-efficacy may significantly impact mental health. In the context of this thesis, diminished sense of control over external factors emerged as a crucial factor, influencing the relationships between career, rumination, and depression. The SEM analysis findings support the thesis hypotheses whereby students surveyed in New Zealand facing higher levels of career indecision may also experience amplified feelings of doubt, brooding and uncertainty around their future, higher perceived external barriers alongside reduced self-efficacy, all of which may then have contributed to the heightened levels of depression in these students. These findings would need to be tested with a larger sample and ideally in a longitudinal study to test the findings further. It is also notable that the correlation results do not show causality and indecision may lead to depression, however it is also possible that depression may lead to indecision. The importance of the findings is in the combined effects suggested in the model proposed by this research.

This phase specifically also considered the goodness of fit to the model proposed. When conducting the structural equation modelling analysis, the model was adjusted to exclude any non-significant moderation or mediation relationships found in the initial testing. The means were centred to reduce multicollinearity to ensure greater stability for the model. The results showed that the adjusted model was an overall good fit to the data. When considering the theoretical positioning and the scoping review findings, the data is an overall good fit to the adjusted model (Figure 9.3).

The cross-sectional nature of the data collection is a limitation to this thesis and correlational results do not show causality. Depression and negative thinking may be both consequences and possible precursors to career indecision (Walker & Peterson, 2012). However, the likelihood of bidirectional relationships further supports the need for holistic and integrated approaches in counselling for high school students as they approach critical transitional periods. Rumination, particularly brooding, has long been established as a key predictor of anxiety and depression (Nolen-Hoeksema, 2000). Rumination and brooding observed in this study as a moderating effect on perceived sense of control over external barriers in relation to career indecision demands further attention. Further studies are needed to understand the role of ruminative brooding specifically in relation to career indecision and sense of control in school leavers, particularly given the prior established and accepted links between rumination and the subsequent development of depression (Mezulis et al., 2014; Nolen-Hoeksema et al., 2008). Difficulties in the career decision-making process along with associated brooding, in tandem with a sense of restriction around possibilities and opportunities, may further impact mental health (Rottinghaus et al., 2009; Vignoli, 2015). The pressure to choose a career path, along with perceived barriers or lowered career self-efficacy, as well as the development of negative thoughts, is not only a cognitive journey, but an emotive one too.

This quantitative investigation and indicated effects make a unique contribution to research through the deeper investigation into the association of career indecision, rumination, sense of control, self-efficacy and mental health as school leavers approach the transition from school into work or study. The quantitative phases of the study also contribute a proposed model which is supported by the data collected here and requires further investigation. The findings collectively support the need for further research and testing the impact of positive interventions that enhance problem-solving and coping mechanisms that may alleviate perceived barrier constraints and lowered self-efficacy levels in school leavers transitioning from school to tertiary studies or work. These interventions should include strategies to increase mental well-being overall through the career exploration phases.

9.2.4. Phase 4 - A Qualitative Investigation Into Career Decision Making, Perceived Barriers and Wellbeing in High School Students.

The paper under review **“Do I have to know?”: School Students’ Career Decisions, Dilemmas, and Mental Wellbeing when Transitioning from High School** is the final phase of research conducted. In this qualitative phase focus group data were collected with three different groups of students presenting probing questions around career decision-making, their perspectives, and feelings in terms of their futures, as well as thinking processes around their career decision-making. The qualitative approach shed light on the multifaceted challenges faced by the secondary school students, who participated in this part of the study, in New Zealand during the crucial transition stage from school to study or into future careers. The findings were derived through reflexive thematic analysis (RTA) which provided a nuanced understanding of the key themes, allowing for a detailed theoretical foundation to articulate the complexities of the issues uncovered. A predominant theme that emerged, was the pervasive career indecision amongst students. The transition from secondary school was marked by the struggle to make choices, with many expressing uncertainties about their future paths. The narratives revealed a dichotomy of emotions, a mix of fearful excitement, stress and trepidation underscoring the overall ambivalence of these students as they contemplated leaving school.

Notably, there was a recurring sentiment around the perceptions of external barriers and challenges they faced, indicating the need for a closer examination of the factors that influence the career decision-making processes and mental well-being, particularly the impact of perceptions around external barriers that may or may not be real. Perceived barriers encompassed a spectrum of issues, ranging from academic performance and financial constraints, to perceived family influence or expectations, alongside self-efficacy concerns. Students articulated that their view of their realities often stood in the way of them pursuing their dream careers. The study illuminated further the indicated intricate interplay between external constraints that were perceived as being insurmountable and students perceived control over these aspects, suggesting that there is a need for interventions that possibly address these underlying factors. A compelling revelation was the prevalent gap between most students’ aspirations, specifically what they

believed, or deemed to be realistically achievable. This dissonance appeared to be influenced by a combination of perceived levels of self-efficacy, alongside a sense of trying to engage insurmountable barriers leading to a feeling of hopelessness. Students felt compelled to make practical choices over pursuing their true passions, emphasising the potential impact of external constraints on career decision-making in high school students as they approach the transition from school. This, alongside the emotional responses of the students supports the suggested call for further research into the effects of mental health challenges and career decision making, alongside perceived external barriers and constraints. The emotions associated with the impending transition were a mixture of anticipatory excitement, worry, anxiety, and nervousness. Most students expressed a complex, emotional landscape. Reduced self-efficacy emerged as a central concern with implications for mental health, career potentiality and life satisfaction.

The study yielded four key themes through the analysis of the data from the focus groups. The four themes are listed below:

1. *Career decision making difficulties* - this theme highlighted the prevalent uncertainty and indecision amongst students. The vignettes in the study illustrate the emotional turmoil and pressure faced by these students as they try to make decisions in relation to what happens after school. The confusion expressed around future plans were associated in the descriptions of the stress and uncertainty that many of the students alluded to. The findings underscored the need for career counselling and guidance that acknowledges the varying degrees of uncertainty and mental health challenges amongst the students. The findings also suggest that schools should consider providing support and resources for career exploration that may be more individually tailored to assist students both in how to navigate the complexities of career decision making, as well as uncovering their individual perceptions of their own capacity and perceived barriers. It is possible that not all students in the school system could actively explore many different options for their careers. The students expressed that they may not approach career guidance counsellors in schools, lacking the confidence to do so, as well as expressing that they believed

barriers and perceptions of their capabilities would make it futile. It is also further possible that students believe that safe spaces to discuss fears and concerns around their future pathways may be lacking.

2. *Perceived barriers and pressure* - the second theme sheds light on external obstacles that students perceive in their career paths such as expectations from their families, financial constraints, and perceived academic achievement. The data revealed how these external factors may hinder a student's ability to pursue their dreams as well as closely associated with levels of indecision, anxiety, and confusion. The findings imply that it is critical for schools and families to acknowledge the external pressures and constraints that students may perceive and the impact this may have on wellbeing. It is also crucial that schools and guidance teams appreciate that these constraints may be both perceived and real. Providing financial guidance and academic support, creating a culturally sensitive environment, as well as offering guidance on key steps to pursue particular career pathways that may be perceived to be out of reach, may alleviate some of these pressures. The students' experiences imply that it is possible that many schools may take a universal approach lacking in appreciation for diversity and cultural awareness. Acknowledging that each student's path is unique may have a positive impact on mental health and self-efficacy and may also be critical for improved transitions and managing associated mental stresses.
3. *Self-efficacy and feelings around the transition* - this theme highlighted the mixed emotions that students had as they approached the end of school. Many of the students felt both excited and fearful, also expressing a lack of self-belief and nervousness about the unknown. The vignettes used particularly depicted the students' sentiments and anxieties around the transition. A key aspect of this theme implies that addressing self-efficacy beliefs is key for a more positive transition. It may be that career development programs can be improved by introducing problem solving skills development workshops, supporting positive mental health, building resilience through the transition and mentoring opportunities that are perceived to be out of reach. The findings suggest

that providing a support system that acknowledges the students' concerns and insecurities may fundamentally assist them in preparing for the challenges that lie ahead at this critical juncture. Recognising the possible close association of mental health challenges and emotions alongside this transition pressure may also be a critical aspect to address, both in future research and support in schools.

4. *Reaching for dreams* - the fourth theme highlighted the gap between students' aspirations and what they believe is realistically achievable. This is a critical aspect of the research. Specifically, this theme highlights the hypothesised relationship between self-efficacy and sense of control, alongside career decision making and mental health. The unique contribution of this thesis is to investigate the proposed close relationship between career indecision as school leavers transition out of school and their mental health and wellbeing, alongside the impact of sense of control and self-efficacy. The vignettes demonstrated that students often felt forced to prioritize practicality over what their passions were in terms of career direction. This theme highlighted that they didn't fundamentally believe that they could access their dreams.

The qualitative study results support the earlier quantitative findings in this study, whereby the role of perceived external barriers alongside reduced self-efficacy, is significant in the process of making decisions around career pathways and possible levels of negative thinking, which may indicate rumination, in school leavers. The qualitative study suggests that offering students a wider range of information and resources around careers along with supporting debunking the perceptions of barriers in relation to the pursuit of aspirational careers, may assist in better aligning students' career decision making. It is notable that the perceived careers of choice were not necessarily overly ambitious or out of reach. The key theme was the sense of impossibility and that external barriers were insurmountable.

Workshops on problem solving, goal setting and individualized pathway planning, may support students on finding ways to pursue their chosen direction, so that their choices and decisions are more aligned with their dream careers. However, the research findings also point to

the need for earlier interventions on subject choices, self-efficacy, and strengths-based youth development in the earlier years of high school. Mentorship programs that connect students with individuals working in their desired fields may improve alignment. The findings also emphasise the need for a more individual approach on supporting less advantaged students to address financial concerns and embracing their passions to bridge the gap between career aspirations and perceived reality. This phase has limitations that should be acknowledged. Reflexive thematic analysis, whilst providing rich, and detailed narratives may also limit general generalised ability. There are possible biases, such as moderator bias and group dynamics, which may have influenced the responses.

9.3. Integrating and Interpreting the Findings of the Studies in This Thesis

As was found in the scoping review (Amaral et al., 2023) there was a dearth of research in school students approaching the transition out of school into work or tertiary studies. Prior research in older students showed that career decision-making processes entails resolving internal and external conflicts whilst navigating through uncertainties, such as negative thoughts, perceived lack of control and awareness of possible obstacles (Bertoch et al., 2014; Stărică, 2012; Walker & Peterson, 2012). Vocational theories offer some insights into these processes. However, there is a bias towards middle-class college students in the research, prompting the need for a broader research approach encompassing diverse demographics and wider geographic locations (Amaral et al., 2023; Dieringer et al., 2017). Further, in the fast-evolving landscape earlier career decisions may be needed considering the pace of technological change, globalisation, and educational constraints (Blustein et al., 2019). Such complexities may also be compounded by the evolving nature of work and the uncertainty that has been introduced through phenomena such as COVID-19, amplifying stresses and inequality in career trajectories (Blustein et al., 2019; Osborn et al., 2022).

The approach taken by this thesis research was a mixed methods approach, particularly using a transformational concurrent design, whereby the quantitative results were primary, and the qualitative results were nested in the quantitative phase. The results are then mixed to facilitate the final interpretation of the findings. The combined phases of the study contribute uniquely to

the fields of school mental health, vocational psychology, and adolescent psychology by exploring the complexity and interconnectedness of career indecision, self-efficacy, perceived barriers, negative thinking patterns and depressive symptomatology. The proposed model alongside the findings from the qualitative study and scoping review, suggest that the hypothesised links between career indecision, motivational constructs, sense of control and self-efficacy, and mental health constructs (rumination and depression) are indicated. In addition, further longitudinal research is needed specifically on the effects of rumination on career indecision and sense of control, as well as the effects of lowered sense of control or self-efficacy when undecided, and depression with school leavers transitioning to further ventures. Prior research has not been found that investigated these constructs together in this population. However, there are prior studies that investigated various combinations of the constructs.

When integrating the results of the four studies, the thesis results support and enhance prior research. There is evidence to suggest that career indecision and depression are directly related (Aguiar & Conceição, 2015; Dieringer et al., 2016; Gadassi et al., 2015). The study by Aguiar and Conceição (2015) was limited in sample size with only nine participants and was a qualitative study, and the study by Gadassi et al. (2015) is relevant in that the 384 participants were in high school, and measured career decision-making difficulties, with worry and sense of control measured as possible mediators to negative dysfunctional emotions. The current thesis results enhance this study by using a specific measure of depression symptoms. The results from Dieringer et al., (2016) indicated that negative career thoughts and indecision was correlated to depression, however this sample was with tertiary students with a mean age of 22 years. The current thesis results replicate the correlation between career indecision and depression in high school students, with the additional insights from the inclusion of ruminative brooding as a moderator between career indecision and sense of control over external constraints.

The current study also includes sense of control as a mediating variable. Similarly, increased career indecision resulted in increased symptoms of depression (Anghel & Gati, 2021; Rottinghaus et al., 2009). In the study by Anghel and Gati (2021) students who were less decided showed increased symptoms of depression, however this study was conducted with university

students (mean age = 21.89) and was relatively small. In the study conducted by Rottinghaus et al. (2009) 388 students who had decided on their career were significantly less depressed than those that were undecided. The current thesis results support these findings. The researchers acknowledged that this was cross sectional research and therefore depression may have been both a precursor and result. Students in schools or transitioning out of school who were more decided were significantly less depressed than those who were undecided (Marcotte et al., 2018). The study by Marcotte et al. (2018) was one of the few conducted with high school students, with a mean age of 16.2 years, that measured symptoms of depression, and investigated the transition from high school in 3 consecutive studies over a period of 9 years. The findings from this thesis support this study, whereby those students in this age group were more undecided, had negative thoughts and were also more depressed.

Increased negative career thoughts have been shown to be linked to increased negative affect (Ogbuanya et al., 2018; Paivandy et al., 2008; Ulas-Kilic et al., 2020; Walker & Peterson, 2012). The results from Ogbuanya et al. (2018) indicated the links between career indecision and negative thinking, although the sample was relatively small. The study by Paivandy et al. (2008) was one of the few studies that included a reference to rumination and career decision making difficulties, and their findings suggested that the tendency to ruminate related to negative career thinking and correlated to affect. This study was limited by the sample size and age in relation to the present thesis (126 university undergraduate students). The study by Ulas-Kilic et al (2020) found that career indecision and negative dysfunctional thinking was linked, however this study was with junior high school students.

Previous studies with positive interventions to address career indecision in the transitioning phases showed reduced symptoms of depression after the interventions. Leaving school is a key transitional period for young people and processing career choice is significant for them in this stage. Lowered sense of control or perceived barriers or constraints play a significant role in career decision making alongside mental health (Aguiar & Conceição, 2015; Kulcsár et al., 2020; Marcotte et al., 2018). Lowered sense of control in this thesis was closely linked to more symptoms of depression and greater career indecision. Kulcsár et al. (2020) investigated the

mediating role of worry between career decision making difficulties and negative emotions and found that worry was a significant mediator. This study was comparable to the thesis sample as they had a sample of 384 students with a mean age of 17.9 years, albeit this was in Romania, therefore may be limited in generalisability to New Zealand students. In the current thesis, these prior findings were supported and extended in that the moderating role of rumination, as well as the mediating roles of sense of control and self-efficacy are investigated between career indecision and depression in high school students.

Self-efficacy levels play a clear role in the model proposed in this thesis. The role of self-efficacy in influencing career indecision, sense of control and depression is supported in prior research (Lowe & Wuthrich, 2021; Smith & Betz, 2002). The results from the research conducted by Lowe and Wuthrich is somewhat limited in the sample size, and whilst they included a measure of perceived control over future employment along with self-efficacy, there was no measure of career indecision specifically and the findings suggested that there was reduced stress with increased self-efficacy. Smith and Betz specifically examined career indecision using the same measure as the present thesis (Career Decision Scale) and the role of depression alongside self-efficacy and sense of personal control. The findings suggested that career indecision was directly related to depressive symptomatology, and reduced career self-efficacy. This study is comparable to the thesis sample in respect of mean age; however, these students were new entrants in tertiary studies. The model tested in the present thesis showed that general self-efficacy partially mediated the relationship between career indecision and depressive symptomatology.

This thesis also showed in the SEM that ruminative brooding significantly moderated the relationship between career indecision and sense of control over perceived external constraints. These findings support previous studies linking negative thinking to career indecision and depression, although this was in tertiary aged students (Bullock-Yowell et al., 2014, 2015). There were no known studies that investigated the mediating effect of self-efficacy between career indecision and depression, alongside the moderating effect that rumination had on self-efficacy in relation to career indecision (Amaral et al., 2023). As a moderator, ruminative brooding influenced the relationship between career indecision and sense of control over perceived external

constraints. The results also showed that sense of control over perceived external constraints then mediated the relationship with depressive symptoms. Thus, those students with high ruminative brooding who also had career indecision had lowered perceived sense of control and heightened depressive symptomatology. Self-efficacy also mediated between career indecision and depression. On the other hand, ruminative reflection was not a significant factor, which implies that more reflective cognitions (associated with problem solving) may be a possible positive intervention for high school students to reduce lowered sense of control, when undecided. Treynor et al. (2003) described brooding as mulling on one's mood, and reflection as more contemplative, with a focus on problem solving.

In the concurrent design used in this thesis, the results from the qualitative phase are nested in the quantitative stage. Data were collected at a similar time and themes were explored in the qualitative phase that complemented the constructs examined in the quantitative phase. The qualitative phase supported the quantitative findings in this thesis and prior research. In the qualitative phase of the thesis, it was found that career indecision levels were prevalent, feelings of anxiety and stress were presented, and particularly the findings supported the importance of sense of control, perceived external barriers and self-efficacy in the transitioning phase. In the qualitative study, the students in more rural areas spoke of barriers in relation to access and being scared of moving to new areas for work or study. These findings are supported by research into opportunities, belonging and aspirations amongst youth in more rural areas as compared to their urban counterparts (Maire & Cuervo, 2024). Maire and Cuervo (2024) found that rurally based young people in Australia believed that academic achievement was linked to access to university and youth transition was linked to confidence in ability and occupational aspirations.

The findings in this thesis also support previous theoretical standpoints, such as the importance of confidence in ability or self-efficacy in the Social Cognitive Career Theory (Lent et al., 1994), as well as the importance of sense of control indicated in the Savickas's Life Design approach (Savickas, 2019), which focusses on the development of identity and the construction of narratives that influence this identity formation and career exploration. These theories may be linked to the current thesis results as shown by the effects that ruminative thoughts may influence

sense of control over perceived external barriers and levels of self-efficacy alongside associated career thoughts or decision making. This thesis provides further evidence of the links between self-efficacy, rumination and symptoms of depression, as suggested by Beck's cognitive development theories and the research into rumination by Nolen-Hoeksema (Beck & Dozois, 2011; Nolen-Hoeksema, 2000, 2008).

The final theoretical model proposed in this thesis supported by the data, suggests that there are intricate relationships between career indecision, levels of ruminative brooding, self-efficacy levels, sense of control and depression in school students approaching the transition from high school to tertiary studies or work. Reduced levels of self-efficacy and sense of control over external constraints mediated the relationship between career indecision and depression. Rumination moderated the relationship between career indecision and sense of control over external constraints and self-efficacy. Overall, the model was found to be a good fit to the data. Further studies are needed to verify these relationships, equally further research is needed to investigate causality and the nature of the complexities of these relationships in transitioning school students.

There are significant gaps in the research around school leavers transitioning from high school, career indecision, self-efficacy, sense of control and depression, rumination, or negative thinking (Amaral et al., 2023). The current thesis SEM results informs the nature of the relationships and further research is needed to establish the direction and replicate the results for greater generalisability. The theoretical model purported by the researcher is a novel contribution. The proposed model was tested and found to be a good fit to the data suggesting that there are complex relationships between career indecision and depressive symptomatology, mediated by perceived sense of control of external constraints and self-efficacy, with the level of rumination moderating the relationships between career indecision and external control and self-efficacy. The complexities of transitioning from school, along with the fast-evolving nature of available career pathways add to the complexities in career decision processing. The data suggest that career indecision alongside potential mental health issues may indicate a need for a more integrated response in schools and universities. This may be the introduction of integrated counselling or a

greater awareness of the interrelatedness of mental health challenges, consideration of the role of possible external constraints, such as the role of family expectations, the need to work and career decision making, alongside self-efficacy levels.

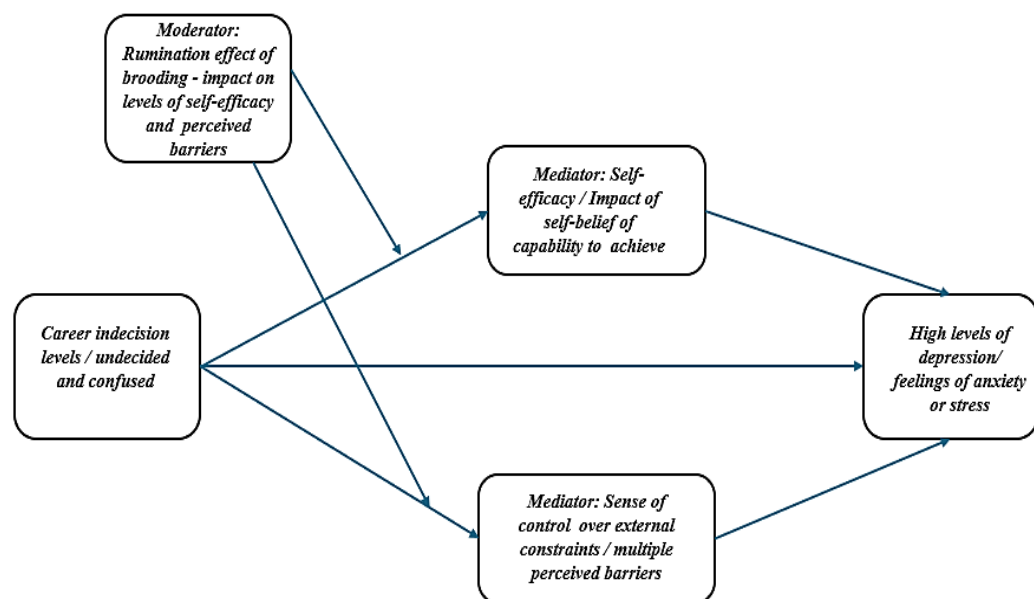
Understanding the rise of symptoms of depression in high school students and the associated levels of career uncertainty and indecision, their perceptions of external barriers and levels of self-efficacy, will assist in providing better preventative care for students. Testing positive interventions that address perceived constraints and sense of control may give further insight to the role of sense of control as students transition from school. The model proposed needed to be adjusted to reflect the finding that rumination neither mediated nor moderated the relationship between career indecision and depression. In fact, the results showed that ruminative brooding, as opposed to reflection, significantly moderated between career indecision and perceived external constraints or self-efficacy. There is no known previous research investigating rumination and career indecision alongside sense of control, albeit the relationship between rumination and depression is well established. It has however been suggested that problem solving can be significantly inhibited by rumination or negative thinking cycles (Nolen-Hoeksema et al., 2008; Ruiz et al., 2017). Indeed, as shown in the final model, career indecision is associated with less self-efficacy and lower external control especially in those with high levels of rumination. More research is needed to understand the links between ruminative brooding and sense of control. For example, problem solving techniques to address ruminative tendencies and perceived sense of control, may have a positive effect on career decision making.

Sense of control, in particular perceived external constraints, significantly mediated between career indecision and depression, suggesting that when school leavers feel constrained by factors that are outside of their control, it may exacerbate the effects of career indecision on mental health, explaining how career indecision may then lead to depression. This relationship was supported in the RTA findings in the qualitative study and the emerging theme around perceived barriers and locus of control. In the focus groups, the students articulated that their perceived barriers were financial constraints, location constraints, economic constraints, efficacy constraints, access to good career information, lowered school support and family expectations.

Perceived constraints were a significant theme in the qualitative study. The findings of the model testing suggest that when students ruminated or brooded over perceived external constraints, the more they believed they did not have perceived control over these external barriers. This then impacts the relationship between career indecision and depression. The findings of the qualitative study supported the importance of perceived sense of control over external barriers and career indecision.

The findings from the quantitative and qualitative studies are integrated using descriptors of the key constructs in the model in Figure 9.4. This illustrates the integration of the qualitative findings and quantitative findings to represent a holistic version of the final proposed theoretical model from the findings of this thesis.

Figure 9.4 *Quantitative Theoretical Model With Themes Added from Qualitative Findings*

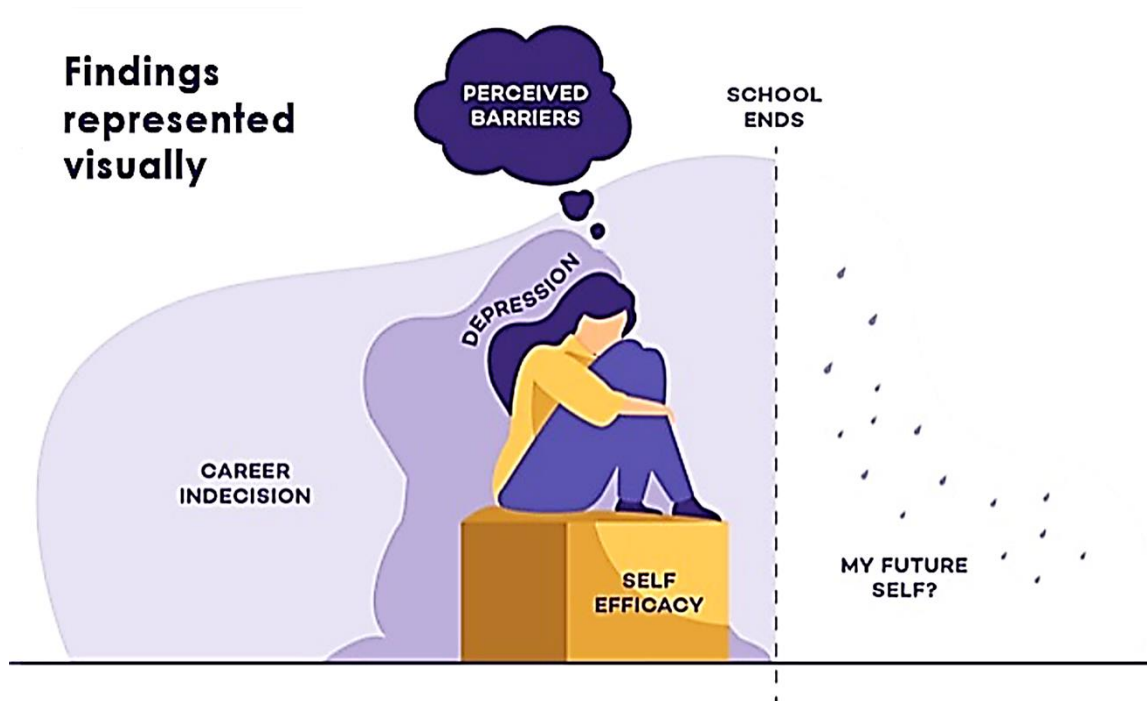


From this model, and integrating all findings of the thesis, it is suggested that should transitioning students experience higher levels of career indecision and confusion, and when negative thoughts around this decision process arise, this may increase the propensity to have higher levels of perceived external barriers. This in turn may increase the likelihood of developing symptoms of depression. Similarly, should school leavers be undecided as to their next steps

towards a pathway after school, and have more negative thoughts, this may impact their self-efficacy beliefs to a greater degree. Further, lowered self-efficacy in relation to the ability to perform in certain areas relating to career pathways after school, and feeling more undecided, may then increase the risk of experiencing depression.

The findings of this thesis are then visually represented in Figure 9.5. in an interpretation of the interaction of career indecision, the negative thinking or ruminative brooding linked to perceived barriers and then to depression. The diagram also shows the effect of self-efficacy and depression, as a core building block in adolescent development and mental health, alongside the link between career indecision and self-efficacy. All this is considered as students approach the end of school (time) and transition into work or tertiary study, ultimately affecting their perceived future self.

Figure 9.5 *The Findings of the Study Integrated and Visually Interpreted (Amaral, 2023, August 4).*



Note: These findings were represented as a slide in the AUT 3MT competition and the presentation was selected as a Runner Up and won the Audience Vote (Amaral, 4 August 2023).

The thesis investigated these relationships and effects holistically, the findings were mixed in the visual interpretation above, which was constructed to illustrate how these factors may impact students in school. Career exploration necessitates a departure from the conventional frameworks towards embracing a more diverse collation of avenues of interest aligning with individual potential and fit with evolving socio-economic landscapes (Blustein et al., 2019). However, prevailing limitations in the career decision-making process may stem from constrained perceptions, limited information and perceived barriers, which may foster negative thoughts and hinder the development of a strong sense of self-efficacy (Blustein et al., 2019; Chircu, 2014; Krumboltz & Worthington, 1999; Praskova et al., 2015).

9.4. Discussion on Thesis Findings

Depressive symptoms and psychological distress have been shown to pose significant challenges for adolescents and the prevalence of subthreshold depression underscores the need for deeper research and intervention strategies to mitigate any further adverse outcomes (Avenevoli et al., 2015; Boyd et al., 2000; Carrellas et al., 2017; Fleming et al., 2020). The link between depressive symptoms, school dropout rates, and career indecision also emphasises the importance of comprehensive mental health services in education settings (Dupéré et al., 2018). It is noted that there may be a relationship both ways between career indecision and depression, whereby depressed students may have difficulty in making decisions in relation to their career path, as much as undecided students may feel more anxious and depressed than decided students. The current research results indicate high levels of depression amongst the high school students surveyed in New Zealand, the interrelatedness between career indecision, self-efficacy perceived external barriers, ruminative brooding and depression indicated in these results further supports earlier research findings. The scoping review did not reveal any single research studies done to date integrating the constructs researched in this thesis (Amaral et al., 2023). The current thesis contributes to the body of research through investigating the relationships and effects of these constructs in an integrated way, whereas prior research tended to focus on these aspects separately.

The initial visual representation (Amaral, 4 August, 2023) was then adapted further by the researcher in order to illustrate a suggested strengths-based approach to the model and the integrated findings of the quantitative and qualitative research. This further reinforces the transformational nature of the methods design and the applied reflections for possible research and interventions that may be developed from the findings of this research. This interpretative visual image (Figure 9.6) embodies the reflections of the researcher, as inferred from the mixed results of the quantitative and qualitative studies. The image also surmises the impact that possible interventions may have in addressing the constructs that are found to be interrelated in the thesis.

Figure 9.6 *Interpretation and Reflection of the Possible Impact of Holistic Interventions*



Note: This image was derived from Google Images as suggested through an AI image tool

This visual interpretation (Figure 9.6) reflects the possible impact of the results of strength-based interventions with the thesis model relationships in mind, that may be considered. These possible interventions are discussed in the next section, and how they may positively transform the transition experience and career decision making journey for high school students.

The thesis findings are now discussed reflecting on possible implications for future research and recommended interventions.

9.5. Implications for Future Research and Possible Interventions

The current research provides a more holistic approach than prior work to the navigation of career decision making and transitioning from high school into tertiary studies or work. This more holistic approach is underpinned by the suggestion of a possible model, which posits the relationship between career indecision and depression, along with the moderating effect of rumination, and mediating effects of sense of control (particularly perceived external constraints) and self-efficacy. It is only through a more holistic understanding of the complexities of career decision-making processing, alongside mental health, and well-being, that effective interventions can be devised and researched with the aim of supporting our transitioning school students. These findings would support the call for integrated approaches to counselling in schools, with particular attention to both mental health and career decision making, with careful consideration of the impact of both on the mental health of transitioning high school students.

Positive interventions in the high school years addressing transition stressors, including career choice, may prevent future depressive episodes (Marcotte et al., 2018; Parmentier et al., 2021). Investigating the levels of symptoms of depression in school leavers, along with a deeper understanding of preventative measures that can be universally employed is equally much needed (Garber et al., 2016; Werner-Seidler et al., 2017). The thesis's quantitative and qualitative results point to the need for deeper investigation into the impact that approaching this critical transition point may have, particularly when considering both career decision-making processes alongside mental health and key motivational constructs such as self-efficacy and sense of control. The findings from the thesis support the call for integration in the theories, practice and research in the vocational guidance and counselling field of psychology.

Further, given the seriousness, pervasiveness and growing presence of depressive symptomatology in young adults (Dieringer et al., 2017; McGraw et al., 2008; Tak et al., 2017), the observed effects of lowered self-efficacy, negative thinking and career indecision, when transitioning from school to tertiary studies, with the indication of the associated levels of

depressive symptoms, warrants further investigation. As noted in this thesis, although there has been some research identifying a strong correlation between career indecision and depression, there is little research identifying the effects of general self-efficacy, sense of control on career decision making and symptoms of depression, particularly investigating all these constructs together (Amaral et al., 2023; New et al., 2017; Rottinghaus et al., 2009; Walker & Peterson, 2012). The model contributes to the research and the findings support the call for more integrated approaches to research and interventions in schools.

These interventions may contribute to improving drop-out rates in schools and tertiary institutions through raised awareness of the importance of addressing career decision making alongside rumination and sense of control, as well as self-efficacy and depression. The thesis also adds to the calls for increased awareness of the impact of declining mental health in schools. The present research shows the high prevalence of depressive symptoms in high school students, raising awareness of the critical problem of poor mental health in schools, and supporting the importance of addressing factors like career indecision that could improve mental health. In a study by Dupéré et al. (2017), almost a quarter of students who had dropped out of high school had experienced significant depression symptoms before leaving school. Dupéré et al. (2017) also suggested that just in time interventions when observing declining grades may assist in identifying students who are experiencing depression symptoms.

Interventions addressing levels of self-efficacy and stress in high school students have been shown to have some success. Lowe and Wuthrich (2021) evaluated a cognitive behavioural programme that aimed to reduce students' experiences of adverse stress in Australia. The programme had some successes, particularly reduced self-reported stress, and increased self-efficacy. However, there were no observed reductions in anxiety or depression levels. Cuijpers (2022) has suggested that universal programmes in schools may have less stigma but are also less effective. Cuijpers (2022) reported that further research is needed into universal preventative programmes for depression in schools. There has been some support for the successful introduction of mindfulness interventions in schools in addressing anxiety and adverse stress. However, once again, these were not found to be successful in addressing symptoms of depression

(Cuijpers, 2022; Lowe & Wuthrich, 2021). Programmes that are more tailored to the individual and their circumstances, also considering cultural relevance and sensitivity, may be more effective.

Previous interventions that are strengths-based and more positive psychological interventions have shown that career decision making and efficacy can be improved (Allan et al., 2019; Owens et al., 2019). Further research is needed based on the findings of this study, to investigate whether interventions that are strengths-based and help enhance general self-efficacy as well as break negative thought cycles or brooding. These approaches may provide coping mechanisms for uncertainty and overcoming barriers. Preventative interventions based on testing the introduction of skills and transition workshops that introduce problem-solving, mindfulness or strengths based cognitive techniques, as well as increased coping skills may provide added insights and support for the proposed model in this thesis.

One intervention that has become popular amongst school counsellors in the application of mindfulness meditation. Mindfulness, or the increased awareness of thoughts, emotions and external stimuli, can be a powerful meditation modality that has been found to be effective in reducing depression, anxiety and increasing problem solving capabilities (Galles et al., 2019; Medvedev et al., 2018). The findings from this study suggest that by addressing motivational constructs through mindfulness techniques, skills-based interventions and cognitive shaping techniques may possibly improve levels of self-efficacy and reduce perceived constraints (Akyol & Bacanli, 2019; Galles et al., 2019; Lowe & Wuthrich, 2021; McInnes & Chen, 2011). There are indications that mindfulness, as a multidimensional construct that has proven positive outcomes in addressing mental health and motivational constructs, such as self-efficacy, self-esteem and problem solving, may have potential application in career counselling, particularly when considering the intersection of mental health and career decision making (Galles et al., 2019). This technique may improve confidence in career choices, pathway decisions and overall mental wellbeing through the transition points and early years of tertiary study. Further research is needed with the application of such suggested interventions to assess the applicability and success of applying mindfulness in this area. There is limited research to date in the career

counselling field in regard to the application of mindfulness techniques (Galles et al., 2019). This thesis found that ruminative brooding played a significant moderating effect on the relationship between career indecision and sense of control over perceived external constraints. Mindfulness practice and positive psychology may also have great value in addressing the role of ruminative brooding on indecision as it related to perceived external constraints.

Better preparation for students for the transition from school to tertiary studies or work is needed. Marcotte et al. (2017) found that there is a rise in mental health disorders in this transition phase, with the demand for mental health support in school and college counselling centres having increased. However, Marcotte et al. (2017) also pointed out that there is a dearth of research into depression that may arise during the transition from school. In the scoping review conducted as part of this thesis (Amaral et al., 2023) the suggested gap in research into this transition was supported, with few studies conducting research that involved high school students and their navigation of the transition, particularly in respect of mental health, motivation and career decision making.

Previous research has called for a more integrated and holistic approach to transitioning from school and career decision making (Blustein et al., 2019). The suggested more holistic approach based on the findings from this research, is aligned with global research calls for a more integrated counselling strategy for students as they navigate the increasingly complex transition from high school quality. For example, the introduction of community partners and family to better support secondary students through this transition, teaching problem solving skills, and awareness of the role of culture and diversity in career decision making (Akyol & Bacanli, 2019; Boyraz et al., 2016; Lee et al., 2016; Singh et al., 2019). Overall, the study opens avenues for future understanding and possible interventions that can support students as they grapple with the complexities of post-secondary school career decision-making.

As noted, the long-term effects of symptoms of depression in adolescents has been established (Bodden et al., 2018; Carrellas et al., 2017; Cuijpers, 2022; Marcotte et al., 2018). However, the links and impact of mental health, motivation constructs and career indecision challenges in this transition stage have not been fully investigated (Amaral et al, 2023). The

current research findings suggest that these links are significant and support the previous call for a more integrated approach to mental health and vocational guidance given the importance placed on this transition point. In summary, and based on the integrated findings outlined, the following possible actions and interventions may be considered:

1. To weave the research, experience and knowledge base of cognitive psychology, vocational guidance psychology, strengths-based youth development and mindfulness together for practical and universal programmes to positively impact mental health for all students, whilst considering targeted and personalized support programmes for students that are more adversely affected in the transition from school to work or study.
2. To research possible effective training and skills enhancements for career guidance professionals to identify and positively support early signs of mental health symptoms, adverse stress, anxiety, or signs of distress. Particularly given the role of ruminative brooding or negative thoughts in relation to indecision and sense of control over external barriers, it is important to assess students' thoughts and attitudes towards career decision making early in the process. Support should be provided across two full years before the end of high school, and in some cases even earlier interventions may be more effective.
3. To research interventions that develop and train counsellors in the use of screening tools for identifying difficulties in managing sense of control and self-efficacy alongside career intervention tools. To assist career counsellors in presenting basic strengths-based youth development strategies to support self-efficacy, problem solving to address perceived barriers, youth goal setting and decision making in schools.
4. To research the provision of coping skills around self-efficacy development and working through perceived external barriers to provide solutions, pathways and positively impacting mental health.

5. To consider the importance of culturally appropriate approaches to career development and support. To also consider the importance of cultural factors in developing programmes to assist with deconstructing negative thoughts around perceived external barriers and increasing sense of control and self-efficacy levels.

The thesis findings support the call for more research to be conducted at this particular developmental transition point, when students are leaving school for work or study. The findings also support the need for a more integrated approach to supporting students in schools as they make their decisions for future careers. This includes cognisance of earlier decisions in the school years that have a significant impact on decision making when leaving school. The qualitative results from this study suggest that if critical subject choices are not made well or aligned with a student's aspirations or desired pathway, they may find themselves unable to pursue their choices. The themes identified suggest that the impact of this appears to reduce perceived control over external barriers and self-efficacy levels, however the implications of these themes need to be further researched. The thesis also provides evidence of the impact ruminative brooding may have as a student is contemplating their decisions in this transition point. The moderating effect of brooding between career decision making and sense of control, particularly perceived external constraints. This effect suggests that students who are less decided tended to have ruminative brooding which may be linked to lowered sense of control and greater perceived constraints. Both perceived external constraints and lowered self-efficacy significantly mediated the relationship between career indecision and depression.

The thesis significantly contributes to the fields of school-based psychology through a closer look at the complexity of factors involved in choosing a pathway after school, as well as the relationships with mental health constructs, depression, and rumination, on motivational constructs, self-efficacy, and sense of control. Levels of depression and career indecision were correlated with each other and were higher than previous research findings with similarly aged students at school. The scales used in the study are well accepted, globally used measures, that are both reliable and valid, suggesting that the results from the research warrant further

investigation and point to the need for interventions that improve mental health in high school students in New Zealand. The thesis provides avenues for future interventions and research to look more closely at the interaction and impact of career decision making, confusion and choice on mental health alongside considering the importance of motivational constructs such as self-efficacy and sense of control.

The importance of interdisciplinary conversations particularly with career counsellors and psychologists is an emerging area of academic interest, particularly as the research points to the interrelatedness of psychological distress, depressed mood, symptomatology, depression and career indecision as well as dysfunctional career thoughts and perceived career self-efficacy (Blustein et al., 2019; Domene et al., 2017; Rottinghaus et al., 2009; Rottinghaus & Jantzer, 2009). The need to expand vocational psychology research to ensure that contextual, cultural and affective aspects are considered has been identified (Blustein et al., 2019; Owens et al., 2019). The advent of Artificial Intelligence (AI), the shifting global landscape and constant changes in the careers landscape all make the transition and choices for secondary school students challenging and stressful. The findings from this thesis, therefore, contribute uniquely to the wider field of psychology through a more holistic approach and the findings around the indicative relationships between the constructs, the significance of the results and the unique presentation of the model constructs. The model is a novel contribution to the vocational and counselling fields of psychology. Despite there being a rise in support for a synthesis in provision of career counselling and personal counselling in schools, there is not enough research yet, particularly into the effects of the suggested interventions in relation to the specific constructs investigated. Further research is needed into the specific nature of the relationships of the constructs in this thesis, how these factors interact, the specific moderator and mediator effects, and the interrelatedness between career indecision, self-efficacy, rumination, sense of control and depressive symptomatology.

9.6. Strengths and Limitations

The scoping review (Amaral et al., 2023) highlighted the dearth of studies focussing on the specific age group and population, particularly the lack of investigation into the role of career indecision, in relation to negative thinking or rumination, sense of control, self-efficacy and the possible relationship with depression. The scoping review may have been limited by the focus on English language research and specific databases potentially excluding relevant studies published in different repositories. Additionally, the reliance on keywords may have restricted the breadth of the search potentially omitting relevant literature used with alternative terminology. The scoping reviews specificity of the inclusion and exclusion criteria may have led to the omission of studies that could have contributed. The scoping review also relied on qualitative assessment in evaluating the eligible sources for evidence, which may have introduced subjectivity and interpretation biases. The inclusion of completed published studies may have introduced a publication bias, as unpublished or ongoing research with potentially alternative findings may have been overlooked. The need to include the age group (adolescents attending school or in the transition from school) may have restricted the comprehensiveness and applicability of the findings.

The quantitative research results indicated support for the proposed theoretical model and identified possible new areas for further research through the SEM findings and goodness of fit results. The quantitative study relied on cross-sectional design, and this may have limited the inferences regarding the relationships between career indecision, self-efficacy, sense of control, rumination, and depression. Future research should ideally be longitudinal to fully explore possible causality and directionality between the factors. A possible strength of the research is the consideration of the effect of rumination which was uniquely considered in relation to career indecision with the possible cognitive effect of this on sense of control and self-efficacy levels. Rumination has been established as a precursor to depression, but the role of brooding and the moderating effect of rumination on career indecision and sense of control over external barriers is a novel contribution to research. The current research is limited in that there is an equal possibility that students who may be depressed may also struggle with career decision making. It

is hoped that by considering and showing the effects of rumination, sense of control and self-efficacy, future research may contemplate the impact of these factors. The findings suggest that career indecision and depression are linked, and the effect of the mediating variable of perceived sense of control over external barriers was significant. It is, however, possible that depression may be both a precursor and effect of career indecision.

Whilst existing literature hints at the interconnectedness between measurements of depression, self-efficacy, perceived barriers and career indecision, there are persistent gaps in integrating these constructs and establishing clear causal relationships (Aguar & Conceição, 2015; Dieringer et al., 2017; Dupéré et al., 2018; Marcotte et al., 2018). Measurements of these constructs rely on self-report, which may give rise to response bias. So, whilst the direct relationship between career indecision and depression has been recognised, comprehensive longitudinal studies are needed to elucidate the complex interplay of other factors such as self-efficacy, negative thinking, and sense of control. However, such longitudinal studies are difficult to feasibly conduct and costly.

The sample size of the quantitative study may have been a limitation as it was not large and may have been insufficient to capture the full diversity and complexity of the population, potentially affecting the generalizability of the findings. The sample was selected out of convenience insofar as schools that volunteered to participate via the principal's agreement, were approached by the researcher. Enrolment was not based on random sampling methods particularly given the difficulties in accessing school students in the final years. The students were however allocated to the study by the school in classes or year groups, and therefore although they were not truly randomly selected, they may be more representative than had they been specifically targeted or identified by the school in the online survey. There may have been an element of volunteer bias which would have occurred when participants chose to complete the anonymous online survey. However, bias may have been avoided given the approach that the schools took, which was to invite whole groups or classes of students to participate. The quantitative research also relied on self-report measures which may have introduced the possibility of response bias potentially influencing the accuracy of the reported relationships.

In the qualitative study moderator bias may have occurred, where the lead researcher was also the moderator and therefore may have had some influence over the participants responses. Group dynamics in focus group settings might have also influenced participant responses leading them to provide socially desirable or biased answers to the questions, impacting on the validity of the findings. In an attempt to reduce this bias, three different focus groups were included from three different geographic regions of New Zealand, so may be more representative of the diversity and as shown when the thematic analysis was conducted, the emerging themes were represented through all three groups. The present study found that there were nuances presented in the themes from the different geographically located groups, but the main themes were similar. The study is limited in the range of geographic and spatial impact of students transitioning and further research is needed into the impact of a double transition, moving from a rural town or home, as well as transitioning into work or tertiary studies.

This thesis may have been further limited with the possible impact of the COVID-19 pandemic. Despite the research data being collected during a time when COVID-19 was largely not present in New Zealand, there was a prevailing awareness of the pandemic and the impact it was having internationally. The COVID-19 pandemic may have impacted mental health and all aspects of life, including career decision making, and could have influenced ratings, since data were collected during the pandemic. This may have affected the students both when completing the scales as well as in the focus groups. The researcher included reference to the pandemic in the questions during the focus group interactions, and the students at the time suggested there was not much of an impact on their thinking around careers, efficacy, and sense of control. COVID-19 was referenced as impacting possible travel plans and overseas study. The barriers that were repeatedly referenced, appeared to be more in relation to living in smaller, regional towns, access to universities, perceived efficacy around subjects, perceived lack of support in schools, financial constraints, and the need to work for an income as soon as possible. Future studies should consider the possible effect of socio-economic and access factors on career decision making, sense of control and levels of self-efficacy.

The findings from the present study showed that there were indicated differences between the genders on levels of career indecision and depression. This should be explored further. The results from the Youth2000 studies conducted in New Zealand have indicated that female school students may be more depressed than male students (Fleming et al., 2022). In this thesis, results for male students were closer to those of females, but the age range in this thesis is closer than in the Youth2000 studies. The findings also showed that certain ethnic groups were more undecided, perceived lowered control over barriers and were more depressed than others, albeit these differences were not statistically significant. This is likely due to the sample size and the number of scale items used across the five measures in the quantitative study. Future studies should ideally be larger to investigate the possible differences and effects that gender and ethnicity may have in the relationship between career indecision and depression, also considering the effects of sense of control, self-efficacy, and rumination when students are approaching the transition out of school. This thesis did achieve demographically representative ethnicities and gender splits. However, future studies should ideally ensure that the sample is larger and all key ethnic groups in New Zealand are adequately represented. Future research endeavours should address the current research limitations by employing diverse methodologies, larger sample sizes, longitudinal designs, and the inclusion of intervention strategies. This will help to provide a deeper understanding of the relationships between these constructs and will inform effective intervention strategies in educational settings in the future.

9.7. Conclusion

In this thesis, the moderating effect of rumination, particularly brooding, on the relationships between career indecision and sense of control over external barriers and self-efficacy levels is a unique contribution to research. The mediating roles of sense of control over external constraints and self-efficacy also provide a novel contribution to the existing body of research when contemplating the linkages between career indecision and depression in high school students as they approach the transition from high school to tertiary studies or work.

The results from the thesis suggest that in association with career indecision, there may be concurrent doubt, uncertainty, and less self-efficacy in high school students with possible related mental health challenges. The findings also suggest that there is a multi-faceted interplay between cognitive processes, with self-efficacy, perceived external barriers and rumination all associated with mental and emotional well-being. The findings support the development of a theoretical model describing the interaction of these constructs. The findings from the qualitative study support the model proposed by the quantitative research and underpin the importance of integrating research and providing more holistic support to students as they approach the end of school. Further research and model testing is needed to ascertain the generalisability and breadth of these findings.

Finally, an integrated approach and further investigation into these constructs may assist in the development of targeted interventions. Future research is needed to ensure that there is a deeper understanding into these relationships, as well as ensuring that future research explores the consequences and possibilities of enhancing self-efficacy in the process of career decision-making. This, along with equipping students to positively address perceived barriers, hopefully then breaking the cycle of negative thinking and thereby mitigating the possible amplification effects of rumination and possible associated depressive symptomatology. This thesis makes a unique contribution to the vocational and counselling fields of psychology, focussing on an integrated and comprehensive approach to the transition phase for students leaving school and going into work or tertiary studies. Despite the limitations, the integrated findings indicate the complex interplay between career indecision and symptoms of depression, along with the effects of rumination, self-efficacy, sense of control in school leavers as they approach the transition from school into tertiary studies or work. The study findings highlight the need for more holistic and integrated approaches to support students' wellbeing and their decision-making processes during the transition from high school.

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Appendix A: Ethics Approval Letter



TE WĀNANGA ARONUI
O TĀMAKI MAKĀU RAU

Auckland University of Technology Ethics Committee (AUTEC)

Auckland University of Technology
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E: ethics@aut.ac.nz
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11 September 2020

Chris Krageloh
Faculty of Health and Environmental Sciences

Dear Chris

Re Ethics Application: **20/211 Investigating the impact of socio-economic status, self-efficacy, sense of control and rumination in relation to career indecision and depression, in young adults leaving school.**

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

Your ethics application has been approved for three years until 11 September 2023.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the [Auckland University of Technology Code of Conduct for Research](#) and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard and that all the dates on the documents are updated.

AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

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

For any enquiries, please contact ethics@aut.ac.nz. The forms mentioned above are available online through <http://www.aut.ac.nz/research/researchethics>

(This is a computer-generated letter for which no signature is required)

The AUTEK Secretariat
Auckland University of Technology Ethics Committee

Cc: fayamaral@yahoo.com; fayamaral71@gmail.com

Appendix B: Information, Consent Letters and CDS Licence Agreement

Information Letter to Youth Agency / School Principals about Research

Participants required for the research - School leaver participants in Year 12/13 or young people aged 16 years and older. Participants to be at least 16 years old.

Date Information Sheet Produced: 27/02/2021 (Re-submitted to AUTEK to include Youth Agencies)

Project Title: Investigating the impact of self-belief and sense of control over the future in relation to career indecision and depression symptoms, in young adults leaving school.

An Invitation to participate in the research.

My name is Fay Amaral, I am a PhD student with Auckland University of Technology (AUT), and I am hoping to complete key research which would investigate 'students' thoughts and experience in terms of their career choice process, to gather insights about how they feel about choosing a career and their thoughts around their future. With COVID-19 and the impact that this has had on youth populations around the world, I believe that added uncertainty may be prevalent and there is likely added anxiety about the future. I am able to have a meeting with you (in person or remotely via Zoom or Teams) to explain and give further insight to the research questions and gaps.

The research will be in two phases, first involving an anonymous online survey (comprises 5 globally used scales – see attached) and secondly, running a focus group session, I need as many as possible for the online survey and only 8 students per group for the focus group discussion. The focus group will take no more than 1.5 to 2 hours. Should students choose, they may wish to have an interview with the researcher instead of the focus group. Should you wish to ONLY participate in the Anonymous Survey, please ONLY complete the attached Permission Form for Online Survey.

The feedback and participation will contribute to wider research investigating career indecision in school leavers and how this may relate to depression or negative thoughts. There is not enough research in this field amongst school leavers, particularly not in New Zealand.

Your role in this research - This research has two phases.

I am requesting your permission to access young people in years 12 and / or 13 to invite them to take part in an anonymous online survey in the first instance. To do this, I will need the a to send the link out to students rather than myself gaining access to their contact details. This is in order to maintain the anonymity of the students.

Phase 1 – Online Quantitative survey – completely anonymous (2021)

I would like your permission to provide access to the Year 12 and 13 students whereby I will share a link and QR code for the online survey with you. This link can then be shared by the agency to young people over 16 years. This is following your approval. This ensures that I have no direct access to personal information that may identify the students. The student's **consent and research information** are included in the AUT electronic survey (Qualtrics). Students will be able to complete this research online survey within a period of approximately 8 weeks to allow for time to access the survey.

Phase 2 – Focus groups or interviews – voluntary by students in years 12/ 13 (Later in 2021) You may OPT ONLY for above survey.

I would need your permission to access young people linked with your agency. I would need you to send the pre-prepared invitation to volunteer. Focus groups will be held in locations (designated safe spaces) that are local and accessible, if possible and with your permission. This ensures that students feel safe, less intimidated and can easily access the focus groups or interviews. Volunteers for the focus group give their consent by signing up formally at the focus group session. I will need to voice record the focus group sessions to ensure that I am able to capture the feedback. I will not be sharing the recordings with anyone else, and they will be destroyed once transcribed. The transcriptions will be kept in a secure location at AUT and will be password protected during the active phase of the PhD study. After the research has been completed, all data collected from the focus groups will be destroyed according to the document and data destruction policy of AUT. No reference to names, who they are, addresses, the names of the agencies or anything that can identify any student or organisation specifically will be shared or captured in the writing up of this research.

The data that is collected from the online survey cannot be linked in any way to the data that is collected from the focus groups or interviews.

What is the purpose of this research?

The students' participation will help deepen our understanding of how young people feel about making career choices, how they feel, if they are undecided as to their career or next steps, as well as their thoughts in terms of next steps. The research will give insights as to what choices young people believe they have and what may be stopping them from pursuing their dreams, should this be the case. This has not been widely explored and may help us provide better support for young people leaving school. The findings of this research may be used for academic publications and presentations, as well as broad feedback to key stakeholders, such as MOE, MYD, MSD and ERO. It is hoped that the research will also provide insights as to how counselling to young people can be optimized and through the transition process into post-school pursuits.

Who is being invited to participate in this research?

I have selected agencies and schools in various areas of New Zealand, to give me a sample with a variety of backgrounds, with students in a similar stage of life, actively working through their choices as to what to pursue after leaving school (Year 12 and 13 students). Students will need to be at least 16 years old, and all students are welcome to participate.

What will happen in this research process?

The online survey is completely anonymous. Ethnicity, all genders, and school name will be requested. Data from the surveys will be kept securely for 6 years for possible further research. The data is completely anonymous. Students will be able to complete the online survey with a time window of approximately 8 weeks. All data will be collected via Qualtrics, a secure online platform. Individuals will not be identifiable from their responses. It is hoped that completed surveys will ensure that a broad spectrum of data can be collected to give insight to the wider youth perspectives across New Zealand.

Online study: All students who participate in the anonymous online study will have an equal opportunity to be awarded one of 20 x \$50 gift vouchers for their participation. A separate link at the end of the online survey will be available to enter the prize draw.

Groups or interviews: All students who participate in the focus group will be provided with refreshments and a gift voucher to the value of \$20 for their time and travel. I will be personally present at the focus group or interview discussion along with an independent youth worker to ensure overall comfort for all.

What are the discomforts and risks?

There are unlikely to be any risks attached to this research, although students will be advised that should they feel any distress they should seek help.

PHASE 1 - Online anonymous survey: Participation is voluntary, and students may choose to exclude themselves at any time. Students are also able to stop the online survey at any time. Only once the survey is completed will the data be captured, and it will then not be possible to withdraw the data. However, students cannot be identified personally, and the survey is completely anonymous.

PHASE 2 -Focus Group (and interviews if this is opted for by students): Students may withdraw from the focus group or interviews at any time and their data will not be part of the analysis. Participants will be advised of the confidentiality and the need to keep the identities of those participating confidential as well as any contributions made in the group. This is included in the privacy statement and will be reiterated at the outset of the focus group sessions. Students may

wish to bring a support person (friend, parent, caregiver) who can remain with them whilst they are in the focus group or interview. A list of counselling providers will be supplied to the school and the focus group will be made available.

As mentioned above, although there is a low level of risk with this research, however, please note that AUT Health Counselling and Wellbeing is able to offer three free sessions of confidential counselling support for participants in an AUT research project. These sessions are only available for issues that have arisen directly as a result of participation in the research and are not for other general counselling needs. To access these services, participants will need to:

- Drop into our centers at WB219 or AS104 or phone 921 9992 City Campus or 921 9998 North Shore campus to make an appointment. Appointments for South Campus can be made by calling 921 9992.
- Participants should let the receptionist know that he /she is a research participant, and provide the title of my research and my name and contact details as given in this Information Sheet

You can find out more information about AUT counsellors and counselling on <http://www.aut.ac.nz/being-a-student/current-postgraduates/your-health-and-wellbeing/counselling>.

How do participants agree to take part in the research?

Participation in this research is voluntary and whether or not the student chooses to participate will neither advantage nor disadvantage them. They are able to withdraw from their studies at any time. If they choose to withdraw from the study, then they will be offered the choice between having any data that is identifiable as belonging to them removed or allowing it to continue to be used. However, once the findings have been produced, removal of the data may not be possible. As noted above, the survey data will not be identifiable to the student at any time and is completely anonymous.

Benefits and feedback

It is critical that this age group is considered as this is often when the most concern or pressure is likely felt to make decisions around the future. It is also important to capture young people's opinions and their voice is critical to gather more deeply inform us of their experience of career choice, decision making and the feelings they associate with through this time. It is also vital to gather the youth voice in respect of opinions through the focus group to gather insights into the key themes, their views on the future and their perspective on choices and access to their chosen direction or dreams.

Should you agree for me to approach your students for this research, a summary of the research findings can be sent to you once I have completed my analysis and write up. The summary will include general findings and no specific information that can identify any students specifically. I am also happy to meet again to discuss the findings and share any further insights with you, as well as present them to your key staff.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Associate Professor Chris Krägeloh, chris.krageloh@aut.ac.nz; 09 921 9999 ext. 7103.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEK, ethics@aut.ac.nz, (+649) 921 9999 ext. 6038.

Whom do I contact for further information about this research?

Researcher contact details: Fay Amaral; Fayamaral71@gmail.com OR *Researcher Supervisor details:* Chris Krägeloh; chris.krageloh@aut.ac.nz

Please let me know if you are able to assist me and allow me access to young people to participate in this research, as mentioned above, I would be happy to meet with you to discuss this further and address any questions or concerns you may have.

Yours sincerely,

Fay Amaral

Approved by the Auckland University of Technology Ethics Committee on 11 September 2020, AUTEK Reference number 20/211.

**Agreement to grant permission to approach the students at the school for this research –
Phase 1 – Online Anonymous Qualtrics Survey in 2020**

I, _____(Insert Name of Manager/ Director/ designated Head), am happy to grant permission to Fay Amaral, PhD Research Student at AUT, to approach the students of _____(Insert name of school).

I am happy to facilitate this by facilitating OR sending the secure Qualtrics link provided by Fay Amaral to students in:

1. Year 12: Yes No
2. Year 13: Yes No

I understand that this survey is anonymous, and the research student will have no personal information nor data that will identify any of the students who complete the survey. Students have two weeks to complete the survey.

Signed by: _____(Name)

Signature: _____ Date: __ (day) __ (month) _ 2020

Thank you for your assistance,



Fay Amaral

PhD Student – AUT

**Agreement to grant permission to approach the students at the school for this research –
Phase 2 – Focus Group Participation 2021**

I, _____ (Insert Name of Manager/ Director/ designated Head), am happy to grant permission to Fay Amaral, PhD Research Student at AUT, to approach the students of _____ (Insert name of school).

I am happy to facilitate this by facilitating OR sending the secure Qualtrics link to invite students to agree to participate in the Focus Group provided by Fay Amaral to students in:

3. Year 12: Yes No

4. Year 13: Yes No

I understand that participation by the school students, in the focus group is voluntary and confidential, and the research student will have no personal information linked to the data, that will identify any of the students who participate in the focus group. Students have two weeks to volunteer for the focus group and this invitation will only be sent in February 2021.

Signed by: _____ (Name)

Signature: _____

Date: __ (day) __ (month) _ 2020

Thank you for your assistance,



Fay Amaral

PhD Student – AUT

Addendum to Information and Consent Letters

Questionnaires to be used for the online survey.

The questionnaires are all globally recognised, valid and reliable measures across adolescents and multiple audiences:

1. The New General Self Efficacy Scale (Chen et al., 2001) is widely used and is considered the most valid and reliable measure of General Self-Efficacy. The scale measures the individual's perceptions of their abilities to perform and achieve across a variety of situations. (8 items)
2. Rumination is to be assessed utilising the Ruminative Response Scale (RRS)-short form, the most widely used measures of rumination, comprising 10 items and assesses brooding and reflection (Parola et al., 2017).
3. The Sense of Control Scale will be utilised to assess the level of perceived control the participants have over their future and their lives. The scale measures two factors, perceived constraints, and the degree of personal mastery. The scale has 12 items, and this scale is timely and relevant given the prospective impact COVID-19. The scale has been widely used (Lachman and Weaver, 1998; Steptoe et al., 2007; Steptoe and Wardle, 2001; Yu et al., 2018).
4. Career decision is to be assessed utilising the Career Decision Scale (CDS), a scale designed to estimate career indecision and the antecedents to career indecision (Saunders, 1998). The scale comprises 19 items, with the first two items measuring certainty, that is the degree of certainty the participant feels about their decision about a major and/or a career.
5. Center for Epidemiological Studies Depression Scale (CES-D) scale will be used to assess symptoms of depression. The CES-D scale has been widely used globally, used since 1977. The scale measures four factors of depression: Depressed Affect, Positive Affect, Somatic Symptoms, and Retarded Activity (Radloff, 1977). The scale is widely used to assess depressive symptomatology across general populations, has been cited close to 50 000 times, is highly correlated to the BDI-II and is an accepted measure across cultural groups and for older adolescents and young adults (Herge et al., 2013; Jiang et al., 2019). The scale has 20 items and takes less than 10 minutes to complete. The scale includes 4 items that are positive to reduce response bias and are reverse coded.

Further information

Why this research matters - Implications for career undecidedness and mental health

In New Zealand, although there is research as well as various statistical reports on depression and depressive symptomology amongst adolescents, there is no published research identified that examines dysfunctional career thinking and rumination, career self-efficacy, and then career indecision, in relation to depressed mood, symptomology or depression. In fact, there is very little global research in this area (Dieringer et al., 2017). It is most often that there is a distinction drawn between career counselling and clinical or personal counselling, as mentioned above, this distinction spills into the research domain as well as in respect of counselling interventions (Blustein et al., 2019; Dieringer et al., 2017; Rottinghaus et al., 2009).

Blustein et al. (2019) makes a strong case for a more integrated approach both in counselling and research involving career development and the inter-connectivity of well-being and work. Blustein et al. (2019) also points out that less than 20% of all vocational research is conducted on high school students, and only 10% are middle school students. The authors also point out that there is a need for more research into career choice and immigrant populations, the impact of lower socio-economic factors, cultural and ethnic factors, the role of abuse and harm on young people entering the workforce and importantly, mental health and well-being.

There are several aspects to the process of undecidedness, whereby a young person may be undecided as to the subjects they wish to include in later years of school, they may be undecided as to career direction or interests, they may also struggle with decisions in respect of tertiary institution, majors and defined courses (Andrews et al., 2014; Bullock-Yowell et al., 2014; Womack et al., 2018). Some of this may be temporary and resolved as young people transition, but for others this is a struggle, and many remain undecided through the choices they make, from defining subject choices at school to entering tertiary studies with the view to entering a career (Bullock-Yowell et al., 2014; Krumboltz & Worthington, 1999).

It is likely that in fact there is great complexity in respect of the constructs affecting a young person's view of their options, particularly as their life complexity increases, for example those affected by social injustice and inequity (Blustein et al., 2019). This is a significant gap identified in the research, whereby there is little focus on cultural, geographical, and social aspects that may influence cognitions, choices, perceived career access and processing (Blustein et al., 2019; New et al., 2017).

The importance of contextual and external factors in the environment have been stated as key aspects not only in terms of career choice, but also particularly in terms of the development of career self-efficacy (Galles et al., 2019; Grier-reed and Skaar, 2010; Miller and Kerlow-Myers, 2009). The importance of making a decision around a career is continually emphasised through

the high school years (Corrieri et al., 2014; Newcomb-Anjo et al., 2017). Young people begin their journey by first needing to narrow their choices around subjects at the age of fourteen or fifteen years.

These expectations of young people at school, around career choice, as well as contextual pressures of growing into adolescence, environmental, socio-economic, familial, and cultural pressures, are all likely to impact on the well-being and mental health of the young person. From lowered career self-efficacy then career decision confusion, it is likely that a sense of hopelessness, as well as multiple negative thoughts within the career decision-making process will lead to anxiety and depressive symptomatology (Bullock-Yowell et al., 2014; Galles et al., 2019; Lustig et al., 2012; Rottinghaus et al., 2009; Walker and Peterson, 2012).

Walker and Peterson (2012) suggest that it is important to further investigate and understand the complexity around depressive symptomatology and career indecision. It is likely that depression and depressive symptomatology limits the ability for a young person to form good decisions as well as process their thinking around career choices (Saunders et al., 2000). It is also likely that negative thinking and rumination associated with career indecision and lowered career self-efficacy can lead to depressed mood and the development of depressive symptomatology (Dieringer et al., 2017; Rottinghaus et al., 2009). It is likely therefore that depression may be both a consequence and precursor to lowered career self-efficacy and career indecision.

Further, it is also likely that the transition from school to tertiary and work brings added pressure, young adults are asked all through high school to consider what they will do after school, “Establishing career goals may reduce the likelihood of depressive symptoms...” (p. 273, Rottinghaus et al., 2009). The continuous expectations on some, as well as reflection of barriers or lowered career self-efficacy in others, is very likely to result in increased depressed mood through this transition (Domene et al., 2017; New et al., 2017). The results from this proposed research will help identify constructs and build a model, in order to inform possible intervention opportunities, identifying the relationship of the constructs and the interplay between them to better support young people as they navigate this important stage of life. In summary, the proposed research intends to investigate the relationship further between career self-efficacy, subsequent or associated indecision and depressive mood or symptomatology, in school leavers and first year tertiary students in New Zealand.

Proposed research scope

This rising pressure to define what it is that a young person chooses to “be” may then further result in increasing anxiety or stress, and ultimately give rise to depressed mood or trigger depressive symptoms. This career decision process is one of the big choice processes in young adulthood, it is emphasised consistently in the senior years of high school, with a measure of one’s

capabilities often defined by the subjects chosen, academic success or a sense of clear direction. The absence of this is counter defined as lack of focus, lack of direction, an adolescent with no ambition or future.

The PhD candidate suggests that this pressure and confusion builds a sense of reduced capability, thereby reducing the sense of self-efficacy in relation to career direction. Thereafter, building stress and pressure, rumination and finally depressive symptoms may then develop.

Investigating career self-efficacy, which is highly correlated to indecision, dysfunctional career thoughts and depressive symptomology will provide vital insights to establish the interrelatedness of these constructs, particularly in respect of the perceived pervasiveness of career indecision and depressive symptomology amongst youth in New Zealand. The proposed research is important to establish this interrelatedness here, to investigate the nature of the relationships between constructs in the New Zealand context, to further inform the direction for preventative strategies, to support the need for integrated vocational and mental health counselling in schools, as well as improving drop-out rates in schools and tertiary institutions through raised awareness of the importance of addressing these constructs. In fact, the failure to date to integrate research focus on mental health and vocational decision making, is a failure to recognise the importance and significance of the career decision-making process for an adolescent in their transitional journey from school to work (Blustein et al., 2019; Bullock- Yowell et al., 2014; Krumboltz & Worthington, 1999).

Further, given the seriousness, pervasiveness, and growing presence of depressive symptomology in young adults, the PhD candidate intends to investigate lowered career self-efficacy, negative thinking, and career indecision, in transitioning from school to tertiary studies, to investigate the hypothesised associated development of depressive symptoms. Further, although there has been some research identifying a strong correlation between career indecision and depression, there is little research identifying the nature of the relationship between career self-efficacy and depression or investigating all three key constructs and the way they interrelate and interact (New et al., 2017; Rottinghaus et al., 2009; Walker & Peterson, 2012).

LICENSE AGREEMENT

THIS AGREEMENT, made this January 21, 2022, by and between Psychological Assessment Resources, Inc., a Florida Corporation, with its principal offices located at 16204 North Florida Avenue, Lutz, Florida 33549, hereinafter referred to as PAR, and Fay Amaral, with principal offices located at Auckland University of Technology (AUT), 19 Ridge Valley Drive, Browns Bay, Auckland 0630, New Zealand, hereinafter referred to as Licensee.

1) RECITALS

PAR has developed and holds all copyrights and distribution rights to certain psychological tests and related materials as listed in Schedule A, hereinafter called "Test". The Test consists of PAR's items, scoring keys, scales, profiles, standard-score conversion tables, norms tables, interpretive information, and related materials created, prepared, devised, and combined by PAR for the administration, scoring, reporting, and analysis of the Test, and includes the words, symbols, numbers, and letters used to represent the Test. Licensee desires to develop automated procedures for the secure and encrypted administration of the Test through Licensee's secure internet assessment website utilizing Qualtrics. The access to Licensee's website will be by invitation only in connection with Licensee's research titled, *Investigating self-efficacy, sense of control and rumination in relation to career indecision and depressive symptomatology, in young adults leaving school* and to subjects for this research purpose only (the "Limited Purpose(s)"). Unless permitted to do so by a separate license agreement, Licensee only has the right to use the Test for the Limited Purpose described above.

In consideration of the mutual covenants and promises expressed herein and other good and valuable considerations, it is agreed as follows:

2) LICENSE

PAR hereby grants to Licensee, subject to the terms of this Agreement, a non-transferable, non-refundable, non-exclusive license to place the Test on Licensee's Website for the Limited Purpose described in Section 1 above. Licensee agrees to hold secure and treat as proprietary all information transferred to it

from PAR. Licensee shall carefully control the use of the Test for the Limited Purpose described in this Agreement. Licensee's use of the Test will be under the supervision or in consultation with a qualified psychologist or other qualified individual and consistent with the then current edition of the Standards for Educational and Psychological Testing published by the American Psychological Association.

CDS (Career) Amaral Krageloh Auckland University of Tech Retroactive lic agr 1-21-2022 Page 1 of 7

16204 N. Florida Ave. | Lutz, FL 33549 | 813.968.3003 | parinc.com

3) TERMS AND TERMINATION

The initial term of this Agreement shall extend **retroactively** from January 1, 2021 through June 30, 2022, and may be extended only by mutual agreement of the parties. Notwithstanding any other provision of this Agreement, this Agreement may be terminated if any of the following events occur:

- (a) Termination is mutually agreed to by the parties.
- (b) Licensee defaults in the performance of any of its duties hereunder.

On the effective date of expiration or termination of this Agreement pursuant to subsections (a) and (b) above, all rights in this Agreement revert to PAR. Computer software programs written by or for Licensee remain the property of Licensee. Licensee warrants that upon expiration or termination of this Agreement under subsections (a) and (b) above, and except as set forth in any separate license agreement relating thereto, all portions of the Test licensed hereunder shall be removed from Licensee's Website. Failure to cease all uses of the Test shall constitute copyright infringement.

4) TERMINATION RIGHTS

In the event of termination pursuant to paragraph 3 above for any reason, PAR shall not be liable to Licensee for compensation, reimbursement or damages for any purpose, on account of any expenditures, investments, leases or commitments made or for any other reason whatsoever based upon or growing out of this Agreement.

5) CONDITIONS OF USE

PAR shall have the right to review, test, and approve that portion of Licensee's Website which includes the Test. Following PAR's approval of that portion of Licensee's Website containing the Test, the manner in which the Test appears on such Website shall not be changed in any material way without prior approval of PAR.

The computer programs developed by Licensee and used in any phase of administration and scoring of the Test shall be fully tested by Licensee and shall be encrypted and reasonably protected from access, intrusion and changes by persons who are not authorized agents of Licensee. In addition to the foregoing, Licensee shall

exert all reasonable commercial efforts to prevent the Programs, and any accompanying code for the administration of the Test from being accessed, viewed or copied by others. Licensee warrants the accuracy of such scoring and reporting.

6) PROPRIETARY RIGHTS

PAR is the owner of all right, title and interest in the Test. Licensee shall acquire no right or interest in the Test, by virtue of this Agreement or by virtue of the use of the Test, except the right to use the Test in accordance with the provisions of this Agreement. Licensee shall not modify or revise the Test in any manner without written approval by PAR. All uses of the Test by Licensee shall inure to the benefit of PAR. Licensee agrees not to challenge or otherwise interfere with the validity of the Test or PAR's ownership of them.

7) ROYALTIES

Licensee agrees to pay PAR a royalty fee for use of the Test and copyrighted materials contained therein, at the rate of \$1.09 USD per each test administration of the Test. Licensee will also provide PAR with an itemized accounting of all administrations of each Test administered by Licensee during the term of this agreement. Licensee shall pay to PAR Three Hundred and Twenty-Seven US Dollars (\$327.00 USD) as an initial license fee (\$1.09 USD per administration for 300 administrations), which is due and payable upon the signing of this License Agreement. Licensee shall also pay PAR \$1.09 USD per each test administered for any tests administered above 300 by July 15, 2022. This fee includes a 40% student discount. Fees are subject to increase upon renewal.

Licensing fees paid to PAR will be payable in US Dollars drawn on a US bank. Any taxes levied on fees by Licensee's government, or fees deducted by Licensee's bank (originating or intermediary) and/or financial institution, shall be paid by Licensee and shall not reduce the amount due to PAR.

For the purposes of this Agreement, an administration of the Test includes any instance where the Test is completed wholly or in part by a subject.

8) ACCOUNTING

Licensee shall develop secure computerized accounting methods acceptable to PAR. Such accounting methods must include an electronic counting mechanism which will accurately record the number of administrations of each Test used. Licensee will keep accurate financial records of all transactions relating to the use of the Test, and PAR shall have the right to examine the software and records of Licensee pertaining to the use of the Test. Licensee will

make such software and records accessible to PAR or its nominee during normal working hours upon not less than five (5) business days' prior written notice. Licensee shall retain such software and records for at least one year from the date this Agreement expires or the effective termination date.

The Website shall contain the following copyright notice:

"Adapted and reproduced by special permission of the Publisher, Psychological Assessment Resources, Inc. (PAR), 16204 North Florida Avenue, Lutz, Florida 33549, from the Career Decision Scale by Samuel H. Osipow, PhD, Copyright 1976, 1987, by PAR. Further reproduction is prohibited without permission of PAR."

9) INDEMNITY

Licensee agrees to indemnify PAR and hold PAR harmless against any claim or demand or against any recovery in any suit (including taxes of any kind, reasonable attorney's fees, litigation costs, and other related expenses) that may be:

- (a) brought by or against PAR, arising or alleged to have arisen out of the use of the Test by Licensee;
- (b) sustained or incurred by PAR, arising or alleged to have arisen in any way from the breach of any of Licensee's obligations hereunder; or
- (c) incurred by PAR in any litigation to enforce this Agreement, including litigation against Licensee.

10) ASSIGNMENT

Licensee shall not assign this Agreement or any license, power, privilege, right, or immunity, or delegate any duty, responsibility, or obligation hereunder, without the prior written consent of PAR. Any assignment by PAR of its rights in the Test shall be made subject to this Agreement.

11) GOVERNING LAW

This Agreement shall be construed according to the laws of the State of Florida of the United States of America. Venue for any legal action relative to this Agreement shall be in the appropriate state court in Hillsborough County, Florida, or in the United States District Court for the Middle District of Florida, Tampa division. Licensee agrees that, in any action relating to this Agreement, the Circuit Court in Hillsborough County, Florida or the United States District Court for the Middle District of Florida, Tampa Division, has personal jurisdiction over Licensee, and that Licensee waives any

argument it may otherwise have against the exercise of those courts' personal jurisdiction over Licensee.

12) SEVERABILITY

If any provision of this Agreement shall, to any extent, be invalid and unenforceable such provision shall be deemed not to be part of this Agreement, and the parties agree to remain bound by all remaining provisions.

13) EQUITABLE RELIEF

Licensee acknowledges that irreparable damage would result from unauthorized use of the Test and further agrees that PAR would have no adequate remedy at law to redress such a breach. Therefore, Licensee agrees that, in the event of such a breach, specific performance and/or injunctive relief, without the necessity of a bond, shall be awarded by a Court of competent jurisdiction.

14) ENTIRE AGREEMENT OF THE PARTIES

This instrument embodies the whole Agreement of the parties. There are no promises, terms, conditions, or obligations for the Test licensed hereunder other than those contained herein; and this Agreement shall supersede all previous communications, representations, or agreements, either written or verbal, between the parties hereto, with the exception of any prior agreements that have not previously been terminated by written consent of both parties or by one party if the terms of the agreement allow. This Agreement may be changed only by an agreement in writing signed by both parties.

15) NOTICES AND MODIFICATIONS

Any notice required or permitted to be given under this Agreement shall be sufficient if in writing and if sent by certified or registered mail postage prepaid to the addresses first herein above written or to such addresses as either party may from time to time amend in writing. No letter, telegram, or communication passing between the parties hereto covering any matter during this contract, or periods thereafter, shall be deemed a part of this Agreement unless it is distinctly stated in such letter, telegram, or communication that it is to constitute a part of this Agreement and is to be attached as a right to this Agreement and is signed by both parties hereto.

16) SUCCESSORS AND ASSIGNS

Subject to the limitations on assignments as provided in Section 10, this Agreement shall be binding on the successors and assigns of the

parties hereto.

17) PARAGRAPH HEADINGS

The paragraph headings contained in this Agreement are inserted only for convenience and they are not to be construed as part of this Agreement.

18) AUTHORIZATION AND REPRESENTATION

Each party represents to the others that it has been authorized to execute and deliver this Agreement through the persons signing on its behalf.

IN WITNESS WHEREOF, the parties have executed this Agreement in duplicate on the date first herein above written.

ACCEPTED AND AGREED SIGNATURE:

ACCEPTED AND AGREED SIGNATURE:

Licensee:

PAR:

BY:  _____

BY: _____

 _____
FAY AMARAL

VICKI M. MCFADDEN

Title: STUDENT

Title: SR. PERMISSIONS SPECIALIST

24
Januar
y 2022

DATE: January 25, 2022

DATE: _____

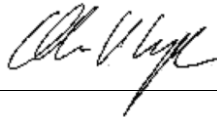
PAYMENT RECEIVED: VISA
PAR CUSTOMER No.: CU-10008579

SIGNATURE OF PROFESSOR REQUIRED:

I hereby agree to supervise this student's use of these materials. I also certify that I am qualified to use and interpret the results of these tests as recommended in the *Standards for Educational and Psychological Testing*, and I assume full responsibility for the proper use of all materials used per this Agreement.

BY: Dr. Chris Krägeloh

Printed Name: _____



SCHEDULE A

The Test licensed to Licensee pursuant to the above license consist of PAR's items, scoring keys, scales, profiles, standard-score conversion tables, norms tables, and related materials created, prepared, devised, and combined by PAR for the administration, scoring, reporting, and analysis of the Test, and include the words, symbols, numbers, and letters used to represent the Test. However, PAR and Licensee acknowledge and agree that Licensee may use only the PAR items and scoring information for the Test as appropriate for the Limited Purpose. The Test referred to in the body of this Agreement is defined as follows:

- 1) Career Decision Scale (CDS)
Test Booklet

Permission is also granted for you to include up to a total of three (3) sample items from the CDS in your dissertation/thesis, any further publication in a Journal (or otherwise) will require additional permission.

Appendix C Summary of Findings for Scoping Review

Authors & Date	Article Title	Population	Construct/ Problem or Phenomenon of Interest	Depression or Symptoms of	Rumination	Self-Efficacy	Control	Context or Comparison / Design incl. Intervention (if used)	Outcomes	Evaluation
	<i>Articles placed on population, title and abstract review as well as citations</i>	<i>Who? Age? Sample Size?</i>	<i>Career Interjection</i>	<i>depression</i>			<i>Sense of Control</i>	<i>Higher or lower? / Strengths of Studies</i>	<i>Any Correlation?</i>	<i>In/ Out of Scope</i>
Aguir, F.H.R., Conceição, M.J.G. [2015]	Career guidance and health promotion with adolescents: keys for intervention programs	9th-11th grade / Brazilian underprivileged students; 2 females 1 male; Mean age = 16.77	Career exploration	Measured depressive symptoms	n/a	Self-construct and impact of context	Perceived barriers and contextual influences	Measures youth perceptions of their mental health and career decision process / In depth Qualitative study with 9 week guidance workshop	Positive correlation between depression and career interjection / impact of socioeconomic factors	In scope but limited in design
Anghelescu, G. [2012]	The Association Between Career Decision-Making Difficulties and Negative Emotional States	137th Pe University prep course students in female-47% male; Mean age = 21.29	Career decision making difficulties and CD status	Negative affect / emotional states / depression and anxiety	n/a	n/a	n/a	Quantitative study to test the correlations between career decision difficulties, decision state and depression, anxiety and stress - measured the change before and after the completion of 9 month course to assist in choice of major / 137 of 161 / 235 completed	Correlation between CD difficulties, process of CD and associated depression, anxiety and stress. A USO recommended career course increased need to be aware of emotional state as well as status of decision. Increased career decision difficulties resulted in increased symptoms of depression	Subject matter in scope; sample and review question not fully met
Arbore, C., Bin, W., Phang, A., O'Brien, M., Doh, M. [2011]	Influence of Uncertainty, Anxiety and Career Decision: A Mediation Model	n=678 College students; Mean age = 21.22; 84% female	career interjection	Anxiety	Rumination	n/a	Intolerance of uncertainty	Identify the factors that are associated with career interjection to assist and help students perform better as they transition out of college; assessed the relationship of anxiety as a mediator to career interjection outcomes	Intolerance for uncertainty / fear of the unknown and rumination were assessed as predictors with anxiety mediating the pathway to interjection factors; suggested that high students cope better with uncertainty as it relates to career interjection.	Subject matter in scope; sample and review question not met
Bullock-Yowell, E., McConnell A.E., Schedin, E.A. [2014]	Decided and Undecided Students: Career Self-Efficacy, Negative Thinking and Decision Making Difficulties	223 college students (148 decided / 83 undecided) mean age for decided group = 20.97 yrs; undecided group = 19.68 yrs / female skew	Measured career decision making difficulties	n/a	Measured negative thinking using CTI	measure of self-efficacy using COS-SP	n/a	Students assessed across scales for negative thinking, career decision making difficulties and self-efficacy across the two groups (decided and undecided).	Negative career thoughts differed across age, gender and ethnicity; undecided students appeared to have more negative thoughts and lower self-efficacy.	Subject matter in scope; sample and review question not met
Bullock-Yowell, E., McConnell, A.E., Schedin, E.A.; 2014	Decided and Undecided Students: Career Self-Efficacy, Negative Thinking, and Decision-Making Difficulties	n=266; n=148 decided (mean age = 20.97) and n=83 undecided (mean age = 19.68)	career interjection	n/a	negative thoughts	Career Self-Efficacy	n/a	Undecided students were compared to decided students in relation to their levels of negative career thoughts and self-efficacy as well as career decision making difficulties.	Undecided students had lower self-efficacy, were less decided and had more negative career thoughts	Subject matter in scope; sample and review question not met
Bullock-Yowell, E., Peterson, G.W., Reardon, R.C., Leimer, S.J., Reed, C.A.; 2011	Relationships among Career and Life Stress, Negative Thoughts, and Career Decision State: A Cognitive-Information Processing Perspective	n=232 college students; mean age = 20.3 years	career interjection	n/a	negative thoughts	n/a	life stress	College students were assessed to establish if career and life stressors led to negative career thoughts which in turn was expected to lead to less decidedness with career	It is suggested that course interventions should pay attention to the impact of negative thoughts when the relationship to career life stressors	Subject matter in scope; sample and review question not met
Creighton, W., Phibbs, L.	Causal Relationship between Career Interjection and Career Decision-Making Self-Efficacy	Two time lines; T1 = 14yrs; T2 = 15-17 years	Career Interjection measured on COS	n/a	n/a	Career Self-Efficacy	n/a	Longitudinal study in Australia, High School students measured across two time periods - Grade 8 and 10 on career interjection and career self-efficacy	Changes in career self-efficacy did not result in changes in career interjection; suggested mediating effect of possible third variable	Subject matter in scope; sample and review question not met
Creed, P., Peillon, W., Phibbs, L. 2006	Causal relationship between Career Interjection and Career Decision-Making Self-Efficacy	Two time lines; T1 = 14yrs; T2 = 15-17 yrs; High School students in Australia	career interjection	n/a	n/a	Career Decision Self-Efficacy	n/a	Research suggests the correlation between career interjection and career self-efficacy exists, but in this context sample may be too young at outset and causal relationships may not be fully developed	Findings suggest the career interjection may not be causally related to career self-efficacy; further investigation not necessary of career interjection	Subject matter in scope; sample and review question not met
Döringer, D.D., Leim, J.S., Hayden, S.C., Peterson, G.W. [2016]	The Relation of Negative Career Thoughts to Depression and Hopelessness	139th Undergrad students at Uni mostly 49.7% women - Mean Age = 22.01 yrs	Career thinking and decision making	Depression or Symptoms of depression	Hopelessness and career thoughts measured	n/a	Hopelessness	Quantitative study with volunteer university students using BDI-II and CTI (Career Thoughts Inventory) to assess if career and mental health issues are connected; negative thinking is associated with career interjection and negative career thinking is associated with hopelessness.	Negative career thinking correlated to depression, negative career thinking associated with hopelessness; need for integrated interventions - career and mental health or personal counseling; need more empirical evidence; Career's course to check the thinking/ skills and assess mental capability to assess/ treat mental health issues	In scope - Mostly a new is Scoping review question but sample out of scope
Duffy, R.D. 2010	Sense of Control and Career Adaptability among Undergraduate Students	n=194 undergraduate students in college	n/a	n/a	n/a	adaptability which includes self-efficacy	sense of control	Used Sense of Control scale to assess relationship to adaptability - students who feel in control to where it is less likely to feel fed up and as a result the interjections	Used Sense of Control scale to assess relationship to adaptability - students who feel in control to where it is less likely to feel fed up and as a result the interjections	Subject matter in scope; sample and review question not met
Fleming, T., Peiris-John, R., Crengle, S., Archer, D., Sutcliffe, K., Jayatilaka, S., & Clark, T. [2020]	Youth 19 Years to His ment Survey Initial Findings: Introduction and Methods	2019 surveyed 772 1 year 19 - 18 students in NZ across 49 schools plus 92 Art Ed students	n/a	studied health and wellbeing / depression	n/a	n/a	n/a	Including multiple other aspects - short form Reynolds Adolescent Depression Scale used (25 questions in total) / approx 3000 students 16/17 years old included		not in scope
Fleming, T.R., Clark, T., Denny, S., Bullen, P., Cheng, S., Peiris-John, R., Robinson, E., Rossen, E.V., Sheridan, J., Lucassen, M. 2014	Stability and change in the mental health of New Zealand secondary school students 2007-2012: Results from the national adolescent health surveys	2007 [n=107] and 2012 [n=8300] secondary school students	n/a	mental health	n/a	n/a	n/a	measure of mental health over time - 2007 datasets 2012 data; measured slight decline in mental health 2007 / 2012; Reynolds Adolescent Depression Scale, Short Form (RADOS-SF), significant depressive symptoms	slight decline in the mental health of students; measure of symptoms of depression increased	Subject matter and sample in scope; review question not met

Authors & Date	Article Title	Population	Construct/ Problem or Phenomenon of Interest	Context or Comparison / Design (incl. Intervention if used)	Outcomes	Evaluation				
	Articles picked on population, title and abstract reviews as well as on keywords	Who? Age? Sample Size	Career Indecision	Depression or Symptoms of	Rumination	Self-Efficacy	Sense of Control	Higher/Lower? / Strengths of Studies	Any Correlation?	In/ Out of Scope
Gedassi, R., Weser, A., Gati I. [2013]	Gender differences in the association of depression with career indecision status, and career preference crystallization	222 College seniors in Israel 77.3% female - Mean Age 23.6 yrs	Measured career decision status and preference	CES-D - measure of depression	n/a	n/a	n/a	Quantitative study with students who were near to completing the studies were recruited to assess whether less decided students showed higher symptoms of depression; gender was also included as a key variable	Career indecision may be a key stressor/ Depressive symptoms correlated with decision making difficulties and men higher than women; research supports the view that course loads need to appreciate the mental health and career process aspects	Subject matter not in scope; review questions not met
Gati I., Amir, T., Landman, S. [2010]	Career course load perceptions of the severity of career decision making difficulties	28 Career Counselors	n/a	n/a	n/a	n/a	n/a	Measured the views of 28 course loads to the challenges that clients face in terms of career decision making in Israel. All participants were female. Limited in design.	n/a	Not in scope
Ginepro, M. Noia, L. Soares, S. Gati I. [2012]	Career Decision-Making Profiles of Italian Adolescents	323 Italian adolescents 51.4% male; Mean age 17.2 yrs	Career Decision Making Profile - assessing Italian version / psychometric properties	n/a	n/a	n/a	n/a	Tested the use of the Italian version of the Career Decision Making Profile (CDMP) on adolescents in High School	Indicates that females may be more time in decision making / undecided youth may have difficulties and may develop dysfunctional approaches to career decision making; females interact more widely on their decision	Not in scope
Hiscni, A. [2011]	Career choice readiness in adolescence: Developmental trajectories and individual differences	364 initial 288 completed German speaking Swiss school students; 48.7% female with Mean age = 14.07	Career decision process	n/a	n/a	General Self-efficacy	Perceived barriers	Quantitative study collecting 4 waves of data in high school students. The study focused on how career readiness develops in young adolescents over 20 months using career readiness and readiness measures every 3 months - voluntary study	Focus on developmental-contextual approach to support preparation for career development and implications on adjustment and well-being key	Not in scope
Hoofer, L., Britner, H. [2012]	Mental health research in K-12 schools: Translating a systems approach to university-school partnerships	Conceptual model/theory presentation	n/a	Mental health in schools	n/a	n/a	n/a	Review of challenges in accessing schools to conduct mental health research and presented some models on how this approach to schools may be improved	The theoretical model is described and future research suggested to assess the model	Not in scope
Jung, J.Y., McCormick, J. [2010]	A motivational and the occupational decision: an investigation of Australian senior high school students	n = 482; Mean age 19.92 yrs; a cross Australian adolescents Grade 11; 37% female	Career decision	n/a	n/a	related to self-efficacy	Perceived barriers	Research explores the occupational decision process in relation to the level of motivation. Used a number of scales and assessed the relationships across a number of occupational factors and a motivation.	Found a strong relationship between occupational motivation and decision making; engagement and dropout may be related to a motivation.	Partially in scope - correct age group, measuring career decision, with reference to a motivation [related to sense of control] - however context is highly relevant
Nasranch, D. Ernst, A.L., Piquart, M. [2014]	Ambivalence During and After Career Decision Making of High School Graduates	220 173 completed both measures a German speaking High school graduates/ female 74.9% Mean age = 19.12 yrs	career decision making as related to Self-efficacy	n/a	n/a	n/a	Career decision making self-efficacy measure	Longitudinal study investigating ambivalence between study or trade where the participants finished school; initial test was pilot application to training and second test was after 6 months.	Measure of impact of ambivalence in the process of considering what training to take and the assessment after this decision. Ambivalence is considered a key construct and should be measured.	Not in scope
Rukic, V., Dobren, A., Baris, J. [2020]	Does it Matter if I Am a Worrier? The Effect of Worry as a Mediator between Career Decision-Making Difficulties and Negative Dysfunctional Emotions.	384 High school students in Romania - 34% female; Mean age = 17.9 yrs 161 123 completed; Limitation - gifted adolescents;	Career Decision-making Difficulties Questionnaire (CDDQ)	Profile of Emotional Distress - Worry [Penn-state]	Not rumination perse - Worry [Penn-state]	Worry Questionnaire for children	Try to get a sense of control	Worry assessed as mediator - students performed questionnaire; students did a career course - and measured the association of career decision difficulties with psychological distress; high school students - with assessment of worry as mediator / sense of control	CCI measure ineffective and further support for its use in career planning; study focused on career planning and use of instrument with adolescents; role of affect as described.	In scope - good study; recent and shows association between career decision and psychological distress
Laason, L.M. [1998]	Applications of the Coping With Career Decision Instrument With Adolescents	96 a total 37 a female Mean age = 16.39	Measurement of CCI (instrument) of career decision making	Measurement of general affective distress and career-specific distress	n/a	n/a	CCI measure of self-efficacy	Exploring use of specific instrument with adolescents that are described as gifted. Assessed indecision, efficacy and positive affect in relation to decision state;	Perceived career barriers linked to perceived mental health and stress; Correlation between stress, perceived mental health and career barriers	Not in scope - limited generalizability and assessment of instrument
Lee, H. Kim, M. Son, H. K. [2014]	Factors Affecting Mental Health and Behavioral Problems in High School Students: Based on a Social Cognitive Career Theory.	384 High school students 51.8% female	measured career indecision	Mental Health measure; perceived stress	n/a	n/a	Self-efficacy	Not enough; good sample; not direct measure of depression / symptoms or rumination; findings suggest that career-related stress should be addressed in High School	Perceived career barriers linked to perceived mental health and stress; Correlation between stress, perceived mental health and career barriers	Not in scope
Lowe, C., Wutrich, V.M. [2011]	Randomized controlled trial of study without stress: A cognitive behavioral therapy program to reduce stress in students in the final year of high school.	36 Australian high school students 42 female/ 13 male; ages 17 & 12 yrs	n/a	Used DASS scale; Distress and depression; sub-threshold distress	n/a	Self-Efficacy	Self-Efficacy opp	Quantitative / small sample; last two years of school there are reported high levels of depression, stress and anxiety across 60 studies; intervention was behavioral program designed to reduce stress compare with "usual care"	Intervention assessed in reduced self-reported stress and distress, with increased self-efficacy; ideal space in schools to address sub-threshold distress and increase mental well-being	Subject matter in scope; sample and review questions not fully met
Micocci, D., DiIorio, T.M.O. [2018]	Adjustment to college and prediction of depression during postsecondary transition: Career Search Self-Efficacy, Family Support, and Career Indecision With Italian Youth.	n=428 Canadian students, age range 17-18, mean = 16.2 yrs; 32.4% female transitioning 293 Italian high school students - specifically in Uni Prep High, 143 male/ 108 female; Mean age = 16.62	Post-secondary transition	Depression symptoms - BDI	n/a	n/a	n/a	Examines the pathways to depression and how depression symptoms may be predicted by certain factors. Particularly explores depression in relation to adjusting to college / transition from school. Completed 3 consecutive studies at same time - in each year as a longitudinal study.	The research suggests that positive intervention in High School year is can be addressed in future episodes of depression can be better prevented. Transition as a key developmental change period for young people, particularly in terms of occupation choice.	In scope - correct age group, measuring depression and transition, with reference to Career decision - however context is highly relevant
Noia, L., Brnari, L., Scott, V., Soiberg, H. Soares, S. [2007]			Career Decision Scale used	n/a	n/a	n/a	Career self-efficacy scale	Quantitative study / Uni prep high school students were assessed to investigate the role of family support and career indecision, then the mediator effect of career self-efficacy tested;	Correlation between students that were undecided and anxiety levels; Correlation between family support and career search self-efficacy; career search self-efficacy associated with	Not in scope but sample and reference useful

Authors & Date	Article Title	Population	Construct / Phenomenon of Interest	Context or Comparison / Design incl. Intervention (if used)	Outcomes	Evaluation				
	Articles picked on population, title and abstract review as well as citations	Who? Age? Sample Size	Depression or Career Decision	Rumination	Self-Efficacy	Sense of Control	Higher or lower? / Strengths of Studies	Any Correlation?	In/ Out of Scope	
Ogburn, T.C., Ismail, C., Oji, C.T., Anyanwu, J.I., Ede, M.O., Bekem, J. [2012]	Effect of Rational Emotive Behavior Therapy on Negative Career Thoughts of Students in Technical Colleges in Nigeria	173 Technical college students; 77% male; Mean age = 18.94	Career Decision and thoughts	negative thinking	n/a	n/a	Small sample; 2 groups / one control; evenly split; but skewed to specific trade school and male students; students exposed to some counseling program to address negative career thoughts	Rational Emotive Behaviour Therapy reduced negative career thoughts; Negative career thoughts shows increase in career decision when assessed.	Subject matter in scope; sample and review question not fully met	
Rehndy, S., Bullock, E.E., Resnick, R.C., Kelly, F.D. [2008]	The Effects of Decision-Making Style and Cognitive Thought Patterns on Negative Career Thoughts	126 US Undergrad students; 42.4% male; mean age = 20.63	Decision making difficulties	n/a	n/a	n/a	Limited in only university population assessed; Students selected introductory career course and rumination and factors related to career thinking assessed.	Tendency to ruminate related to negative career thinking and correlated to affect.	Subject matter in scope; sample and review question not fully met	
Park Woo, Park Hyea, Yung; 2017	The mediated effects of career exploration on the relationship between attachment and career decision	college students in Korea; n=201	n/a	n/a	n/a	n/a	n/a	n/a	Not in scope	
Permeiter, M., Dergoise, F., Zacher, H., Fischer, T., Nik, F.; 2021	Anticipatory emotions at the prospect of the transition to higher education: A latent transition analysis	n=341 (completed at least one CT) School leavers in Belgium, over 12 time-lines; Mean age = 17.43	Career decision	Anticipatory emotions (both positive and negative)	n/a	n/a	n/a	Measuring the anticipatory emotions as they related to career decision as the students approach transition from High School Two Time lines, measured across 2 cohorts at similar time in terms of development stage, last year of High School. Measuring positive, mixed and negative anticipatory emotions.	Results highlighted the importance of further research needed in the role of emotions and career decision making/transition from school. Important developmental stage and being career decided here in terms of positive outlook and well-being.	Partially in scope connects group, not measuring at least in context; however content is highly relevant
Penn, L.T.; Leatt, R.W. 2019	The joint roles of career decision self-efficacy and personality traits in the prediction of career decision and decision difficulty	n=182 undergrad students; mean age 19.28	career decision	neuroticism	self-efficacy	n/a	the higher the levels of neuroticism the more indecision and the lower the self-efficacy; modeled self-efficacy and outcome expectations and indecision	self-efficacy as a mediator effect between neuroticism and career decision state	Partially in scope only comes to meet criteria	
Rottinghaus, P., Jenkins, M., Janz, A.; [2009]	Relation of depression and affectivity to career indecision status and self-efficacy in college students	382 University students	Career indecision	Symptoms of depression and negative affect [Affect scale and CES-D used]	n/a	Measured self-efficacy	n/a	One of first studies to explore career decision making and depression / specific reference made to symptoms of depression that are relevant to vocational career decision making behaviour and process. Depression and career decision making & discussed, along with depression and the relationship to self-efficacy. Affect & also explored in terms of career decision making. It is also noted that the CES-D scale is not commonly used in vocational research.	Students that had made a career decision were identified as significantly less depressed than those that had not yet decided. The research refers to the need for greater attention to negative affective the impact that this has on self-efficacy perceptions. The need for closer work on personal counselling and career counselling for students & discussed. Limited in only measured correlation.	Partially in scope but average group; however content is highly relevant
Sampon, J., Peterson, G.W., Leung, J., Resnick, R., Saunders, D.E. [1998]	The Design and Use of a Measure of Dysfunctional Career Thoughts Among Adults, College Students, and High School Students: The Career Thoughts Inventory	Review of CTI [Career Thoughts Inventory]	Career thoughts	negative emotion/affect	negative thinking	n/a	n/a	Review of the CTI in relation to dysfunctional career thinking; cognitive therapy models as they relate to the CTI are discussed.	Suggested dysfunctional thinking compromises career problem solving and decision making. Effective cognitive restructuring strategies to address dysfunctional career thinking.	Not in Scope
Saunders, D.E., Peterson, G.W., Sampon, J.P., Resnick, R.C. [2000]	Relation of Depression and Dysfunctional Career Thinking to Career Indecision	217 Undergrad Psychology students at Uni - 74% women; Mean age 18.5 yrs	Career indecision state assessed	Depression or Symptoms of depression [BDI-II]	Dysfunctional career thinking [CTI]	Vocational focus of control	n/a	Female skew/ university undergrad students at large; lower acknowledges the complexity of career indecision; need further research on CBT/ Cognitive restructuring Assess relationship between depression, negative or dysfunctional career thoughts, vocational ID, CI, and locus of control; data analysis on various questionnaires. Depression and dysfunctional career thinking measured as components of a career indecision state	Depression significantly associated with CI but no clear independent variation; negative career thinking increases decision making confusion and CI; suggests that counselling to be aware of the impact of negative affect, CI and depression; Suggests that depression can lead to career indecision and v.v.	In scope - Mostly average Scoping review question
Smith, H.M.; Betz, N.E. [2002]	An examination of efficacy and esteem pathways to depression in young adulthood	405 College students in course in career dev for credit; 276 female; 129 male; Mean age = 18.2 yrs	CDS - measure of career decision making status and state	BDI - II measure of depressive symptoms	n/a	Measure of self-efficacy and global self-esteem	Sense of personal control	Strong quantitative design with correlative results; Intro Uni Psych classes / voluntary participation and credited for participation. Randomly divided into calibration (n=283) and validation (n=117) sample groups. 6 scales used. 2 models tested to assess efficacy pathways to depression.	Career indecision and self-efficacy directly related to depressive symptoms ALSO career decision self-efficacy related to career indecision AND esteem / efficacy highly correlated to depression	In scope - college going but mean age relevant
Ues-Mik, O., Pelis-Suster, J.J., Demirtas-Zo'rat, S., Kiliog, S. [2020]	Career decision-making self-efficacy of young adolescent students in Turkey.	383 Junior High School students - 47.2% female / 50.2% male; Mean age = 13.21 yrs	Career indecision as it relates to self-efficacy	CVMSIS	n/a	n/a	n/a	Noted that there is very little research on adolescents. This group young and pre "streaming" in Turkey which impacts later career choice. Negative thinking is linked to lower career decision making self-efficacy AND negative career thoughts linked to indecision; Concern on uncertainty in future/ instability in work, comments that research in a relatively new career exploration limited; suggests that personal motivation counselling help reduce anxiety / dysfunctional career emotions and thoughts	Correlation between dysfunctional thinking and lower career self-efficacy AND career self-efficacy higher than male	Not in scope - research supports dysfunctional thinking related to career indecision but sample too young
Vignoli, E. [2015]	Career indecision and career exploration among older French adolescents: The specific role of general health anxiety and future school and career anxiety	242 French High School students 49.17% girls/ mean age = 15.17 yrs	Career indecision and career exploration	Anxiety	n/a	n/a	n/a	Research in anxiety and career spaces	Research in anxiety and career spaces	Research in anxiety and career spaces
Waller, J., Peterson, G. [2012]	Career Thoughts, Indecision, and Depression: Implications for Mental Health Assessment in Career Counseling	176 College students in course in career development; Mean age = 20.5 / 42.4% female	Career decision difficulties and exploration	Mental Health issues and depression measured using BDI - II	Negative career thoughts and measure of rumination on CTI	n/a	n/a	Very few measures and studies target negative thoughts; good study in subject matter; but less robust in terms of scope; relationship between career thoughts and depression not well understood/ male and female expressed differently; state not enrolled in credit based career dev course	Positive and significant correlation between career indecision and anxiety	Subject matter in scope; sample and review question not fully met
Wright, L.R., Resnick, R.C., Peterson, G.W., Osborn, D.S. [2000]	The Relationship Among Constructs in the Career Thoughts Inventory and the Self-Directed Search	814 Uni students; 75% female; mean age = 21 yrs [range 18-44]	Career decision making and exploration	n/a	Dysfunctional career thinking	n/a	n/a	Study measures construct on CTI [Career Thoughts Inventory] Specifically assessing the CTI against RIASEC theory.	Dysfunctional thinking plays an important role in Career Decision making	Not in scope

Appendix D: Sense of Control Scale

Sense of Control (Link below)

This survey accompanies a measure in the SPARQTools.org [Measuring Mobility toolkit](#), which provides practitioners curated instruments for assessing mobility from poverty and tools for selecting the most appropriate measures for their programs.

Age: Adult

Duration: < 3 minutes

Reading Level: < 6th grade

Number of items: 12

Answer Format: 1 = strongly agree; 2 = somewhat agree; 3 = a little agree; 4 = neither agree or disagree; 5 = a little disagree; 6 = somewhat disagree; 7 = strongly disagree.

Scoring:

The Personal Mastery subscale items are Q1, Q2, Q3, and Q4. The Perceived Constraints subscale items are Q5, Q6, Q7, Q8, Q9, Q10, Q11, and Q12.

All items should be reverse-scored. Reverse-scored items are worded in the opposite direction of what the scale is measuring. The formula for reverse-scoring an item is:

$$((\text{Number of scale points}) + 1) - (\text{Respondent's answer})$$

For example, Q1 is a 7-point scale. If a respondent answered 2 on Q1, you would re-code their answer as: $(7 + 1) - 2 = 6$.

In other words, you would enter a 6 for this respondents' answer to Q1.

To calculate subscale scores for each participant, take the average by adding respondents' answers to each subscale's items and dividing this sum by the number of items in the subscale: 4 for the Personal Mastery subscale or 8 for the Perceived Constraints subscale.

Sources:

Lachman, M. E., & Weaver, S. L. (1998). The sense of control as a moderator of social class differences in health and well-being. *Journal of Personality and Social Psychology*, 74(3), 763-773.

Appendix E: New General Self-Efficacy Scale

New General Self-Efficacy Scale

This survey accompanies a measure in the SPARQTools.org [Measuring Mobility toolkit](#), which provides practitioners curated instruments for assessing mobility from poverty and tools for selecting the most appropriate measures for their programs.

Age: Adult

Duration: < 3 minutes

Reading Level: 6th-8th grade

Number of items: 8

Answer Format: 1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree.

Scoring:

To calculate the total score for each participant, take the average rating of the items by adding respondents' answers to each item and dividing this sum by the total number of items (8).

Sources:

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational research methods*, 4(1), 62-83.