Academic resilience: A systematic review of protective factors for undergraduate students in higher education

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Dissertation submitted in fulfilment of the requirements for the degree Master of Arts in Positive Psychology at the Potchefstroom Campus of the North-West University

Supervisor: Mrs K Smit
Co-Supervisor: Prof M Wissing

November 2016
Acknowledgements

This master’s dissertation has been an incredible journey of growth, commitment and the drawing on hidden strengths. It has been a journey of self-discovery and immense learning. This journey would not have reached this blossoming stage had it not been for the people who have shared this journey with me. I would like to acknowledge several people for their contribution to completing this chapter in my life.

To the one that deserves praise and gratitude, our Beloved Creator. May you be praised in thankfulness and may there be gratitude in abundance. From You I received blessings, guidance and strength. “Remember me and I will remember you”

Gratitude and appreciation to my supervisor, Mrs Karlien Smit - your expert guidance coupled with encouragement and inspiration inspired me to grow and persist. You entered a foreign research area and provided indispensable guidance in the methodology even under highly challenging circumstances. I have grown immensely as a scholar and a researcher based on the example that you provided.

I would also like to acknowledge the guidance of Prof Marié P. Wissing - your constructive feedback, wealth of knowledge in the field of positive psychology and words of wisdom strengthened my research and writing skills. You have put the positive in Positive Psychology. Thank you for teaching us that we all have hidden talents yet to be discovered. Thank you for being our anchor and teacher.

I would also like to thank the scientific committee panel for their valuable insights and expertise; your contributions strengthened the outcome of this study.

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just as a researcher but as a person. Thank you for being the candle that lit my way and for reminding me of the value of education and perseverance.

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I dedicate this dissertation to my husband, I am grateful for your presence in my life. I would never have completed this dissertation without your support.

I love you more
Research outline and preface

This dissertation is submitted in article format as indicated in the 2016 General Academic Rules (A4.1.1.4 and A4.4.2.9) of the North-West University.

This dissertation is submitted in partial fulfilment of the requirements for the Master of Arts degree in Positive Psychology.

The body of the dissertation consists of the following:

Chapter 1: Background and orientation

Chapter 1 reflects on the development of the research proposal and additional documentation as required by the necessary committees to obtain approval to conduct this research project. Chapter 1 also provides background to and the rationale of the manuscript that will be presented in article format in Chapter 2 and serves as proof that an in-depth preparation for the study has been conducted according to scientific requirements and applicable rigorous methodologies. It also demonstrates that ethical aspects have been taken into consideration and have been satisfactorily considered.

Chapter 2: Manuscript in article format

Academic resilience: A systematic review of protective factors for undergraduate students in higher education

Chapter 2 presents a systematic review of the protective factors for undergraduate students in higher education. This manuscript will follow the article style of the Journal of College Student Development to which it will be submitted. Referencing for the article was done according to the requirements of the guidelines of the Publication Manual (6th edition) of the American Psychological Association.

Table 1 and Table 2 have been condensed for easy reading. A comprehensive table is provided in Appendix A and Appendix B.
Chapter 3: Conclusion, limitations, future recommendations, policy brief and reflection

In chapter three, conclusions will be drawn; limitations and future recommendations will be shared regarding protective factors for undergraduate students in higher education. A policy brief has been developed for distribution to the Department of Higher Education (DoHE) to inform them on the importance of fostering protective factors in undergraduate students in order to move towards academic resilience. The researcher will lastly reflect on the entire research process.
Authors contributions, letter of permission, and declaration

This research study involved the expertise and effort of three researchers from the Africa Unit for Transdisciplinary Health Research (AUTHeR) on the Potchefstroom Campus of the North-West University. The contributions of each researcher are as follows:

Mrs T. Hassim  
Student enrolled for the degree Master of Arts in Positive Psychology. The student was responsible for the research proposal, primary researcher for the nine-step rigorous systematic review process and writing up of chapters two and three.

Mrs K. Smit  
Mrs Smit served as the supervisor, secondary researcher for the systematic review as well as a critical reviewer of the research process and methodology.

Prof M.P. Wissing  
Prof Wissing acted as the co-supervisor, critical researcher and expert in the field of Positive Psychology as well as the third reviewer for the systematic review.

The following is a declaration by the co-authors as well as the author to approve their role in the research study as well as to give their approval that this manuscript be accepted and that it fulfils the requirements of the degree Master of Arts in Positive Psychology. The authors hereby give permission for the submission of the manuscript entitled Academic Resilience: A systematic review of protective factors for undergraduate students in higher education for purposes of a master’s degree dissertation.
Declaration by co-authors

I hereby declare that this dissertation submitted by the student, Tasleem Hassim, is in compliance with the requirements of the degree Master of Arts in Positive Psychology at the North-West University, Potchefstroom Campus. I hereby grant permission that Tasleem Hassim submit this manuscript for purposes of a master’s degree in Positive Psychology.

______________________________  ______________________________
Mrs K. Smit                    Prof M.P. Wissing

Declaration by author

I, Tasleem Hassim, hereby declare that this dissertation entitled Academic Resilience: A systematic review of protective factors for undergraduate students in higher education is my own work. All sources used or quoted that have been used in its preparation have been rightfully acknowledged. I also certify that this dissertation has not been previously submitted for any kind of assessment at any other faculty/entity/university.

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Summary

Resilience is a multi-dimensional construct and has received increasing research attention in the past few years. Recently, resilience has been explored in an education setting, and is thus now referred to as academic resilience. Academic resilience as a construct is a dynamic developmental construct that can be defined as an energy and drive to learn, the ability to work effectively, and achieve academically in spite of stressors and risk factors. A need has been identified for such research as through-put and retention rates are a major concern for higher education. Higher education institutions face challenges with regard to increased student dropout rates, posing serious economic implications. Therefore, it is imperative to improve academic success by fostering academic resilience. Students are faced with numerous stressors and challenges towards achieving their academic goals. Students are also exposed to risk factors such as lack of family support, financial challenges and academic stress as well as vulnerability variables including gender and culture. If we can invest in our students and teach them how to use their protective factors they can develop academic resilience and become successful in life and work.

The aim of this systematic review was to explore and identify the protective factors associated with academic resilience in undergraduate students at a higher education institution. A nine-step rigorous methodology was followed by two independent researchers according to a pre-developed review proposal. Preliminary scoping searches were done in order to develop the search strategy. Seventeen search terms including four main concepts (academic resilience, protective factors, undergraduate students, and higher education) were used as a basis for the search strategy. Boolean operators and search limiters was used to narrow the scope of the review. Two researchers independently worked through titles and abstracts, testing them against the inclusion and exclusion criteria. Eligible primary articles were critically appraised by standardized tools and data was extracted into a pre-specified data extraction form. Ten
electronic articles were included, ranging in quality, and addressed most of the primary and secondary outcomes. Articles included students from a range of minority groups studying in various fields across the USA, Ghana, Turkey and Australia.

Kumpfer’s (1999) resiliency model formed part of the backdrop for this study. Kumpfer’s (1999) model identifies four factors and two transactional processes which includes risk factors, protective factors, internal resiliency factors (internal strengths), and adaptation (compensatory mechanisms). The review provides evidence that external and internal protective factors serve to buffer against stressors and risk factors experienced by students. Family, peer and academic support emerged as a major external protective factor promoting academic resilience in students. In addition, various internal strengths such as intrinsic motivation, self-reliance, self-efficacy, high self-esteem, independence and autonomy, dedication and commitment, mental toughness, and a strong future orientation were found, that contributed to students’ internal protective factors. Researchers have long indicated the presence of strengths in overall well-being and this study emphasizes the importance of strengths in academic resilience. Protective factors play a role in the relationship between stressors and resiliency outcomes. Furthermore, risk factors and vulnerability areas may influence this relationship.

The results from this study both confirm and contradict previous research on academic resilience which indicates that extensive research on protective factors relating to academic resilience needs further attention. Research identified were specifically conducted amongst minority groups, however, stressors are experienced by the broader society. It is therefore of importance to explore the association between protective factors and academic resilience on the general undergraduate student population. Culture and gender were also highlighted in this study as themes needing further exploration. Motivation and self-esteem surfaced as important internal factors, triggered by risk factors that students experienced. Higher education institutions need to find ways to enhance students’ internal protective factors to promote academic resilience.
Parents should also be made aware of the impact they have on student resiliency outcomes. In order to enhance academic resilience in students, we need to enhance the protective factors in view of the fact that resilience is a continuous cycle.

*Keywords: Academic resilience, protective factors, undergraduate students, higher education, risks, strength, compensatory mechanisms*

656 words
Chapter 1: Background and orientation

As indicated in the research outline and preface this dissertation is written in article format in accordance with the 2016 General Academic Rules (A4.1.1.4 and A4.4.2.9) of the North-West University. Within this section the researcher reflects on the first phase of the research process providing background to the manuscript that will be presented in article format in Chapter 2.

The aim of this research study was to explore and identify, through a systematic literature review, the protective factors associated with academic resilience among undergraduate students in a higher education institution. A nine-step process was followed comprising an in-depth systematic literature review to fit the requirements of the rigorous methodology.

The research proposal was developed by the researcher in collaboration with the supervisor and co-supervisor and reviewed by several experts in the field of Positive Psychology. The proposal was then submitted to AUTHeR (Africa Unit for Transdisciplinary Health Research) scientific committee and the HREC (Health Research Ethics Committee) of the Faculty of Health Sciences of the North-West University, Potchefstroom Campus for approval.

Please note that there will be an overlap between documents presented in chapter one and chapter two due to the fact that these chapters describe the same research process in different stages. The manuscript presented in article format in chapter two serves as the final research report.
1.1 Approved protocol for this study

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| Date of approval by above mentioned panel | 09/03/2016 |
Title: Academic resilience: A systematic review of protective factors for undergraduate students in higher education

Keywords: academic resilience, risk factors, protective factors, internal strengths, undergraduate, students, higher education

Previously, completing Grade 12 was an ultimate achievement for many, but only a few people had the opportunity to obtain higher education due to various challenges (Vincent & Idahosa, 2014). Despite these challenges, completing further education enhances the opportunity to greater possibilities to ensure welfare and to find meaning in work (Parinyaphol & Chongruksa, 2008). Even though the achievement of graduating is highly praised, students still face potential challenges when enrolled in a higher education institution such as family problems, loneliness, financial strain and academic struggles (Bidwell, 2013). Julie Hare (2015) from The Australian reported that the national average dropout rate for first-year students reached 14.84% in 2013, the highest since 2005. In an attempt to deal with these ‘dropout’ figures, the universities have placed extra emphasis on student success by introducing optional “enabling programmes”, which consequently contributed to an increase of almost 20% in student enrolment at public Australian universities between 2011 and 2014. These “enabling programmes”, however, are shorter programmes (usually six months), which are not-for-degree academic programmes designed specifically to prepare students for university studies (Pitman, Koshy, & Phillimore, 2015). In South Africa, André Van Zyl, director of Academic Support Services at the University of Johannesburg, reported from recent research that at national level 41% of students who entered a tertiary institution either dropped out, experienced academic problems, experienced difficulties finding suitable accommodation, experienced financial challenges or needed food (Areff, 2015). Despite these and other challenges there are students who complete their studies within the required time frame and continue their studies at a post-graduate level. Still, very little is known about what the protective factors are which enable these
students to succeed. When people are able to deal with an identifiable obstacle it is referred to as resilience (Allan, McKenna, & Dominey, 2013) and in this study it will be referred to as academic resilience.

**Academic Resilience**

The concept of resilience has received increased research attention in the past three decades (Goldstein & Brooks, 2013), with findings published in a number of disciplines, including child development (Crittenden, 1985), pediatrics (Bauman, Silver, & Stein, 2006; Braveman, & Barclay, 2009), psychology (Jackson, Firtko, & Edenborough, 2007; Bonanno, 2005; Jacelon, 1997) and education (Theron & Theron, 2010). More recently, research has examined resilience in the university environment (Hartley, 2011; 2012; Leary & DeRosier, 2012).

According to Morales and Trotman (2004), academic resilience can be defined as “the process and results that are part of the life story of an individual who has been academically successful, despite obstacles that prevent the majority of others with the same background from succeeding”. Academic resilience, unlike psychosocial resilience, is not defined by how well-adjusted or emotionally healthy an individual might be. Rather, academic resilience is defined solely by exceptional academic achievement in the face of adversity. Kuldas, Hashim, and Ismail (2014) further define academic resilience as a satisfactory performance in cognitive or academic tasks in spite of their disadvantaged backgrounds.

It is particularly important to be resilient in an academic environment, which is characterized by growing academic pressure, decreased provision of academic support, potential social isolation, and long-term financial debt (Hartley, 2012). How well students adjust to the educational environment depends on the protective and risk factors that operate in the students’ circumstances. Those who benefit from strong protective factors tend to be more resilient, experience fewer adjustment issues, and cope better with challenges (Kwek et al., 2014). Resilient students sustain high levels of achievement motivation and performance despite the
presence of stressful events and conditions that place them at risk of performing poorly at university. Resilience is a positive outcome once an individual uses the external and internal protective factors over the risk factors that exist within the context.

**Protective factors**

Resilience in itself cannot be seen only as a global construct and phenomenon. It should be considered taking into account the various components and dynamics at play such as risk and protective factors as well as processes and behaviours involved. Academic resilience is considered to be a dynamic developmental process that involves protective qualities and processes within individual students’ (internal protective factors) and within their environment (external protective factors) impacting their functioning and contributing to their adjustment and academic success when at risk (Luthar, Cicchetti, & Becker, 2000). Internal factors include protective factors, but are not limited to strengths and skills such as confidence, positive self-concept or identity, a sense of belonging, independence, an internal locus of control, self-regulatory behaviours, goal orientation, and creativity (Feinsein, Driving-Hawk, & Bartman, 2009; Richard, 2012; Ungar et al., 2007). Protective external factors that promote or foster resilience include, positive adult-child relationships (e.g. mentors, family, teachers), academic support programmes (e.g., tutoring), extra-curricular activities, culture, faith or spirituality, access to material resources such as social institutions and finances as well as community and social policies that collaborate to promote resilience (Feinstein et al., 2009; Richard, 2012; Ungar et al., 2007).

Psychological distress among students is steadily increasing and it is the result of stressors such as changes in sleeping and eating patterns, increased workload, changes in social activities, new responsibilities, technology problems, etcetera which serve as risk factors (Steinhardt & Dobier, 2007, Leary & Derosier, 2012). Stress is a major issue for students as they are confronted with a variety of academic, social and personal challenges. When stress is perceived negatively or becomes excessive, it can affect both health and academic performance.
Issues such as stress (including socioeconomic stress), peer pressure (Modipane, 2011; Steyn, 2006; Lin & Huang, 2013), the effects of media, social and family issues (Jowkar, Kohoulat, & Zakeri, 2011) may set a student a few steps back.

Socio-economic stress has long been found to place youth at risk, with low family income conferring disadvantages in academic achievement and success (Kiang, Andrews, Stein, Supple, & Gonzalez, 2013). Literature has indicated that stress is a significant predictor of psychological illness in college students and can manifest as anxiety and depressive symptoms (Amutio & Smith, 2007; Morrison & O’Conner, 2005). Not dealing with these stressors effectively can lead to depression, anxiety and increased risk of dropping out (McCarthy, Fouladi, Juncker & Matheny, 2006). While risk factors clearly exist, protective factors, both external and internal factors, can mitigate the negative effects of risk factors.

Extensive research has been done at schools to identify risk and protective factors associated with resilience. Literature demonstrate that family background, individual attributes, school experiences and peer group (Toland & Carrigan, 2011) summed up the protective factors of high school learners. Coleman (2014) identified five key protective factors that foster resilience, viz. supportive relationships, particularly encouragement from school personnel and other adults, student characteristics, such as self-esteem, motivation and accepting, family factors such as parental support/concern and school improvement, community factors such as community youth programmes, and factors such as academic success and pro-social skills training. Bornman and Overman (2004), in their study on academic resilience, indicated that the most important protective factors (individual characteristics) associated with academic resilience are self-efficacy, self-esteem, student engagement and attitude towards school. A large amount of research in high schools has demonstrated that resilience allows one to gain positive outcomes in academic performance and psychosocial processes (Luthar, 2006). Furthermore, extant research highlights the fact that resilient students tend to have high self-esteem (internal protective factor) (Miller & Daniel, 2007). Due to the wealth of research done on resilience in
schools, schools have implemented resiliency programmes to encourage learners to increase their academic outcomes. However, articles on academic resilience at a higher education level are limited in the South African context, and a need for more information exists to facilitate future interventions.

The first step would be to conduct a systematic review by using a quality-focused approach in order to provide accurate and consolidated information regarding protective factors and to make the available evidence more accessible to decision-makers. Focusing on academic resilience in students may provide insight to professionals and counsellors teaching at higher education institutions to assist in promoting the readiness of students entering these institutions and to facilitate academic resilience in those already enrolled at higher education institutions.

**Resilience theory**

Models and theories have evolved over the years which bring us too many different models explaining resilience. There have been a number of contributions to our understanding of resilience on the whole. Firstly, resilience can be conceptualized as a personal or group capacity that has been developed and achieved (Yeager & Dweck, 2012). Secondly, resilience can be represented as a dynamic process, affected by resources, adversity and the capacity of individuals (Worsley, 2014). Masten (2014) states that resilience is most appropriately conceptualized as a developmental process or a dynamic capacity rather than a static outcome or trait. Thirdly, it can be seen as an individual’s response to adversity as a practice and strengthening the effect in building resilience. From this we can see that resilience is not a fixed state but rather a process which is changeable, dynamic and influenced by competing environmental or external influences.

Earlier models explaining resilience within the child development field aimed to identify specific factors associated with resilient functioning at times of stress or adversity. With time, and the insight that external factors mediated many coping responses, the models began to explore interactive processes between personal attributes, stress, and associated external
variables (Maginnes, 2007). More complex transactional and developmental pathway models were developed, and these were followed by more detailed research designs (Kumpfer, 1999; Windle, 1999). Models by Richardson (2002) and Kumpfer (1999) clearly form the theoretical foundation of this study.

The resiliency model by Richardson (2002) explains that individuals are at a stage of ‘biopsychospiritual homeostasis’, when the individual is at a comfortable phase of his/her life; it could also mean that the individual is going through life in a normal uninterrupted manner (Greene, 2010). In a higher education setting, this stage implies that the student is going through a normal life, where he/she can identify with his/her peers, the student feels comfortable and encouraged. Richardson (2002) further explains that biopsychospiritual homeostasis is a point in time when one has adapted physically, mentally and spiritually to a set of circumstances whether good or bad. While in a phase of biopsychospiritual homeostasis, a disruption can occur. This disruption could be a stressor, a life event or a challenge (Greene, 2010). After the disruption, Richardson’s (2002) model indicates four options to form reintegration; dysfunctional reintegration, reintegration with loss, reintegration back to bio-psycho-spiritual homeostasis, or resilient reintegration. When a disruption occurs, such as failing an examination, peer pressure, family matters, relationship problems and academic stress, the student faces four options according to Richardson (2002). To be able to achieve resilient reintegration, individual resilient qualities as well as protective factors will play a role (Greene, 2010).

Kumpfer’s (1999) resilience model (see Figure 1) identified four domains or components and two transactional processes making up six predictive steps of possible resilient outcomes. In this model, Kumpfer explains that the first important domain is a stressor or the challenge. This stressor or challenge is an incoming stimulus that might cause distress in a student’s life, the degree of stress depends on a student’s perception, cognitive abilities and interpretation of the stressor followed by the environmental context which is the interaction of salient risk and protective factors in the students environment such as community, family, society, the person in
environment transactional process, which is the interaction between the student and his environment and how h/she perceives it to be. The internal resiliency factors are the strengths the students have to have to be able to cope and deal with challenges they are faced with, followed by resilient processes. These resilient processes include long-term and short-term resilient processes learned by the individual through gradual exposure to challenges and stress and lastly the positive outcomes. Based on this theory, a student studying at a higher education institution might experience academic stress and the environmental context might be hindering or conducive. They might possess internal strengths and processes to perform despite the risk factors experienced which will allow them in the end to achieve their goals (Kumpfer, 1999).
The present study

With regard to academic resilience research, literature places emphasis on articles in high school and there is still a gap in knowledge applicable to academic resilience in a higher education institution. The present study will contribute towards filling this gap by conducting a systematic review to determine what protective factors are associated with academic resilience among undergraduate students in a higher education institution. For this study, Kumpfer’s resilience model will be used as background for this study.

Review question

What are the protective factors associated with academic resilience among undergraduate students in a higher education institution?

Aim

The aim of this study is to explore and identify, through a systematic review, the protective factors associated with academic resilience among undergraduate students in a higher education institution.
Objectives

The specific objectives for this systematic review are to identify:

- Protective factors associated with academic resilience of undergraduate students in a higher education institution;
- Internal strengths associated with academic resilience of undergraduate students in a higher education institution;
- Compensatory mechanisms that undergraduate students in higher education institutions use to cope with stress and reduce risks in order to achieve academic resilience.

Conceptual definitions

Key terms that will be used in this study are as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic resilience</td>
<td>Academic resilience is a dynamic developmental process that involves the protective qualities associated with individual students (internal protective factors) and their environments (external protective factors) that contribute to the adjustment and academic success of at risk students (Luthar et al., 2000).</td>
</tr>
<tr>
<td>Protective factors</td>
<td>Protective factors are concerned with the quality of a person, context or their interaction that predicts better outcomes, specifically in situations of risk (Rojas, 2015). The presence and application of protective factors may increase the chance of positive development when students are faced with stressful life challenges.</td>
</tr>
<tr>
<td>Higher education</td>
<td>Higher education mainly and generally means university level education. Higher Education (HE) primarily describes post-learning that takes place at universities, as well as other colleges and institutions that award academic degrees.</td>
</tr>
</tbody>
</table>
professional qualifications and Continuing Professional Development (CPD) modules. While higher education is the common name in most countries, it is also known as post-secondary, tertiary and third-level education (Walsh, 2012).

Strengths: Strengths refer to the specific competencies and characteristics of the individual that are important for their overall development and well-being (Brownlee et al., 2013). For the purposes of this study, the researcher will define individual strengths as the individual’s capacity to produce positive growth and discover their inherent potential to create positive outcomes in general.

Stress: Stress is a physical, mental, or emotional factor that causes bodily or mental tension, leading to discomfort (Stoppler, 2016).

Risk: The term risk is often used to describe the conditions or agents that are associated with an increased probability of outcomes that endanger the health of an individual or their quality of life (Jessor, 1991).

Compensatory mechanisms: Compensatory strategies are protective factors in action, specific actions that alleviate or even defeat risk factors and vulnerability areas (Morales, 2014).

**Rationale for the study**

It is estimated that over two million articles are published in more than 20 000 journals each year (Kings College London, 2014). Researchers cannot keep up with all these publications and therefore systematic reviews provide a summary of best available evidence and come to conclusions that are based on quality. A systematic review is a literature review that is designed
to locate, appraise and synthesize the best available evidence relating to a specific research question to provide informative and evidence-based answers (Boland, Cherry, & Dickson, 2014). When appropriate, combining the results of several articles provides a more reliable and precise estimate of an intervention’s effectiveness than one study alone (Garg, Hackam, & Tonelli, 2008). The researcher has chosen this specific method for study as it serves as an efficient scientific technique to identify all protective factors associated with academic resilience and to make conclusions thereof. This will enable higher education management to assist students and to successfully increase graduation rates.

**Study design and method**

The researchers will conduct a systematic review and will embark upon this research with a deductive approach. Botma, Greeff, Mulaudzi, and Wright (2014) explain that following a deductive approach entails that the researcher embarks upon research with a clear conceptual framework in mind; this may be a model, a theory or a typology. The researchers have identified the Kumpfer (1999) model that will form the basis as a reference for interpreting the results and discussion of this study.

A systematic review aims to identify, evaluate and summarize the findings of all relevant individual articles; thereby making the available evidence more accessible to decision makers. A systematic review adheres to a strict scientific design based on explicit, pre-specified and reproducible methods (Siriwardhana, Ali, Roberts, & Stewart, 2014). This systematic review process is generally done by at least two reviewers to establish inter-rater reliability (Uman, 2011). The second reviewer’s role is to guide the student in the method as well as making sure of the students search strategy. This systematic review will be done according to the following nine steps as described by Boland et al., (2014) and Uman (2011) which will be followed rigorously to ensure quality:
Step 1: Consideration of the different types of available information

The first stage involves a broad search of information that is currently available. There are several sources of information which can be searched. Databases and research registers will be searched electronically, while reference lists require manual searches which are called hand searching (Boland et al., 2014). During this step the researchers will formulate the review question and develop a review title (Uman, 2011). An explicitly stated review question is a characteristic of systematic reviews that can be adopted for reviews of theory. The question should be designed following a consideration of what the end users will find useful (Petticrew & Roberts, 2005). The proposed title for the research study is: Academic resilience: A systematic review of protective factors for undergraduate students in higher education. The proposed review question is: What are the protective factors associated with academic resilience amongst undergraduate students in a higher education institution?

Step 2: Literature search

The aim of this step is to identify literature which addresses the review question (Boland et al., 2014). The final searches for eligible articles to include in this review will be done after the systematic review proposal has been approved and ethical clearance obtained from the Health Research Ethics Committee (HREC) of the Faculty of Health Sciences (FHS) of the North-West University (NWU).

Step 3: Defining of the inclusion and exclusion criteria

Uman (2011) explains that the Cochrane acronym PICO (population, intervention, comparison, outcomes) or PICOC (population, intervention, comparison, outcomes and context) can be useful to ensure that one decides on all key components prior to starting the review. In addition to the PICO and PICOC, other frameworks such as PICOT (population, intervention, comparison, outcome and timeframe), introduced by Fineout-Overholt and Johnson (2005), ECLIPSE (expectation, client group, impact, professionals and service), SPICE (setting, perspective, intervention, comparison and evaluation) developed by Booth (2004), and SPIDER
(sample, phenomenon of interest, design, evaluation, research type), also exist (Davies, 2011). A variation similar to PICOT is PICOTT. In this instance, T does not relate to timeframe. The Ts refer to the type of question and the best type of study design to answer that particular question (Schardt, Adams, Owens, Keitz, & Fontelo, 2007). Specifically developed for building and adapting oncology guidelines is PIPOH (population, intervention, professionals, outcome and health care) (ADAPTE Collaboration, 2009). The second P refers to professionals (at whom the guideline will be targeted) and H stands for health care setting and context. Dawes et al. (2007) developed PECODR (population, exposure, comparison, outcome, duration and results) and undertook a pilot study to determine whether this structure existed in medical journal abstracts. Schlosser and O'Neil-Pirozzi (2006) proposed the PESICO (population, environment, stakeholders, intervention, comparison and outcome) which is applied to the field of fluency disorders and speech language pathology. For the purposes of this review, the researchers will make use of the SPICE acronym in order to define the inclusion and exclusion criteria, due to the positive psychology field being extremely wide and not as well defined as the medical field, the reviewers are not aiming to look for a specific design:
Table 1.

Criteria for considering articles for this review

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (Setting)</td>
<td>What is the context for the question?</td>
<td>This study will be done within a higher education setting.</td>
</tr>
<tr>
<td>P (Participants)</td>
<td>Who are the users, potential participants, or stakeholders of the service?</td>
<td>The participants included in this study will be undergraduate students enrolled at a higher education institution.</td>
</tr>
<tr>
<td>I (Intervention / phenomena)</td>
<td>What is being done for the participants, potential participants, or stakeholders?</td>
<td>Articles included in this review will include articles related to the phenomena: academic resilience</td>
</tr>
<tr>
<td>C (Comparison)</td>
<td>What are the alternatives?</td>
<td>-</td>
</tr>
<tr>
<td>E (Evaluation)</td>
<td>What measurement will determine the intervention’s success? In other words, what is the result?</td>
<td>The objectives of this study are to explore and identify:</td>
</tr>
</tbody>
</table>

- the protective factors associated with academic resilience
- the internal strengths associated with academic resilience
- the compensatory mechanisms for coping with stress and reduce risks associated with academic resilience

*Note.* - indicates not applicable
**Types of articles to be included.** The types of articles that will be analysed for the purposes of this review will include studies done at a Higher Education institution. Martin E. P. Seligman, in his 1998 APA Presidential Address, is said to have announced Positive Psychology to the American Psychological Association (Froh, 2004). Conceptions of Positive Psychology therefore emerged in 1998; for the purposes of this systematic literature review, studies will only be included if they were published between 1 January 1998 to 30 April 2016. All articles will be included and will not be limited to a specific design and will include a strong emphasis on resilience within positive psychology with a strong focus on protective factors.

**Types of participants to be included.** Participants for the selection of the articles will include all students who are enrolled for undergraduate studies at a specific higher education institution/tertiary institution/university/college.

**Primary outcomes measures to be included.** The primary outcomes for this review would be:

- Identifying protective factors associated with academic resilience for students studying in a higher education context.

**Secondary outcomes measures to be included.** The secondary outcomes for this review would be:

- Identifying internal strengths associated with academic resilience for undergraduate students studying at a higher education institution;
- Identifying compensatory mechanisms undergraduate students use to cope with stress and reduce risks in order to achieve academic resilience studying at a higher education context
Therefore the inclusion and exclusion criteria are as follows:

**Inclusion criteria**

- All articles exploring academic resilience
- Articles that investigate protective factors in relation to academic resilience
- Articles that investigate internal strengths in relation to academic resilience
- Articles that investigate risks in relation to academic resilience
- Articles that investigate compensatory mechanisms in relation to academic resilience
- Articles that include students enrolled for undergraduate studies at a higher education institution/university/college/tertiary institution.
- Articles published between 1 January 1998 and 31 April 2016.

**Exclusion criteria**

- Articles that include post-graduate students as the demand of post-graduate studies is different to the demands of undergraduate studies
- Articles published before 1 January 1998 and after 30 April 2016.

**Step 4: Development of the search strategy and location of relevant studies**

Generally, it is important to come up with a comprehensive list of key terms (i.e., Medical Subject Headings, “MeSH”) related to each component of SPICE to be able to identify all relevant articles for the review (Davies, 2011). Most bibliographical databases enable one to be more precise and use more advanced and complex searches. Boolean operators can be used to limit searches and specify search parameters (Boland et al., 2014).

**Search methods for the identification of studies.** The initial selection criteria will be broad to ensure that as many articles as possible are obtained according to the relevance towards this study.

**Electronic searches.** The researchers will work through the list of databases available in the NWU library and conduct searches of the various databases. The following databases are proposed for inclusion in this systematic review: PsycArticles, Psycinfo, ERIC (Education
Resource Information Centre), CINAHL (Cumulative Index to Nursing and Allied Health Literature), Teacher References Centre and Academic search premier and will be accessed through EBSCOhost. These databases are proposed as their preliminary search results yielded articles significant to the primary research outcome. The preliminary search strategy as developed in PsychArticles is given below:

(“protective factors”) AND (“individual strength+” OR stress* OR risk+ OR cope OR coping) AND (“academic resilience”) AND (undergraduate OR student+ OR learner+ OR scholar+ OR pupil+) AND (“higher education*” OR “tertiary education*” OR “tertiary institution*” OR university+ OR college+)

**Figure 2. Search strategy**

**Searching other resources.** The researchers will work through the reference lists of all eligible articles included in the review in order to obtain relevant articles that might have been missed through the electronic searches. Articles from Cochrane reviews, DARE and the Campbell Collaboration will also be obtained and screened for eligible primary articles.

**Step 5: Selection of eligible resources**

In this step the titles and abstracts of the articles will be screened and identified through the searches. The studies of which the titles and abstracts are not at all relevant to the review question will be discarded and the studies of which the titles and abstracts may be relevant will be obtained in full text (Boland et al., 2014).

**Data collection and analysis.** The PRISMA flow diagram will be adapted (see Figure 3) to illustrate the data-collection process (Moher, Liberati, Tetzlaff & Altman, 2009).
Figure 3. PRISMA flow diagram
Step 6: Extraction of data from eligible studies

In this step, the researchers will apply the inclusion criteria to the full-text articles and exclude ones that don’t fit the criteria (Boland et al., 2014). A simple data extraction form or table to organize the information extracted from each reviewed study will be created and used (Uman, 2011). A data extraction tool is formulated (Botma et al., 2014) as a control mechanism to present data in a similar format to ease analysis and synthesis. During this step, the data extraction and the critical appraisal happens simultaneously.

Data extraction, synthesis and management. The two researchers working independently will extract data by means of the suggested data extraction form that will be used for extracting the data from the included studies. Discrepancies in data collection will be adjudicated by consensus. If consensus cannot be reached, a third party will be approached. Please find the proposed data extraction example the NOTARI and MASTARI data-extraction tool by the The Joanna Briggs Institution (2011) for qualitative methodologies and quantitative studies respectively. These are attached as a separate document to this proposal for purposes of the ethics review (Appendix C and Appendix D).

Dealing with missing data. If missing data exists within the included studies, authors will be contacted; however if the authors do not respond in time, these articles will be excluded from the review.

Step 7: Assessment of the quality of studies through critical appraisal

By this time during the review process, the researchers will have identified the full set of relevant studies for inclusion in the review. The next task would be to examine the quality of each of the included articles. Each included full-text paper will be critically appraised for methodological quality using the Critical Appraisal Skills Programme (CASP) (Appendix E) for qualitative articles and the Effective Public Health Practice Project (EPHPP) (Appendix F) tool for quantitative articles (Khan, Kunz, Kleijnen, & Antes, 2003; CASP, 2006; Brownlee et al., 2013). By means of appraising the studies, the researchers will assess whether the studies have
been designed, conducted and reported in such a way that they can be considered reliable and whether they provide meaningful answers to the review question (Boland, et al., 2014).

**Assessment of risk of bias in included studies.** Cochrane Collaboration’s risk of bias tool (Higgins et al., 2011) will be adapted in order to evaluate the risk of bias (Rajendran, 2001). The risk of bias (high/low/unclear) in included studies will be assessed in duplicate by researchers working independently.

**Step 8: Analysis and interpretation of the results**

According to the data, the researchers propose that a thematic synthesis will be performed whereby themes will be clustered after synthesis against the backdrop of the Kumpfer (1999) model to identify stressors, risk factors, external protective factors and internal protective factors.

**Step 9: Writing up, editing and dissemination of findings**

The last and final stage of a systematic review gives the researchers an opportunity to write up the findings and share it with a wider audience. Boland et al. (2014), explain that when the researchers write up the review they have to be very clear about decisions made as well as how these decisions have impacted on the conclusions stated. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) can be used to improve the reporting and enhance the quality of systematic reviews and consists of a 27-item checklist (Appendix G) and a four-phase flow diagram (Moher et al., 2009).

**Ethical considerations**

This study will not make use of any human participants and there is therefore no risk. The validity and reliability of the data will be ensured through following the rigorous methodology of a systematic review (discussed above) as described by Boland et al. (2014) and Uman (2011). The trustworthiness will be ensured by the expert knowledge of the supervisors and the student. The supervisor was trained internationally in 2013 in evidence based nutrition (ICEN) at the institute of Tropical Medicine, Antwerp, Belgium – training in conducting systematic review of
literature and meta-analysis. The supervisor will train the student on how to conduct a systematic review. To further ensure trustworthiness, this proposal will be submitted to a panel of experts who will share their knowledge of the topic as well as the methodology, further on it will submitted to the scientific committee of AUTHeR (Africa Unit for Trans-disciplinary Health Research) and the HREC (Human research ethics committee) of the FHS (Faculty of Health Sciences) of the NWU (North-West University) for approval.

Although ethical permission for this type of study is not required, the Human Research Ethics Committee will have to be notified when conducting such a review. However, even though this is a no-risk study, there are certain ethical factors that should be taken into consideration. It is the responsibility of the researcher to conduct quality research as well as to follow the nine steps of a systematic review. In addition, the researcher will make sure that the original studies were done ethically during the step of critical appraisal of the ethical aspects of the each study. The researcher will ensure inter-relater reliability by conducting the search strategy together with the supervisor. The researcher will also take care about not committing plagiarism by including the authors in the reference list where applicable. The researcher will also keep a well-documented record of all databases that will be searched as well as inclusion and exclusion criteria.

Publication

The results of this review will be presented in article format and will be submitted to the Journal of College Student Development for possible publication.

Format

The review will be written up in article format in accordance to the North-West University Academic guidelines (Manual for Master’s and Doctoral Studies, October 2015).
Chapter 1: Background and orientation

Chapter 2: Manuscript in article format (Academic resilience: A systematic review of protective factors for undergraduate students in higher education)

Chapter 3: Conclusion, limitations, recommendations, policy brief and reflection.

Appendices

Complete reference list
References


Davies, K. S. (2011). *Evidence Based Library and Information Practice*. Retrieved from: http://creativecommons.org/licenses/by-nc-sa/2.5/ca/


doi:10.5430/ijhe.v3n3p92


1.2 Approved HREC application

Dear Chair and members of the Health Research Ethics Committee (HREC) of the Faculty of Health Sciences of the North-West University (Potchefstroom Campus)

8 June 2016

Amended application for final ethical approval for a systematic review for Tasleem Hassim (20062621)

Please receive this amended application for a systematic review of the above mention student for your consideration for final ethical approval. This systematic review is for a mini-dissertation as part of the Master of Arts in Positive Psychology degree.

Title of mini-dissertation: Academic resilience: A systematic review of protective factors for undergraduate

Supervisor: Mrs. Karlien Smit
Co-supervisor: Prof. Marie Wissing
Student: Mrs. Tasleem Hassim

Amended documents attached to this application:

- Rebuttal letter
- Shortened executive summary of the project
- Amended research proposal.
- Original approval letter from the AUTHeR Scientific Panel.
- Original curriculum vitae of the supervisor (trained on systematic review and meta-analysis methodology and ethics).
- Original proof of training of supervisor as mentioned above
- Original curriculum vitae of the co-supervisor
- Original curriculum vitae of the student (attended ethics training)
- Original proof of training of student as mentioned above

We thank you for reviewing this application.

Yours sincerely

Mrs. K Smit
Supervisor (Lecturer / researcher within AUTHeR)
Executive summary

Title of mini-dissertation: Academic resilience: A systematic review of protective factors for undergraduate students in higher education

Problem statement: Previously, completing high school was an achievement to many, but only a few people had the opportunity to do so. Some learners were unable to complete high school due to various reasons. Students still face potential challenges when enrolled in a higher education institution such as family problems, loneliness, financial strain and academic struggles. However, some students are still able to succeed despite the risk factors, when people are able to deal with an identifiable obstacle it is referred to as resilience and in this study it will be referred to as academic resilience. Academic resilience cannot be seen on its own, two components should be considered when studying resilience, protective factors and risk factors. The aim of this study is to explore and identify through a systematic literature review, the protective factors associated with academic resilience amongst students in a higher education institution.

Aim: The aim of this study is to explore and identify through a systematic literature review, the protective factors associated with academic resilience amongst students in a higher education institution.

Methodology: The researchers will conduct a systematic review will use the Kumpfer (1999) Resiliency model as reference for interpreting the results and discussion for this study.

Expected outcome: There is still a gap in knowledge applicable to academic resilience in a higher education setting. The present study will contribute towards filling this gap by conducting a systematic review of protective factors for academic resilience in undergraduate students in a higher education context.
### Rebuttal letter

<table>
<thead>
<tr>
<th>Comment made by HREC Reviewers</th>
<th>Amendment made to proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment 1: How does increased number of people able to afford education lead to some learners not being able to complete high school?</td>
<td>Sentence removed</td>
</tr>
</tbody>
</table>
| Comment 2: Please clarify the meaning in context of: ‘high school’, ‘higher education’, ‘tertiary education’ | High school replaced with *grade 12*  
Tertiary education replaced with *higher education* |
<p>| Comment 3: Full stop, space | Corrected |
| Comment 5: One sentence? | Corrected |
| Comment 6: New sentence | Corrected |
| Comment 7: depends | Corrected |
| Comment 8: Very long sentence | Corrected |
| Comment 9: student has or students have | Have |
| Comment 10: For systematic review the question is: what is the best available evidence regarding protective factors……. The research question as formulated here, differs from the REVIEW question that is formulated after the main elements have been identified using PICO/SPICE/SPIDER exc. | This was corrected. The research and REVIEW question is: What are the protective factors associated with academic resilience amongst undergraduate students in a higher education institution? |
| Comment 12: format – ‘block’ / justify | Corrected |
| Comment 13: This review not about the effectiveness of an intervention | Sentence removed |
| Comment 14: best available evidence regarding … | Corrected |
| Comment 15: The acronym (PICO, SPICE, and SPIDER) is usually used to refine the review question (in contrast with the research question that may be wider). Each of the components also help to identify the search words and their synonyms. | SPICE was used to determine the specific search words that is linked to the REVIEW question and preliminary searches showed that this search strategy yield the appropriate articles answering the REVIEW question. |
| Comment 16: Motivate choice of SPICE. I think SPIDER will be more appropriate: SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, Research type). Cooke et al. Qualitative Health Research, 22(10) 1435–1443 | Due to the positive psychology field being extremely wide and not yet as well defined as the medical filed, the reviewers are not aiming to look for a specific design and want to specifically include all types of designs. Therefore the researcher will still use SPICE instead of SPIDER. |</p>
<table>
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<th>Amendment made to proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comment 17: Academic resilience is not an intervention.</td>
<td>It is a phenomena under investigation. Please refer to the table in the proposal</td>
</tr>
<tr>
<td>Comment 18: All articles – not only studies?</td>
<td>Corrected to all articles. Throughout the proposal the researchers ensured that the terms studies, articles and literature are now used in the correct context.</td>
</tr>
<tr>
<td>Comment 19: Above you stated ‘articles’ not only ‘studies’ Articles will include opinion papers, editorials, guidelines etc.</td>
<td>This review will include all articles. The following was removed: Peer-reviewed articles are written by experts and are also reviewed by other experts in the field ensuring its quality. Only English articles published in peer-reviewed journals will be considered for inclusion in this review. This REVIEW will not be limited only to English articles or peer reviewed articles any more. Throughout the all proposal the researchers ensured that the terms studies, articles and literature are now used in the correct context.</td>
</tr>
<tr>
<td>Comment 20: No need to mention reason for beginning of 1998 as its explained above</td>
<td>This was removed at the inclusion criteria as it was mentioned earlier.</td>
</tr>
<tr>
<td>Comment 21: No need to mention reason for selecting 1998 as beginning date</td>
<td>According to the reviewers knowledge, there has to be a motivation for any limiters used (in this case a specific date).</td>
</tr>
<tr>
<td>Comment 22: In which step did you do the preliminary search?</td>
<td>Preliminary searches are constantly done through the development of a systematic review proposal to ensure that the search string developed yield the appropriate information and that the data bases that will be include are appropriate.</td>
</tr>
<tr>
<td>Comment 23: Cochrane reviews focus on effectiveness of interventions and will probably not include relevant studies. Campbell collaboration focus on reviews in field of education and may be of value.</td>
<td>Cochrane reviews, DARE and the Campbell Collaboration on academic resilience (if any) and protective factors will also be obtained and screened for eligible primary studies.</td>
</tr>
<tr>
<td>Comment made by HREC Reviewers</td>
<td>Amendment made to proposal</td>
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<td>--------------------------------</td>
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<tr>
<td><strong>Comment 24:</strong> critical appraisal must be before data-extraction otherwise you waste time by extracting data of poor studies</td>
<td>Data extraction and the critical appraisal will actually be done simultaneously. The steps were given and referenced in the order as literature describes it.</td>
</tr>
<tr>
<td><strong>Comment 25:</strong> This study will never produce a meta-analysis as its only applicable to statistically combine similar RCTs to evaluate the effectiveness of an intervention – not applicable to your review</td>
<td>The reviewers agree. This was corrected. If data is not too heterogenic a meta-synthesis will be conducted. If data is too heterogenic a meta-synthesis will not be possible. The following was removed: The type of evidence synthesis is chosen to fit the types(s) of data within the review. For example, if a systematic review inspects qualitative data, then a meta-synthesis is conducted, alternatively if homogenous quantitative evidence is reviewed, a technique known as meta-analysis is used in the review process (Hemingway, 2009). This information is no longer applicable.</td>
</tr>
<tr>
<td><strong>Comment 26:</strong> How will you ensure the primary studies were conducted ethically?</td>
<td>In addition, the researcher will make sure that the original studies were done ethically through critical appraisal.</td>
</tr>
</tbody>
</table>

Please note that when the applicants amended the proposal, we picked up two errors that we corrected:
- The search strategy was developed in PsycArticles not in Medline. Medline did not yield results. This was corrected and marked in yellow in the proposal.
- The data bases to be included differed in the text and in the flow diagram. This was corrected and marked in yellow in the proposal.

The executive summary was shortened as requested and is also attached to the amended application.

A data extraction form is also attached to this application as requested.
Ms K Smit
AUTHER

22 June 2016

Dear Ms Smit:

APPROVAL OF YOUR APPLICATION BY THE HEALTH RESEARCH
ETHICS COMMITTEE (HREC) OF THE FACULTY OF HEALTH SCIENCES

Ethics number: NWU-00624-16-S1

Kindly use the ethics reference number provided above in all correspondence or documents submitted to the Health Research Ethics Committee (HREC) secretariat.

Study title: Academic resilience: A systematic review of protective factors for undergraduate students in higher education

Study leader/supervisor: Ms K Smit

Student: T Hassim

Application type: Single study

Risk level: Minimal

You are kindly informed that your application was reviewed at the meeting held on 12/04/2016 of the HREC, Faculty of Health Sciences, and was approved on 22/06/2016.

The commencement date for this study is 22/06/2016 dependent on fulfilling the conditions indicated below. Continuation of the study is dependent on receipt of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation up to a maximum period of three years when extension will be facilitated during the monitoring process.

After ethical review:

Translation of the informed consent document to the languages applicable to the study participants should be submitted to the HREC, Faculty of Health Sciences (if applicable).
The HREC, Faculty of Health Sciences requires immediate reporting of any aspects that warrant a change of ethical approval. Any amendments, extensions or other modifications to the proposal or other associated documentation must be submitted to the HREC, Faculty of Health Sciences prior to implementing these changes. Any adverse/unexpected/unforeseen events or incidents must be reported on either an adverse event report form or incident report form at Ethics-HRECIncident-SAFE@nwu.ac.za.

A monitoring report should be submitted within one year of approval of this study (or as otherwise stipulated) and before the year has expired, to ensure timely renewal of the study. A final report must be provided at completion of the study or the HREC, Faculty of Health Sciences must be notified if the study is temporarily suspended or terminated. The monitoring report template is obtainable from the Faculty of Health Sciences Ethics Office for Research, Training and Support at Ethics-Monitoring@nwu.ac.za. Annually a number of studies may be randomly selected for an external audit.

Please note that the HREC, Faculty of Health Sciences has the prerogative and authority to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process.

Please note that for any research at governmental or private institutions, permission must still be obtained from relevant authorities and provided to the HREC, Faculty of Health Sciences. Ethics approval is required BEFORE approval can be obtained from these authorities.


We wish you the best as you conduct your research. If you have any questions or need further assistance, please contact the Faculty of Health Sciences Ethics Office for Research, Training and Support at Ethics-HRECApply@nwu.ac.za.

Yours sincerely

Dr Wayne Towers  
HREC Chairperson

Prof Mirrie Greeff  
Ethics Office Head
# Checklist by the Research Proposal Committee for the Ethics Committee

## Research Using Human Participants

<table>
<thead>
<tr>
<th>Title:</th>
<th>Academic resilience: A systematic review of protective factors for undergraduate students in higher education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researchers:</td>
<td>Smit_Hassen</td>
</tr>
<tr>
<td>Using people?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Executive summary of the research:

<table>
<thead>
<tr>
<th>Potential risk level</th>
<th>Minimal</th>
<th>X Motivate: Systematic review</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medium</td>
<td></td>
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<tr>
<td></td>
<td>High</td>
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</tbody>
</table>

### Recommendation for the ethics committee

| Recommendation | Full review | X Motivate: Systematic review | Expedited review | X Motivate: Systematic review | Exempted from review | Motivate: |

### Any Comments

Committee members present during the review:

- Prof Petra Daster
- Dr Basil Kruger

Date of review:

4 March 2016

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Signature of the Chairperson

Signature of the Research Director

---

**Decision of the Ethics Committee:**

<table>
<thead>
<tr>
<th>Full review</th>
<th>Motivate:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expedited</td>
<td></td>
</tr>
<tr>
<td>Exempted</td>
<td></td>
</tr>
</tbody>
</table>

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Signature of the Chairperson of the Ethics Committee
Conclusion

The above included documentation shows that an in-depth preparation for this study had been conducted according to scientific requirements and applicable methodologies. It also indicates that ethical aspects have been taken into consideration and has been satisfactory considered. These documents serve as proof that all the necessary approvals have been obtained to conduct this research study.

In the next chapter a manuscript will be presented indicating the process and outcome of the whole study. This manuscript will be submitted to the Journal of College Student Development for possible publication.
CHAPTER 2: MANUSCRIPT IN ARTICLE FORMAT

GUIDELINES: JOURNAL OF COLLEGE STUDENT DEVELOPMENT

Manuscript in article format

This dissertation has been done in article format as indicated in the 2016 General Academic Rules (A4.1.1.4 and A4.4.2.9) of the North-West University. The manuscript and article style follow the requirements, The Journal of College Student Development, to which it will be submitted. For purposes of this dissertation and the examination thereof, the pages would be slightly more than stipulated by this journal.

Guidelines to authors for The Journal of College Student Development

Journal information. The Journal of College Student Development (JCSD) is the official journal of the American College Personnel Association (ACPA). The Journal of College Student Development is the largest and leading source of research about college students and the field of student affairs, the journal publishes scholarly articles and reviews from a wide range of academic fields. The journal publishes articles in, scholars in student affairs, higher education, sociology, psychology, social work, nursing, business administration, and health sciences. The journal publishes eight times a year with the following ISSN number ISSN: 0897-5264 / E-ISSN: 1543-3382.

Author guidelines. “The Journal of College Student Development is interested in feature manuscripts concerning student development, professional development, professional issues, administrative concerns, and creative programs to improve student services. Authors may focus on recent original research, replication of research, reviews of research, graduate education in student affairs, or essays on theoretical, organizational, and professional issues. Both quantitative and qualitative research manuscripts are considered. Manuscripts should address one of the following:
- Support for the extension of knowledge in the area of developmental theory;
- Support for practitioner efforts to apply theoretical developmental constructs to programmes in the field; or
- Support for increasing our knowledge of organizational behaviours so that effective tactics and strategies might be applied to the implementation of developmentally focused programs on the campus.

In keeping with the international scope of ACPA-College Student Educators International, the *Journal of College Student Development* welcomes manuscripts that report scholarship on international issues related to college students, student development, and student affairs and services in postsecondary or tertiary education. Such manuscripts might describe research occurring outside the United States, such as studies of student development or emerging issues in student services administration in one or more countries, or they might address international issues connected to US institutions, such as international students in the US or US students participating in international experiences at home or abroad. We particularly invite submissions that are scholarly in nature (i.e., having a theoretical base and sound empirical methods), but will also consider submissions that describe best practices in student development outside the US, provided that these submissions contribute new knowledge to the literature. Country-specific and comparative (i.e., comparing an issue in two or more nations) topics are welcome.

*Style guidelines.* Manuscripts must be clear, concise, and interesting with a well-organized development of ideas. The most recent edition of the Publication Manual of the American Psychological Association should be followed for reference style and general guidelines. When preparing a manuscript for publication, the author(s) must carefully follow the instructions listed below:
Ensure that the manuscript is appropriately blinded. Because manuscripts are processed through a masked review system, they should contain no clues to the author's identity or institutional affiliation outside of the title page. Please double check your manuscript for:

1. Self-citations that are “in press”
2. Self-referential citations that reveal author identity
3. Institution name (usually in the Methods section)
4. References to institution specific documents

When preparing a manuscript for publication, the author(s) must carefully follow the instructions listed below:

1. Use titles that are short and descriptive. Place the title on a separate page with the names of the authors, their professional titles, and their institutional affiliations (see the author information at the bottom of the title pages of published articles for example). For the contact author, include a mailing address and e-mail address (for publication), and a phone number for contact by the editor.
2. Avoid use of the term "subject." Use more specific references such as "student," "client," or "participant."
3. Include an abstract on the second page beneath the title and before the first paragraph of the article (except for manuscripts submitted for "On the Campus" or "Research in Brief"). The abstract or capsule statement should clearly describe the main intent or outcome of the manuscript in 75-100 words.
4. Use a common font, such as Courier or Times Roman, and set all text (including references, quotations, tables, and figures) in 12-point type, double-spaced. Please see the APA Publication Manual for proper formatting of headings and titles. Indent paragraphs with the Tab key, not by setting a defined indention for the paragraph in the word processor. Allow generous margins (at least one inch) around each page.
5. Lengthy quotations (a total of 300 or more words from one source) require written permission from the copyright holder for reproduction. Adaptation of tables and figures also requires such approval. The author is responsible for securing such permission. A copy of the publisher's written permission must be provided to the Journal editor immediately upon acceptance of the article for publication.

6. Only citations referred to in the manuscript should be listed in the references. Check all references before mailing the manuscript to ensure that all sources cited in the text appear in the references and vice versa, and that all references are accurate and complete. Use the reference style in the most recent edition of the APA Publication Manual.

7. Include only essential data in tables and combine tables whenever possible. Indicate in the narrative of the manuscript, on a separate line and in square brackets, where to place the table or figure. Final placement is at the discretion of the layout editor.

8. Each figure should be generated as a high resolution (300 dpi), black and white (no colour, avoid grayscale) graphic image suitable for publication and saved as a separate image file in a standard format, such as (in this order of preference): Encapsulated PostScript (EPS), Tagged Image File (TIF), or bitmap (BMP) file. Include the figure number, title, and any additional text in the manuscript document, but not in the image, and name the file accordingly to associate it with the caption text. Submit each figure as an individual file, with its caption to include with the submitted manuscript.


10. Authors are responsible for the accuracy of references, quotations, tables, and figures. Authors should make sure these are complete and correct.
11. Submission of a manuscript indicates the author's agreement to furnish information beyond the actual manuscript. The editor may request such information in order to assist with the review process.

12. Upon the acceptance of a manuscript, authors are responsible for making the changes recommended by the copy editor and for proofreading their manuscripts prior to submitting the final correct copy as a computer file.

Submission instructions. Featured manuscripts should not exceed approximately 30 pages of 1-inch margin, double-spaced, typewritten text INCLUDING references, tables, and figures.

All manuscripts submitted to the JCSD must be in Microsoft Word® 97-2003 (.doc) format. This includes the paper and any tables and/or figures.

All manuscript submissions and reviews are handled through our web-based Editorial ManagerTM (EM) system. Authors submit manuscripts and track progress through all stages of the review process. Enter JCSD's On-Line Editorial Office:


The Editorial Manager TM system includes step by step instructions throughout the submission process. Here are some suggestions that will assist you in the process:

Please ensure that you have saved all of the elements of your submission as separate files. These may include:

1. A blinded version of your manuscript. (required)

2. A separate cover sheet with information for the author(s). (required)

3. A cover letter.

4. Figures, tables, & graphs.”
Academic resilience: A systematic review of protective factors for undergraduate students in higher education

Tasleem Hassim*, Karlien Smitb, Marié P. Wissingc

Author affiliations

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Africa Unit for Transdisciplinary Health Research (AUTHeR), North-West University, Potchefstroom Campus, Private Bag X6001, Potchefstroom 2520, South Africa. +27182992603 Marie.Wissing@nwu.ac.za

Ethical approval

This study has been approved by the scientific committee as well as the Health Research Ethics Committee (HREC) of the Faculty of Health Sciences (FHS) of the North-West University (Potchefstroom Campus) (ethical number: NWU-00024-16-S1).
Academic resilience: A systematic review of protective factors for undergraduate students in higher education

ABSTRACT

The purpose of this systematic review was to explore and identify protective factors associated with academic resilience for undergraduate students at higher education institutions. A strict review protocol and a quality-focused approach were adopted. Ten articles were identified as per inclusion and exclusion criteria. Various external and internal protective factors as well as compensatory mechanisms were identified, including family, peer and academic support, parenting style and affirmation, intrinsic motivation, self-reliance, self-efficacy, high self-esteem, independence and autonomy, dedication and commitment, mental toughness, and a strong future orientation. An adaptation of the Kumpfer (1999) resiliency model is suggested.

Words: 96
Nelson Mandela was famous for his thought-provoking quote: “Education is the most powerful weapon you can use to change the world” (n.d.). Although students are currently presented with greater opportunities to enroll at higher education institutions, large student dropout rates still imposes tremendous strain on these higher education institutions. Students are diverse in nature and come from different backgrounds with the same expectation; to earn a degree, develop and eventually secure a future. After enrolling at a higher education institution, students are faced with several challenges as they are exposed to student life, which is interrelated to freedom, new forms of social interaction, and responsibilities (Cortes, 2012). Furthermore, they are confronted with stressors and risk factors such as academic stress, financial challenges, cultural barriers, lack of social support and the fulfilment of family expectations (Chavez, 2014; Salas, Aragon, Alandejani, & Timpson, 2014). Students experience and react to these challenges and risk factors differ on an individual level. The level of positive or negative outcomes students experience is determined by the balance of risk and protective factors, impacting on the student’s resilience. If they can tap into their already existing external and internal protective factors and apply it to the circumstances and challenges they face in their academic contexts, they may achieve academic success (Van Vuuren, 2014). Students need to be academically resilient to reduce the exposure to risk factors, while at the same time they need to possess enough self-awareness to be able to identify protective factors to foster resilient outcomes.

Resilience

The concept *resilience* first emerged in the early 1950’s with studies examining resilience in childhood and subgroup populations (Crittenden, 1985; Bauman, Silver, & Stein, 2006). With the emergence of positive psychology as of late, resilience has been studied and examined in-depth and is regarded as a positive capacity in individuals to cope with stress, adversities, challenges, and obstacles, that they might face in their life. While there are different definitions of resilience, it is generally thought to represent an important psychological resource for coping (Räty, Kasanen, & Rautiainen, 2013). Resilience may manifest in several forms and may refer to
a person who is especially capable of withstanding adversity, coping with acute and sustained difficult circumstances, or recovering from trauma (Dryden, Johnson, Howard, & McGuire, 1998). The concept of resilience is a multifaceted phenomenon that requires individuals to draw on biological, psychological, and environmental resources (Rouse, Bamaca-Gomez, Newman, & Newman, 2001). Resilience models generally include two major components viz. risk factors which can be described as those factors hindering resilient outcomes, and protective factors, which can be described as those fostering resilient outcomes. Research on resilience as a construct is broad in nature. Recently, research has started to focus on students in schools and higher education institutions and to measure their levels of resilience as well as to identify risk factors, protective factors and inherent strengths associated with academic resilience (Morales, 2014; Sandoval-Hernández & Białowolski, 2016). Researchers are also increasingly developing more context-specific constructs of resilience, such as educational resilience, academic resilience, emotional resilience, and behavioural resilience (Luthar, Cicchetti, & Becker, 2000).

Academic resilience

Although much research and knowledge on resilience exists, there is still a lack of research pertaining to academic resilience, particularly academic resilience in higher education. As a result of the lack of research on academic resilience, the idea is poorly conceptualized and a fully-descriptive definition is yet to be found. Literature addresses resilience in schools as educational resilience or academic resilience; these two concepts are used interchangeably in high schools and in higher education. Martin and Marsh (2003) define academic resilience as the ability to effectively deal with setbacks, stress or pressure in the academic setting. Khalaf (2014) further states that “academic resilience is regarded as one of the indicators of adjustment with the university life pressure and setbacks. It is the strongest predictor of enjoyment of study, class participation, and general self-esteem.” In a challenging university environment, students face challenges on a daily basis such as financial strain (Kiang, Andrews, Stein, Supple, & Gonzalez, 2013), stress (Leary & Derosier, 2012; Lin & Huang, 2013), lack of social support (Leary &
Derosier, 2012) and academic achievement (Allan, McKenna, & Dominey, 2013) to name a few. The question arises as to why some students continue to perform well despite poor living conditions and everyday challenges, while others struggle to meet the minimum requirements of higher education. The answer may be the presence of academic resilience. If students are exposed to more protective factors than risk factors, successful graduation may be the outcome despite the challenges. Students attending a higher education institution are exposed to both risk and protective factors, and students who experience more risk factors are more vulnerable to poor educational achievement and a lack of problem-solving abilities (Alarcon, Edwards, & Menke, 2011). It can be said that students with greater experience of and exposure to protective factors may manifest better academic resilience. Martin and Marsh (2006) examined the educational and psychological correlates of academic resilience on a sample of 402 Australian high school students. Analysis showed that five factors predicted academic resilience: self-efficacy, control, planning, low-anxiety, and persistence. Therefore, if students are exposed to more protective factors than risk factors they might adapt to the challenging demands of higher education.

Protective factors

Studies have shown that the main difference between individuals who adapt very well despite facing risks and individuals who end up in maladaptation is the existence of protective factors (Lee, Cheung, & Kwong, 2012). Masten (1994) and Chung (2008) described protective factors as either internal or external characteristics that the individual experiences. Protective factors are concerned with the resources of a person, context or their interaction that predicts better outcomes, specifically in situations of risk (Rojas, 2015). According to Ungar (2008), resilience arises when the individual is able to make use of internal strengths (coping skills, attitude, planning, and competence) and external resources (physical necessities, family and social support, and expert interventions). Internal factors are individual qualities or characteristics specific to the individual (Johnson, 2011). Literature suggests that confidence and optimism
(Kotzé & Kleynhans, 2014), self-esteem (Kwek et al., 2014), self-regulation (Hopkins, Zubrick, & Taylor, 2014) internal locus of control (Van der Westhuizen, 2013) are just few of the internal factors that can assist students to achieve better resilient outcomes. It is stated that self-efficacy can be seen as one of the most predictive variables related to student well-being (Olwage, 2012). Research shows that, when individuals are able to improve and apply their strengths in their environments, it leads to positive emotional and growth related outcomes (Olwage, 2012).

Although focusing on strengths use is important in the tertiary educational environment, it is not ideal to exclusively focus on individual strengths and disregard other influencing factors (Van Niekerk, 2015). As seen in the literature, all protective factors such as external protective factors and internal protective factors work together to reach a positive outcome.

External protective factors are environmental and familial supports that are available in the home, peer group, school, and other aspects of the community (Johnson, 2011). Bernard (2004) found that external protective factors include caring relationships, high expectations and opportunities for meaningful contributions. Protective factors like family, peers and lecturers play an important part as academic role models for students who are academically at-risk (Van Vuuren, 2014). Therefore, if students are exposed to more protective factors than risk factors they might adapt to the challenging demands of higher education. A combination of external protective factors and internal protective factors working simultaneously may assist the student to become academically resilient.

Risk factors
Entering university marks an important life phase for those students who are privileged to attend a higher education institution. University gives the student an opportunity to discover themselves in a new environment coupled with learning and success. A study by Hunt and Eisenberg (2010) identified stressors and risk factors such as socio-economic status, relationship stressors, lack of social support, and victimization to violence that exists in the student environment. Risk factors include stress, poverty, divorce, parental neglect, and stressors associated with the transition to
higher education (Johnson, 2011). Such drawbacks, or risk factors, include poor grades, competing deadlines, exam pressure, difficult schoolwork, chronic absenteeism, and maintaining regular class attendance (Martin & Marsh, 2006).

Aim for this study

The aim of this systematic review was primarily to identify protective factors associated with academic resilience in undergraduate students at a higher education institution. Secondary outcomes included identifying internal strengths associated with academic resilience in undergraduate students at a higher education institution and identifying the compensatory mechanisms these students use to cope with stress and reduce risks in order to achieve academic resilience.

To the knowledge of the researchers, no systemic review has been conducted as yet exploring this phenomenon. For this reason, the researchers set out to conduct a systematic review to fill the existing gap.

METHOD

This study has been approved by the relevant scientific and ethics committees of the institutions where authors reside. (Ethics certificate and ethics number can be provided on request)

Systematic reviews aim to locate, evaluate and summarize findings of all individual articles relevant to particular research questions (Siriwardhana, Ali, Roberts, & Stewart, 2014; Wheeler & Richards, 2007), and this systematic review followed a strict protocol and a quality-focused approach (Bearman et al., 2012) and was guided by Cochrane’s Collaboration systematic review framework (Higgins & Green, 2011). A systematic literature review methodology seemed suitable for this type of research as it allowed the researcher to integrate, consolidate and summarize findings from studies in various parts of the world with different subgroup populations. Another advantage of this systematic review was to explore and develop an understanding of the, stressors, risk factors, external protective factors, internal protective
factors (internal strengths), and compensatory mechanisms that students possess to enhance their academic resilience from various studies in an integrated and consolidated manner.

The rigorous nine-step methodology of a systematic review as described by Boland, Cherry, and Dickson (2014) was followed by two independent researchers to ensure quality and inter-relater reliability. The researchers started off with preliminary scoping searches in order to formulate the review question and to develop a review title (Uman, 2011). In order to define the inclusion and exclusion criteria, the SPICE acronym was used to answer the following questions: S (What type of setting does this study fit into?), P (Who are the participants that would be included in this study?), I (What is the intervention or the phenomenon under investigation?), C (Is there any form of comparison?) and E (How would one evaluate the outcome?).

Inclusion and exclusion criteria

For the purpose of this review, the population of interest was undergraduate students studying at a higher education institution. Articles regarding post-graduate students were excluded as they would encounter different challenges compared to those of undergraduate students. In order to give the researchers a broad sense of the literature, articles included were not limited to specific designs. Publications from January 1998 to April 2016 were considered for this review as Positive Psychology was officially announced by Martin E.P. Seligman in 1998.

Search strategies

Two researchers independently conducted a comprehensive literature search. The initial selection criteria were broad to ensure that as many articles as possible were obtained according to the quest for relevance of this review. The search strategy, including several keywords, was developed in PsycArticles and is presented in Figure 1. Boolean operators were also incorporated in order to limit searches and specify search parameters (Boland et al., 2014).

The search strategy was adopted for several databases, accessed through the library of the North-West University, and includes PsycArticles, Psycinfo, ERIC (Education Resource
Information Centre), CINAHL (Cumulative Index to Nursing and Allied Health Literature), Teacher References Centre, and Academic search premier. These databases were chosen as their preliminary search results yielded most articles relevant to the review question. Cochrane reviews, DARE and the Campbell Collaboration were also screened for eligible articles, however none was found.

```
(“protective factors”) AND (“individual strength+” OR stress* OR risk+ OR cope OR coping) AND (“academic resilience”) AND (undergraduate OR student+ OR learner+ OR scholar+ OR pupil+) AND (“higher education*” OR “tertiary education*” OR “tertiary institution*” OR university+ OR college+)
```

**Figure 1. Search strategy**

Selection of studies

Two researchers independently screened titles and abstracts against the inclusion criteria. Thereafter, full texts were screened to determine whether articles were eligible for inclusion in this systematic review. Reference lists of all review articles retrieved through the search strategy was worked through to obtain relevant primary studies that might have been missed through the electronic searches. Since some search terms were used interchangeably, when there was doubt, these articles were printed and screened again to ensure their eligibility. Whenever full text articles were unavailable, the researcher contacted the local librarian for assistance and if the article could still not be retrieved, the authors of the article were contacted. When authors did not respond within the timeframe allowed for the selection of studies, it was discarded.

Quality review and data extraction

Critical appraisal and data extraction were done simultaneously by two independent researchers. Discrepancies in data were adjudicated by consensus. If consensus could not be reached a third researcher was consulted. Full text articles were critically appraised for methodological quality using the Critical Appraisal Skills Programme (CASP) (CASP, 2006) for qualitative articles and the Effective Public Health Practice Project (EPHPP) tool (Brownlee et al., 2013) for
quantitative articles. Bias was assessed with the Cochrane Collaboration Risk of Bias tool (Higgins & Green, 2011) which the researchers adapted to answer the review question (Rajendran, 2001). A data-extraction form was structured (Botma, Greeff, Mulaudzi, & Wright, 2014) by adapting the NOTARI (Appendix C) and MASTARI (Appendix D) data extraction tool (The Joanna Briggs Institution, 2014) by expanding it according to primary and secondary research outcomes in relation to the purpose of the study. This was done in order to ensure quality of included articles and to verify accuracy of the extracted data.

Data analysis and data synthesis

The researchers reread each article multiple times to extract the most important and relevant information from each article. The relevant information was analysed and entered into the pre-specified data-extraction form. Both the qualitative and the quantitative studies were thematically analysed in order to identify the risk factors, external protective factors, and internal protective factors. Thematic synthesis was then conducted by clustering of themes (Thomas & Harden, 2008) against the backdrop of the theoretical framework of Kumpfer (1999). Qualitative synthesis is a subjective and transparent process (Bearman & Dawson, 2013) that expresses themes between different contexts. The expertise of the researchers is vital in confirming whether understanding had been gained between contexts as suggested by Thomas and Harden (2008); the researchers attempted to reserve the study’s context by providing comprehensive and structured summaries of each included article detailing aims, methods and methodological quality, setting and, sample within the data-extraction table.

RESULTS

Summary of electronic searches

The PRISMA flow diagram (see Figure 2) was used to present the results that the search strategy yielded.
Total number of articles: (n=99)

Articles included from other sources (reference lists): (n=2)

Duplicates automatically excluded: (n=13)

Total number of articles eligible for inclusion in the review: (n=14)

Reasons for excluding articles:
- Students were referred to as high school students and not students attending a higher education institution
- Sample population were educators

Articles excluded based on titles and abstracts: (n=76)

Reason for excluding articles:
- Authors did not respond in time in providing the full text of the article which could not be otherwise obtained.
- The article was done on already graduated individuals sharing their past experiences of higher education and therefore did not fit the inclusion criteria

Articles excluded based on full text: (n=2)

Total number of articles eligible for inclusion in the review: (n=14)

Reasons for excluding articles:
- The outcome of one article was to validate a scale
- One article described the level of resiliency with regards to alcohol use
- One article included a sample of high school learners as well as higher education students and the results could not be separated.

Articles excluded based on critical appraisal: (n=3)

Total number of articles eligible for inclusion in the review: (n=10)

Figure 2. PRISMA flow diagram
According to Figure 2 a total of ten articles that met the inclusion criteria formed part of the systematic review. Nine articles were retrieved from the electronic searches while one article was retrieved from the hand searches of the reference lists. Out of these, nine were journal articles and one was an unpublished dissertation. Although one resource that formed part of the inclusion criteria was a dissertation Resources included in this review will be referred to as articles to ease reading.

Demographic characteristics

Table 1 reveals a summary of the demographic characteristics. According to Table 1 the samples investigated comprised of undergraduate students from USA (Cerezo, Lyda, Beristianos, Enriquez, & Connor, 2013; Llamas & Morgan Consoli, 2012; Morales, 2000; 2008; 2010; Taylor & Reyes, 2012; Reyes, 2012), Ghana (Abukari & Laser, 2013), Turkey (Rahat & Ilhan, 2016), and Australia (Gucciardi, Hanton, Gordon, Mallett, & Temby, 2015). Sample sizes ranged from five – 527 students. Participants between the ages of 16 and 34 years were included.
<table>
<thead>
<tr>
<th>Author</th>
<th>Title of article</th>
<th>Year</th>
<th>Journal</th>
<th>Country</th>
<th>Group status</th>
<th>Sample size</th>
<th>Mean age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abukari and Laser</td>
<td>Gender differences in academic outcomes among Ghanaian youth: The role of risk and protective factors</td>
<td>2013</td>
<td>Journal of community psychology</td>
<td>Ghana</td>
<td>Ghanaians</td>
<td>190</td>
<td>85</td>
</tr>
<tr>
<td>Cerezo, Lydia, Beistianos, Enriquez and Connor</td>
<td>Latino men in college: Giving voice to their struggles</td>
<td>2013</td>
<td>Psychology of men and masculinity</td>
<td>United States of America</td>
<td>92% Mexican American 8% Salvadorian</td>
<td>12 0</td>
<td>22</td>
</tr>
<tr>
<td>Gucciardi, Hanton, Gordon, Mallet and Temby</td>
<td>The concept of mental toughness: Tests of dimensionality, nomological network and traitness</td>
<td>2014</td>
<td>Journal of personality university</td>
<td>Australian university</td>
<td>-</td>
<td>92 105</td>
<td>27.21</td>
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<tr>
<td>Author</td>
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<tr>
<td>Llamas and Consoli</td>
<td>The importance of familia for Latina College students: Examining the role of familial support in intragroup marginalization</td>
<td>2012</td>
<td>Journal of cultural diversity and ethnic minority psychology</td>
<td>United States of America</td>
<td>83% Mexican, 3% Central American, 2% Guatemela, 2% South American, 2% Puerto Rican, 1% Costa Rican</td>
<td>52</td>
<td>129</td>
</tr>
<tr>
<td>Morales</td>
<td>A contextual understanding of the process of educational resilience: High achieving Dominican American students and the resilience cycle</td>
<td>2000</td>
<td>Innovative higher education</td>
<td>United States of America</td>
<td>Dominican American Students</td>
<td>0</td>
<td>5</td>
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<tr>
<td>Morales</td>
<td>Exceptional female students of colour: Academic resilience in higher education</td>
<td>2008</td>
<td>Innovative higher education</td>
<td>United States of America</td>
<td>60% African American, 40% Hispanic</td>
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<tr>
<td>Author</td>
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<tr>
<td>Morales</td>
<td>Linking strengths and exploring protective factor clusters in academically resilient low socioeconomic urban students of colour</td>
<td>2010</td>
<td>Roeper Review</td>
<td>United States of America</td>
<td>African American (60%) Hispanic (40%)</td>
<td>19 31</td>
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<tr>
<td>Rahat and Ilhan</td>
<td>Coping styles, social support, relational self-construal and resilience in predicting students adjustment to university life</td>
<td>2015</td>
<td>Journal of education sciences: Theory and practice</td>
<td>Turkey</td>
<td>-</td>
<td>152 373 2</td>
<td>19.53</td>
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<tr>
<td>Author</td>
<td>Title of article</td>
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<tr>
<td>Reyes</td>
<td>Proving them wrong: Academically resilience first-</td>
<td>2012</td>
<td>Unpublished dissertation</td>
<td>Main campus of a major North Eastern pubic</td>
<td>Latina</td>
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<td></td>
<td>generation Latinas in college</td>
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<td>research institution</td>
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<td>Taylor and</td>
<td>Self-efficacy and resilience in baccalaureate students</td>
<td>2012</td>
<td>International journal of nursing</td>
<td>United States of America</td>
<td>-</td>
<td>26 110</td>
<td>25.17</td>
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<tr>
<td>Reyes</td>
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Note: - indicates that certain results were not reported
This table has been condensed to ease reading
Assessment of methodological quality

The current Cochrane Collaboration guidance emphasizes a shift from rigid check-lists towards an approach focusing more on methodological characteristics tailored to the review topic and involves subjective judgments made by the researchers (Katikireddi, Egan, & Petticrew, 2015). As suggested by Thomas and Harden (2008), the researchers assessed eligible resources according to the appropriateness of the results addressing the review question instead of merely focusing on the methodology. Two independent researchers critically appraised eligible articles according to appropriate methodological appraisal lists and whenever consensus was not reached, a third researcher was consulted. Rajendran (2001) suggests that tools should be adjusted to suit the review question; therefore the researchers adapted the Cochrane Collaboration risk of bias tool in order to also suit qualitative studies.

Figure 3 summarizes the different aspects concerning the methodological quality of included articles.
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<td><strong>Selection bias</strong></td>
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<td>(Bias in participant selection. Taking into account sampling size and sampling method)</td>
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<td>(Completeness of outcome data)</td>
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<td><strong>Reporting bias</strong></td>
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<td>(Selective reporting in the sense of significant and non-significant results)</td>
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<tr>
<td><strong>Other sources of bias</strong></td>
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<td>(Interviewer / researcher / interviewee bias)</td>
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**Key**

- Low risk: Possible bias that is unlikely to seriously alter the results
- High risk: Possible bias that raises some doubt about the results
- Unclear risk: Possible bias that seriously weakens confidence in the results

*Figure 3. Adapted Cochrane Collaboration Risk of Bias Tool*
The included studies were evaluated against the appropriate criteria of the CASP for qualitative studies and EPHPP for quantitative studies (CASP, 2006; Brownlee et al., 2013). This was done to determine whether the findings can be considered as good, medium or low evidence (CASP, 2006). Studies were evaluated with regard to bias according to the Cochrane Collaboration Risk of Bias tool which the researchers adapted for both qualitative and quantitative studies. No specific scores (percentages) had been awarded to these studies as performed in the above mentioned Risk of Bias tool, because of inclusion of qualitative data. Three articles were discarded from this review after critical appraisal.

Figure 3 provides a summary of the bias identified in all included articles within this review. Three of the 10 articles had a high risk of selection bias due to limited participants selected by means of convenient sampling (Cerezo et al., 2013; Morales, 2000, Reyes, 2012). Of the included articles, two had a high risk of attrition bias as the researchers were of the opinion that selected themes were clustered and some outcome data might have been left out (Morales, 2000 Reyes, 2012), and one of the 10 studies included other forms of bias (Interviewee bias – cf. Reyes, 2012). Although these articles were indicative of possible bias that raised some doubt about the results, the researchers deemed the findings appropriate to the review question. Therefore, the researchers still included these taking into account that results from other articles supported these findings.

Table 2 provides a summary of the main findings from the included articles.
<table>
<thead>
<tr>
<th>Author</th>
<th>Measures</th>
<th>Study design</th>
<th>Main objectives of the study</th>
<th>Main findings</th>
<th>Author conclusion</th>
</tr>
</thead>
</table>
| Abukari and Laser (2013)      | • Demographic questionnaire  
|                               | • Laser ecological protective factor for youth  
|                               | • Life events survey for youth                                      | Cross-sectional survey design | The role of risk and protective factors among Ghanaian youth in terms of gender differences | Gender and culture play a role in the academic outcomes of students.  
|                               |                                                                           |                        |                                                                                              | Internal strengths are highlighted in this study                           | Programmes should be gender and context-specific                                |
| Cerezo, Lydia, Beistianos, Enriquez and Connor (2013) | • Demographic questionnaire  
|                               | • Semi-structured interviews                                           | Consensual qualitative design | Exploring educational and family systems as well as how pressures and expectations in the neighbourhood community impact Mexican American males’ college success and retention | Pre-college factors  
|                               |                                                                           |                        |                                                                                              | Internal protective factors  
|                               |                                                                           |                        |                                                                                              | External protective factors  
|                               |                                                                           |                        |                                                                                              | There is a need for college campuses to offer support to minority ethnic groups. |
| Gucciardi, Hanton, Gordon, Mallet and Temby (2014) | Survey package inclusive of the following:  
|                               | • Mental toughness  
|                               | • Goal progress  
|                               | • Thriving  
<p>|                               | • Psychological health                                                  | Experimental design       | The relationship between mental toughness, goal progress, thriving and psychological health | Mental toughness is directly related to both academic and social goal progress. | More research is needed to examine mental toughness over related and umbrella concepts such as psychological capital |</p>
<table>
<thead>
<tr>
<th>Author</th>
<th>Measures</th>
<th>Study design</th>
<th>Main objectives of the study</th>
<th>Main findings</th>
<th>Author conclusion</th>
</tr>
</thead>
</table>
| Llamas and Consoli (2012) | - Demographic questionnaire  
- Intragroup marginalization inventory  
- Student adaptation to college questionnaire  
- Resilience scale  
- Thriving scale  
- Perceived social support questionnaire | Experimental design | Exploring the relationship between intragroup marginalization by family members, college adjustment, resilience, and thriving among Latina/o college students. | Social support was an indicator for college adjustment | Communication between parents and students is vital. Colleges and mental health professionals should attend to both the college stressors as well as the unique, cultural related stressors. |
| Morales (2000) | - In-depth interviews | Descriptive design | To identify the protective factors within the sample and how these factors have operated together to produce high academic achievement | Internal protective factors  
External protective factors | In order for students to utilize the resilience cycle, two components must be present: They have to be self-aware and self-reflective and they must be willing to act on their awareness and reflection. |
| Morales (2008) | - Long interview  
- Completeness and data saturation | Descriptive design | What are differences in the academic resilience processes of low socioeconomic male and female students of colour | Females faced more resistance than males to achieve their college and career goals; Females were more motivated by their post-college professional goals than were males. | Qualitative studies with larger samples should be encouraged by understanding female resilience dynamics, programs and strategies should be implemented to better and meet desired goals. |
<table>
<thead>
<tr>
<th>Author</th>
<th>Measures</th>
<th>Study design</th>
<th>Main objectives of the study</th>
<th>Main findings</th>
<th>Author conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>7   Morales</td>
<td>Semi-structured interviews</td>
<td>Exploratory design</td>
<td>Exploring protective factors How these factors operate in concert to produce high academic achievement</td>
<td>External protective factors Internal protective factors</td>
<td>The understanding of this study can lead to programs and initiatives designed to help the potentially resilient or the undocumented gifted students.</td>
</tr>
<tr>
<td>8   Rahat and Ilhan</td>
<td>Demographic questionnaire Risk factors defining list</td>
<td>Experimental design</td>
<td>To investigate how well coping styles, social support, relational self-construal, and resilience characteristics predict first year university students’ ability to adjust to university life.</td>
<td>Resilience characteristics were the greatest contribution to predicting student’s adjustment in university.</td>
<td>Counselling centres should identify issues and problems experienced by students and efforts may be directed toward providing positive coping styles to students</td>
</tr>
<tr>
<td>Author</td>
<td>Measures</td>
<td>Study design</td>
<td>Main objectives of the study</td>
<td>Main findings</td>
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</table>
| 9 Reyes (2012)  | • Phase I: Autobiographical writing  
• Phase II: In-depth interviews  
• Phase III: Focus groups | Narrative research design | Experiences that contribute to the development of academic resiliency in first-generation Latinas  
What factors do academically resilient first-generation Latinas attribute their educational success? | Internal protective factors  
External protective factors | Familial support is vital                                      |
| 10 Taylor and Reyes (2012) | • Resilience scale  
• General self-efficacy scale | Quasi experimental design | To explore self-efficacy and resilience among baccalaureate nursing students over one semester of nursing study. | Self-efficacy improves when people overcome circumstances that are more difficult | Further study is needed on how to understand the relationship between self-efficacy and resilience  
Having a better understanding in self-efficacy and resilience in student success may be helpful in developing curricula and teaching or learning practices that promote retention in nursing programmes. |

*Note:* This table has been condensed to ease reading.
According to Table 2, of the ten included articles, five were qualitative in nature and five were quantitative. The quantitative articles made use of demographic questionnaires and various scales, whereas the qualitative resources made use of interviews and focus groups. Eight of the included articles reported on risk factors, external protective factors, and internal protective factors, one article reported only on external protective factors while another article reported on internal protective factors.

DISCUSSION

This systematic review aimed to investigate the protective factors and its association to academic resilience for undergraduate students at a higher education institution. As Kumpfer (1999) suggests, stressors, risk factors, external protective factors, and internal protective factors are involved in constant processes that interact with each other. Therefore, the researchers set the secondary outcomes which included stressors, risks, strengths, and coping mechanisms also for exploration.

Results from the systematic review revealed that both internal and external protective factors served to buffer against the effects of risk factors. The acknowledged external protective factors comprised of family support, peer support, academic support, social groups, parenting style and affection, affirmation and approval. Internal protective factors identified refer to internal strengths that a student may also develop over time, and included intrinsic motivation, self-reliance, self-efficacy, independence and autonomy, dedication and commitment, mental toughness, strong future orientation and high self-esteem. In the section below, factors that emerged from this review will be unpacked and discussed against the backdrop of the resiliency model by Kumpfer (1999) with specific relation to academic resilience.

According to Kumpfer (1999) incoming stimuli activate the resilience process and create disequilibrium in the individual in view of stressful situations. This statement is also
supported by Morales and Trotman (2011). Many students attending higher education institutions experience challenges such as moving away from home, adjusting to the university environment, managing their finances and taking care of their own basic needs (Maple, 2012; Morales, 2014). This review identified substance abuse; gang-related groups and community violence as environmental stressors influencing students’ lives. In addition, when students are confronted with intense academic stress and financial hardship, university life may become even more complicated (Morales, 2010; Reyes, 2012). This review yielded articles of students mainly from minority groups indicating that gender, culture and socio-economic status were important vulnerability areas serving challenges. Together with vulnerability areas, students are also confronted with several risk factors. This review highlighted that the lack of family support was a major risk factor that students experienced. The more risk factors a student is exposed to, the more unfavourable effect it will have on developmental outcome, however, some students experience the same risk factors but defy the odds and flourish (Morales, 2010). From this review it became apparent that although some students experienced a lack of family support, they also can manifest internal strengths such as self-reliance, independence and autonomy to cope and overcome these risk factors. Students do not only possess internal protective factors but also external protective factors to offset risk factors.

External protective factors

The findings of this review strongly indicate that the presence of family support is not only a significant predictor of success (Morales, 2010; Reyes, 2012; Morales, 2000; Cerezo et al., 2013; Rahat & Ilhan, 2016; Abukari & Laser, 2013; Lamas & Consoli, 2010) but also a source of motivation (Morales, 2008, 2010; Reyes, 2012) for students to succeed. Academically successful students appear to have a supportive network of family members, friends, neighbours, and teachers whom they rely on for counsel and advice in difficult or
stressful situations (Perez, Espinoza, Ramos, Cornado, & Cortes, 2009). However, even though the presence of family support aided in students’ resilient outcomes, not all students in the review were fortunate enough to receive family support. Students who experienced a lack of family support, developed abilities to seek other forms of support as a source of motivation. The nature of support came from caring school personnel or academic mentors serving as an external protective factor by providing encouragement and empathy, which motivated students to strive towards resilient outcomes.

Support from family (external protective factor) also supported the students’ internal strengths (internal protective factor) as they had a stronger drive to succeed. In some ways, students were motivated by their parents’ approval and affirmation and drew inspiration from their parents to academically succeed. In this instance, the students appreciated and acknowledged the sacrifices that they parents put in place, in order for them to attend higher education. Some students witnessed that their parents gave up their own dreams and goals for this to realize. In turn, this encouraged students to work hard and to ensure a better future for themselves. By working hard and attaining academic success, these students felt that they were actually giving back something to their families and inspired their younger siblings to also pursue their dreams. Since parents were willing to make sacrifices, students stated that they owed it to their families to thrive academically and in doing so contribute to their family’s future success. Family support seemed to initiate during students high school years by means of financial commitment and sacrifice of parents to equip students with a good quality education, even though some parents were not educated themselves.

An article on social work students by (Wilks & Spivey, 2010) indicated that friend-related social support moderated the negative association between academic stress and resilience; therefore, the interaction between friend support and academic stress had a positive impact on resilience among students. An article examining depression in students
indicated that actively utilizing campus social support systems such as 1. “Mentorships” between seniors - and junior students or students and personal tutors, or 2. “befriending” social networks via online (Facebook) and offline (campus social clubs), decreased the rate of student depression (Lee & Jeong, 2014).

*Gender and culture* were identified in this review as having a significant impact in the way that family support is transferred. The researchers found that Ghanaian woman did not receive familial support or support from academic mentors as they were expected to fulfil their roles as a woman first and secondly attend educational work as a student (Abukari & Laser, 2013). This finding is supported by Dunne et al. (2005) who observed that teachers in Ghana apply authoritarian teaching styles and view girls as less competent than boys coupled with sexual harassment of female students by male teachers. Independent of culture, it seems as if female students still succeeded due to their internal strengths such as dedication and commitment and intrinsic motivation. Contradicting results were found in another study indicating, that female students perceived more support from their families (Saygın & Arslan, 2009). On the other hand, Çeçen (2007) showed that perceived social support does not differ by gender. From the above, it is clear that the impact of family support on gender should be further explored.

Kumpfer (1999) identified five domains related to internal strengths. This systematic review has identified two additional domains, namely the *motivational* and *self-esteem* clusters that the researchers found to have profound effects on the outcome of students’ academic resilience. Multiple internal strengths associated with academic resilience are originated, developed, and refined through the resiliency process. This suggests that multiple internal strengths are associated with resilience, rather than just a selected few (Kumpfer, 1999; Plumb, 2015). Taylor and Reyes (2015) study indicated that nursing student’s persistence served as strength to successfully navigate against stressors and challenges.
Students were motivated by their future orientations as well as their mothers’ work ethic. Emerging from this review, the stressors, and risk factors such as low socio-economic status, financial strain and family background initiated a reaction whereby students drew from their internal protective factors in order to move towards academic resilience. In the next section, the researcher aims to portray the internal protective factors identified in this review and how students utilized them in order to cope with the stressors and risk factors. This will be done by referring to the six domains previously stated related to internal strengths.

Internal protective factors

Kumpfer (1999) indicated five overlapping domains of internal resiliency (cognitive, emotional, physical, spiritual and behavioural). These components play an essential role in successful functioning of individuals in their social environment (Kumpfer, 1999). A strong motivational and self-esteem component was identified in this systematic review as important additional internal resiliency factors.

The cognitive domain of internal protective factors includes cognitive skills to help students achieve their goals (Kumpfer, 1999). Mental toughness surfaced as a strength in this domain. Mental toughness is a collection of experientially developed and inherent strengths, values, attitudes, emotions, and cognitions that influence the way in which a student is able to reach his goals (Gucciardi, Gordon, & Dimmock, 2009; Cohen & Levine, 2011). It was found in this review that mental toughness was directly related to both academic and social goal progress over a university semester (Gucciardi et al., 2015). This finding is supported by Gerber et al. (2013) and Sheard (2012) who suggests that mental toughness possesses the tendency to enhance performance, while evoking a protecting effect against psychological distress. This may suggest that students who possess higher mental toughness can cope with stress better than those with less mental toughness. Mental toughness does not only contribute to academic resilience but also aids in the promotion of general well-being and flow
(Mahoney, Gucciardi, Ntoumania, & Mallet, 2014; Stamp et al., 2015). In a study by Gerber et al. (2013) mental toughness was associated with better adaptation to perceived stress. In addition, Golby and Wood (2016) indicated that mental toughness increased psychological traits such as self-esteem, self-efficacy and positive affect.

Even though self-esteem falls under the cognitive component, it became apparent that self-esteem appeared explicitly to the foreground which indicates that it is more than just a cognitive ability. The themes that surfaced were self-esteem, self-efficacy, self-awareness, and independence and autonomy. “Self-esteem is a degree of approval, acceptance and worth that a person feels about themselves. It is one of the factors contributing to academic achievement” (Arbabisarjou et al., 2016). Studies have shown a significantly positive relationship between self-esteem and academic achievement (Hosseini et al., 2016; Arbabisarjou et al., 2016). Morales (2008) study identified that self-esteem was a major contributor to academic achievement in students. A high self-esteem has been found to be an important construct that is often related to academic achievement, academic, social, and institutional adjustment in students (Tiwari & Patel, 2016; Nordstrom, Goguen, & Hiester, 2014). It is suggested that a student with a positive self-concept would perform better than someone with a lower or negative self-concept (Kwek et al., 2014). Johnson, Dinsmore, and Hof (2011) suggest that positive judgment of oneself (self-esteem), autonomy and self-reliance are the contributors to resilience. Students in this review had a sense of self-awareness and went out to seek protective factors when they experienced a lack of protective factors, students were aware that they could not be dependent on family support, they searched other forms of support and utilized their internal strengths to mitigate their risk factors. In a study by Taylor and Reyes (2012), measuring self-efficacy, they found that self-efficacy was higher at the end of the semester than at the beginning of the semester which concludes that self-efficacy is a contributor to resilience and improves when people overcome
challenges and difficulties. Morales (2000) identified that self-efficacy was a predictor in achieving goals and achievement motivation. Arbabisarjou et al. (2016) found that there was a positive relationship between self-esteem and motivation. This finding correlates with the findings from this review where motivation and self-esteem surfaced as strong components as part of internal protective factors.

Reyes (2012) and Morales (2000) highlighted independence and autonomy as an internal protective factor. Students believed that they had to be independent and this independence was the greatest asset in terms of their higher education success. Another student indicated that his high levels of independence and autonomy were an important contributor to his academic achievement; furthermore, he stated that his mother gave him the space and freedom to be independent.

The emotional and physical components found to be important in this study were optimism and physical attractiveness. It was found that there exists a relationship between optimism and individual success in many tasks including academic performance (Abukari & Laser, 2013). Students faced emotional breakdowns as a result of their risk factors; however, they also found the strength to restore their breakdowns and used their cognitive and emotional abilities to find hope and motivation (Reyes, 2012; Abukari & Laser 2013; Morales, 2010). Perhaps emotional intelligence can also support other internal strengths. Studies suggest that good physical status is a predictor of resilience (Kumpfer, 1999). Masten (1994) indicates that becoming better at what you do increases self-worth and self-efficacy. Abukari and Laser (2013) found that students with optimism and students who identified themselves as physical attractive tend to perform better academically. It can be assumed that if a student has a high sense of self-worth he might also accept himself physically and perhaps take better care of his physical well-being.
The spiritual component as internal protective factors was linked and expressed in the findings of this review in attitudes of gratitude, hope and purpose or meaning drivenness that serve to create direction for students (Kumpfer, 1999). Internal locus of control, hopefulness, purpose in life and gratitude were the main strengths highlighted in this study. Students indicated that their internal locus of control served as an internal protective factor. Internal locus of control served to also buffer against risk factors (Morales, 2010; Reyes, 2012). Hosseini et al. (2016) found a significant correlation among self-esteem, internal locus of control and academic achievement. This could perhaps indicate that the higher the self-esteem that is present in students, the more independent they are in terms of their abilities and as a result of this; they reach academic achievement. Students also showed gratitude for the sacrifices their parents have made; this gratitude encouraged their commitment toward their studies. A finding by Magno and Orillosa (2012) suggest that when students are grateful or show appreciation given by others foster and lead to positive emotions. Students were driven by their academic goals (Reyes, 2012; Abukari & Laser, 2013; Morales, 2008; 2010). However, these internal strengths were inspired by vulnerability factors such as gender and culture and in other cases by protective factors such as family support and parental expectations (Abukari & Laser, 2013; Morales, 2008). Ghanaian women were driven by their academic goals even though they received resistance from their male counterparts (Abukari & Laser, 2013).

The strong motivational or conative component as internal protective factor was highlighted by themes of strong future orientation, inspiration and dedication. Many students in the study (Morales, 2010), indicated that their internal protective factor was their strong future orientation. Students drew inspiration from their parents who motivated them to succeed (Reyes 2012, Morales, 2000; Morales 2008; Morales, 2010). Students witnessed the effort and pain that their parents, sometimes single parents, endured hardships to make it
possible for these students to attend a higher education institution, even though their vulnerability and risk factors were present, these students built strength from these factors. This finding is supported by Vega (2016) which demonstrates that students acknowledged their parents’ struggles and sacrifices as motivation for their success. Many of the students in this study (Reyes, 2012) reminded themselves of their future, and what was waiting for them once they had finished higher education. Many students knew that the future would hold more opportunities if they succeeded in higher education (Reyes, 2012, Morales, 2008). In Vega’s (2016) study, students were motivated by acknowledging the association between a college degree and an improved quality of life. This could also imply that student success could also mean family success and completing a degree and attaining academic achievement can hold a sense of pride within the family. Reyes (2012) highlighted dedication to achieve academic excellence as a protective factor. In this study, students were all females and their dedication and commitment to their studies fuelled their success. Being a good student was a motivation to excel and at the same time reduce all the negative expectations and criticism for female students that faced resistance from male counterparts. Other students in this sample knew that it was imperative for them to excel, and that they had to take responsibility for their own career paths.

The cognitive, emotional, physical, spiritual motivational and self-esteem domains led up to the behavioural domain. Students’ internal strengths are developed and refined as students mature and are exposed to various stressors and risk factors. These strengths assist the students to cope and act upon their internal strengths in time of need. It becomes clear that academic resilience is dependent on the interplay among stressors, risk factors, external protective factors, and internal protective factors. In Figure 4 the researcher aims to illustrate the interplay of these factors in a modification of the Kumpfer (1999) model.
CONCLUSION

This systematic review aimed at highlighting the protective factors associated with academic resilience for undergraduate students in higher education. External protective factors are significant resources for students to achieve academic resilience. These external protective factors also interact with students’ internal protective factors. It is concluded from this review that a motivational / conative and a self-esteem component can be added to internal facets in the conceptualization of the resilience process as illustrated in a modification of the Kumpfer (1999) model. This study identified that culture and gender serves as vulnerability variables that might contribute to a risk factor and needs further exploration to explore the true impact.

*Figure 4.* The interplay of stressors, risk factors, external protective factors and internal protective factors in a modification of the Kumpfer (1999) model.
these factors have on academic resilience. Although articles identified in this review were all conducted amongst minority groups, academic resilience is of importance to the general undergraduate student population. The researchers therefore conclude that academic resilience should further be explored in a wider context as stressors and a risk such as financial constraints is not only experienced by minority groups but by the larger student population.

LIMITATIONS OF THIS STUDY

When interpreting the results and the discussion it is important for the reader to take into consideration that the researchers acknowledged certain limitations that surfaced within this review:

- The researchers acknowledge that one study had to be excluded from the review as an author did not respond in time and the article could not be obtained for the possible inclusion for the review.

- The review had a specific focus which meant that it had a limited scope only pertaining to academic resilience. It could be that some articles were not included due to this limitation.

- There were only 10 articles that were included in the review, even though it was a small amount, it served as value to the study as it was appropriate and available articles that was found during the search strategy.

- It is important to note that most of these studies were done with subgroup populations and therefore cannot be generalized for all students, as these were the only studies applicable and available at the time that the search strategy for this systematic review was implemented.
IMPLICATIONS AND RECOMMENDATIONS

The findings from this study are important to school teachers, academic mentors, counsellors, parents and future researchers. Educators and researchers should be aware that protective factors and risks do not only surface during the first year of higher education. Protective factors need to be strengthened throughout school years. Research should focus on how school teachers or counsellors can encourage the use of external and internal protective factors, so that by the time students enter higher education, they can offset new risk factors with their internal strengths.

It is imperative to reiterate that the risk factors, protective factors and internal strengths of the students should be studied further together. Students should be able to identify their risk factors and seek protective factors.

Further research is needed on academic resilience amongst undergraduate students in higher education in general and not only minority groups as students in general encounter stressors and risk factors. In addition, further research should explore gender and culture and the way family support is transferred in these situations.

The motivational component and the strengthening thereof can be further investigated, especially in synchrony with the other internal protective components to understand how students make use of their inherent motivation to foster the development of academic resilience.
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http://doi.org/10.1080/14733140601185274

http://doi.org/10.1080/02615470902912243
Chapter 3: Conclusion, limitations, recommendations, policy brief and reflection

In this chapter, the researcher will draw a final conclusion, acknowledge limitations within the study and make recommendations for future research. A policy brief aimed at the Department of Higher Education and higher education institutions recommending the importance of protective factors in developing students’ academic resilience will be presented. The researcher will also reflect on the research process and the learning experiences towards developing into a researcher and lifelong learner.

Conclusion

The purpose of this study was to explore the protective factors in associated with academic resilience of undergraduate students at a higher education institution by means of a systematic review. The SPICE acronym was used to address the research question. In total, 10 articles were found and the electronic resources provided valuable information on various external protective factors, internal protective factors and coping mechanisms. The study made use of the resiliency model by Kumpfer (1999) as a background.

Students are faced with stressors on a daily basis such as academic pressure, financial strain and other challenges associated with university life. These challenges are no different in the South African context. Taking into consideration the #feesmustfall protests currently taking place in South Africa, and the estimated 20% drop out rate of students by the Department of Education in 2009 (DoE, 2010), it is important to acknowledge the importance of fostering internal protective factors within undergraduate students which they can utilize as compensatory mechanisms to overcome academic stress and risk factors such as financial strain within our current economy. These stressors are evident and are unique to each student. Each student is unique and experience and react to these challenges and risk factors differently. The level of positive or negative outcomes students experience is determined by the risk and protective factors impacting on the student’s resilience. Students who are
exposed to more protective factors and identify and utilize their internal strengths can overcome risk factors and be empowered. The importance of family as a protective factor was evident in most studies. The family provides support, encouragement, affection and validation which is important for a student’s success and development. The internal resiliency domains that were highlighted in this study were cognitive factors, emotional factors, and behavioural factors, physical and spiritual factors which were substantiated by Kumpfers (1999) model. However, a contribution to the current model of Kumpfer (1999) was made by highlighting the importance of two additional variables or components playing a role in academic resilience, namely a motivational / conative facet and a self-esteem component. Most students were motivated by their background and their parents’ strong work ethic. This explains that the presence of risk factors can actually motivate students to succeed despite their family’s history and socio-economic status. Students who have strong internal resiliency factors are somewhat predisposed to being academically resilient despite the risk factors present. It must be taken into account that the interplay between external protective factors, internal protective factors and risk factors influence the resilience and outcome for the student as explained in the model in Chapter two.

**Limitations**

Even though this study yielded valuable information, the researchers identified several limitations:

- The search strategy made use of only electronic databases subscribed to the North-West University. Therefore, databases that were not subscribed to by the North-West University were obviously excluded. However, the researchers made use of multiple other sources such as Google, dissertations, unpublished theses and all reference lists.
• The search strategy posed a challenge as it took much time and effort to come to a
  final search strategy
• Some key words are used interchangeably in the articles; it is possible that relevant
  articles might have not been included.
• Even though 99 eligible articles were found, only 10 were selected. The main
  reason for this is that in most articles, students were referred to high school students
  and not higher education students.
• Selection bias served as a limitation as two resources included only five participants
  each, even though the sample size was small, the findings of the resources were
  valuable to this systematic review
• An article that might have been included in this systematic review had to be
  excluded as the author did not respond in time
• Most articles that were found were done on minority groups, this could serve as a
  limitation as the general population was not included in this systematic review

  **Recommendations**

  The results of this study are of value to school counsellors, academic mentors,
  parents, students, researchers, higher education institutions and the Department of Higher
  Education (DoHE). Future interventions should be developed focusing on educating students
  to identify protective factors. These interventions should not only focus on minority groups
  but should include the general undergraduate student population. A gap was also identified in
  terms of exploring this phenomenon in the South African context. Encouraging the use of
  protective factors and internal strengths within the student population, could prove beneficial
  in developing resiliency outcomes. In the current South African context, where students are
  experiencing huge financial constraints and high dropout rates it is important to foster
  academic resilience. If students can overcome the stressors and risks they face in their
everyday lives and obtain a higher education degree despite of life’s challenges, they can positively contribute to their country’s economy and enhance their self-worth. The researchers therefore recommend a future intervention exploring the use of protective factors and internal strengths in fostering compensatory mechanisms to overcome stressors and risks students face in their journey towards achieving academic resilience.

From the study, it is evident that schooling plays an important role in the development and success of the student at a higher education institution. School counsellors should prepare student for higher education from Grade 11 by means of a Pre-College Preparation Programme that can enhance internal strengths and identify risk and protective factors.

Policy brief
Policy briefs are short documents that present findings and future recommendation for a research study. These documents are recommended to a broad audience as a tool for communicating research findings to decision makers (Young & Quinn, 2007). This policy brief is aimed at the Department of Higher Education and higher education institutions to communicate imperative findings regarding students’ academic resilience. This study highlights the importance of fostering protective factors and internal strengths towards achieving academic resilience. This might improve academic achievement and well-being in students in general. The purpose of this document is to serve as a recommendation to the Department of Education and higher education institutions to encourage the use of protective factors and internal strengths in students in order for students to move towards academic resilience. The policy brief is presented in the following page.
“Education is the most powerful weapon you can use to change the world”
Nelson Mandela

Attending and completing a higher education degree is an achievement to many students. However, during these years students are confronted with stressors and risk factors such as lack of family support, academic stress and financial strain. These risk factors may place students in a vulnerable position making it challenging to graduate. The #feesmustfall protests have placed universities in a difficult position and this has an implication for the South African economy.

The aim of this systematic review was to explore and identify the protective factors associated with academic resilience in undergraduate students at a higher education institution.

A nine-step rigorous methodology was followed by two independent researchers according to a pre-developed review proposal. Ten articles were identified as per inclusion and exclusion criteria.

Results

Results indicate that internal and external protective factors serve to buffer against risk factors experienced by the student. Family, peer and academic support emerged as a major external protective factor promoting academic resilience in students. In addition, various internal strengths such as intrinsic motivation, self-reliance, self-efficacy, high self-esteem, independence and autonomy, dedication and commitment, mental toughness, and a strong future orientation was found that contributed to student’s internal protective factors.

Why academic resilience?
Academic resilience is a process of inner transformation while searching for internal strength’s and protective factors within the student. If students can identify protective factors and internal strengths, they can offset stressors and risk factors experienced on a daily basis. In addition, students might be able to successfully complete their degree and secure a better future. This can also contribute to decreasing unemployment rates and increasing students’ self-worth.

If we can invest in our students and teach them how to use their protective factors they can achieve academic resilience and become successful in life and work.

Recommendations

- Future interventions should be developed focusing on educating students to identify protective factors
- Encouraging the use of protective factors and internal strengths within the student population, could prove beneficial in developing resiliency outcomes

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*AUTHer
Tasleem.Hassim@nwu.ac.za
Reflection

Rumi (n.d.) stated that “Yesterday I was clever, so I wanted to change the word, today I am wise so I am going to change myself.” Having come to the end of my master’s journey, I take this time to reflect upon my learning experiences throughout this entire research process. I am grateful to have been granted the opportunity to further my education by completing my degree Master of Arts in Positive Psychology. This time period of my life has been one of immense learning, growth and self-development.

During my journey I met and interacted with various researchers, scholars and mentors whom played a significant role in carving out this chapter in my life. However, there have been times of uncertainty, frustration and exhaustion, through this self-discovery, in becoming a scholarly researcher.

A famous poet once said: “Inside you there’s an artist you didn’t know about” (Rumi, n.d.). When I started my master’s studies in 2014, I opened this new chapter in my life and it was blank, fresh and crisp with a yearning to be filled with new knowledge, experience and skills.

The research process.

I acknowledge that when I began with this research process, my research capabilities lacked strength, substance and confidence and was not as well developed as my teaching and learning capabilities. As an academic, I have a dual responsibility including teaching and learning as well as research. Although I could stand in front of a class full of students and teach with flair, poise and assurance, I needed to work extremely hard towards developing my research capabilities to be able to complete this master’s degree in time and to deliver work of high quality.

Throughout this research process, my confidence and insight into research grew tremendously. The systematic review methodology was unfamiliar to me when it was
suggested by my supervisors. After we agreed that it was the most suitable method to use for addressing my research question, I began reading up on the method and became overwhelmed with the unfamiliar concepts and rigor of the nine step methodology. In order to improve my skill set and to gain more confidence in this methodology, I attended two worshipes on systematic review methodology presented by my supervisor at the North-West University. At that time, I felt as if I was covered with a cloud of uncertainty and doubts knowing that screening thousands of articles would take up so much of my time. However, I took it upon myself to face this challenge head on. With the assistance of my supervisors, I started off by developing a research proposal as a mind map for this systematic review. Compiling the research proposal was a tedious exercise. My research proposal was reviewed several times during the research process by my supervisors, a small panel of experts in the field, where after it was reviewed and approved by the Africa Unit for Transdisciplinary Health Research (AUTHER) scientific panel and Health Research Ethics Committee (HREC) of the North-West University, Potchefstroom Campus

During this rigorous process my self-confidence was tested numerous times. Part of me knew that this was a necessary learning experience; however, the rest of me felt that perhaps I was not good enough. At this point I had questioned my research capabilities and it seemed as though there was no light at the end of a very dark tunnel; but, I persevered. The expert knowledge of each reviewer strengthened the outcome of this study. The reviewers approached my study from different perspectives and their individual contributions and insight brought more substance and quality to the research proposal. Even though the research proposal was immense work and it felt like a slow process, it contributed to high quality work.
My learning experience.

Before I applied for this master's degree I asked myself “You have one master’s degree, why do another one?”; “What about your PhD?”; “This degree is not a professional degree, can you really do anything with it”. After consultation with experts in the field, I made a mind shift and decided to apply for this degree because it would strengthen my knowledge and skills. When I was accepted into this Master’s Degree Programme I was overjoyed, thrilled and a little nervous as many people I knew didn’t have faith in the validity of my choice to pursue this degree. However, I didn’t allow their comments to dampen my enthusiasm. Little did they know to what extent this master’s degree contributed to my psychology knowledge and research skills.

The first MAPP class was in January 2014, and in that moment, I knew this is where I wanted to be. I had made the correct decision. The MAPP class felt like a “global village”, where each student brought individual perspectives of “their own village” into the classroom. The ideas shared and knowledge gained will forever be engraved not only in my degree but within myself.

Reflecting back on my own personal development and my experiences I shake my head in wonderment and ask myself how I did I do it? How did I manage to come this far, taking into account that I had a full teaching load and the responsibility of supervising students of my own? It was extremely difficult to find a balance of working full time and studying part time. I believe it is through this journey that I learnt to focus, to persevere and commit on a new level. A level I am extremely proud to have achieved.

Writing this dissertation was an exciting challenge. It served as an excellent learning curve and there was a part of me that truly enjoyed it, however, there were also times when it overburdened me as I had to balance my work load and study responsibilities. It was tough, mentally exhausting and physically draining. It was a mixture of self-discovery and learning.
I discovered my own internal strengths, mastered a new methodology and developed into a scholarly researcher. I believe that this immense growth set a foundation for confidence and future opportunities within my research career.

I would like to conclude, even though there were times of frustration; I was encouraged by the wisdom of Rumi (n.d.) who said: “If you are irritated by every rub, how will you be polished?” I have learned that I can remain calm, composed and collected in tough times and that I have the ability to draw on my own strengths during times when I feel stressed and overwhelmed.
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http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3024725/


### Appendix A

#### Table 1. Demographic characteristics

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<th>Author</th>
<th>Title</th>
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<th>Journal</th>
<th>Country</th>
<th>Cultural</th>
<th>Sample size</th>
<th>Mean age</th>
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<tr>
<td>Abukari and Laser</td>
<td>Gender differences in academic outcomes among Ghanaian youth: The role of risk and protective factors</td>
<td>2013</td>
<td>Journal of community psychology</td>
<td>Ghana</td>
<td>Ghanaians</td>
<td>190 85</td>
<td>21.48</td>
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<td>Cerezo, Lydia, Beistianos, Enriquez and Connor</td>
<td>Latino men in college: Giving voice to their struggles</td>
<td>2013</td>
<td>Psychology of men and masculinity</td>
<td>United States of America</td>
<td>92% Mexican American 8% Salvadorian</td>
<td>11 0</td>
<td>22</td>
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<tr>
<td></td>
<td>Authors</td>
<td>Title</td>
<td>Year</td>
<td>Journal/Source</td>
<td>Country</td>
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<td>M</td>
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<td>Llamas and Consoli</td>
<td>The importance of familia for Latina College students: Examining the role of familial support in intragroup marginalization</td>
<td>2012</td>
<td>Journal of cultural diversity and ethnic minority psychology</td>
<td>United States of America</td>
<td>83% Mexican</td>
<td>52</td>
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<td>5</td>
<td>Morales</td>
<td>A contextual understanding of the process of educational resilience: High achieving Dominican American students and the resilience cycle</td>
<td>2000</td>
<td>Innovative higher education</td>
<td>United States of America</td>
<td>Dominican American Students</td>
<td>0</td>
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<tr>
<td>6</td>
<td>Morales</td>
<td>Exceptional female students of colour: Academic resilience in higher education</td>
<td>2008</td>
<td>Innovative higher education</td>
<td>United States of America</td>
<td>60% African American 40% Hispanic</td>
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<td>Title</td>
<td>Year</td>
<td>Journal/Media</td>
<td>Location</td>
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<td>7</td>
<td>Morales</td>
<td>Linking strengths and exploring protective factor clusters in</td>
<td>2010</td>
<td>Roeper review</td>
<td>United States of America</td>
<td>African American (60%) Hispanic (40%)</td>
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<tr>
<td></td>
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<td>academically resilient low socio-economic urban students of</td>
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<td>Coping styles, social support, relational self-construal and</td>
<td>2015</td>
<td>Journal of education sciences:</td>
<td>Turkey</td>
<td></td>
<td>152</td>
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<td>Ilhan</td>
<td>resilience in predicting students adjustment to university life</td>
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<tr>
<td>9</td>
<td>Reyes</td>
<td>Proving them wrong: Academically resilience first-generation</td>
<td>2012</td>
<td>Unpublished dissertation</td>
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<td>Latinas in college</td>
<td></td>
<td></td>
<td>Eastern public research institution</td>
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<td></td>
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<tr>
<td>10</td>
<td>Taylor and</td>
<td>Self-efficacy and resilience in baccalaureate students</td>
<td>2012</td>
<td>International journal of nursing</td>
<td>United States of America</td>
<td>No indication</td>
<td>26</td>
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Table 2  
**Main findings of study**

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<tr>
<th>Author</th>
<th>Measures</th>
<th>Study design</th>
<th>Main objectives of the study</th>
<th>Main findings</th>
<th>Author conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abukari and</td>
<td>• Demographic questionnaire</td>
<td>Cross sectional</td>
<td>To what extent do risk and protective factors among young people in Ghana vary by gender</td>
<td>The following risk factors were identified and were higher in males - parental drug abuse, individual drug abuse, poor neighbourhood safety, delinquency.</td>
<td>Programmes to support students should be gender and context specific</td>
</tr>
<tr>
<td>Laser (2013)</td>
<td>• Laser ecological protective factor for youth</td>
<td>survey design</td>
<td>What factors predict academic outcomes of Ghanaian youth?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Life events survey for youth</td>
<td></td>
<td>Absence of a parent at home or consistent parental monitoring was the only risk factor in females.</td>
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</tr>
</tbody>
</table>
Table 2 continued

<table>
<thead>
<tr>
<th>Author</th>
<th>Measures</th>
<th>Study design</th>
<th>Main objectives of the study</th>
<th>Main findings</th>
<th>Author conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerezo, Lydia, Beistianos, Enriquez and Connor (2013)</td>
<td>- Demographic questionnaire</td>
<td>Consensual qualitative design</td>
<td>Exploring educational and family systems as well as how pressures and expectations in the neighbourhood community impact Mexican American males’ college success</td>
<td>It is important to note that the pre-college factors contributed to the participant’s resilience and academic completion.</td>
<td>There is a need for college campuses to offer support to minority ethnic groups.</td>
</tr>
<tr>
<td>Author</td>
<td>Measures</td>
<td>Study design</td>
<td>Main objectives of the study</td>
<td>Main findings</td>
<td>Author conclusion</td>
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<tr>
<td>Gucciardi, Hanton, Gordon, Mallet and Temby (2014)</td>
<td>Survey package inclusive of the following:</td>
<td>Experimental design</td>
<td>The relationship between mental toughness, goal progress, thriving and psychological health</td>
<td>Mental toughness appears to play an important role in the understanding of goal progress, thriving and psychological health in terms of a person over time. Mental toughness is directly related to both academic and social goal progress over a semester.</td>
<td>More research is needed to examine mental toughness over related and umbrella concepts such as psychological capital</td>
</tr>
<tr>
<td>Author</td>
<td>Measures</td>
<td>Study design</td>
<td>Main objectives of the study</td>
<td>Main findings</td>
<td>Author conclusion</td>
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</tr>
<tr>
<td>Llamas and Consoli (2012)</td>
<td>• Demographic questionnaire</td>
<td>Experimental design</td>
<td>Exploring the relationship between intragroup marginalization by family members, college adjustment, resilience, and thriving among Latina/o college students.</td>
<td>Students reporting greater levels of intragroup marginalization reported lower levels of resilience, thriving, and college adjustment. Participants who indicated higher levels of social support reported lower levels of intragroup marginalization. Students reporting higher levels of social support also reported higher levels of resilience and thriving.</td>
<td>There is a need for colleges to promote communication between parents and students. Orientations or newsletters can be sent to families and parents as a helpful means to prepare parents for what their child may be experiencing and provide guidance on how to best support their children.</td>
</tr>
<tr>
<td>Author</td>
<td>Measures</td>
<td>Study design</td>
<td>Main objectives of the study</td>
<td>Main findings</td>
<td>Author conclusion</td>
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<td>---------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Morales</td>
<td>In-depth</td>
<td>Descriptive</td>
<td>To identify the protective factors within the sample and how these factors have operated together to produce high academic achievement</td>
<td>The participants were exposed to various risk factors throughout their life before college and during college, however they had a sense of self-awareness and this encouraged them to seek protective factors to mitigate the risk factors, in addition they developed personal strengths.</td>
<td>In order for students to utilize the resilience cycle, two components must be present: They have to be self-aware and self-reflective and they must be willing to act on their awareness and reflection. In order for them to act on their self-awareness, they have to have potential resources in their environment.</td>
</tr>
<tr>
<td>Author</td>
<td>Measures</td>
<td>Study design</td>
<td>Main objectives of the study</td>
<td>Main findings</td>
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</tr>
<tr>
<td>Morales (2008)</td>
<td>Long interview Completeness and data saturation</td>
<td>Descriptive design</td>
<td>What are differences in the academic resilience processes of low socioeconomic male and female students of colour</td>
<td>Females faced more resistance than males to achieve their college and career goals. Females were more motivated by their post-college professional goals than were males. 77% of females and 21% of males reported that they together with their academic responsibilities, they had additional caretaker responsibilities which often effected their schoolwork. This is also an indication that socioeconomic class plays a role</td>
<td>Qualitative studies with larger samples should be encouraged by understanding female resilience dynamics, programs and strategies should be implemented to better and meet desired goals Counsellors and advisors should be extra sensitive to females and work to provide necessary support mentoring should be encouraged.</td>
</tr>
<tr>
<td>Author</td>
<td>Measures</td>
<td>Study design</td>
<td>Main objectives of the study</td>
<td>Main findings</td>
<td>Author conclusion</td>
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<td>-------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>7 Morales (2010)</td>
<td>Semi-structured interviews</td>
<td>Exploratory design</td>
<td>Exploring protective factors or clusters if shared factors&lt;br&gt;How these factors operate in concert to produce high academic achievement</td>
<td>Move up in social class&lt;br&gt;Caring school or college personnel&lt;br&gt;Strong future orientation&lt;br&gt;Sense of obligation to one's race / ethnicity&lt;br&gt;Strong work ethic&lt;br&gt;Persistence&lt;br&gt;High self-esteem&lt;br&gt;Attendance at out of zone school&lt;br&gt;High parental expectations supported by words and actions&lt;br&gt;Mother modelling strong work ethic</td>
<td>The results presented here sets a foundation as a beginning to build new and further reaching theories on protective factors&lt;br&gt;The focus on low-socioeconomic groups presented here is not intended to blame those who are not successful but rather to better understand those who are successful. This understanding can lead to programs and initiatives designed to help the potentially resilient or the undocumented gifted will be more intelligently designed.</td>
</tr>
</tbody>
</table>
Table 2 continued

<table>
<thead>
<tr>
<th>Author</th>
<th>Measures</th>
<th>Study design</th>
<th>Main objectives of the study</th>
<th>Main findings</th>
<th>Author conclusion</th>
</tr>
</thead>
</table>
Rahat and Ilhan (2015)

- Personal information form
- Risk factors defining list
- Multi-dimensional scale of perceived social support
- Relational-interdependent self-construal scale
- Coping styles scale brief form University Life Scale
- Resiliency scale

Experimental design

To investigate how well coping styles, social support, relational self-construal, and resilience characteristics predict first year university students’ ability to adjust to university life.

The study confirms that resilience characteristics were the greatest contribution to predicting students’ adjustment in university. Resilience characterises makes a positive contribution to the transition of university life. Those students who are optimistic and possess good communication skills are able to adjust more easily in the university life.

Counselling centres may identify issues or problems commonly experienced by students via student information systems. That way, efforts may be directed toward providing positive coping styles to students connected with guidance and counselling centres, developing their resilience characteristics, and providing social support sources to increase adjustment.
<table>
<thead>
<tr>
<th>Author</th>
<th>Measures</th>
<th>Study design</th>
<th>Main objectives of the study</th>
<th>Main findings</th>
<th>Author conclusion</th>
</tr>
</thead>
</table>
| Reyes  | - Phase I: Autobiographical writing  
- Phase II: In-depth interviews  
- Phase III: Focus groups | Narrative research design | Experiences that contribute to the development of academic resiliency in first-generation Latinas? What factors do academically resilient first-generation Latinas attribute their educational success? What do the experiences that contributed to the academic resiliency of first-generation Latinas suggest for educational practice and policy | Family as a Source of Support and Motivation, Dedication to Achieve Academic Excellence, Motivation to Serve as a Role Model, and Intentional & Selective Schooling. | Academic resilience was heightened by the presence of and interaction among protective factors. These protective factors were comprised of dispositional, familial and environmental factors which included unwavering familial support, intrinsic motivation to succeed, and ongoing support from teachers, administrators and peer networks. |
<table>
<thead>
<tr>
<th>Author</th>
<th>Measures</th>
<th>Study design</th>
<th>Main objectives of the study</th>
<th>Main findings</th>
<th>Author conclusion</th>
</tr>
</thead>
</table>
| Taylor and Reyes | • Resilience scale  
• General self-efficacy scale | Quasi experimental design | To explore self-efficacy and resilience among baccalaureate nursing students over one semester of nursing study. | Self-efficacy and resilience was measured before the semester started and towards the end of the semester, the results indicated that the self-efficacy score at the end of the semester was slightly higher, not significantly higher than the pre-test scores. This suggests that self-efficacy improves when people | Further study is needed on how to understand the relationship between self-efficacy and resilience. A longitudinal study is suggested. As a trait, resilience may play an important role in persistence through the challenges of nursing study. |
Appendix C

<table>
<thead>
<tr>
<th>NOTARI data extraction tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reviewer</td>
</tr>
<tr>
<td>Author(s)</td>
</tr>
<tr>
<td>Year</td>
</tr>
<tr>
<td>Method</td>
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<tr>
<td>Participants</td>
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<tr>
<td>Setting</td>
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<td>Geographical</td>
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<td>Cultural</td>
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<tr>
<td>Population</td>
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<tr>
<td>Sample size</td>
</tr>
<tr>
<td>Interventions</td>
</tr>
<tr>
<td>Data analysis</td>
</tr>
<tr>
<td>Author conclusions</td>
</tr>
</tbody>
</table>

Reviewer comments
Appendix D

<table>
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<tr>
<th>MASTARI data extraction tool</th>
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<tr>
<td><strong>Reviewer</strong></td>
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<td><strong>Year</strong></td>
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<td><strong>Method</strong></td>
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<td><strong>Setting</strong></td>
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<td><strong>Population</strong></td>
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<tr>
<td><strong>Sample size</strong></td>
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<tr>
<td><strong>Interventions</strong></td>
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<tr>
<td><strong>Author conclusions</strong></td>
</tr>
<tr>
<td><strong>Reviewers conclusions</strong></td>
</tr>
</tbody>
</table>

**Study results**

<table>
<thead>
<tr>
<th>Dichotomous</th>
<th>Outcome</th>
<th>Intervention (n, N)</th>
<th>Intervention (n, N)</th>
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</thead>
<tbody>
<tr>
<td>Continuous</td>
<td>Outcome</td>
<td>Intervention (n, N)</td>
<td>Intervention (n, N)</td>
</tr>
</tbody>
</table>
Appendix E

CRITICAL APPRAISAL SKILLS PROGRAMME (CASP): Making Sense Of Evidence

10 Questions to Help You Make Sense of Reviews

**How to Use This Appraisal Tool**

- Three broad issues need to be considered when appraising the report of a systematic review:
  - Is the study valid?
  - What are the results?
  - Will the results help locally?
- The 10 questions on the following pages are designed to help you think about these issues systematically.
- The first two questions are screening questions and can be answered quickly. If the answer to both is “yes”, it is worth proceeding with the remaining questions.
- You are asked to record a “yes”, “no” or “can’t tell” to most of the questions. A number of italicised prompts are given after each question.
- These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

<table>
<thead>
<tr>
<th>Screening Questions</th>
<th>Detailed Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did the review ask a clearly-focused question?</td>
<td>5. If the results of the studies have been combined, was it reasonable to do so?</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
</tr>
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<td></td>
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</tr>
<tr>
<td>2. Did the review include the right type of study?</td>
<td>6. How are the results presented and what is the main result?</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
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</tbody>
</table>

**Is it worth continuing?**

- Did the reviewers try to identify all relevant studies?
  - Yes
  - Can’t Tell
  - No
- Did the reviewers assess the quality of the included studies?
  - Yes
  - Can’t Tell
  - No
- If a clear, pre-determined strategy was used to determine which studies were included, look for:
  - more than one assessor
7. How precise are these results?

HINT: Consider:
- If a confidence interval were reported, would your decision about whether or not to use this intervention be the same at the upper confidence limit as at the lower confidence limit?
- If a p-value is reported where confidence intervals are unavailable

8. Can the results be applied to the local population?

- Yes
- Can't Tell
- No

HINT: Consider:
- The population sample covered by the review could be different from your population in ways that would produce different results.
- Your local setting differs much from that of the review.
- You can provide the same intervention in your setting.

9. Were all important outcomes considered?

- Yes
- Can't Tell
- No

HINT: Consider outcomes from the point of view of:
- Individuals
- Policy makers and professionals
- Families/care
- Whole community

10. Should policy or practice change as a result of the evidence contained in this review?

- Yes
- Can't Tell
- No

HINT: Consider:
- Whether any benefit reported outweighs any harm and/or cost. If this information is not reported can it be filled in from elsewhere?
QUALITY ASSESSMENT TOOL FOR
QUANTITATIVE STUDIES

COMPONENT RATINGS

A) SELECTION BIAS

(01) Are the individuals selected to participate in the study likely to be representative of the target population?
1 Very likely
2 Somewhat likely
3 Not likely
4 Can't tell

(02) What percentage of selected individuals agreed to participate?
1 80 - 100% agreement
2 60 - 79% agreement
3 Less than 60% agreement
4 Not applicable
5 Can't tell

<table>
<thead>
<tr>
<th>RATE THIS SECTION</th>
<th>STRONG</th>
<th>MODERATE</th>
<th>WEAK</th>
</tr>
</thead>
<tbody>
<tr>
<td>See dictionary</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

B) STUDY DESIGN

Indicate the study design
1 Randomized controlled trial
2 Controlled clinical trial
3 Cohort: analytic (two group pre + post)
4 Case control
5 Cohort (one group pre + post: before and after)
6 Interrupted time series
7 Other specify
8 Can't tell

Was the study described as randomized? If NO, go to Component C.

No Yes

If Yes, was the method of randomization described? (See dictionary)

No Yes

If Yes, was the method appropriate? (See dictionary)

No Yes

<table>
<thead>
<tr>
<th>RATE THIS SECTION</th>
<th>STRONG</th>
<th>MODERATE</th>
<th>WEAK</th>
</tr>
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<tbody>
<tr>
<td>See dictionary</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
C) CONFOUNDERS

Q1. Were there important differences between groups prior to the intervention?
1. Yes
2. No
3. Can't tell

The following are examples of confounders:
1. Race
2. Sex
3. Mental status/family
4. Age
5. SES (income or class)
6. Education
7. Health status
8. Pre-intervention score or outcome measure

Q2. If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g., stratification, matching) or analysis).
1. 90–100% (most)
2. 60–90% (some)
3. Less than 60% (few or none)
4. Can't Tell

<table>
<thead>
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<th>WEAK</th>
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<tbody>
<tr>
<td>See dictionary</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

D) BLINDING

Q1. Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?
1. Yes
2. No
3. Can't tell

Q2. Were the study participants aware of the research question?
1. Yes
2. No
3. Can't tell

<table>
<thead>
<tr>
<th>RATE THIS SECTION</th>
<th>STRONG</th>
<th>MODERATE</th>
<th>WEAK</th>
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<tbody>
<tr>
<td>See dictionary</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

E) DATA COLLECTION METHODS

Q1. Were data collection tools shown to be valid?
1. Yes
2. No
3. Can't tell

Q2. Were data collection tools shown to be reliable?
1. Yes
2. No
3. Can't tell

<table>
<thead>
<tr>
<th>RATE THIS SECTION</th>
<th>STRONG</th>
<th>MODERATE</th>
<th>WEAK</th>
</tr>
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<tbody>
<tr>
<td>See dictionary</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
F) WITHDRAWALS AND DROP-OUTS

(G1) Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?
1 Yes
2 No
3 Can’t tell
4 Not Applicable (i.e. one time surveys or interviews)

(G2) Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).
1 00 - 100%
2 50 - 79%
3 less than 50%
4 Can’t tell
5 Not Applicable (i.e. Retrospective case-control)

<table>
<thead>
<tr>
<th>RATE THIS SECTION</th>
<th>STRONG</th>
<th>MODERATE</th>
<th>WEAK</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>See dictionary</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

G) INTERVENTION INTEGRITY

(G1) What percentage of participants received the allocated intervention or exposure of interest?
1 00 - 100%
2 50 - 79%
3 less than 50%
4 Can’t tell

(G2) Was the consistency of the intervention measured?
1 Yes
2 No
3 Can’t tell

(G3) Is it likely that subjects received an unintended intervention (contamination or co intervention) that may influence the results?
4 Yes
5 No
6 Can’t tell

H) ANALYSES

(G1) Indicate the unit of allocation (circle one)
- community
- organization/institution
- practice/office
- individual

(G2) Indicate the unit of analysis (circle one)
- community
- organization/institution
- practice/office
- individual

(G3) Are the statistical methods appropriate for the study design?
1 Yes
2 No
3 Can’t tell

(G4) Is the analysis performed by intervention allocation status (i.e. intention to treat) rather than the actual intervention received?
1 Yes
2 No
3 Can’t tell
GLOBAL RATING

COMPONENT RATING
Please transcribe the information from the grey boxes on pages 1-4 onto this page. See dictionary on how to rate this section.

<table>
<thead>
<tr>
<th>Component</th>
<th>Strong</th>
<th>Moderate</th>
<th>Weak</th>
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<tbody>
<tr>
<td>A SELECTION BIAS</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>B STUDY DESIGN</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>C CONFOUNDERS</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>D BLINDING</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>E DATA COLLECTION METHOD</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>F WITHDRAWALS AND DROPOUTS</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

GLOBAL RATING FOR THIS PAPER (circle one):

1 STRONG (no WEAK ratings)
2 MODERATE (one WEAK rating)
3 WEAK (two or more WEAK ratings)

With both reviewers discussing the ratings:

Is there a discrepancy between the two reviewers with respect to the component (A-F) ratings?

No  Yes

If yes, indicate the reason for the discrepancy

1 Oversight
2 Differences in interpretation of criteria
3 Differences in interpretation of study

Final decision of both reviewers (circle one): 1 STRONG
2 MODERATE
3 WEAK
# Appendix G

## PRISMA 2009 Checklist

<table>
<thead>
<tr>
<th>Section/topic</th>
<th>#</th>
<th>Checklist item</th>
<th>Reported on page #</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TITLE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>1</td>
<td>Identify the report as a systematic review, meta-analysis, or both.</td>
<td></td>
</tr>
<tr>
<td><strong>ABSTRACT</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Structured summary</td>
<td>2</td>
<td>Provide a structured summary including, as applicable, background, objectives, data sources, study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.</td>
<td></td>
</tr>
<tr>
<td><strong>INTRODUCTION</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Rationale</td>
<td>3</td>
<td>Describe the rationale for the review in the context of what is already known.</td>
<td></td>
</tr>
<tr>
<td>Objectives</td>
<td>4</td>
<td>Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).</td>
<td></td>
</tr>
<tr>
<td><strong>METHODS</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Protocol and registration</td>
<td>5</td>
<td>Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.</td>
<td></td>
</tr>
<tr>
<td>Eligibility criteria</td>
<td>6</td>
<td>Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.</td>
<td></td>
</tr>
<tr>
<td>Information sources</td>
<td>7</td>
<td>Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and data last searched.</td>
<td></td>
</tr>
<tr>
<td>Search</td>
<td>8</td>
<td>Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.</td>
<td></td>
</tr>
<tr>
<td>Study selection</td>
<td>9</td>
<td>State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).</td>
<td></td>
</tr>
<tr>
<td>Data collection process</td>
<td>10</td>
<td>Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.</td>
<td></td>
</tr>
<tr>
<td>Data items</td>
<td>11</td>
<td>List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.</td>
<td></td>
</tr>
<tr>
<td>Risk of bias in individual studies</td>
<td>12</td>
<td>Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.</td>
<td></td>
</tr>
<tr>
<td>Summary measures</td>
<td>13</td>
<td>State the principal summary measures (e.g., risk ratio, difference in means).</td>
<td></td>
</tr>
<tr>
<td>Synthesis of results</td>
<td>14</td>
<td>Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I²) for each meta-analysis.</td>
<td></td>
</tr>
</tbody>
</table>
## PRISMA 2009 Checklist

<table>
<thead>
<tr>
<th>Section/topic</th>
<th>#</th>
<th>Checklist Item</th>
<th>Reported on page #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of bias across studies</td>
<td>15</td>
<td>Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).</td>
<td></td>
</tr>
<tr>
<td>Additional analyses</td>
<td>18</td>
<td>Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.</td>
<td></td>
</tr>
<tr>
<td><strong>RESULTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study selection</td>
<td>17</td>
<td>Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage. Ideally with a flow diagram.</td>
<td></td>
</tr>
<tr>
<td>Study characteristics</td>
<td>18</td>
<td>For each study, present characteristics for which data were extracted (e.g., study size, PICCS, follow-up period) and provide the citations.</td>
<td></td>
</tr>
<tr>
<td>Risk of bias within studies</td>
<td>19</td>
<td>Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).</td>
<td></td>
</tr>
<tr>
<td>Results of individual studies</td>
<td>20</td>
<td>For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.</td>
<td></td>
</tr>
<tr>
<td>Synthesis of results</td>
<td>21</td>
<td>Present results of each meta-analysis done, including confidence intervals and measures of consistency.</td>
<td></td>
</tr>
<tr>
<td>Risk of bias across studies</td>
<td>22</td>
<td>Present results of any assessment of risk of bias across studies (see item 15).</td>
<td></td>
</tr>
<tr>
<td>Additional analysis</td>
<td>23</td>
<td>Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).</td>
<td></td>
</tr>
<tr>
<td><strong>DISCUSSION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary of evidence</td>
<td>24</td>
<td>Summarize the main findings including the strength of evidence for each main outcome: consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).</td>
<td></td>
</tr>
<tr>
<td>Limitations</td>
<td>25</td>
<td>Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).</td>
<td></td>
</tr>
<tr>
<td>Conclusions</td>
<td>26</td>
<td>Provide a general interpretation of the results in the context of other evidence, and implications for future research.</td>
<td></td>
</tr>
<tr>
<td><strong>FUNDING</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funding</td>
<td>27</td>
<td>Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.</td>
<td></td>
</tr>
</tbody>
</table>
Appendix H

Declaration

This is to declare that I, Annette L Combrink, accredited language editor and translator of the South African Translators' Institute, have language-edited the mini-dissertation by

T Hassim (20062621)

with the title

Academic resilience: A systematic review of protective factors for undergraduate students in higher education

Prof Annette L Combrink
Accredited translator and language editor
South African Translators' Institute
Membership No. 1000356
Date: 5 December 2016
Appendix J

Dear Dr Kumpfer,

I hope you are well.

My name is Tasleen Hassim and I am from South Africa. I am a student in the masters programme for positive psychology. I am busy with my dissertation entitled: Academic resilience: A systematic literature review of protective factors for undergraduate students in higher education. For the theoretical framework, I drew inspiration from your model and would like to discuss the results using the resiliency framework. I created my own model from your model and acknowledged your work; however, I would like permission to actually make use of it.

I have attached what I have created.

I really admire your work in the field of resilience and one day, I would really like to meet you.

Thank you for your contribution to my study.

Thank you for your reply! I would be glad to share the results with you as soon as my dissertation is complete.

Keep well,
Tasleen


>>> Karol Kumpfer <kkumpfer@xmission.com> 11/15/16 10:13 PM >>>
Tasleen,

Glad that my resilience model is useful for your degree. The way you have depicted the model looks good to me particularly lighting bolts within the stressors section.

Cheers, Karol