

Core Self-Evaluations as a Moderator of the Relationship Between Social Support and
Burnout in Working Adults and University Students

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Contents

List of Tables	4
List of Figures.....	5
Abstract	6
Declaration.....	7
Contribution Statement	8
Acknowledgements	9
1. Introduction	10
1.1 Theory Development	12
1.1.1 Conservation of Resources Theory	12
1.1.2 Burnout	13
1.2.3 Social Support.....	13
1.2.4 Core Self-Evaluations.....	14
1.2.5 Big Five Personality Traits.....	15
1.2.6 Previously Demonstrated Relationships.....	16
1.2 Literature Gaps and what this Study Addresses.....	17
2. Method.....	19
2.1 Participants	19
2.2 Materials.....	19
2.3 Demographic Measures.....	19
2.4 Psychological Measures	20
2.4.1 Burnout	20
2.4.2 Core Self-Evaluations.....	22
2.4.3 Received Social Support	22
2.4.4 Personality	23
2.5 Procedure.....	25
3. Results	27
3.1 Data Screening.....	27
3.2 Power Analysis.....	27
3.3 Assumptions of Correlation and Multiple Linear Regression Analyses.....	28
3.4 Description of Participants	29
3.5 Descriptive statistics	34
3.6 Correlations and Regression.....	38
3.6.1 Correlations and Regression Models for Working Adults.....	38

3.6.2 <i>Correlations in University Students</i>	39
3.7 Testing Core Self-Evaluations as a Moderator of the Social Support Burnout Relationship	47
3.7.1 <i>Instrumental Social Support in Working Adults</i>	47
3.7.2 <i>Emotional Social Support in Working Adults</i>	49
3.7.3 <i>Instrumental and Emotional Social Support in University Students</i>	49
4. Discussion	54
4.1 Key Findings	54
4.1.1 <i>The Predictors of Burnout</i>	54
4.1.2 <i>Interactions between Core Self-Evaluations, Social Support, and Burnout in Working Adults</i>	56
4.1.3 <i>Interaction between Core Self-Evaluations, Social Support, and Burnout in University Students and Group Differences</i>	57
Limitations regarding social support	57
Core self-evaluations and social support relationship	58
Demographic Differences	59
4.2 Practical Implications.....	60
4.3 Strengths of this Study	60
4.4 Limitations, Future Research and Conclusions	61
Appendix A: Online Qualtrics Questionnaire	71
Appendix B: Social Media Post	86

List of Tables

Table 1 <i>Example Questions from the MBI-GS and MBI-SS</i>	21
Table 2 <i>Cronbach's α for the MBI-GS and MBI-SS</i>	22
Table 3 <i>Cronbach's α Scores and Example Questions for the 2-Way Social Support Scale</i>	23
Table 4 <i>Cronbach's α Scores, Test-retest Stability and Example Questions for the BFI-10</i> ...25	
Table 5 <i>Post hoc Power Analysis of Significant Results</i>	28
Table 6 <i>Sensitivity Analysis</i>	28
Table 7 <i>Demographic measures for the University Student and Working Adult Population</i>	32-34
Table 8 <i>Independent Samples T-Test Comparing Burnout Constructs in Studying and Non-Studying Adults</i>	34
Table 9 <i>Descriptive Statistics of University Students and Working Adults; Employment, Academic, Burnout, Social Support and Personality Variables</i>	35
Table 10 <i>Spearman's Correlations for Working Adult Group with Cronbach's Alpha on the Diagonal</i>	41
Table 11 <i>Spearman's Correlations for the University Student Group with Cronbach's Alpha on the Diagonal</i>	42
Table 12 <i>Hierarchical Multiple Linear Regression for Working Adult Population</i>	43-44
Table 13 <i>Hierarchical Multiple Linear Regression for University Student Population</i> ...	45-46

List of Figures

Figure 1 <i>Percentage of University Students that screened High, Medium or Low for each Burnout construct and Screened Burnout Level.....</i>	36
Figure 2 <i>Percentage of Working Adults that screened High, Medium or Low for each Burnout construct and for Screened Burnout Level.....</i>	37
Figure 3 <i>Interaction of core self-evaluations moderating the relationship between instrumental support and exhaustion in working adults.....</i>	51
Figure 4 <i>Interaction of core self-evaluations moderating the relationship between instrumental support and professional efficacy in working adults.....</i>	52
Figure 5 <i>Interaction of core self-evaluations moderating the relationship between emotional support and professional efficacy in working adults.....</i>	53

Abstract

Burnout is a problematic issue in Australia, with the impact being felt by individuals and society. Given the impact of burnout on an individual's mental health and wellbeing, it has become increasingly important to identify protective factors. Factors should be explored in both workplace and university study settings, as burnout from university study has been demonstrated to lead to workplace burnout (Robins et al., 2018). Research on health care professionals has found that depending on the individual's core self-evaluations (a control-based personality trait), different types of social support may protect the individual against burnout. However, these relationships have not been explored in a broader workforce or among university students. To test the interactive relationship this study employed a cross-sectional design using 183 working adults and 285 university students. Results found core self-evaluations, instrumental and emotional social support were negatively correlated with burnout. Hierarchical multiple linear regression was conducted to explore if core self-evaluations moderated the relationship between both social support types and burnout. Results indicated that moderation was occurring in working adults, where for individuals with higher core self-evaluations, higher levels of instrumental social support were associated with reduced burnout, while in individuals with lower core self-evaluations, higher levels of emotional social support were associated with reduced burnout. However, moderation did not occur in the university student population. These findings indicate that group differences possibly affected core self-evaluations interacting with the social support and burnout relationship. Environmental and group differences are discussed, and recommendations made for further research.

Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma in any University, and, to the best of my knowledge, this thesis contains no material previously published except where due reference is made. I give permission for the digital version of this thesis to be made available on the web, via the University of Adelaide's digital thesis repository, the Library Search and through web search engines, unless permission has been granted by the School to restrict access for a period of time.

Signed

William George Sholto Stacy

September 2021

Contribution Statement

Developing the research questions for this thesis involved collaboration with my supervisor. I conducted the literature search, completed the ethics application, conducted all participant recruitment and surveying, and wrote up all aspects of the thesis.

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1. Introduction

Burnout is considered to be a result of chronic work stress, where one is fatigued and has lost a psychological connection to one's work (Maslach & Leiter, 2017). Burnout impacts on an individual's motivation and sense of identity. The feeling of being burnt out is a combination of a long-lasting exhaustion, cynicism towards one's work, and feelings of ineffectiveness and failure (Maslach et al., 1996). Burnout has been demonstrated to occur in both university student and working populations (Schaufeli et al., 2002).

Recent research on the impact of mental stress in the Australian workplace has found that the typical time lost in mental stress workplace compensation claims has been increasing (Productivity Commission, 2020). The Productivity Commission (2020) found the typical mental stress claim required 16.2 weeks off work and cost \$25,650, with the most common cause for compensation being work pressure. These payments were found to make up 12% of all national payments for serious workers' compensation claims. With mental stress being found to have such a significant and costly effect on the workforce, there is a need to identify the factors that can protect against it. As burnout is considered a result of chronic stress, factors that protect against burnout will also be addressing stress (Maslach & Leiter, 2017). In addition to compensation claims, other research into burnout in working adults has demonstrated its association with mortality below the age of 45, insomnia, depressive symptoms, etc. (Salvagioni et al., 2017). The impact of burnout in organisations includes increased absenteeism, intention to quit, job dissatisfaction, and poor performance, all of which typically comes at a cost to the employer (Schaufeli, 2003).

Work-related stress is not just confined to workplaces. Research by Robins et al. (2018) followed students from their final year of university study into the workplace, and found that study burnout was correlated with workplace burnout. Robins et al. (2018) emphasised the

importance of not just focusing on burnout occurring in the workplace, but also exploring early intervention in students.

Research has found that university students can be considered at significantly higher risk of mental health problems, stress, and psychological distress than the general population (Deasy et al., 2014; Papier et al., 2015; Stallman, 2010). Dyrbye and Shanafelt (2016) demonstrated that mental health issues in university students are closely associated with burnout and they could therefore be considered at higher risk of burnout than the general population. Research with medical university student populations demonstrated burnout was associated with serious issues such as increased suicidal ideation, cheating, dishonest behaviours and decreased empathy (Dyrbye & Shanafelt, 2016). Research into broader university student populations has also shown that burnout is associated with increased dropout rates, student dissatisfaction with learning outcomes, and poorer academic performance (Duque, 2014; Marôco et al., 2020).

In an exploration into factors protecting against burnout in working adult populations Wang et al. (2016) found that differences in personality resulted in different types of social support protecting against burnout. These results indicated that it is worthwhile to take individual characteristics into account when exploring what factors protect against burnout in working populations. As stress is such a significant issue in both working adult and university student populations, and study burnout has been demonstrated to lead to work burnout (Robins et al., 2018), this study seeks to explore whether the interactive factors that Wang et al. (2016) found protected against burnout, are consistent in a broad working adult and university student populations.

1.1 Theory Development

The following sections will outline the theoretical foundation for why an interactive effect that protects against burnout is expected to occur.

1.1.1 Conservation of Resources Theory

The theoretical foundation for this study is the Conservation of Resources theory (Hobfoll, 1989). Conservation of Resources suggests that people seek to retain, protect and build on their resources, where resource loss or potential resource loss is stressful and threatening. Hobfoll (1989) defined three conditions under Conservation of Resources that would cause stress: 1) the threat of a net loss of resources, 2) the actual net loss of resources, or 3) a lack of resource gain following the investment of resources. Hobfoll (1989) made the distinction that perceptions of loss and potential loss are also stressful. One of the key principles of Conservation of Resources theory is that the environment or context creates the situation in which resources will either thrive, be maintained, or be reduced (Hobfoll et al., 2018).

One of the consequences of Conservation of Resources theory (Hobfoll, 1989) is the potential for “loss spirals”. As resource investment is needed to build and protect resources, individuals with less resources are more vulnerable to resource loss because their capacity for resource investment is lower. Therefore, individuals with lower levels of personal resources are more vulnerable to resource loss, which can create a vicious cycle where resource loss spirals downwards, with repeated further resource losses, all resulting in stress to the individual (Hobfoll et al., 2018).

1.1.2 Burnout

Research into burnout suggests that it is a chronic stress response (Maslach & Leiter, 2017). Based on Conservation of Resources theory (Hobfoll, 1989), burnout could be seen as a potential result of a resource loss spiral.

This research uses the Maslach et al. (1996) multidimensional definition of burnout, as it is the most widely accepted in the field. Burnout is defined as a combination of feelings of exhaustion, feelings of cynicism related to one's work, and reduced professional efficacy (Maslach et al., 1996; Maslach & Leiter, 2017; World Health Organisation, 2020).

Maslach and Leiter (2017) define the exhaustion dimension of burnout as intense feelings of being worn out, loss of energy, depletion, debilitation, and fatigue. They defined cynicism as negative or inappropriate attitudes, detached concern, irritability, loss of idealism, and withdrawal. Finally, they defined reduced professional efficacy as reduced productivity or capability, low morale, and an inability to cope. Research into the clinical diagnosis of burnout suggests that a diagnosis of high levels of burnout is a combination of a 'high' level of exhaustion in combination with either a 'high' level of cynicism or a 'low' level of professional efficacy (Roelofs et al., 2005; Schaufeli et al., 2001).

1.2.3 Social Support

Social support is an exchange of resources between at least two individuals that are perceived by the provider or the recipient as enhancing the well-being of the recipient (Shumaker & Brownell, 1984). Making the distinction between two types of social support, emotional and instrumental, is valuable in exploring exactly what kind of social support is assisting individuals (Semmer et al., 2008). Emotional support is a form of social support which is provided to an individual through communication of encouragement, understanding, and acceptance. Instrumental support is tangible assistance provided to an individual. While

not all studies exploring the effects of social support make the distinction between the two types, social support has been demonstrated to have protective effects against burnout in both working adult and university student populations (Baruch-Feldman et al., 2002; Kim et al., 2018).

Wang et al. (2016) used a measure of social support that was focused on the organisation's support of the individual's family needs (Jahn et al., 2003). As this study aims to measure and compare perceptions of social support relevant to both university students and working adults, a general measure of social support that is appropriate for both groups will be used.

1.2.4 Core Self-Evaluations

Core self-evaluations are a higher-order personality construct which represents an individual's feelings regarding their ability to function in their environment (Judge et al., 2004). Core self-evaluations incorporates a combination of four traits: self-esteem, generalized self-efficacy, locus of control, and emotional stability (neuroticism) (Judge et al., 1998). Based on the premise of this construct, higher scoring individuals are predisposed to evaluating their ability to cope with situational challenges better, seeing themselves as capable, worthy, and in control of their lives (Russell et al., 2008). Low scoring individuals have poor evaluations of their ability to function in their environment and would be predisposed to getting stressed. Research shows that core self-evaluations are stable, as they mainly reflect an individual's genetics, however, there are elements of an individual's self-concept that can fluctuate and change over time due to environmental factors (Judge & Kammeyer-Mueller, 2011).

A meta-analysis found that core self-evaluations are consistently negatively associated with stressors and strains (Chang et al., 2012). Core self-evaluations are typically

found to negatively correlate with burnout in both university student and working adult populations (Alarcon et al., 2009; Leupold et al., 2020; Lian et al., 2014). Under Conservation of Resources theory (Hobfoll, 1989), core self-evaluations would be considered as a personal characteristic resource, which the theory proposes can have both main and moderating effects in reducing stress (Hobfoll et al., 2018).

Core self-evaluations deal with personal control and as a result have been categorised as a 'control' personality trait, which have been explored as protectors against stress (Luria & Torjman, 2009). Conservation of Resources theory (Hobfoll, 1989) suggests that people with a high sense of control will be less likely to evaluate a situation as a potential threat to their resources, and therefore less stressful (Chang et al., 2012). Individuals with lower evaluations of their personal control will be more likely to perceive situations as resource threats, therefore resulting in higher levels of stress. Core self-evaluations will be used as the personality trait tested in this study as Wang et al. (2016) provided evidence that they can moderate relationships between social support and burnout.

1.2.5 Big Five Personality Traits

A meta-analysis into how personality traits correlate with burnout found that of the 'Big Five' (Costa & McCrae, 1992) traits of personality, extraversion, agreeableness, and conscientiousness all negatively correlate with burnout, while neuroticism is positively correlated (Alarcon et al., 2009). Openness is not included in this study as it does not typically relate to burnout. As neuroticism is one of the components of core self-evaluations, this study will not measure it a second time. Extraversion is expected to correlate negatively with burnout as people with high levels of extraversion typically have more positive perceptions of their work environment and hence lower cynicism than low extraversion individuals (Lau et al., 2006). Individuals who are high in conscientiousness are believed to

be more proactive at addressing stressors in their work environment, which would be expected to reduce burnout (Barrick & Mount, 1991). Agreeableness is an individual's tendency to act in a likeable, harmonious and pleasant way with other people (Graziano & Tobin, 2009). Individuals high in agreeableness have shown to be less prone to burnout, which is believed to be a result of their tendency to form more positive relationships with their peers and create lower stress environments for themselves (Bowling et al., 2004). The analysis with Big Five traits will be exploratory and focused on how controlling for these stable personality traits affects the other expected construct relationships.

1.2.6 Previously Demonstrated Relationships

Wang et al. (2016) demonstrated that core self-evaluations moderated the relationship between social support and burnout in nurses from the USA. The theoretical foundation for this relationship is based on research that suggests individuals with high core self-evaluations are more likely to undertake instrumental, problem-solving approaches to challenges (Kammeyer-Mueller et al., 2009). Therefore, these high core self-evaluations individuals are more likely to utilise instrumental support in problem solving behaviours, as this is their typical problem-solving approach. Individuals with low core self-evaluations will be less likely to use problem-solving approaches to cope with stressful situations, as they are more likely to deem themselves unable to deal with the challenge. Thus, there is an expected interaction effect with core self-evaluations and instrumental support in coping with stress, as lower core self-evaluations individuals will be less likely to leverage instrumental support, while higher core self-evaluations individuals will be more likely to use it.

Lower core self-evaluations individuals are likely to have lower evaluations of their ability to deal with demanding situations, and therefore experience higher amounts of stress and negative reactions as a result (Chang et al., 2012; Judge et al., 1998). Research suggests

individuals low on core self-evaluations will be more likely to pursue goals that reduce negative reactions such as shame, guilt and anxiety (Judge et al., 2005). Furthermore neuroticism, a trait of core self-evaluations, is consistently associated with emotional based coping styles (O'Brien & DeLongis, 1996; Penley & Tomaka, 2002). Therefore, individuals high on neuroticism, and as a result low on core self-evaluations, are more likely to utilise emotional coping strategies, incorporating emotional social support. This suggests there will be an interactive effect as low core self-evaluations individuals are more likely to utilise emotional social support than high core self-evaluations individuals as they experience these forms of stressors more frequently.

1.2 Literature Gaps and what this Study Addresses

There are a few key limitations in the research available in this area. Firstly the research by Wang et al. (2016) which demonstrated core self-evaluations acted as a moderator between instrumental and emotional social support and burnout, was limited, as it only explored the relationship in female nurses with family responsibilities in the USA. To date, these relationships have not been examined in broader working populations or in university student populations.

As the theoretical foundation for the moderation effect is based on how individuals perceive their ability to cope with outside challenges, this study proposes that this relationship could be applied to broader, multigendered, working and student populations (Hobfoll, 1989; Judge et al., 2005; Kammeyer-Mueller et al., 2009). This is important to explore as the findings of this study will have potential practical implications for how burnout is handled from a human resources and student support services perspective. Therefore, the aims of this study are as follows; (i) to explore the relationship between burnout, social support, and core self-evaluations in university students and working adults; (ii) to explore if

core self-evaluations moderates the relationship between instrumental or emotional received social support and aspects of burnout in working adults and university students; (iii) to compare the moderation relationship differences, if any, between the university student and working adult populations.

Based on the previously demonstrated relationships between the variables being measured and burnout (Alarcon et al., 2009; Baruch-Feldman et al., 2002; Kim et al., 2018; Leupold et al., 2020; Lian et al., 2014), it is hypothesised that:

Hypothesis 1: Higher levels of core self-evaluations, instrumental social support and emotional social support will predict lower levels of burnout.

Based on past research in this area (e.g., (Hobfoll, 1989; Judge et al., 1998; Kammeyer-Mueller et al., 2009; Wang et al., 2016)) this study proposes the following hypotheses:

Hypothesis 2a: Core self-evaluations will moderate the relationship between received instrumental social support and burnout in a general working adult population.

Hypothesis 2b: Core self-evaluations will moderate the relationship between received emotional social support and burnout in a general working adult population.

Due to the lack of evidence of these relationships in a university student population, there is insufficient justification to develop a hypothesis, so this study will also explore the relationships within the aforementioned aims.

2. Method

2.1 Participants

Individuals who were engaged in tertiary studies on a full or part time basis or were engaged in full or part time paid employment were eligible to participate. Working participants were recruited through Prolific, a paid service which pre-screened participants for both employment status and working in Australia. University student participants were recruited through University of Adelaide social media pages and the first-year psychology student research participation system. Through all channels participation was voluntary.

2.2 Materials

An online questionnaire was developed through Qualtrics to facilitate data collection. The questionnaire (see Appendix A) included demographic measures as well as measures of burnout, core-self evaluations, Big Five personality traits and received instrumental and emotional social support. The questionnaire contained basic branching logic that did not show questions that were not relevant to some participants, for example, if a student participant said they were not currently working, the questions regarding employment were not displayed. The questionnaire could be completed on participants' personal devices, such as phones or computers.

2.3 Demographic Measures

Participants were asked a range of questions relating to their demographics and their current work and study arrangement, such as; age bracket, highest level of achieved qualification, identified gender, current employment status, number of jobs held, industries worked in, number of hours worked/studied per week, how long the individual's main job had been held, work or study from home arrangements, number of days per week the individual is working at home versus in the workplace, university study from home

arrangements, number of days per week studied at home versus in university, and what qualification was currently being studied.

2.4 Psychological Measures

Measures of burnout, core self-evaluations, personality, social support, and demographics were used in this study. Items were scored so that higher scores indicated greater levels of the named construct. Cronbach's α was used to measure internal-consistency reliability (Nunnally & Bernstein, 1994).

2.4.1 Burnout

Burnout was measured using different scales for the university student and working adult population, as the measure needed to be suitable to the individual's context. The Maslach Burnout Inventory – General Survey (MBI-GS) developed by Maslach et al. (1996) was used to measure burnout in working adults. The MBI-GS has three subscales, a five-item exhaustion scale, a five-item cynicism scale and a six-item professional efficacy scale. Examples of questions from each of these scales are included in Table 1. All questions were scored on a seven-point Likert scale ranging from 'Never' (1) to 'Every day' (7). The MBI-GS is a paid survey and cost \$1.40 USD per survey. Following MBI-GS survey use requirements, the questions were followed by a copyright disclaimer regarding the ownership of the questions.

The Maslach Burnout Inventory – Student Survey (MBI-SS) developed by Schaufeli et al. (2002) was used to measure burnout in university students. The MBI-SS has three subscales, a five-item exhaustion scale, a four-item cynicism scale and a six-item professional efficacy scale. Questions are variations of MBI-GS questions adapted for a study context; examples of questions from each of these scales are included in Table 1. All questions were scored on a seven-point Likert scale ranging from 'Never' (1) to 'Always' (7). The initial

validation of the study by Schaufeli et al. (2002) found the measure had good reliability and validity. As this scale has a different number of questions to the MBI-GS, the method used by Robins et al. (2018) was implemented, where only the four MBI-GS cynicism questions that matched their MBI-SS counterparts were used. This allows the results from the university student and working adult populations to be compared. Psychometric evaluations have demonstrated that both MBI-SS and MBI-GS have good reliability and validity, with the MBI-GS demonstrating it retains good reliability when removing one cynicism question (Robins et al., 2018; Schaufeli et al., 2002). Robins et al. (2018) reported high levels of internal consistency reliability for both measures as seen in Table 2. All burnout measures used in this study had acceptable to excellent internal-consistency reliability.

Table 1

Example Questions from the MBI-GS and MBI-SS

Dimension	MBI-GS example question	MBI-SS example question
Exhaustion	I feel emotionally drained from my work.	I feel emotionally drained by my studies.
Cynicism	I doubt the significance of my work.	I doubt the significance of my studies.
Professional Efficacy	In my opinion, I am good at my job.	In my opinion, I am a good student.

Table 2*Cronbach's α for the MBI-GS and MBI-SS*

Dimension	MBI-GS α (t2) (Robins et al., 2018)	MBI-GS α (t3) (Robins et al., 2018)	MBI-GS α - this study	MBI-SS α (Robins et al., 2018)	MBI-SS α - this study
Exhaustion	.90	.91	.94	.84	.92
Cynicism	.87	.91	.91	.78	.91
Professional Efficacy	.86	.76	.79	.76	.80

2.4.2 Core Self-Evaluations

Core self-evaluations were measured using a single scale, which measures the core constructs of core self-evaluations (self-esteem, generalised self-efficacy, neuroticism, and locus of control). The scale used was the 12-item 'Core Self-Evaluations Scale' developed by Judge et al. (2003). Questions were measured on a five-point Likert scale ranging from 'Strongly agree' (5) to 'Strongly disagree' (1), where six of the twelve questions used in this scale were reverse scored. Examples of these question are; 'I am confident I get the success I deserve in life' and 'Sometimes when I fail I feel worthless' (reverse scored). Judge et al. (2003) reported good levels of internal consistency reliability for this scale ($\alpha = 0.85$) and in this study it was also good ($\alpha = 0.87$) for students and good (0.89) for working adults.

2.4.3 Received Social Support

Social support was measured with the 2-Way Social Support Scale. The 2-Way Social Support Scale is a social support measure developed by Shakespeare-Finch and Obst (2011) which assesses given and received emotional social support and instrumental social support. This study only used the received social support scales, which contained seven questions

asking about the participants' received emotional social support and four questions asking about the participants' received instrumental social support. Example questions for these two measures are shown in Table 3. Item scores were summed together to produce a total score on each dimension for each participant. Initial validation of the study by Shakespeare-Finch and Obst (2011) demonstrated the scale had good levels of reliability and validity, Cronbach's α scores are included in Table 3. All measures used in both populations for this study demonstrated good levels of Cronbach's α (Table 3).

Table 3

Cronbach's α Scores and Example Questions for the 2-Way Social Support Scale

Construct	Example Item	Cronbach's α from Sample 1 (Shakespeare-Finch & Obst, 2011)	Cronbach's α from Sample 2 (Shakespeare-Finch & Obst, 2011)	University students Cronbach's α (this study)	Working Adults Cronbach's α (this study)
Received Emotional Support	There is someone I can talk to about the pressures in my life	.92	.90	.94	.97
Received Instrumental Support	There is someone who would give me financial assistance	.86	.81	.83	.91

2.4.4 Personality

The Big Five Inventory – 10 (BFI-10) developed by Rammstedt and John (2007) was used to measure personality. The BFI-10 is a shortened version of the Big Five Factor NEO-PI-R personality scale developed by Costa and McCrae (1992). The BFI-10 has 10 questions assessing openness, conscientiousness, agreeableness, neuroticism, and extraversion. As the

construct of core self-evaluations already measures neuroticism and openness and has not demonstrated previous correlations with burnout, questions for these two constructs were not included in the survey.

Original development and validation of this measure by Rammstedt and John (2007) found it had good validity and acceptable test-retest reliability given the short length of the scale. Furnham (2008) argued that short Big-Five scales, including the BFI-10, will always have low reliability scores due to their length, however this should not be considered a significant issue when considering their good validity. Evaluations of the BFI-10's reliability have demonstrated acceptable test-retest reliability scores given the scale's length (Karwowski et al., 2013). Cronbach's α results for this scale typically range from acceptable to just below acceptable (Appel-Meulenbroek et al., 2020; Pérez-Fuentes et al., 2019). While the reduced number of questions was trading off some internal consistency-reliability, this scale was deemed suitable for use in this study as a shorter scale would assist in reducing volunteer dropout.

This study found unacceptably low Cronbach's α results for the measures of conscientiousness and agreeableness in both populations, and just below acceptable α results for extraversion in working adults (see Table 4). A low, but acceptably usable, level for Cronbach's α was expected when selecting the BFI-10 for this study. Given the study design it was not possible to calculate a test-retest reliability score. Since both the conscientiousness and agreeableness results cannot be further evaluated, they will not be used. Given the BFI-10's previous scores for reliability and validity, and considering the scale's length, it was deemed appropriate to use the collected extraversion results (Furnham, 2008; Karwowski et al., 2013; Nunnally & Bernstein, 1994). However, as the extraversion results in the working adult population scored just below acceptable Cronbach's α levels, they will be interpreted with caution.

Table 4

Cronbach's α Scores, Test-retest Stability and Example Questions for the BFI - 10

Dimension	Example item	Test-retest Stability (Rammstedt & John, 2007)	Cronbach's α University students – present study	Cronbach's α Working Adults– present study
Extraversion	I see myself as someone who is outgoing, sociable	.83	.73	.66
Conscientiousness	I see myself as someone who does a thorough job	.77	.47	.54
Agreeableness	I see myself as someone who is generally trusting	.68	.35	.53

2.5 Procedure

Student participants were mostly recruited through unofficial University of Adelaide social media groups (see Appendix B for example post). First year psychology students were able to complete the survey through the Research Participation Program (RPS). This program offered students course credit for participation in research programs. Students recruited through social media were not offered any incentives.

Employee participants were recruited through Prolific. Prolific is an online survey distribution service, which offers researchers the ability to distribute a survey to participants for monetary compensation. Participants were pre-screened for having a full or part-time job as well as working in Australia.

Participants were invited to participate in the research program through an online survey developed through Qualtrics. Prior to participation, participants provided informed consent.

RPS participants provided their RPS and Student ID numbers for the purpose of allocating course credit only. Participant confidentiality and anonymity were always maintained.

This 5–10-minute questionnaire consisted of Likert scales measuring a range of constructs. Participants were asked to rate their responses on the Likert scales as accurately as possible. The study was approved by the University of Adelaide, School of Psychology Human Research Ethics Subcommittee (Code Number 21/35).

3. Results

3.1 Data Screening

A total of 560 individuals participated in this study. Of those, 14 individuals, were ineligible to participate as they did not fit into any of the identified groups (e.g., university student, or working adult, or were under 18) and were therefore excluded. A further 78 participants were also excluded from the study as they provided incomplete data (e.g., failed to complete all the questions or fill out scales) or did not respond appropriately (e.g., straight line answering, inappropriate responses in written questions, etc.). The final sample comprised a total of 468 participants, of which 183 were working adults and 285 were university students. Data was analysed with SPSS 27.

3.2 Power Analysis

This study was exploratory as significant changes had been made to previously conducted research, this study measured a different type of social support, burnout was treated as its individual constructs (not a combined score), and never before explored groups were involved (Wang et al., 2016). Therefore, it was not possible to estimate effect sizes and conduct a-priori power analysis to determine the number of participants required. This study's main method for analysis was multiple linear regression; therefore an approach recommended by Tabachnick et al. (2007) for evaluating the number of participants needed was used. Tabachnick et al. (2007) recommend 20 participants per independent variable in the regression model. As this study originally set out to incorporate nine independent variables in the multiple linear regression, a minimum of 180 participants were needed in each group.

Post-hoc power analysis was conducted to determine if the significant results had adequate power (see Table 5). A Bonferroni correction was implemented in the power

calculations to adjust for the multiple tests that were run, the α value used was 0.0429167.

Post hoc sensitivity analysis was conducted to calculate the Detectable ΔR^2 result (see Table 6). Results of the post-hoc analysis indicates the experiment was sufficiently powered to detect the effects it did find, and sufficiently sensitive to detect very small effect sizes.

Table 5

Post hoc Power Analysis of Significant Results

Group Tested for Moderation Effect	Exhaustion	Professional Efficacy
Employees	.97	.81

Table 6

Sensitivity Analysis

Group Tested for Moderation Effect	Detectable f^2 effect size	Detectable ΔR^2 in Exhaustion	Detectable ΔR^2 in Cynicism	Detectable ΔR^2 in Professional Efficacy
Students Moderation Effect	0.034	0.022	0.023	0.025
Employees Moderation Effect	0.054	0.033	0.036	0.037

3.3 Assumptions of Correlation and Multiple Linear Regression Analyses

In both the university student and working adult groups the relevant assumptions for Pearson's r Correlations were met, except for normality. In both groups, 9 variables had significant Shapiro-Wilk tests. Significant results indicate the variables were not normally distributed. Therefore, Spearman's ρ correlation analysis was used.

All burnout variables: exhaustion, cynicism and professional efficacy, in both groups, met the assumptions for conducting multiple linear regression (Baron & Kenny, 1986). Scatter

plots were used to test that the relationships between independent variables and the dependent variables were linear. Due to high levels of correlation identified between instrumental and emotional social support measured (0.63 in university students and 0.83 in working adults) there was the possibility of multicollinearity in the data. To test for this assumption, analysis of collinearity statistics was conducted, and variance inflation factor scores were all meaningfully below 10 for all situations and tolerance scores were all above 0.2. This indicates there were no issues with multicollinearity in the data set (Kim, 2019). To test that the values of residuals were independent, a Durbin-Watson test was conducted on all models; for all values this was close to 2, indicating this assumption had been met. Plots of variance of residuals were checked and did not show any signs of funnelling, indicating the assumption of homoscedasticity had been met (Osborne & Waters, 2002). To test for normality of residuals a P-P plot was used for all models, which indicated the assumption for normality of residuals had been met in most models. The cynicism model for university students and the professional efficacy for working adults had minor deviations, which were deemed unlikely to be significant. Finally, Cook's distance was used to check that no individual cases were excessively skewing the model. Results for all models were under 1, indicating this assumption had been met.

3.4 Description of Participants

Demographic information of both groups collected in this study is presented in Table 7. The majority of university students were in the 18-24 age bracket (86.0%), while the employees were mostly in the 25-34 bracket (44.8%). The majority of student respondents were female (71.3%), while the split between genders was closer to even in the employee group (51.9% male, 47.5% female).

The majority of students were enrolled for full time study (94.8%), while the minority of employees were undertaking any form of studies (38.8%). Of the 71 employees that were studying, 42.3% were studying part time while 57.7% indicated that they were studying full time. Comparing the proportion in this study to the Australian census data, this is a reasonably higher proportion of working adults that are simultaneously studying than is representative of the Australian population (Australian Bureau of Statistics, 2020). Therefore, there is a possible concern that this sample is more representative of students than of working adults. However, research by Galbraith and Merrill (2012) found work and study burnout are weakly related and suitable to be considered as distinct constructs. The design of this study paid special attention to ask the working adult individuals about their work-related burnout, and to ensure that the groups could be considered distinct, t-tests were conducted. Table 8 includes the results of an independent samples t-test conducted, which compares the burnout scores of the non-studying and studying working adult groups. Results were non-significant for all three constructs of burnout, exhaustion, $t(175) = -.716, p = .475$, cynicism, $t(175) = -.447, p = .655$ and professional efficacy, $t(175) = 1.762, p = .080$. Therefore, the groups can be considered as not significantly different from each other.

One other potential issue with the demographics is the age difference between this sample and the average Australian population. This sample was mostly in the 25-34 age bracket (44.80%), while the average working Australian is aged 39.8 (Australian Bureau of Statistics, 2019). Age typically has a small negative relationship with exhaustion (Brewer & Shapard, 2004). Therefore, the population sampled for this study would be expected to have slightly higher levels of exhaustion than the typical Australian population. A younger sample is likely a result of using Prolific as a service to gather data. While this is unlikely to have had a major effect on the study, these differences indicate that the sample gathered is not perfectly

representative of the Australian population. Regardless possible findings of this population will likely be helpful in prompting further study.

Other significant demographic differences between the populations were that in the student population the majority of individuals (69.6%) reported that they worked while studying. In the employee population, 38.8% reported currently studying in some capacity. Secondly, just over two thirds of students reported completing their study from home (68.4%) while just over half of employees did not complete any paid work from home (52.5%). The high percentage of work from home participation was largely attributed to the Covid-19 pandemic occurring at the time of data collection.

Finally, there was a difference in area of employment/study, the majority of employees were currently employed in the education and training (18.0%) sector, followed by retail trade (16.5%) and health care (15.0%). While the majority of students were studying a Health and Medical Sciences degree (41.9%), followed by Engineering, Computer and Mathematical Sciences (17.2%) and Arts (16.7%).

Table 7*Demographic measures for the University Student and Working Adult Population*

Demographic Variable	University Students		Working Adults	
	n	%	n	%
Gender				
Male	78	27.3%	95	51.9%
Female	204	71.3%	87	47.5%
Non-Binary / Third Gender	3	1.0%	1	0.5%
Skipped	1	0.0%	0	0.0%
Age Bracket				
18 - 24	246	86.0%	48	26.2%
25-34	29	10.1%	82	44.8%
35-44	8	2.8%	28	15.3%
45-54	2	0.7%	21	11.5%
55-64	0	0.0%	3	1.6%
65-74	1	0.3%	0	0.0%
75+	0	0.0%	1	0.5%
Study Enrolment				
Full-time	271	94.8%	41	22.4%
Part-time	15	5.2%	30	16.4%
Not Currently Studying	-	-	106	57.9%
Did not respond	0	0.0%	6	3.3%
Undertake Study from home?				
No	90	31.6%	13	18.3%
Yes	195	68.4%	58	81.7%
Highest qualification completed				
Not applicable	1	0.3%	1	0.5%
Graduate Certificate	0	0.0%	1	0.5%
Secondary School	210	73.4%	31	16.9%
Trade Certificate	13	4.5%	21	11.5%
University Diploma	3	1.0%	1	0.5%
University Graduate Diploma	1	0.3%	1	0.5%
Undergraduate/Bachelor's degree	42	14.7%	64	35.0%
Honours Degree	10	3.5%	21	11.5%
Master's degree	4	1.4%	33	18.0%
Doctoral Degree	0	0.0%	9	4.9%
Missing	2	0.7%	0	0.0%
Level of qualification currently being studied				
Trade Certificate	0	0.0%	1	1.8%
University Diploma	2	1.0%	4	7.0%
Undergraduate / Bachelor's Degree	167	79.5%	26	45.6%
University Graduate Diploma	1	0.5%	2	3.5%
Honours Degree	14	6.7%	3	5.3%

Master's Degree	15	7.1%	16	28.1%
Doctoral Degree	11	5.2%	5	8.8%
Area of degree currently being studied				
Arts	38	16.7%	17	30.4%
Engineering, Computer and Mathematical Sciences	39	17.2%	9	16.1%
Health and Medical Sciences	95	41.9%	15	26.8%
Professions	21	9.3%	10	17.9%
Sciences	34	15.0%	5	8.9%
Area of completed degree				
Arts	-	-	32	21.8%
Engineering, Computer and Mathematical Sciences	-	-	22	15.0%
Health and Medical Sciences	-	-	39	26.5%
Professions	-	-	32	21.8%
Sciences	-	-	12	8.2%
Trades	-	-	10	6.8%
Work status				
Works while studying	199	69.6%	-	-
Does not work while studying	87	30.4%	-	-
Number of Jobs Currently Held				
1	144	72.7%	144	78.7%
2	47	23.7%	34	18.6%
3	4	2.0%	5	2.7%
4+	3	1.5%	0	0.0%
Area of Employment^a				
Retail trade	63	26.7%	34	16.5%
Hospitality	58	24.6%	19	9.2%
Education and Training	39	16.5%	37	18.0%
Health Care	30	12.7%	31	15.0%
STEM	12	5.1%	9	4.4%
Agriculture	7	3.0%	2	1.0%
Arts and Recreation services	6	2.5%	12	5.8%
Information Technology	5	2.1%	20	9.7%
Professional services	8	3.4%	10	4.9%
Financial Services	4	1.7%	13	6.3%
Construction	2	0.9%	5	2.4%
Utilities	2	0.9%	9	4.4%
Legal	0	0.00%	3	1.5%
Mining	0	0.00%	2	1.0%
Length of time at main employer				
Under 6 months	37	18.7%	26	14.2%
6 months to 1 year	55	27.8%	22	12.0%
1 -2 years	42	21.2%	36	19.7%
2 - 3 years	27	13.6%	28	15.3%
3 - 5 years	22	11.1%	30	16.4%
5 - 10 years	14	7.1%	23	12.6%
10+ years	1	0.5%	18	9.8%

Undertake paid work from home

No	172	86.9%	96	52.5%
Yes	26	13.1%	87	47.5%

Note: In ^a if a participant had multiple jobs they were considered as separate instances

Table 8

Independent Samples T-Test Comparing Burnout Constructs in Studying and Non-Studying Adults

Parameter	Non-Studying Working Adults		Studying Working Adults		<i>t</i> (175)	<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Exhaustion	3.542	1.502	3.707	1.515	-.716	.475	-.110
Cynicism	3.113	1.803	3.232	1.633	-.447	.655	-.069
Professional Efficacy	4.608	0.947	4.345	1.015	1.762	.080	.270

Note: In all t-tests group 0 was the non-studying group and group 1 was the studying group

3.5 Descriptive statistics

Table 9 contains the descriptive statistics for the academic, employment, burnout, social support, and personality variables examined in the university student and working adult population. The method recommended by Maslach et al. (1996) was used for calculating burnout scores, where the average question response was used. Following the approach of Maslach and Leiter (2017), for diagnosing burnout, scores were calculated as ranging from high (≥ 4), medium (< 4 and ≤ 2) or low (< 2). Based on this definition for levels of burnout, Figures 1 and 2 show the percentage of university students and working adults (respectively) that fit into each qualification. The burnout score was based on first selecting an individual's worst score from cynicism and professional efficacy, and then selecting the minimum of this value and exhaustion which is then categorised using the above thresholds (Roelofs et al., 2005; Schaufeli et al., 2001). These graphs reveal minor differences between the groups; however a notable result is in both populations roughly 25% of participants screened high for burnout.

Table 9*Descriptive Statistics of University Students and Working Adults; Employment, Academic, Burnout, Social Support and Personality Variables*

Variable	University Students					Working Adults				
	N	M	SD	Min	Max	N	M	SD	Min	Max
Academic										
Average Studying Hours (per week)	284	27.3	14.9	2	76	70	20.49	11.57	2	60
Percentage of time Studying from home versus in person	193	0.54	0.24	0	1	57	0.81	0.25	0	1
Employment										
Number of Jobs Currently Held	195	1.33	0.60	1	4	183	1.24	0.49	1	3
Average Working Hours (per week)	195	17.42	9.57	1	40	183	30.84	15.00	2	80
Percentage of time Working from home versus in person	26	0.53	0.32	0	1	87	0.59	0.32	0	1
Burnout										
Exhaustion	286	3.79	1.38	0.8	6	183	3.59	1.54	0	6
Cynicism	286	2.83	1.68	0	6	183	3.14	1.75	0	6
Professional Efficacy	286	3.73	0.98	1.33	6	183	4.51	0.98	2	6
Social Support										
Received Emotional Support	286	25.36	7.95	1	35	183	24.99	9.18	1	35
Received Instrumental Support	286	14.28	4.57	0	20	183	13.92	5.14	0	20
Personality										
Core Self-Evaluations	286	35.21	7.21	20	58	183	38.48	8.25	19	58
Extraversion	286	5.69	2.03	2	10	183	5.16	2.03	2	10

Figure 1

Percentage of University Students that screened High, Medium or Low for each Burnout construct and for Screened Burnout Level

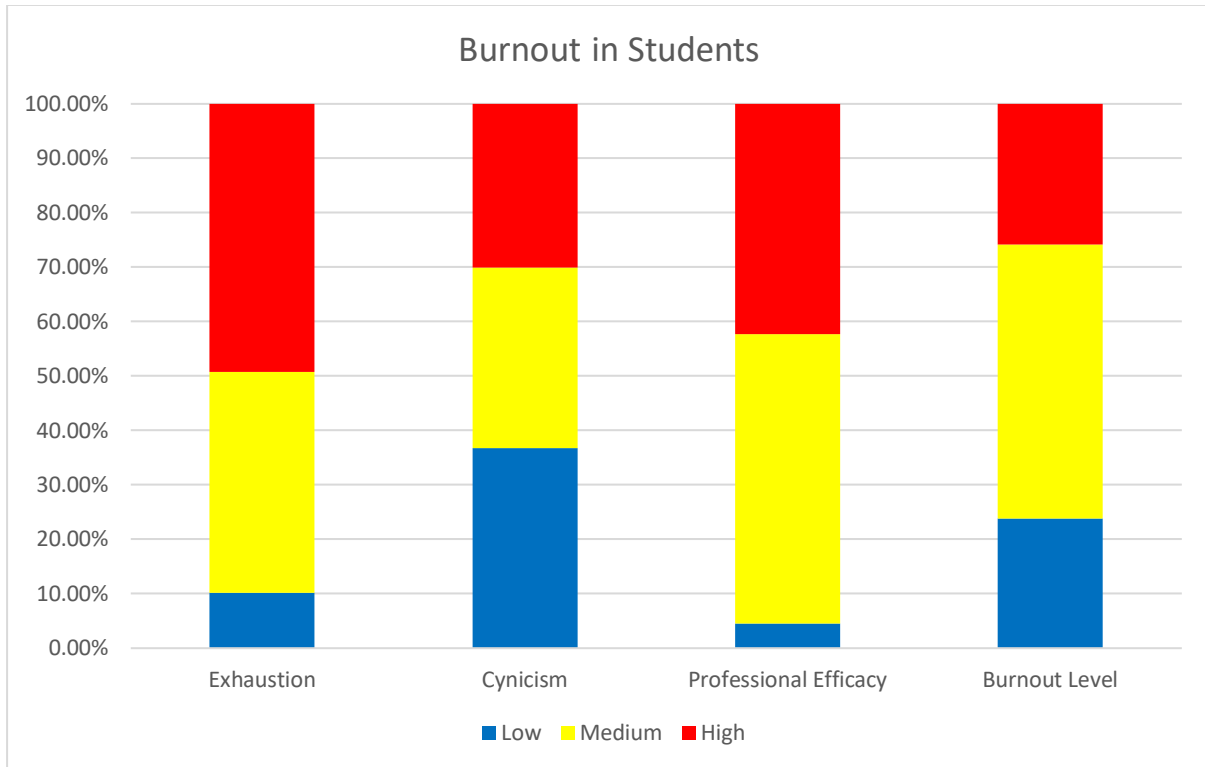
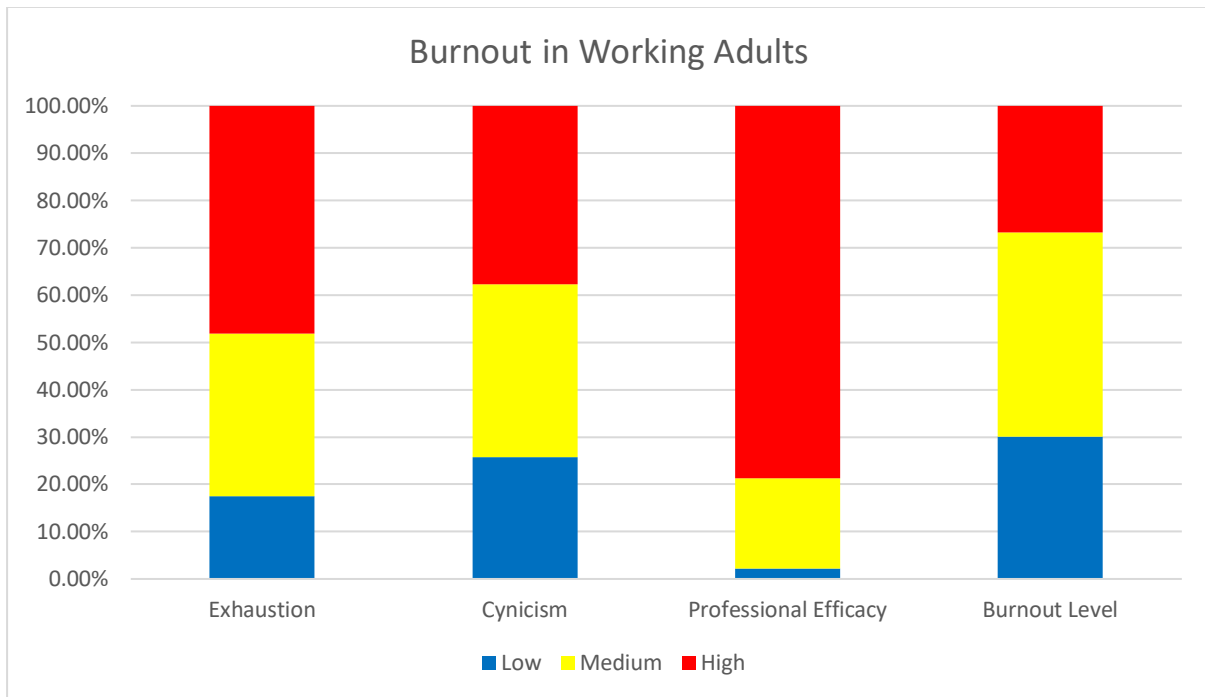


Figure 2

Percentage of Working Adults that screened High, Medium or Low for each Burnout construct and for Screened Burnout Level



3.6 Correlations and Regression

A correlation matrix with Spearman's correlations for variables measured in the working adult and university student populations can be seen in Table 10 and 11 respectively. Across all scales Cronbach's α was at an acceptable level, except for extraversion which was slightly lower than acceptable. Given this extraversion measure was very short and has demonstrated appropriate validity and test-retest reliability in previous studies, it was deemed appropriate to use (Rammstedt & John, 2007). Table 12 contains the results from the hierarchical multiple linear regression in adults, and Table 13 contains the results in students. Regression analysis incorporated the control variables, gender and hours working/studying (depending on if the participant was an employee or student), in the first step of the model. In the second step the independent variables, extraversion, emotional support, instrumental support, and core self-evaluations were added to the model. In the final step, the moderator variables 'emotional support \times core self-evaluations' and 'instrumental support \times core self-evaluations' were added. Notably, Control variables and extraversion did not have a major effect on the majority of models. The following sections will test Hypothesis 1, which stated that higher levels of core self-evaluations, instrumental social support and emotional social support will predict lower levels of burnout.

3.6.1 Correlations and Regression Models for Working Adults

Correlations in working adults (see Table 10) and linear regression models (see Table 12) were used to test what variables predicted burnout. Instrumental support had significant negative correlations with exhaustion ($\rho = -.32, p < .01$) and cynicism ($\rho = -.25, p < .01$), and a significant positive correlation with professional efficacy ($\rho = .28, p < .01$). In the hierarchical regression models, instrumental support was not a significant predictor of exhaustion ($\beta = -0.09, p > .05$), cynicism ($\beta = 0.03, p > .05$), or professional efficacy ($\beta = -$

0.04, $p > .05$). This indicates instrumental support scores were weakly associated with burnout but were not able to predict burnout.

Emotional social support had a significant negative correlation with exhaustion ($\rho = -.30, p < .01$) and cynicism ($\rho = -.26, p < .01$), while professional efficacy had a significant positive correlation with emotional support ($\rho = .29, p < .01$). Regression models indicated emotional support was not a significant predictor of exhaustion ($\beta = 0.03, p > .05$), cynicism ($\beta = -0.04, p > .05$), or professional efficacy ($\beta = 0.13, p > .05$). Therefore, just like instrumental support, emotional support scores were weakly associated with burnout but could not predict it.

Results of correlational and regression analysis with core self-evaluations in working adults indicated a significant negative relationship with exhaustion ($\rho = -.45, p < .01$) ($\beta = -.53, p < .01$) and cynicism ($\rho = -.53, p < .01$) ($\beta = -.59, p < .01$). Finally, core self-evaluations had a significant positive relationship with professional efficacy ($\rho = .46, p < .01$) ($\beta = .47, p < .01$). These relationships indicate that core self-evaluations were a strong negative predictor of burnout. Therefore, in working adults Hypothesis 1 is partially supported as only core self-evaluations were a significant negative predictor of burnout.

3.6.2 Correlations in University Students

Correlations in the university student population (see Table 11), revealed that instrumental support had a significant negative correlation with exhaustion ($\rho = -.23, p < .01$) and cynicism ($\rho = -.22, p < .01$) and a positive correlation with instrumental support ($\rho = .24, p < .01$). The regression models (Table 13) demonstrated instrumental support had non-significant relationships with exhaustion ($\beta = -.07, p > .05$), cynicism ($\beta = .02, p > .05$) and professional efficacy ($\beta = .04, p > .05$). These relationships indicate instrumental support was

correlated with burnout in the university student population but was not a significant predictor of burnout.

Received emotional support had a significant negative correlation with exhaustion ($\rho = -.16$, $p < .01$) and cynicism ($\rho = -.25$, $p < .01$) and a significant positive correlation with emotional support ($\rho = .32$, $p < .01$). However, in the regression models emotional support had non-significant relationships with exhaustion ($\beta = .09$, $p > .05$), cynicism ($\beta = -.05$, $p > .05$) and professional efficacy ($\beta = .13$, $p > .05$). Therefore, just like instrumental support, emotional support had significant correlations with burnout, but was not a significant predictor.

Core self-evaluations in university students had a significant negative relationship with exhaustion ($\rho = -.56$, $p < .01$) ($\beta = -.59$, $p < .01$) and cynicism ($\rho = -.54$, $p < .01$) ($\beta = -.57$, $p < .01$) and a significant positive relationship with professional efficacy ($\rho = .43$, $p < .01$) ($\beta = .39$, $p < .01$). This relationship indicated that higher levels of core self-evaluations predicted lower levels of burnout. Therefore, the tested relationships provided partial support for Hypothesis 1 in university students, as core self-evaluations negatively predicted burnout, while instrumental and emotional social support did not. Therefore, Hypothesis 1 has been partially supported across both populations, with core self-evaluations being the only significant predictor of burnout.

Table 10*Spearman's Correlations for Working Adult Group with Cronbach's Alpha on the Diagonal*

Scale	1	2	3	4	5	6	7	8	9	10
1. Exhaustion	(0.94)									
2. Cynicism	.63**	(0.91)								
3. Professional Efficacy	-.26**	-.47**	(0.79)							
4. Core Self-Evaluations	-.45**	-.53**	.46**	(0.89)						
5. Received Emotional Support	-.30**	-.26**	.29**	.47**	(0.97)					
6. Received Instrumental Support	-.32**	-.25**	.28**	.46**	.83**	(0.91)				
7. Extraversion	-0.14	-0.10	.16*	.27**	.32**	.23**	(0.66)			
8. Gender	-0.05	0.06	-0.04	-.27**	.16*	0.06	0.09	-		
9. Hours working a job (per week)	.17*	0.04	0.10	.19**	0.04	0.10	0.11	-.26**	-	
10. Hours Studying (per week)	0.09	0.06	-.15*	-0.05	-0.06	-0.13	0.03	0.01	-.45**	-

*Note: ** $p < .01$ (2-tailed), * $p < .05$ (2-tailed)*

Table 11*Spearman's Correlations for the University Student Group with Cronbach's Alpha on the Diagonal*

Variable	1	2	3	4	5	6	7	8	9	10
1. Exhaustion	(.92)									
2. Cynicism	.67**	(.91)								
3. Professional Efficacy	-.27**	-.41**	(.80)							
4. Core Self-Evaluations	-.56**	-.54**	.43**	(.87)						
5. Received Emotional Support	-.16**	-.25**	.32**	.37**	(.94)					
6. Received Instrumental Support	-.23**	-.22**	.24**	.36**	.63**	(.83)				
7. Extraversion	-.01	-.04	.15*	.21**	.18**	.03	(.73)			
8. Gender	.09	-.10	.11	-.11	.06	.01	.01	-		
9. Hours working a job (per week)	.01	.03	-.02	.05	.04	.02	.14*	-.04	-	
10. Hours Studying (per week)	.16**	-.03	.17**	-.05	-.07	-.15*	.09	.08	-.23**	-

*Note: ** $p < .01$ (2-tailed), * $p < .05$ (2-tailed)*

Table 12

Hierarchical Multiple Linear Regression for Working Adult Population

Variable	Exhaustion						Cynicism							
	B	95% CI for B		SE B	β	R ²	ΔR ²	B	95% CI for B		SE B	β	R ²	ΔR ²
		LL	UL						LL	UL				
Step 1						.03	.03						0.01	0.01
Constant	3.07**	2.45	3.68	0.31				2.82**	2.11	3.53	0.36			
Gender	-0.02	-0.47	0.43	0.23	-0.01			0.21	-0.31	0.73	0.26	0.06		
Hours Working	0.02*	0.00	0.03	0.01	0.17			0.01	-0.01	0.03	0.01	0.06		
Step 2						.32	.29**						0.31	0.31**
Constant	7.02**	5.96	8.08	0.54				7.33**	6.12	8.54	0.61			
Gender	-0.35	-0.77	-0.06	0.21	-0.12			-0.23	-0.71	0.24	0.24	-0.07		
Hours Working	0.03**	0.01	0.04	0.01	0.24			0.01	-0.00	0.03	0.01	0.12		
Extraversion	0.00	-0.10	0.10	0.05	0.00			0.07	-0.05	0.18	0.06	0.08		
Emotional Support	0.00	-0.03	0.04	0.02	0.03			-0.01	-0.05	0.03	0.02	-0.04		
Instrumental Support	-0.03	-0.09	0.04	0.03	-0.09			0.01	-0.06	0.08	0.04	0.03		
Core Self-Evaluations	-0.10**	-0.13	-0.07	0.02	-0.53			-0.12**	-0.16	-0.09	0.02	-0.59		
Step 3						.38	.06**						0.33	0.02
Constant	7.32**	6.28	8.36	0.53				7.38**	6.16	8.60	0.62			
Gender	-0.41*	-0.81	-0.01	0.20	-0.14			-0.26	-0.74	0.21	0.24	-0.08		
Hours Working	0.02**	0.01	0.04	0.01	0.23			0.01	-0.00	0.03	0.01	0.11		
Extraversion	0.02	-0.07	0.12	0.05	0.03			0.08	-0.04	0.19	0.06	0.09		
Emotional Support	0.02	-0.02	0.06	0.02	0.10			0.01	-0.04	0.06	0.02	0.05		
Instrumental Support	-0.08*	-0.15	-0.01	0.04	-0.27			-0.03	-0.11	0.05	0.04	-0.09		
Core Self-Evaluations	-0.09**	-0.12	-0.06	0.01	-0.49			-0.12**	-0.16	-0.09	0.02	-0.58		
Emotional x CSE	0.00	-0.00	0.01	0.00	0.11			0.00	-0.00	0.01	0.00	0.20		
Instrumental x CSE	-0.01**	-0.02	-0.00	0.00	-0.35			-0.01	-0.02	0.00	0.01	-0.24		

Table 12 (continued)

Variable	Professional Efficacy					R ²	ΔR ²
	B	95% CI for B		SE B	β		
		LL	UL				
Step 1						0.01	0.01
Constant	4.36**	3.96	4.75	0.20			
Gender	-0.03	-0.32	0.26	0.15	-0.02		
Hours Working	0.01	-0.00	0.02	0.01	0.08		
Step 2						0.26	0.25**
Constant	2.10**	1.39	2.80	0.36			
Gender	0.13	-0.14	0.41	0.14	0.07		
Hours Working	0.00	-0.01	0.01	0.00	0.03		
Extraversion	-0.01	-0.08	0.05	0.03	-0.03		
Emotional Support	0.01	-0.01	0.04	0.01	0.13		
Instrumental Support	-0.01	-0.05	0.03	0.02	-0.04		
Core Self-Evaluations	0.06**	0.04	0.08	0.01	0.47		
Step 3						0.30	0.04*
Constant	2.14**	1.44	2.84	0.35			
Gender	0.15	-0.13	0.42	0.14	0.08		
Hours Working	0.00	-0.01	0.01	0.00	0.03		
Extraversion	-0.02	-0.09	0.04	0.03	-0.05		
Emotional Support	-0.00	-0.03	0.02	0.01	-0.03		
Instrumental Support	0.02	-0.03	0.07	0.02	0.12		
Core Self-Evaluations	0.06**	0.04	0.08	0.01	0.47		
Emotional x CSE	-0.00**	-0.01	-0.00	0.00	-0.37		
Instrumental x CSE	0.01*	0.00	0.01	0.00	0.32		

Note: CI = Confidence Interval; LL= lower limit; UL = upper limit; CSE = Core self-evaluations. N= 183, * $p < .05$, ** $p < .01$

Table 13

Hierarchical Multiple Linear Regression for University Student Population

Variable	Exhaustion						Cynicism							
	B	95% CI for B		SE B	β	R ²	ΔR ²	B	95% CI for B		SE B	β	R ²	ΔR ²
		LL	UL						LL	UL				
Step 1						0.03	0.03**						0.01	0.01
Constant	3.24**	2.83	3.64	0.21				3.08**	2.57	3.57	0.25			
Gender	0.22	-0.13	0.56	0.18	0.07			-0.33	-0.75	0.10	0.22	-0.09		
Hours Studying	0.02**	.00	.03	0.01	0.16			0.00	-0.01	0.01	0.01	0.00		
Step 2						0.35	0.32**						0.32	0.31**
Constant	7.07**	6.24	7.90	0.42				7.70**	6.66	8.74	0.53			
Gender	0.01	-0.28	0.30	0.15	0.00			-0.53**	-0.89	-0.17	0.18	-0.15		
Hours Studying	0.01*	.00	.02	0.01	0.11			-0.01	-0.02	0.01	0.01	-0.05		
Extraversion	0.06	-.01	.12	0.03	0.08			0.09*	0.01	0.18	0.04	0.11		
Emotional Support	0.02	-0.01	0.04	0.01	0.09			-0.01	-0.04	0.02	0.01	-0.05		
Instrumental Support	-0.02	-0.06	0.02	0.02	-0.07			0.01	-0.04	0.05	0.02	0.02		
Core Self-Evaluations	-0.11**	-0.13	-0.09	0.01	-0.59			-0.13**	-0.16	-0.11	0.01	-0.57		
Step 3						0.35	0.00						0.32	0.00
Constant	7.05**	6.21	7.89	0.43				7.70**	6.64	8.75	0.54			
Gender	0.01	-0.28	0.30	0.15	0.00			-0.53**	-0.89	-0.17	0.18	-0.15		
Hours Studying	0.01*	0.00	0.02	0.01	0.10			-0.01	-0.02	0.01	0.01	-0.05		
Extraversion	0.06	-0.01	0.12	0.03	0.08			0.09*	0.01	0.18	0.04	0.11		
Emotional Support	0.02	-0.01	0.04	0.01	0.10			-0.01	-0.04	0.02	0.01	-0.05		
Instrumental Support	-0.03	-0.06	0.02	0.02	-0.07			0.01	-0.04	0.05	0.02	0.02		
Core Self-Evaluations	-0.11**	-0.13	-0.09	0.01	-0.59			-0.13**	-0.16	-0.11	0.01	-0.57		
Emotional x CSE	0.00	-0.00	0.00	0.00	0.03			-0.00	-0.00	0.00	0.00	-0.00		
Instrumental x CSE	-0.00	-0.01	0.00	0.00	-0.04			0.00	-0.01	0.01	0.00	0.00		

Table 13 (Continued)

Variable	Professional Efficacy						
	<i>B</i>	95% CI for <i>B</i>		SE <i>B</i>	β	R ²	ΔR^2
		LL	UL				
Step 1						0.04	0.04**
Constant	3.30**	3.01	3.59	0.15			
Gender	0.20	-0.04	0.44	0.12	0.10		
Hours Studying	0.01**	0.00	0.02	0.00	0.15		
Step 2						0.26	0.23**
Constant	0.68*	0.05	1.31	0.32			
Gender	0.27*	0.05	0.49	0.11	0.13		
Hours Studying	0.01**	0.01	0.02	0.00	0.20		
Extraversion	0.01	-0.04	0.06	0.03	0.02		
Emotional Support	0.02	0.00	0.03	0.01	0.13		
Instrumental Support	0.01	-0.02	0.04	0.01	0.04		
Core Self-Evaluations	0.05**	0.04	0.07	0.01	0.39		
Step 3						0.27	0.00
Constant	0.64*	0.01	1.28	0.32			
Gender	0.27*	0.05	0.49	0.11	0.13		
Hours Studying	0.01**	0.01	0.02	0.00	0.20		
Extraversion	0.01	-0.04	0.06	0.03	0.02		
Emotional Support	0.02	0.00	0.03	0.01	0.13		
Instrumental Support	0.01	-0.02	0.04	0.01	0.04		
Core Self-Evaluations	0.06**	0.04	0.07	0.01	0.40		
Emotional x CSE	0.00	-0.00	0.00	0.00	0.01		
Instrumental x CSE	-0.00	-0.01	0.00	0.00	-0.05		

Note: CI = Confidence Interval; LL= lower limit; UL = upper limit; CSE = Core self-evaluations. N= 285, **p* < .05, ***p* < .01

3.7 Testing Core Self-Evaluations as a Moderator of the Social Support Burnout

Relationship

The aims of this study proposed exploring if core self-evaluations would moderate the relationship between two types of social support and burnout constructs. To test for moderation, hierarchical multiple linear regression analysis was conducted, with moderation variables being added in the third step (see Table 12 for working adults and Table 13 for university students).

3.7.1 Instrumental Social Support in Working Adults

Hypothesis 2a proposed that core self-evaluations would moderate the relationship between instrumental social support and burnout constructs in a working adult population. In the regression model the instrumental support and core self-evaluations moderation variable was a significant negative predictor of exhaustion ($\beta = -.35, p < .01$), and was a significant positive predictor of professional efficacy ($\beta = .32, p < .05$). However, it was not a significant predictor of cynicism ($\beta = -.24, p > .05$). This result indicates that there is a moderation relationship occurring between core self-evaluations, instrumental support, and exhaustion, and another moderation relationship occurring between core self-evaluations, instrumental support, and professional efficacy. However, there was no moderation relationship occurring between core self-evaluations, instrumental support, and cynicism.

The method for graphing moderation effects recommended by Aiken et al. (1991) was used. This method involves splitting the variables into three groups, one standard deviation below the mean (Low), the mean value (Mean) and one standard deviation above the mean (High). The 'PROCESS' version 4.0 macro for SPSS developed by Hayes (2017) was used for calculating the values for all graphed interactions. Figure 3 graphs how core self-evaluations moderates the relationship between instrumental support and exhaustion in

working adults. Figure 3 demonstrates that the relationship between instrumental support and exhaustion changes depending on the individual's core self-evaluations. Individuals with low core self-evaluations do not show a meaningful change in exhaustion levels as instrumental support levels increase, while mean and high core self-evaluations individuals demonstrate a very sharp decrease in exhaustion levels as instrumental support levels increase. This indicates that depending on the core self-evaluations level of the individual, instrumental support will have a significantly different effect on experienced exhaustion levels.

Figure 4 is a graph of how core self-evaluations moderates the relationship between instrumental support and professional efficacy in working adults. The graph does not show a clear moderation relationship between the variables, so it appears no interaction is occurring despite the regression model indicating a significant effect. The moderation graphing method used has the benefit of retaining a lot of the statistical power, however it has the key weakness of not representing the relationships of individuals more than one standard deviation away from the mean in detail (Aiken et al., 1991). This relationship is possibly a case of the interaction effect occurring in cases more than one standard deviation away from the mean. Graphing methods that can capture these types of interactions require larger sample sizes as they lose a significant portion of the model's statistical power. This study did not have a large enough sample size to try alternative methods of graphing the moderation relationships, future research with larger sample sizes is needed to explore these relationships.

Therefore, from the relationships tested, core self-evaluations only moderated the relationship between instrumental social support and exhaustion. As two of the three tested relationships did not result in moderation, Hypothesis 2a is partially supported.

3.7.2 Emotional Social Support in Working Adults

Hypothesis 2b proposed that in working adults' core self-evaluations would moderate the relationship between received emotional support and burnout. To test if core self-evaluations moderated the relationship between emotional support and the burnout constructs, a 'emotional support \times core self-evaluations' variable was added to the regression equation in step 3. Relationships demonstrated this variable was a significant negative predictor of professional efficacy ($\beta = -.37, p < .01$). However, it was not a significant predictor of exhaustion ($\beta = .11, p > .05$) or cynicism ($\beta = .20, p > .05$). This indicates that core self-evaluations were only moderating the relationship between emotional support and professional efficacy.

Figure 5 shows the interaction where core self-evaluations moderates the relationship between emotional support and professional efficacy in working adults. This figure shows that in individuals with high core self-evaluations, changing levels of emotional support will not have a significant change on professional efficacy. However, for the mean and lower-level core self-evaluations individuals, there is a positive relationship with emotional support and professional efficacy. As higher levels of professional efficacy result in lower levels of burnout, this relationship suggests that mean and low core self-evaluations individuals experience lower levels of burnout if they receive additional emotional support, while high core self-evaluations individuals are mostly unaffected. Therefore, as moderation occurred in one of the three relationships tested, Hypothesis 2b is partially supported.

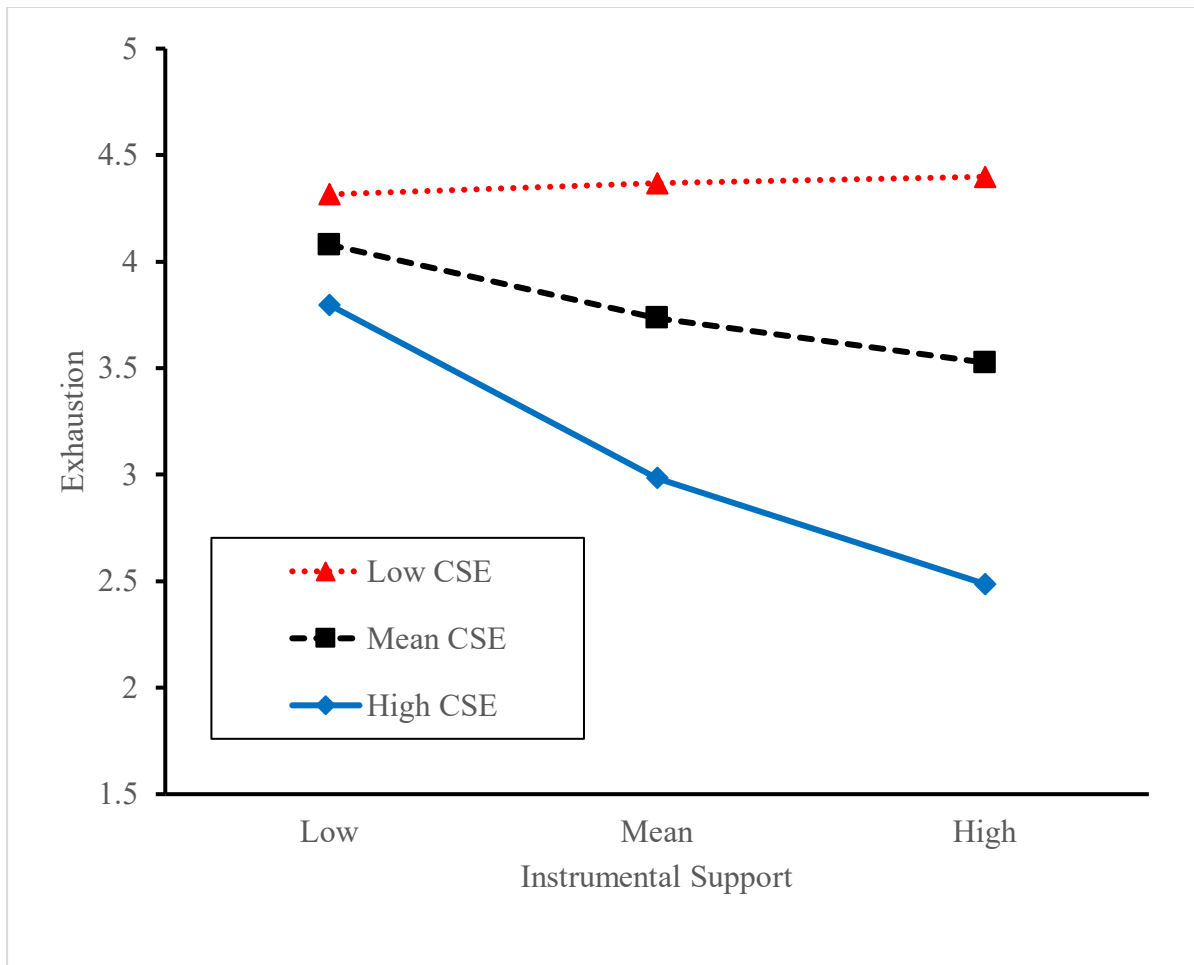
3.7.3 Instrumental and Emotional Social Support in University Students

The aims of this study included exploring if core self-evaluations moderated the relationship between either type of social support, instrumental and emotional, and the burnout constructs, exhaustion, cynicism, and professional efficacy in university students.

Step 3 of the regression model (see Table 13) incorporated moderation variables to test if core self-evaluations had moderated the relationship between either type of social support or burnout constructs. The ‘core self-evaluations × emotional support’ moderation variable had non-significant relationships with exhaustion ($\beta = .03, p > .05$), cynicism ($\beta = -.00, p > .05$) and professional efficacy ($\beta = .01, p > .05$). Similarly, the ‘core self-evaluations × instrumental support’ moderation variable had non-significant relationships with exhaustion ($\beta = -.04, p > .05$), cynicism ($\beta = 0.00, p > .05$) and professional efficacy ($\beta = -.05, p > .05$). These results indicate that core self-evaluations did not moderate any of the relationships with burnout constructs in students.

Figure 3

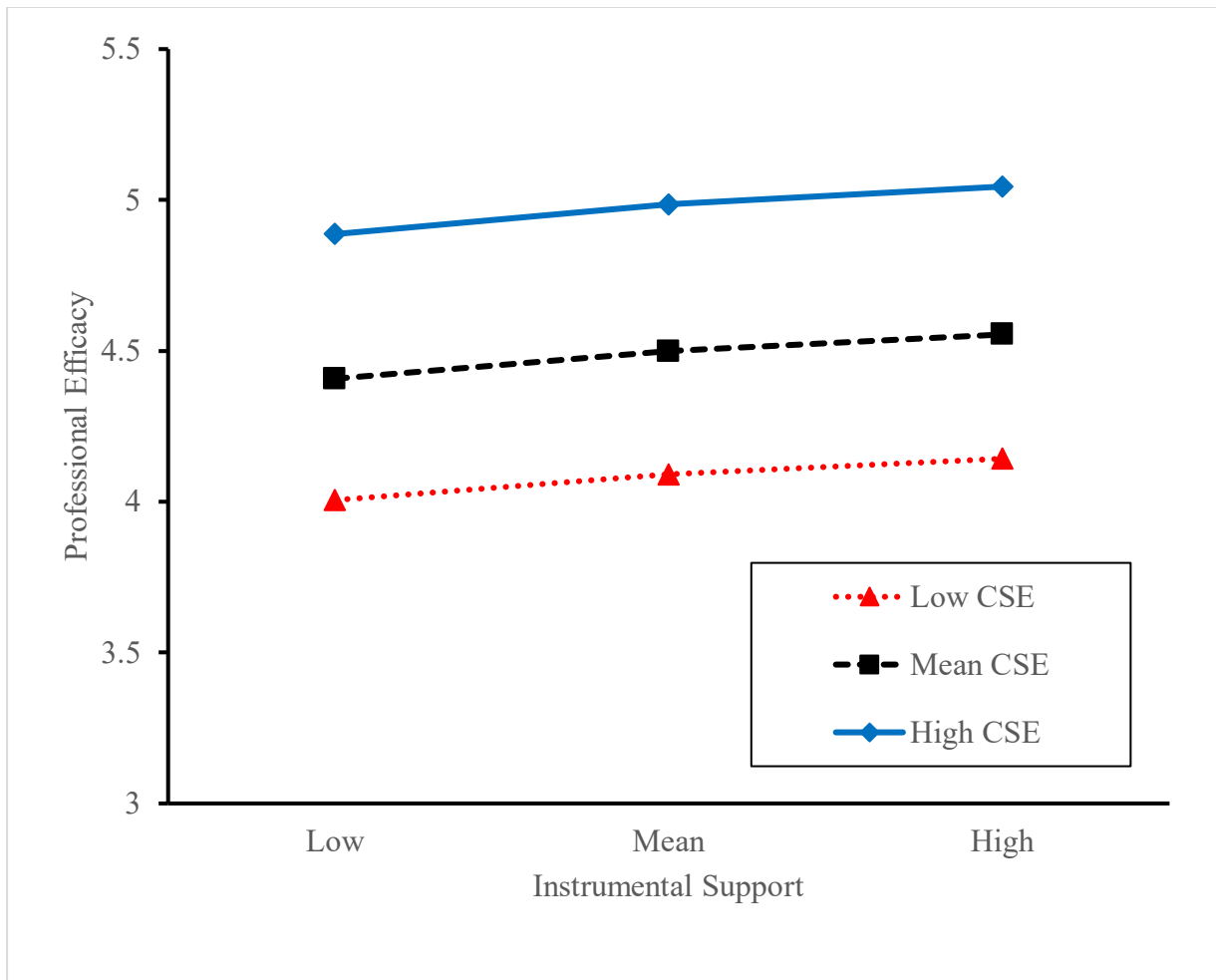
Interaction of core self-evaluations moderating the relationship between instrumental support and exhaustion in working adults.



Note: CSE = Core Self-Evaluation

Figure 4

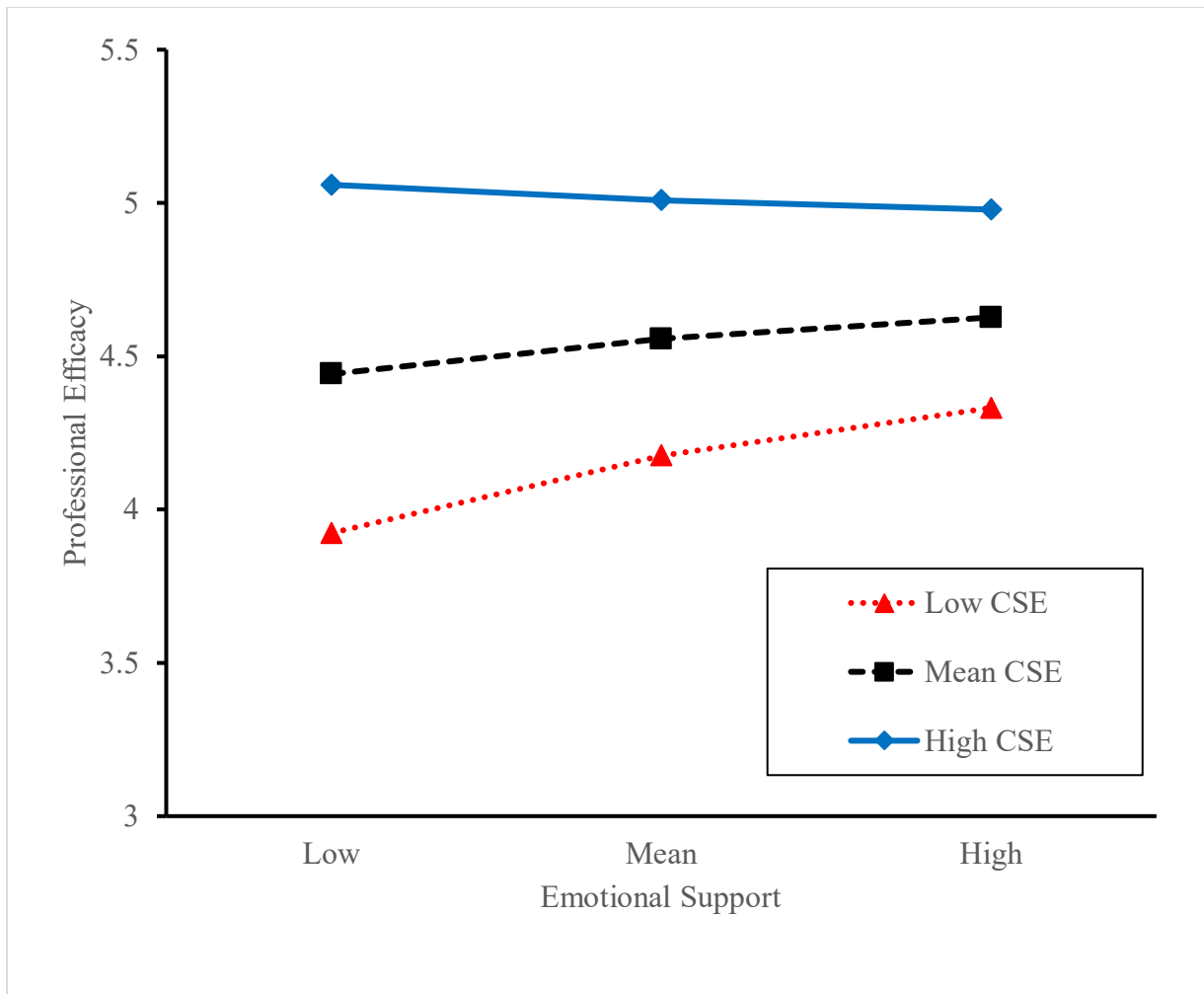
Interaction of core self-evaluations moderating the relationship between instrumental support and professional efficacy in working adults.



Note: CSE = Core Self-Evaluation

Figure 5

Interaction of core self-evaluations moderating the relationship between emotional support and professional efficacy in working adults.



Note: CSE = Core Self-Evaluation

4. Discussion

The purpose of this study was to extend the current knowledge regarding factors that protect against burnout. This study sought to explore these effects in a working adult population and a university student population. To explore protective factors against burnout, this study tested the relationships between core self-evaluations, two types of social support (instrumental and emotional), and burnout constructs (exhaustion, cynicism, and professional efficacy). This study specifically sought to expand on the findings of Wang et al. (2016), who found that core self-evaluations moderated the relationship between social support and burnout in a population of nurses in the USA. Conservation of Resources theory (Hobfoll, 1989) was used as a theoretical basis for all explored relationships. This study had three notable findings:

1. In both groups studied, core self-evaluations were consistently the best negative predictor of burnout.
2. Core self-evaluations had an interactive effect on some of the relationships between social support and burnout in this study's working adult population.
3. There was no interactive effect in this study's university student population.

The following sections will discuss these key findings, implications, strengths, limitations and potential for future research.

4.1 Key Findings

4.1.1 *The Predictors of Burnout*

Hypothesis 1 which predicted that higher levels of core self-evaluations, instrumental and emotional social support would predict lower levels of burnout, was partially supported. The relationship found from testing this hypothesis, and the first key finding of this study was

that in both populations tested core self-evaluations' (an individual's feelings about their ability to function in their environment (Judge et al., 2004)) negatively predicted burnout (a chronic stress response (Maslach & Leiter, 2017)). Core self-evaluations were the best and only consistent predictor of burnout constructs (exhaustion, cynicism, professional efficacy) in all populations tested. Social support correlated with burnout but was never a significant predictor.

The findings regarding core self-evaluations are consistent with the results of the meta-analysis conducted by Alarcon et al. (2009), which explored how various personality characteristics correlated with burnout. As burnout is conceptualised as a stress response (Maslach & Leiter, 2017), these findings are consistent with research which suggests that core self-evaluations are negatively correlated with stressors and strains (Chang et al., 2012; Kammeyer-Mueller et al., 2009). Finally, this result is also supported by Conservation of Resources theory (Hobfoll, 1989), which claims that control-based personality constructs will act as protective factors against stress (Hobfoll et al., 2018). However, these findings were not consistent with social support literature, as findings typically indicate social support negatively predicts burnout (Baruch-Feldman et al., 2002; Kim et al., 2018). In studies looking at social support and burnout, research does not typically measure core self-evaluations or control for it in predictive models. There is a possibility that core self-evaluations explains the variance in burnout that social support has been capturing in previous studies. Further research is needed to develop a better understanding of these relationships.

4.1.2 Interactions between Core Self-Evaluations, Social Support, and Burnout in Working Adults

Hypothesis 2a and 2b of this study indicated that core self-evaluations would moderate the instrumental social support – burnout and emotional social support – burnout relationships. Where emotional support is communication of encouragement, understanding, and acceptance and instrumental support is tangible assistance provided (Semmer et al., 2008). Both hypotheses were partially supported, core self-evaluations moderated the relationship between (i) instrumental support and exhaustion, and (ii) emotional support and professional efficacy.

The results of this study suggest that in a working adult population, an individual's core self-evaluations are an important factor in understanding what type of social support may be most effective in reducing burnout. More specifically, the results showed that for individuals high on core self-evaluations, instrumental support reduced burnout, while for individuals low on core self-evaluations, emotional support reduced burnout. The findings of this study build on two previous findings regarding core self-evaluations. Firstly, Kammeyer-Mueller et al. (2009) found individuals high on core self-evaluations employed more problem-solving approaches to addressing stressors, similarly, this study showed that high levels of instrumental support were associated with a reduction in burnout (a chronic stress response). In another study, Judge et al. (2005) found that individuals with low core self-evaluations experienced more negative emotional reactions to stressors, which this study supported by finding that low individuals had a significant burnout reduction with received emotional social support.

While Wang et al. (2016) examined the relationship between core self-evaluations, social support, and burnout using a population of nurses, this study aimed to extend the body

of knowledge in this area. This was achieved by examining the relationship between core self-evaluations, social support, and burnout in working adults in a diverse range of professions and university students across a diverse range of fields of study.

4.1.3 Interaction between Core Self-Evaluations, Social Support, and Burnout in University Students and Group Differences

Part of the aims of this study were to explore whether core self-evaluations moderated the relationships between social support types and burnout constructs in a population of university students. Results indicated that core self-evaluations did not moderate any of the social support and burnout relationships in the university student population. Another component of this study's aims was to compare the difference, if any, between the interaction in working adults and in university students. Given moderation effects were found in working adults, but not university students, possible reasons for the lack of moderation in the university student group, and reasons for the group differences will be discussed below. Three reasons for the differences are explored: limitations regarding social support, differences in the core self-evaluations - social support relationship, and demographic differences.

Limitations regarding social support. The assumption behind the aims and hypothesis of this study was that social support resources could be utilised by individuals to reduce the impact of stressors causing burnout on the individual. In both populations social support on its own was not a good predictor of burnout. In the working adult population, moderation relationships revealed only certain core self-evaluation level individuals were using social support, however this was not the case in the student population. The lack of any relationship in the student population suggests that social support may have not been utilised at all in this population to reduce burnout.

Based on Conservation of Resources theory (Hobfoll, 1989), it was theorised that social support would have been a protective factor that would reduce the impact of stressors. However, not all protective factors will reduce stress in every environmental context (Hobfoll et al., 2018). Therefore, it is possible that environmental differences between university students and working adults may have resulted in social support not always being a protective factor. This study did not explore how the differences in environment interacted with the effect of social support, but a potential reason for this difference is considered below, so future research can explore these factors.

A significant possibility for the lack of effect in the student population could be the differences in work from home participation. Due to the Covid-19 pandemic, both populations moved to virtual engagement arrangements, however from the samples recorded, there was a significantly larger proportion of students studying from home than employees working from home. Given courses offered by the University of Adelaide, where the student population was recruited from, were almost entirely online from the start of the Covid-19 pandemic in 2020 until when this data was collected in mid-2021, this could have had a significant impact on each student's social support networks. Therefore, it is possible that the reason no interaction effects were found in university students was due to students not being able to mobilise social support resources to reduce the impact of stressors and strains. Possible future studies could explore how Covid-19 impacted students' social support, and re-test the relationships with universities with in-person attendance.

Core self-evaluations and social support relationship. The previous reason for group differences considered the relationship between social support and burnout as the key group difference, this section considers the core self-evaluations and social support relationship. There are fundamental differences between the experience of being a university student and an adult in the workforce. The reason why core self-evaluations may have

moderated the social support and burnout relationship in one environment and not another could be attributed to Conservation of Resources theory (Hobfoll, 1989). One of the key principles of conservation of resources theory is that environments and contexts create fertile or infertile ground for resources to interact, thrive, be maintained, or be reduced (Hobfoll et al., 2018). Thus, depending on the environment, personality factors such as core self-evaluations will interact differently with social support. Therefore, it is possible that the working environment enabled interactions between these variables to reduce stress, while the university environment did not.

Possible reasons for this include factors such as accountability: employees typically report to a supervisor, while students are largely self-driven. Another factor is that university students can be conceptualised as customers of an education service that they are paying for, while employees are typically creators of organisational value. While this present study did not explore or measure variables that could explain why a study environment may have interacted differently than a workplace, these are fundamentally very different contexts, which future research could explore.

Demographic Differences. According to Conservation of Resources theory (Hobfoll et al., 2018), the interaction of the environment and the individual's resources is key for understanding stress, therefore different environments will cause different stressors and stress reactions. This study did not perfectly match the demographics between the university student and working adult groups, which could be a reason for the differences in results.

The key demographic differences between the groups were: (i) age (the majority of students were aged 18-24 years, while the majority of employees were aged 25-34 years); (ii) gender split (employees were roughly 50-50 while students were roughly 70-30); (iii) field of work/study (Employees were mainly in education and training, retail trade, and health care

environments, while students were predominantly studying health and medical sciences degrees). These demographic differences potentially indicate two groups at different points in their lives that might be experiencing different stressors.

4.2 Practical Implications

This study explored burnout in an Australian working adult population and university student population. By demonstrating that across all populations, core self-evaluations negatively predicted burnout this study suggests that individuals high on core self-evaluations will experience less burnout than individuals low on the trait. Therefore, these findings support further investigation into two possibilities; i) the need to explore methods to assist individuals with low core self-evaluations to deal with burnout. ii) the need to explore ways or the factors that improve core self-evaluations. Judge and Kammeyer-Mueller (2011) identified that core self-evaluation research has demonstrated controllable fluctuations with personality type based on environment, but this has not been explored as a burnout reduction technique.

The moderation effects found in the working adult population demonstrate that depending on an individual's personality trait, core self-evaluations, there will be different types of social support that will function to reduce burnout. This suggests that a personalised approach to burnout, taking into account an individual's core self-evaluations, may be the most effective. Further research could explore if other personality aspects had interactive effects with protective factors against burnout as well as ensuring the effectiveness of any treatments developed, are tested in a targeted way, to the individual's personality.

4.3 Strengths of this Study

This study contributes to the emerging literature on burnout and potential for individual traits to act as internal protective factors and potentially promote external

protective factors such as social support. An important strength of this study is that, as far as the authors are aware, this is the first study to explore these effects in a general working population and a student population, and in so doing has extended previous research in this area by examining differences between these two groups.

A second key strength is that the scales used for burnout, social support, and core self-evaluations were all well validated and demonstrated to be reliable in other studies. These scales all demonstrated high levels of reliability in this study. Thirdly, while the current study sample was not randomly selected, the final sample size comprised a total of 468 participants, ensuring that the study was sufficiently powered to provide statistically valid data.

4.4 Limitations, Future Research and Conclusions.

This study achieved its aims, however there are possible methodological limitations that need to be addressed when interpreting the findings. Firstly, the study was a once-off survey that was not designed to track participants over time. Further research designed to more closely match the demographics of the student and adult working populations and track them over time would be ideal. Results from this kind of study would provide stronger evidence regarding how variables interact with burnout.

Another possible limitation relates to the study's design which was cross-sectional using exclusively self-report data. Given the study used a survey approach, this limitation was unavoidable. Further research using measures validated from multiple sources would be ideal.

A third possible limitation was the significant crossover between students and employees with a large proportion of students reporting that they were undertaking work while studying, and large proportion of the working adults reporting that they were undertaking studies while working. This crossover reflects the reality that today, many

working adults are also engaged in university study and increasingly, university students need to be employed in order to cover the increasing costs of studying at university (Australian Bureau of Statistics, 2020). However, this area is not typically extensively covered in burnout research, and further research examining the relationship between work and study-related burnout is needed (Galbraith & Merrill, 2012).

In conclusion, despite the mentioned limitations, this study provides important results expanding the understanding of interactive effects relating to burnout. Findings indicated that in the working adult population moderation did occur for both high and low core self-evaluations individuals with different types of social support protecting against burnout. These results imply there is potential for effective burnout treatment to be tailored to a working individual's core self-evaluation level. Hopefully future research will explore these relationships to develop better approaches to treating burnout.

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Appendix A: Online Qualtrics Questionnaire**PARTICIPANT INFORMATION SHEET**

Dear Participant,

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

What is the project about?

This research project is examining burnout. This project is surveying two different groups, university students and employees to explore if there is a significant difference in how they experience burnout. This project aims to find how burnout is affected by other factors including social support and individual factors. The relationships between these variables will be compared across the two groups.

This research project hopes to further develop the understanding of what variables affect burnout in unexplored combinations and contexts.

Who is undertaking the project?

This project is being conducted by William Stacy (student researcher). This research will form the basis for the degree of Bachelor of Psychological Science - Honours at the University of Adelaide under the supervision of Dr Aspa Sarris.

Why am I being invited to participate?

You are being invited as you are either: engaged in a tertiary education program at any level; or are a full-time employee at the South Australian software development company; or an employed Australian Prolific user.

What am I being invited to do?

You are being invited to complete an anonymous online questionnaire which will have questions regarding burnout, received social support and other individual factors. This survey can be completed on your personal computer or phone and there will not be any follow up to this survey.

How much time will my involvement in the project take?

This survey will take approximately 5-10 minutes.

Are there any risks associated with participating in this project?

No significant risks are anticipated. A possible risk to participants who have experienced a distressing experience in their workplace or are currently experiencing psychological distress, may feel uncomfortable reporting on their burnout and stress. However this survey is voluntary and there is no requirement to participate. If this survey did cause a distressing experience and you are a University student, please seek out your university's counselling service, the numbers are;

The University of Adelaide (North Terrace / Waite) - +61 8 8313 5663
The University of Adelaide (Roseworthy) - +61 8 8313 7932
The University of Adelaide (After Hours University Crisis Line) - 1300 167 654

The University of South Australia (Campus central booking system) - 1300 301 703
The University of South Australia (Mt Gambier) - (08) 8723 1999
The University of South Australia (Whyalla) - (08) 8645 8233
The University of South Australia (Out-of-Hours Crisis Line) - 1300 107 441

Flinders University (New Client Form) - <https://students.flinders.edu.au/support/hcd/counselling#contact>
Flinders University (Existing Clients) – (08) 8201 2118
Flinders University (After Hours Crisis support line) – 1300 512 409

If you are employee outside the university, you can contact one of the hotlines listed below, or seek assistance from your general practitioner.

Beyondblue - 1300 22 4636
Lifeline - 13 11 14
Mental Health Emergency Triage Service – 13 14 65

One burden on participants is having to offer their personal time to fill out the questionnaire. To minimise this burden the survey has been kept as short as possible.

What are the potential benefits of the research project?

There will be no immediate benefits to participants of this project. This research may result in improving the understanding of what factors protect against burnout.

Can I withdraw from the project?

Participation in this project is completely voluntary. If you agree to participate, you can withdraw from the study at any time before the survey is submitted.

What will happen to my information?

Confidentiality and privacy: This survey is anonymous and no identifiable data is obtained. For students completing the survey as part of the research participation program, university identification numbers will be collected to allocate course credit, but will not be used in any stage of data analysis.

Storage: Records, materials and data at completion of the project will be stored on the student researcher's personal computer for 5 years. Only the student researcher will have access.

Publishing: As part of the student researchers honours thesis the final project will be made publicly accessible through the University of Adelaide's Thesis Repository. The results may also be made publicly accessible at the end of the project through journal articles and/or conference papers. No information identifying individual participants will be included in these publications.

Sharing: Participants can email the student researcher to request a copy of the final report at the conclusion of the project.

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

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

If you have any questions about the survey you can contact either of the researchers by email;

Student Researcher – Mr William Stacy, william.stacy@student.adelaide.edu.au

Principal Supervisor – Dr Aspa Sarris, aspa.sarris@adelaide.edu.au

For any questions concerning the ethics of this project, please contact the convener of the Subcommittee for Human Research in the School of Psychology, Dr. Paul Delfabbro, paul.delfabbro@adelaide.edu.au

What if I have a complaint or any concerns?

The study has been approved by the Subcommittee for Human Research in the School of Psychology at the University of Adelaide (approval number 21/35). This research project will be conducted according to the NHMRC National Statement on Ethical Conduct in Human Research 2007 (Updated 2018). If you have questions or problems associated with the practical aspects of your participation in the project, or wish to raise a concern or complaint about the project, then you should consult the Principal Investigator. If you wish to speak with an independent person regarding concerns or a complaint, the University's policy on research involving human participants, or your rights as a participant, please contact the Human Research Ethics Committee's Secretariat on:

Phone: +61 8 8313 6028

Email: hrec@adelaide.edu.au

If I want to participate, what do I do?

The survey can be completed and submitted online on your personal device with an internet connection.

Yours sincerely,

William Stacy

I understand this research project and consent to participating in it

Yes, I consent to participating in this project

No, I do not consent to participating in this project



Please select a category that fits you best

Full time University Student

Part time University Student

Software Development Employee

I do not fit into these categories



If you are a first year University of Adelaide School of Psychology student, enter your 5-digit Research Participation System ID. **If this does not apply to you please skip to the next question**



As a back-up for SONA/RPS participants to ensure you are credited, please include your student ID number

Which age bracket are you in?

Under 17

18 - 24 years old

25 - 34 years old

35 - 44 years old

45 - 54 years old

55 - 64 years old

65- 74 years old

75 years or older

Which gender do you most identify with?

Male

Female

Non-binary / third gender

Prefer not to say

Prefer to self describe, below

Are you engaged in some form of paid employment during the University semester, on any basis?

Yes

No



How many jobs do you currently have?

1

2

3

4+



What industry(s) do you currently work in? (multiple answers can be selected)

Hospitality

Retail trade

Construction

Information Technology

Financial Services

Education and Training

Health Care

Arts and Recreation services

Agriculture

Mining

Utilities

Other (please specify)

On average how many hours in total do you work per week?

On average how many hours per week do you study? (Including contact hours and independent study)

How long have you worked for your main employer/organisation?

Under 6 Months

6 Months - 1 year

1 - 2 years

2 - 3 years

3 - 5 years

5 - 10 years

10+ years

Do you undertake paid work from home?

Yes

No



On average, how many days a week do you complete work at home (online), versus at your workplace, in your current role(s)?

Days that I work from home (online):

Days that I work from my workplace:

Do you attend any of your university classes from home (online)?

Yes

No



On average, how many days a week do you attend university classes from home (online), versus physically in university?

Days that I attend university from home (online):

Days that I attend university in person:

What is the highest level of qualification you have completed?

Secondary School

Undergraduate/Bachelors degree

Trade Certificate

Honours Degree

Masters Degree


Doctoral Degree

Other (please specify)

What degree/qualification are you currently studying?



	Always	Almost always	Often	Regularly	Sometimes	Almost Never	Never
I believe that I make an effective contribution to the classes that I attend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In my opinion, I am a good student	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel stimulated when I achieve my study goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have learned many interesting things during the course of my studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During class I feel confident that I am effective in getting things done	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Below are several statements about you with which you may agree or disagree. Using the response scale below, indicate your agreement or disagreement with each item by selecting the appropriate response.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I am confident I get the success I deserve in life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sometimes I feel depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I try, I generally succeed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sometimes when I fail I feel worthless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I complete tasks successfully	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sometimes, I do not feel in control of my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall, I am satisfied with myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am filled with doubts about my competence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I determine what will happen in my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not feel in control of my success in my career	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am capable of coping with most of my problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are times when things look pretty bleak and hopeless to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



How well do the following statements describe your personality?

	Agree Strongly	Agree a little	Neither agree nor disagree	Disagree a little	Disagree Strongly
I see myself as someone who is reserved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I see myself as someone who is generally trusting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I see myself as someone who tends to be lazy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Agree Strongly	Agree a little	Neither agree nor disagree	Disagree a little	Disagree Strongly
I see myself as someone who is outgoing, sociable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I see myself as someone who tends to find fault with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I see myself as someone who does a thorough job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Please indicate the degree to which the following statements are true for you

	Always	Very Frequently	Often	Sometimes	Rarely	Not at all
There is someone I can talk to about the pressures in my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is at least one person that I can share most things with	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I am feeling down there is someone I can lean on	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is someone in my life I can get emotional support from	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Always	Very Frequently	Often	Sometimes	Rarely	Not at all
There is at least one person that I feel I can trust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is someone in my life that makes me feel worthwhile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that I have a circle of people who value me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If stranded somewhere there is someone who would get me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Always	Very Frequently	Often	Sometimes	Rarely	Not at all
I have someone to help me if I am physically unwell	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is someone who would give me financial assistance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is someone who can help me fulfill my responsibilities when I am unable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

←
→

We thank you for your time spent taking this survey.
Your response has been recorded.

Appendix B: Social Media Post

Hi everyone, I am running a study looking at burnout in students and working populations. It is a short 5-10 minute anonymous survey that can be completed on your personal device. You can access the survey at <https://adelaideunisop.syd1.qualtrics.com/.../SV...>

The study has been approved by the Subcommittee for Human Research in the School of Psychology at the University of Adelaide (approval number 21/35).

If you have any questions about the survey you can contact me by email at: william.stacy@student.adelaide.edu.au