

**Examining the Relationship between Academic Success, Lifestyle Factors and
Psychological Wellbeing: An Exploratory Study with University Students**

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Table of Contents

List of Figures.....	v
List of Tables.....	vi
Abstract.....	vii
Declaration.....	viii
Acknowledgments	ix
1 Introduction.....	1
1.1 Rationale.....	1
1.2 Established Predictors of Academic Success	1
1.2.1 Intellectual Ability	2
1.2.2 Personality Traits	2
1.3 Lifestyle and Wellbeing Factors	3
1.3.1 Dietary Habits	4
1.3.2 Body Mass Index (BMI).....	4
1.3.3 Physical Activity	5
1.3.4 Alcohol and Drug Consumption	6
1.3.5 Employment and Caregiver Responsibilities.....	7
1.3.6 Daytime Sleepiness.....	8
1.3.7 Psychological Wellbeing.....	9
1.4 The Effect of Lifestyle Factors on Wellbeing	10
1.5 Aims.....	10
2 Method	11
2.1 Participants.....	11

2.2 Materials	11
2.2.1 OCEANIC.....	11
2.2.2 Intellectual Ability	12
2.2.3 Academic Success.....	12
2.2.4 Demographics	12
2.2.5 Lifestyle Factors	13
2.2.6 Cleveland Adolescent Sleepiness Questionnaire	13
2.2.7 Depression, Anxiety and Stress Scale.....	13
2.2.8 Physical Activity Questionnaire	14
2.3 Procedure.....	14
3 Results	16
3.1 Data Cleaning and Analysis	16
3.2 Power Analysis	16
3.3 Final Grade.....	16
3.4 Aim 1: Examining Previously Established Predictors on Academic Success	17
3.5 Aim 2: Examining the Influence of Lifestyle Factors and Wellbeing on Academic Success.....	18
3.5.1 Dietary Habits.....	18
3.5.2 BMI.....	20
3.5.3 Physical Activity.....	21
3.5.4 Alcohol and Drugs	22
3.5.5 Employment and Primary Caregiver Responsibilities.....	24
3.5.6 Daytime Sleepiness.....	26
3.5.7 Wellbeing.....	27

3.6 Aim 3: Examining the Influence of Lifestyle Factors on Wellbeing.....	28
3.6.1 Depression	28
3.6.2 Anxiety.....	28
3.6.3 Stress.....	29
4 Discussion.....	31
4.1 Aim 1: Examining Previously Established Predictors on Academic Success	31
4.2 Aim 2: Examining the Influence of Lifestyle Factors and Wellbeing on Academic Success.....	32
4.2.1 Dietary Habits.....	33
4.2.2 BMI.....	34
4.2.3 Alcohol and Drug Consumption	34
4.2.4 Employment and Primary Caregiver Hours	35
4.2.5 Daytime Sleepiness.....	36
4.2.6 Physical Activity.....	36
4.2.7 Wellbeing	37
4.3 Aim 3: Examining the Influence of Lifestyle Factors on Wellbeing.....	38
4.4 Further Limitations	38
4.5 Strengths	39
4.6 Future Research Directions.....	40
4.7 Conclusions.....	40
References	41
Appendix A: Grand Correlation Matrix of all Variables	52

List of Figures

<i>Figure 1.</i> Frequency of Final Grades in current study ($N = 83$).....	17
<i>Figure 2.</i> Participants ratings for Dissatisfaction with Diet ($N = 83$).....	20
<i>Figure 3.</i> Participants' Physical Activity scores ($N = 83$)	22
<i>Figure 4.</i> Participant scores for Negative Influence of Drug and Alcohol consumption on Studies ($N = 83$).....	24
<i>Figure 5.</i> Participant ratings for negative influence of work/volunteer hours on studies ($N = 83$)	26

List of Tables

Table 1. <i>Correlation Analyses of previously established predictors with Academic Success</i>	18
Table 2. <i>Correlation Analyses of Dietary variables with Academic Success (N = 83)</i>	19
Table 3. <i>Participant ratings for each Dietary variable (%)</i>	19
Table 4. <i>The number of participants for each category of the BMI (%)</i>	21
Table 5. <i>Participant ratings for each variable of Alcohol and Drugs (%)</i>	23
Table 6. <i>The number of hours per week each student works or volunteers, and takes on the role of a primary caregiver (N = 83)</i>	25
Table 7. <i>Descriptive statistics of the DASS-21 scores, with the sample means compared against the population means</i>	27
Table 8. <i>Correlation Analyses of Lifestyle variables with Student Wellbeing, and the corresponding p values (N=83)</i>	30

Abstract

In Australia the government provides financial aid for eligible university students. However, after the consensus date has passed the government cannot withdraw this funding, despite there being a large number of students who are failing and withdrawing from their studies. Examining the factors that predict students' academic success can be beneficial in providing tailored support services for students struggling academically, which in turn may reduce unnecessary government expenditure. The Big 5 Model of Personality, and Intellectual Ability on academic success have already been explored in the literature, but the impact of factors such as lifestyle and wellbeing on the achievement of university students have not been well researched. The present study aims to fill this gap. First year psychology students (N = 83, age M = 20) completed questionnaires that comprised of the OCEANIC scale, and the APM-short form to measure personality traits and intellectual ability respectively. Self-report information was also gained about the various lifestyle factors: alcohol and drugs, employment and primary caregiver hours, dietary habits, daytime sleepiness, physical activity; and also wellbeing: depression, anxiety and stress. Academic success was measured using the students' final grade for their psychology course. As expected, conscientiousness, openness, and intellectual ability were found to be significant predictors of academic success. Surprisingly, physical activity showed a significant, negative correlation with final grade, and all other lifestyle and wellbeing factors demonstrated no significant associations with final grade. These results were unexpected but nonetheless demonstrate the need to further explore the predictors of academic success.

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 materials previously published except where due reference is made. I give permission for the digital repository, the Library Search and through web search engines, unless permission has been granted to by the School to restrict access for a period of time.

Signature

Sherin Achandy

2nd October 2018

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1 Introduction

1.1 Rationale

A university education is a necessary stepping stone allowing many students to pursue their desired career, and a large number of them seek financial aid from the government to achieve this. In Australia, once the consensus date for university enrolments have passed, the government does not allow withdrawal of student funding. Unfortunately, there are a large number of students who fail their courses, and consequently withdraw from their studies, and this figure has worryingly remained constant for over 30 years. Statistics indicate that 42% of students had not completed their degree after five years of studying in 1967, with numbers only slightly decreasing in 1997 (39%) (Jackson, 1999; Martin et al., 2001; Urban et. al., 1999). It is estimated that if 20% of students who enroll into university withdraw after the consensus date has passed, are approximately using \$2.7 million in government support for tertiary education (Martin et al., 2001), and thereby placing a huge burden on the appropriate use of government funds.

In light of this, it seems fundamental to understand the factors that predict students' academic success, so as to enable implementation of tailored support services for students struggling academically, and thus decreasing unnecessary expenditure of government funds.

1.2 Established Predictors of Academic Success

Academic success is defined as successful 'attainment of educational outcomes' (Kuh et al., 2006), and is often operationalised by students' grade point average (GPA) or final grades (York, 2015).

1.2.1 Intellectual Ability

One of the most widely accepted predictors of academic success is intellectual ability, as a strong association between both variables is consistently demonstrated in the literature (Busato, Prins, Elshout, & Hamaker, 2000; Chamorro-Premuzic & Furnham, 2008; Schulze & Roberts, 2006; Watkins, Lei, & Canivez, 2007), with intellectual ability explaining up to 25% of variance of students' final grades (Jensen, 1998). This is suggesting the importance of possessing intellectual ability in order to perform well academically.

1.2.2 Personality Traits

Furthermore, non-cognitive factors have also been researched as predictors of academic success, and individual personality traits have thus been revealed as possessing significant correlations with academic outcomes. The recent research in psychology has suggested a general agreement about the division of personality into five factors (e.g. Costa & McCrae, 1992; Goldberg, 1990; Paunonen & Ashton, 2001). These five factors represent Costa and McCrae's (1992) Big Five model of personality, and is measured by the *Openness Conscientiousness Extraversion Agreeableness Neurotic Index Condensed* scale.

Conscientiousness refers to an individual's desire to accomplish a task, be organised, self-disciplined, trustworthy, and reliable (Costa & McCrae, 1992). Studies have demonstrated that conscientious students tend to attain high academic scores, which remain relatively stable over time. As a result, conscientiousness is viewed as one of the strongest predictors out the five personality traits (Noffle & Robins, 2007; O'Conner & Paunonen, 2007).

Openness to Experience describes individuals who are curious and imaginative, and have a passion for learning new things (Costa & McCrae, 1992). Earlier studies have noted non-significant correlations with academic success (e.g., Busato, Prins, Elshout, & Hamaker, 2000; O'Connor & Paunonen, 2007), but in more recent times significant results are starting to emerge, as is shown by the meta-analysis conducted by Vedel (2014). The inconsistency in these findings may be a result of the ambiguity of the openness factor, since it represents both openness to experience and intellectual orientation (Hong, Paunonen, & Slade, 2008).

Extraversion is associated with sociable, and positive individuals (Costa & McCrae, 1992). Literature overall has shown no relationship between this personality trait and academic success (Nofle & Robins, 2007), although a small number of studies have demonstrated a weak, negative correlation (O'Conner & Paunonen, 2007).

Agreeableness refers to an individual's inherent ability to exhibit behaviours that are kind, altruistic, cooperative, and considerate (Costa & McCrae, 1992). Research has consistently shown non-significant relationships between agreeableness and academic success (Shiner, Masten, & Roberts, 2003).

Neuroticism is associated with individuals that experience consistent negative emotions (Costa & McCrae, 1992). Meta-analysis has revealed negative correlations with academic success, but anxiety is often suggested as mediating this relationship (Seipp, 1991).

1.3 Lifestyle and Wellbeing Factors

University students, especially first year students, are classed as an at-risk population, as they are more vulnerable to the lifestyle changes that reflect the transition from secondary to

tertiary education (El Ansari et al., 2011). Literature also suggests that their age of enrollment into university may coincide with the time mental health disorders develop (Eisenberg, Golberstein & Hunt, 2009). Lifestyle and wellbeing factors are reported as contributing to a negative quality of life, and so researchers are showing an increased interest in the relationship between these factors and academic success (McKenzie & Schweitzer, 2001). The following sections will discuss this.

1.3.1 Dietary Habits

Dietary intake and eating habits are reported in literature as influencing academic success in children and adolescents (Hoyland, Dye & Lawton, 2009). However, the evidence is inconclusive for university students as this population has not received much attention in literature. This is surprising as university is often stressful and time consuming, especially for first year students as they progress and learn at academically higher levels than secondary education. As a result, research shows that many students often skip breakfast, eat less than three meals per day, and eat quicker meals that are often unhealthy alternatives, and as such, are impairing their brain function (Woodhouse & Lamport, 2012). The lack of research is indicated in this systematic review of the current evidence in university students, as it includes only seven studies overall. Five out of the seven studies have found a weak to moderate significant association between skipping breakfast, regular meal consumption, and healthy food preferences, with GPA (for example: Burrows, Whatnall, Patterson & Hutchesson, 2017).

1.3.2 Body Mass Index (BMI)

Since diet can have an effect on an individual's BMI, it is reasonable to assume that academic success may also be affected by unhealthy BMI scores. This is reflected by the existing

research on children and adolescents which demonstrated a weak, but negative correlation for BMI with school performance for children aged between 6 to 16 (Taras & Potts-Datema, 2005). Other studies have also indicated similar patterns, with higher scores for BMI significantly and negatively correlating with academic success in children (Burkhalter & Hillman, 2011; Sabia, 2007). There were however, a handful of studies that demonstrated no correlation (Alswat, Alshehri, Aljuaid, Alzaidi & Alasmari, 2017; Baxter, Guinn, Tebbs & Royer, 2013). In addition, a systematic review conducted by Caird et al (2011) also revealed depression mediating the relationship between BMI and academic success, suggesting that higher BMI scores are related to depression, thus negatively affecting students' academic outcomes.

This is similar to diet, as a lack of literature on BMI was also apparent within the university population, and the current research involving tertiary students' identified mixed findings. Researchers found significant negative correlations among American undergraduates, in comparison to no associations among Japanese and Indian undergraduates (Agarwal, Bhalla, Kaur & Babbar, 2013; Kobayashi, 2009).

1.3.3 Physical Activity

There is evidence to suggest that physical activity plays an important role for not only an individual's physical health, but also their mental health (Booth, Roberts & Laye, 2012; Reiner, Niermann, Jekauc & Woll, 2013). These relationships stem from the research suggesting that increased levels of physical activity bring forth positive changes in the brain cortex that is connected to enhanced cognition and memory, therefore affecting student acquisition (Shephard, 2011). As such, there is a growing interest in literature on the relationship between physical activity and academic success.

A majority of the research focuses on students under the age of 18, and mixed results have emerged when summarising several review articles for this age bracket. A review article conducted by Rasberry and colleagues (2011), found positive significant correlations between physical activity and academic success, as well as a few non-significant associations. Similar patterns also emerged from other reviews (Mura et al., 2015; Singh, Uijtdewilligen, Twisk, Van Mechelen & Chinapaw, 2012). Interestingly, some studies revealed a negative association (Esteban-Cornejo et al., 2014; Van Dijk, De Groot, Savelberg, Van Acker & Kirschner, 2014), suggesting that as levels of physical activity increased, academic success surprisingly decreased.

The overarching consensus in literature is that physical activity is a difficult variable to measure, as factors such as: age, nationality, and physical fitness may attribute to the ambiguity of findings.

1.3.4 Alcohol and Drug Consumption

There is research to show that the use of alcohol and drugs are most prevalent between the ages of 18 to 30 (Walker, 2000), which consequently coincides with the age of enrolment into university. Medical evidence has documented the negative effects of alcohol and drugs on brain function, for instance, loss of memory, losing ability to concentrate, and decreased learning capacity (Johnston, O'Malley & Bachman, 2003). Moreover, there have also been links reported with excessive alcohol use and increased prevalence of psychological disorders like anxiety and depression. Causality is however difficult to infer, as it is also suggested that the use of these substances may be amplified due to the demanding nature of university, and so students use them as a way to cope with increased levels of stress (McKenzie, Jorm, Romaniuk, Olsson & Patton,

2011). Nevertheless, it is clear that alcohol and drugs have the potential to influence students' academic success.

Substance abuse is currently rising among tertiary students (Walker, 2000), as is reflected by the numerous studies that report this, but minimal research has been conducted on the effects that these substances may have on their academic success. Although, a number of studies have shown a negative correlation between alcohol and drug use with GPA (Ansari, Stock, & Mills, 2013; Balsa, Giuliano & French, 2011; Musgrave-Marquart, Bromley, & Dalley, 1997), indicating that increased levels of alcohol and drugs are correlated with decreased academic success. In contrast, some studies have found no association between substance use and students' academic success (Chatterji, 2006; Lo, 1991). Since the evidence for the effects of alcohol and drugs on brain function is well researched, it would be interesting then to understand how much students believed their use of drugs and alcohol influenced their studies, versus what the actual influence was. However, only a few studies required students to self-rate.

1.3.5 Employment and Caregiver Responsibilities

Students gain a lot of responsibility as they begin university, with some seeking employment to meet financial and personal requirements. As such, there is a growing body of literature which has suggested that increased hours of employment negatively affected academic success (Pritchard, 1996; Susan & Theodore, 2000). Moreover, Steinberg and colleagues (1993) has stated that part-time jobs influence students' engagement and retention, and that working more than 15 hours a week amplified this issue. This is also indicated by a study conducted by Furr and Elling (2000), who found that students that worked full-time frequently noticed a negative impact on their academic studies, versus students who worked part-time.

However, some researchers have also found a positive or no association (Dallam and Hoyt, 1981; Pennington, Zvonkovic, & Wilson, 1989). This is partly due to the skill set that many students acquire through their employment that can be translated on to their studies, such as time management and organisational skills, thus building a stronger academic character.

There was no literature that examined students' responsibility as a primary caregiver, as certain circumstances may arise that put them in that position. If the hours that students devoted to being a caregiver were similar to that of employment, it is logical to assume that academic success will be affected likewise.

1.3.6 Daytime Sleepiness

There is literature indicating that 50% of the university population suffer from sleepiness during the day, and 60% experience high levels of lethargy and drowsiness at least three times a day (Oginska & Pokorski 2006). One of the reasons for this is thought to be related to the increased university hours, and the demanding workload. Medical research expresses that adequate sleep is an important factor for maintaining memory, learning processes, and mood stability (Lo, Ong, Leong, Gooley & Chee, 2016), thus insufficient sleep can affect academic success.

A majority of the studies that have been conducted have focused on medical students as a sample, and have found that increased levels of sleep during the night, correlated with higher academic scores (Eliasson et al., 2009; Howell, 2004; Pilcher & Ott, 1998). This is also reinforced by the authors Orzech, Salafsky & Hamilton (2011) and Trocel, Barnes and Egget (2000), as they showed declining GPA in students that had shorter sleeping hours. Moreover,

these studies also show associations between inadequate hours of sleep, and reduced memory recall. This therefore supports current medical research.

1.3.7 Psychological Wellbeing

Mental health variables, specifically depression, anxiety, and stress, and their association with academic success have not received much attention in the literature for university students. The adjustment from secondary to tertiary education increases students' vulnerability to these variables (Thurber & Walton, 2012). In a study with a sample size of 2,843 students, 15.6% of undergraduate students reported depression and anxiety symptoms, and 13% of graduate students reported the same (Eisenberg, Gollust, Golberstein & Hefner, 2007). Empirical research has also suggested associations for psychological health, with ability to concentrate, alertness, motivation, and memory recall (Notkin, 2010). Combining the prevalence rate, and the associations with disruptive behaviours, a few studies consequently suggested its influence on academic success, but as mentioned before, there is a consistent lack of literature.

The limited research that does measure psychological wellbeing and academic success all indicated a negative association (for e.g. Fine & Carlson, 1994; Stark & Brookman, 1994), which suggested that increased levels of psychological depression, anxiety, and stress are associated with decreased levels of academic success. Moreover, Lecompte, Kaufman and Rousseeuw (1983) has showed that increased levels of mental disorders correlated with a higher dropout rate from university. This is also supported by Szulecka and colleagues (1987), who identified that higher levels of psychological disturbance correlated with lower academic scores, and higher withdrawals from university.

1.4 The Effect of Lifestyle Factors on Wellbeing

For exploratory purposes, it would be interesting to understand what the relationships are between the two main predictors in this study, lifestyle and wellbeing. There is minimal research on this topic for university students, but research has suggested improvement in mental wellbeing followed closely after improvements in lifestyle in Swedish workers (Jonsdottir, Rödger, Hadzibajramovic, Börjesson, & Ahlborg, 2010). Consequently, the few studies that have investigated this relationship among university populations, have indicated that improvement in lifestyle choices such as diet and exercise, was related to a reduction in depression and anxiety (Scott et al., 2007; Xu, Anderson & Courtney, 2010). Moreover, the above sections also reinforce the demanding nature of university, especially for first year students. Consequently, many report high levels of stress, anxiety, and depression, but as mentioned, their relationship with the above-mentioned lifestyle factors have not been thoroughly studied.

1.5 Aims

It is apparent that there is a lack of research on Australian university students, and also minimal research on lifestyle and wellbeing variables in general. This study will aim to fill this gap. The aims of the current study are presented below:

1. To examine the influence of previously established predictors, personality traits and intellectual ability, on academic success in first year university students.
2. To examine the influence of lifestyle factors and wellbeing on academic success in first year university students.
3. To examine the influence of lifestyle factors on wellbeing in first year university students.

2 Method

2.1 Participants

83 University of Adelaide Psychology students (Males = 52, Females = 30, Other = 1), between the ages of 17 to 46 ($M = 20$, $SD = 1$) participated in this study, all of whom were enrolled in Psychology 1A. This study, along with others, was available to students as a means to gain course credit. Only first year students were allowed to complete this study, but no age restriction was imposed. All of the participants were tertiary students studying in Australia, and so were assumed to be sufficient in their understanding of English.

2.2 Materials

Participants completed two self-report questionnaires. The first questionnaire consisted of the *Openness Conscientiousness Extraversion Agreeableness Neuroticism Index Condensed* scale (OCEANIC) to measure personality traits, and *Raven's Advanced Progressive Matrices Short Form* (RAPM-SF) to measure intellectual ability. The second questionnaire obtained information about; demographics, alcohol and drugs, work/volunteer and primary caregiver hours, diet, sleep, physical activity, depression, anxiety, and stress. Each of these items will be detailed below.

2.2.1 OCEANIC

Participant personality traits were measured using the OCEANIC scale (Schulze & Roberts, 2006). Each of these Big Five personality traits were measured on a 45-item scale, requiring respondents to rate how often the statements related to them. Responses were given on a 6-point Likert type scale (*never, rarely, sometimes, often, usually, always*), with 15 statements each separated into three groups. Examples of statements included: *'I am inventive'* and *'I like to*

be precise'. The OCEANIC is a well-established psychometric test, and thus has high reliability and validity (Schulze & Roberts, 2006).

2.2.2 Intellectual Ability

RAPM-SF (Bors & Stokes, 1998) measured intellectual ability. This quantitative measure was composed of increasingly difficult reasoning exercises, beginning with the question '*Which number piece is missing from the puzzle?*' What followed was a series of puzzles in matrix format, with eight potential answers. This allowed the participant to choose an option which they thought correctly fit next in the puzzle. The original full form of RAPM was not utilised as the correlation between it, and the short form was very strong ($r = .92, p < .001$) (Bors & Stokes, 1998), and so choosing the shorter version allowed quicker completion time. Participants were provided with a score out of 12 after completion, with higher scores denoting greater intellectual ability.

2.2.3 Academic Success

The primary outcome measure academic success, was defined by participants' final grade which was expressed as a percentage for their course, *Psychology 1A*.

2.2.4 Demographics

General demographics was collected using participants' gender, age, height, and weight. The data collected was calculated to form the participants' Body Mass Index (BMI) - an addition to the lifestyle variables.

2.2.5 Lifestyle Factors

A set of additional questions were constructed to operationalise alcohol and drug usage, employment and primary caregiver hours, and dietary habits, because standardised scales did not exist for these variables. Each category consisted of five questions, majority of which were on a 5-point Likert-type scale (*never, rarely, occasionally, often, everyday*). An example question was: '*How often do you have 6 or more drinks on one occasion?*' Self-constructed questions allowed the researcher to have an objective view of the participants' well-being.

2.2.6 Cleveland Adolescent Sleepiness Questionnaire

Participant daytime sleepiness was measured using the 16-item Cleveland Adolescent Sleepiness Scale (CASQ; Spilsbury et al., 2007). On a 5-point Likert-type scale, CASQ measured the extent to which answers accurately reflected sleepiness during a usual week (*1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Almost every day*). For example, participants were given statements such as: '*I fall asleep when I do university work at home in the evening*'. The numbers were then totalled to obtain a sleepiness score; higher scores indicated greater sleepiness during the day. Moreover, the scale was found to have a high internal consistency (Cronbach's $\alpha = 0.89$), and construct validity (Spilsbury et al., 2007), making it a viable option to measure daytime sleepiness.

2.2.7 Depression, Anxiety and Stress Scale

The 21-item Depression, Anxiety, and Stress Scale (DASS-21; Lovibond & Lovibond, 1995), was used to measure these psychological states in participants. On a 4-point Likert-type scale, (*0 = Never, 1 = Sometimes, 2 = Often, 3 = Almost always*) respondents were given

statements that assessed how they best felt in the seven days prior to completing the survey. Examples of statements included: '*I found it hard to wind down*' and '*I felt that I had nothing to look forward to*'. The scores were then calculated to obtain an overall total for each of the three scales. The DASS-21 is recognised as retaining good reliability and validity, and is an established measure of depression, anxiety, and stress in the modern world (Lovibond & Lovibond, 1995).

2.2.8 Physical Activity Questionnaire

The eight item Physical Activity Questionnaire for Adolescents (PAQ-A; Kowalsk et al., 2004) was administered to participants to understand their approximate fitness levels. The scale was modified to encompass university language, for example 'classes' was changed to 'lectures'. Each item measured different types of activity and consequently obtained a score between 1 to 5. The final PAQ-A score utilised in this study was calculated by taking the average of all eight items, resulting in a score between 1 to 5. A score of 1 indicated low physical activity, while a score of 5 indicated high physical activity. The PAQ-A was constantly found to have a high validity, with moderate reliability (Voss, Dean, Gardner, Duncombe & Harris, 2017).

2.3 Procedure

This study was approved by the School of Psychology: Human Research Ethics Committee. Students enrolled into Psychology 1A completed online surveys in order to receive course credit through the University's Research Participation System (RPS). For this study, participants were told to complete two self-report questionnaires consecutively in order to gain the full course credit, as per assessment requirements. The first questionnaire was named 'Predictors of Academic Success – Part 1', and the second 'Predictors of Academic Success -

Part 2: Stress', for which all the measures are described in detail above. Participants were told to complete Part 1 of the questionnaires, before commencing onto Part 2. The information portion at the beginning of the online surveys detailed the study's content, any potential risks, contact information, and participant consent. There was no time limit placed upon the surveys, but it was specified that each survey was to be completed in one sitting and without any distractions. The questionnaires were created and provided online through the Survey Monkey website, and remained available for a period of three months (April – June) for both researcher and participant convenience.

Each participant received their own individual RPS code which was later used to link their data from Part 1 and Part 2. This ensured complete student anonymity as personal information could not be connected to their name, but only to their code. The data from Part 1 and Part 2 of the study was then collated and matched according to their demographics and final course grades, in preparation for data analysis.

3 Results

3.1 Data Cleaning and Analysis

This study initially obtained data from 94 participants, however a small portion of the sample failed to meet the requirements of the study and were thus removed from the dataset. These included: six participants who failed to complete part 1 of the survey, four participants that completed part 1 but left a majority of part 2 incomplete, and one participant who did not give consent. Data analysis of the cleaned data ($N = 83$) was conducted on the statistical software R-studio.

3.2 Power Analysis

A priori analysis was performed using G*Power. Desired parameters were loaded in; a medium effect size, significance criterion of $\alpha = 0.05$, and the desired power. To gain a power level of .80, results showed that a sample size of $N = 82$ was required. Therefore, it can be concluded that the current study had an adequate level of statistical power.

3.3 Final Grade

The outcome measure of final grade had a mean score of 77.14, which is equivalent to a distinction grade, with a minimum score of 51 and maximum score of 97. This demonstrated that all of the students in the sample passed the course, therefore there was no data of students with low academic success (Figure 1).

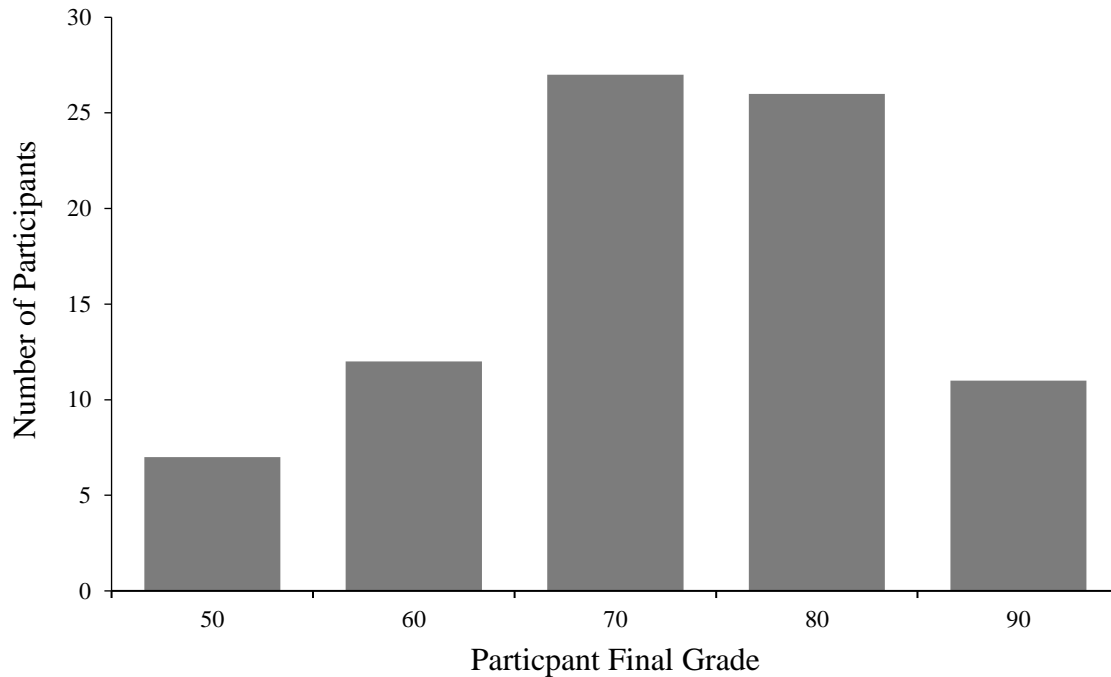


Figure 1. Frequency of Final Grades in current study ($N = 83$).

3.4 Aim 1: Examining Previously Established Predictors on Academic Success

A Pearson's correlation analysis was conducted to examine the relationships between personality traits and intellectual ability on academic success. Results indicated a small, but significant positive correlation for conscientiousness ($r = .23, p = .05, 95\%CI = 0.02, 0.43$), and openness ($r = .29, p = .01, 95\%CI = 0.08, 0.48$), reflecting that students who were more conscientious and open to experiences were associated positively with increased academic success. Intellectual ability displayed a moderate, significant positive correlation with final grade, ($r = .45, p = <.001, 95\%CI = 0.26, 0.61$), likewise suggesting that students with increased intellectual ability were positively associated with increased academic success. These results are supported by literature. Extraversion, neuroticism and agreeableness did not show an association with academic success, (Table 1).

Table 1

Correlation Analyses of previously established predictors with Academic Success (N=83)

Variable	<i>r</i>	<i>p</i>	95% <i>CI</i>
Openness to Experience	.29	.008	0.08, 0.48
Conscientiousness	.23	.03	0.02, 0.43
Extraversion	.02	.80	-0.19, 0.23
Agreeableness	-.05	.67	- 0.26, 0.17
Neuroticism	-.21	.06	-0.41, 0.01
Intellectual Ability	.45	<.001	0.26, 0.61

Note. *r* values that have been bolded are indicated as reaching significance.

3.5 Aim 2: Examining the Influence of Lifestyle Factors and Wellbeing on Academic Success

The second aim was to study the influence of lifestyle factors and wellbeing on academic success. Similarly, a Pearson’s Correlation was performed to explore these relationships.

3.5.1 Dietary Habits

75% of the participants indicated that they eat healthy food “often”, and “every day”, interestingly 53% of the students also indicated that they eat unhealthy food “often”, and “every day” (Table 3). It was surprising to observe then that only 34% of student’s collectively reported “Dissatisfied” and “Very dissatisfied” with their diet choices (Figure 2), despite over half of the sample indicating that they eat unhealthy food regularly. Correlation analysis showed that students’ intake of healthy food and unhealthy food, how often they skipped breakfast, their meal

frequency, and diet dissatisfaction did not correlate with final grade (Table 2), indicating that a student's diet does not influence academic success.

Table 2

Correlation Analyses of Dietary variables with Academic Success (N = 83)

Variable	<i>r</i>	<i>p</i>	95% CI
Healthy Food	.12	.29	-0.09, 0.33
Unhealthy Food	.03	.77	-0.19, 0.24
Skipping Breakfast	-.01	.91	-0.023, 0.21
Meal Frequency	.13	.22	-0.09, 0.34
Diet Dissatisfaction	-.01	.63	-0.23, 0.21

Table 3

Participant ratings for each Dietary variable (%)

	Never	Rarely	Occasionally	Often	Every day
Healthy food	0	6	19	35	40
Unhealthy food	2	12	33	39	14
Skip breakfast	22	22	25	17	14
Meal frequency	2	11	17	31	39

Note. Meal frequency was measured as “How often do you eat three meals a day?” (N = 83).

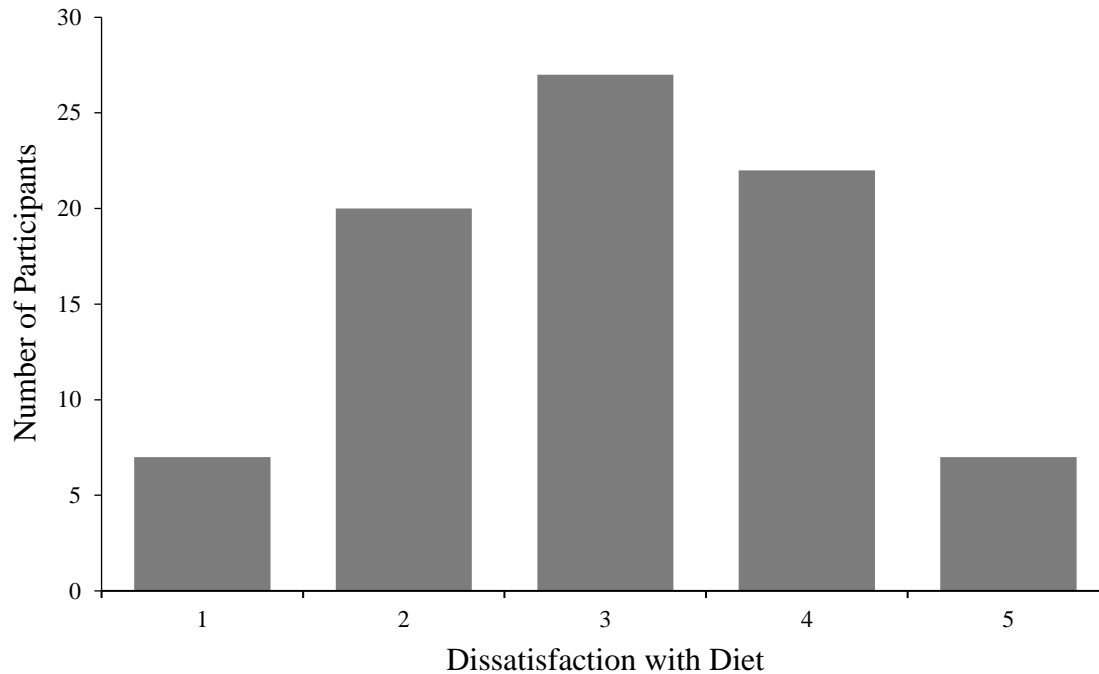


Figure 2. Participant ratings for dissatisfaction with diet. (1 = very satisfied, 2= satisfied, 3 = Ok, 4 = dissatisfied, 5 = very dissatisfied) (N = 83).

3.5.2 BMI

Another lifestyle factor that this study examined was BMI. It was expected from literature that increased BMI would show an association with decreased academic success. However, as mentioned previously there are a high number of students consuming a healthy diet and as expected, this is also reflected in students' BMI. As shown in Table 4, over half of the students reported a healthy BMI (18.5-24.9), with the mean consequently being in the healthy range ($M = 24.06$, $SD = 5.30$), and so finding an accurate association was difficult. Accordingly, the correlation showed no significant association between BMI and final grade ($r = -.15$, $p = .17$, $95\%CI = -0.35, 0.07$), indicating that students' BMI did not have a relationship with academic success.

It should also be noted that 46% of students had an unhealthy BMI (underweight, overweight, and obese), as was also reflected by the number of students who regularly ate unhealthy food in this sample.

Table 4

The number of participants for each category of the BMI (%)

	Underweight	Healthy weight	Overweight	Obese
Number of participants	12	54	24	10

Note. The BMI scores were calculated from the weight and height of each participant ($N=83$). The BMI scores for each category; underweight, <18.5 ; healthy weight, $18.5-24.9$; Overweight, $25-29.9$; and Obese, ≥ 30 .

3.5.3 Physical Activity

It was expected that increased levels of physical activity were likely to be associated with increased academic success. A majority of the students scored lower on the physical activity scale (Figure 3), and thus corresponding decreased levels of academic success should ensue. A significant correlation was in fact found, however it was revealed to be weak, and surprisingly negative ($r = -.31, p = .005, 95\%CI = -0.05, -0.10$), signifying that as levels of physical activity increased among first year students, final grades decreased. Given the highly skewed nature of the physical activity scores, this correlation was double-checked using a non-parametric method, Spearman's Rho. The relationship was still seen to be in the same direction and significant, ($r = -.23, p = .03, 95\%CI = -0.42, -0.02$). This is therefore indicating a negative relationship between physical activity and academic success.

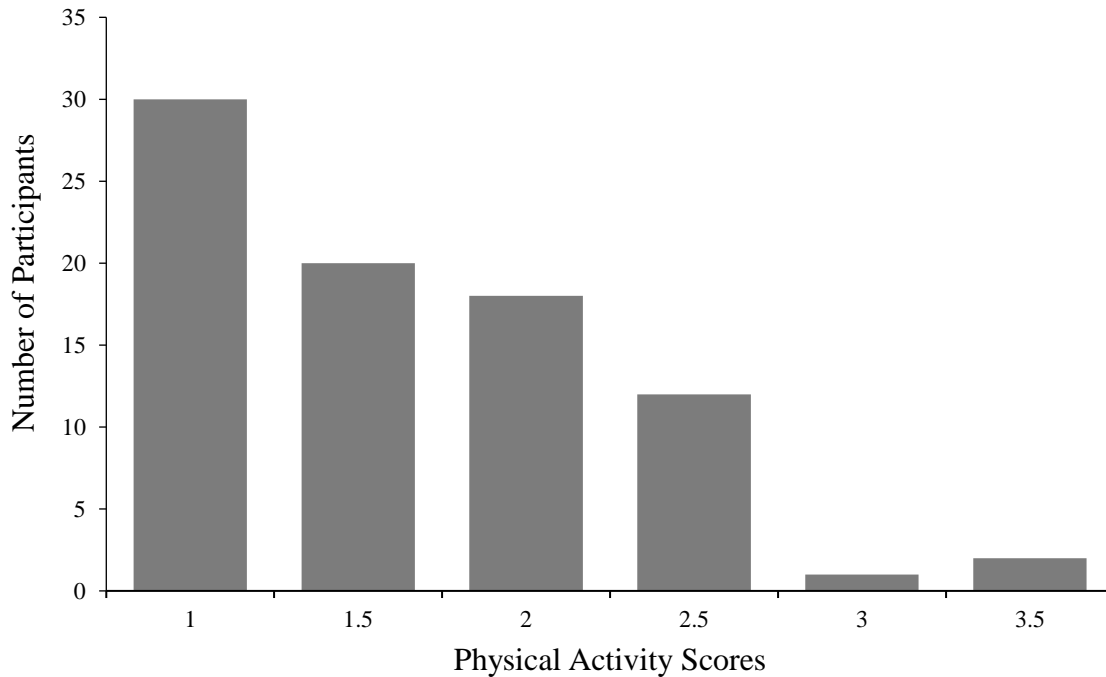


Figure 3. Participants’ Physical Activity scores ($N = 83$). The higher the score, the higher the physical activity level.

3.5.4 Alcohol and Drugs

It was surprising to see that the levels of drinking and drug usage were not as high as stated in previous literature, with 66% of students stating that they never used drugs, and no students indicated that they drink every day (Table 5). In addition, over 50% expressed “never” when asked if they think that alcohol and drugs have ever negatively influenced their studies (Figure 4).

Pearson’s correlation indicated that a negative influence of drug and alcohol on studies had a significantly positive correlation with frequency of alcohol consumed, moderately ($r = .37$, $p = .03$, $95\%CI = 0.16, 0.54$); binge drinking, weakly ($r = .28$, $p = .01$, $95\%CI = 0.07, 0.47$); and drug usage, moderately ($r = .43$, $p = <.001$, $95\%CI = 0.24, 0.59$). This is suggesting that the

small number of students who are actually consuming both alcohol and drugs, seem to feel that it negatively impacts their ability to study. Observing the skewed nature of the ‘influence’ variable (Figure 4), a Spearman’s Rho was conducted to test the correlations again. As expected, all three variables still correlated moderately and significantly with negative influence of drug and alcohol on studies: frequency of alcohol; $r = .49, p = <.001, 95\%CI = 0.30, 0.64$, binge drinking; $r = .45, p = <.001, 95\%CI = 0.24, 0.61$, drugs; $r = .42, p = <.001, 95\%CI = -0.22, 0.58$.

Despite a number of students believing that alcohol and drugs are having a negative impact on their final grades, correlations showed that there were no significant associations between the extent to which they believe it is actually affecting their grade and their final grade itself: frequency of alcohol; $r = .07, p = .55, 95\%CI = -0.14, 0.28$, binge drinking; $r = .06, p = .56, 95\%CI = -0.15, 0.27$, frequency of drugs; $r = -.07, p = .56, 95\%CI = -0.28, 0.14$, and negative influence of drug and alcohol on studies; $r = -.03, p = .78, 95\%CI = -0.24, 0.18$, further indicating that diet and alcohol use did not impact academic success.

Table 5

Participant ratings for each variable of Alcohol and Drugs (%)

	Never	Rarely	Occasionally	Often	Everyday
Frequency of drinking	23	27	37	13	0
Binge drinking	41	28	25	5	2
Drug Consumption	66	17	8	8	0

Note. “Binge drinking” was measured as “how often do you have 6 or more drinks on one occasion?”, and “drug consumption” was measured as “have you used drugs other than for medicinal purposes?” ($N = 83$).

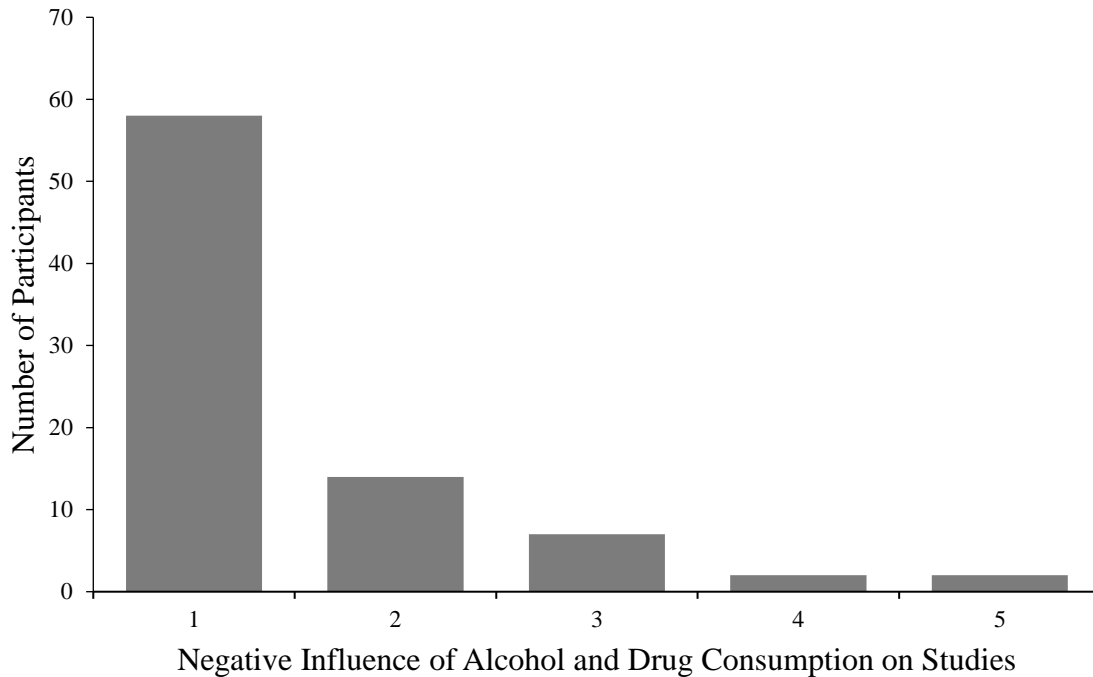


Figure 4. Participants scores for Negative Influence of Drug and Alcohol consumption on Studies ($N = 83$). A score of 1 indicated “never” and a score of 5 indicated “always”.

3.5.5 Employment and Primary Caregiver Responsibilities

A range of scores for work and volunteer hours can be seen in this sample, which is as expected for first year students, however it was worrying that 18% worked or volunteered over 15 hours a week. Interestingly, 90% of students indicated that they do not have the responsibility of being a primary caregiver (Table 6). Correlations no significant associations between negative influence on studies with work/volunteer hours: $r = .18, p = .11, 95\%CI = -0.04, 0.38$, and primary caregiver hours: $r = .13, p = .23, 95\%CI = 0.02, 0.42$, signifying that students do not feel that the number of hours working/volunteering or being a primary caregiver negatively affected their academic success.

The data was further analysed to test if there was a relationship between the students' belief that their work and primary caregiver hours did not negatively impact their studies (Figure 5), and the actual impact those hours had on their final grades. Work/volunteer hours, primary caregiver hours, and their negative influence on studies did not correlate significantly with final grades respectively: $r = -.08, p = .49, 95\%CI = -0.29, 0.14$; $r = .04, p = .72, 95\%CI = -0.18, 0.25$; $r = .05, p = .64, 95\%CI = -0.17, 0.26$. This demonstrated that students' beliefs were correct, as the hours dedicated to working and being a primary caregiver did not affect their academic success.

Table 6

The number of hours per week each student works or volunteers, and takes on the role of a primary caregiver (N = 83)

	0	1-5	6-10	11-15	16- 20	21+
Work/volunteer hours	30	11	13	11	7	11
Primary caregiver hours	75	2	2	1	0	3

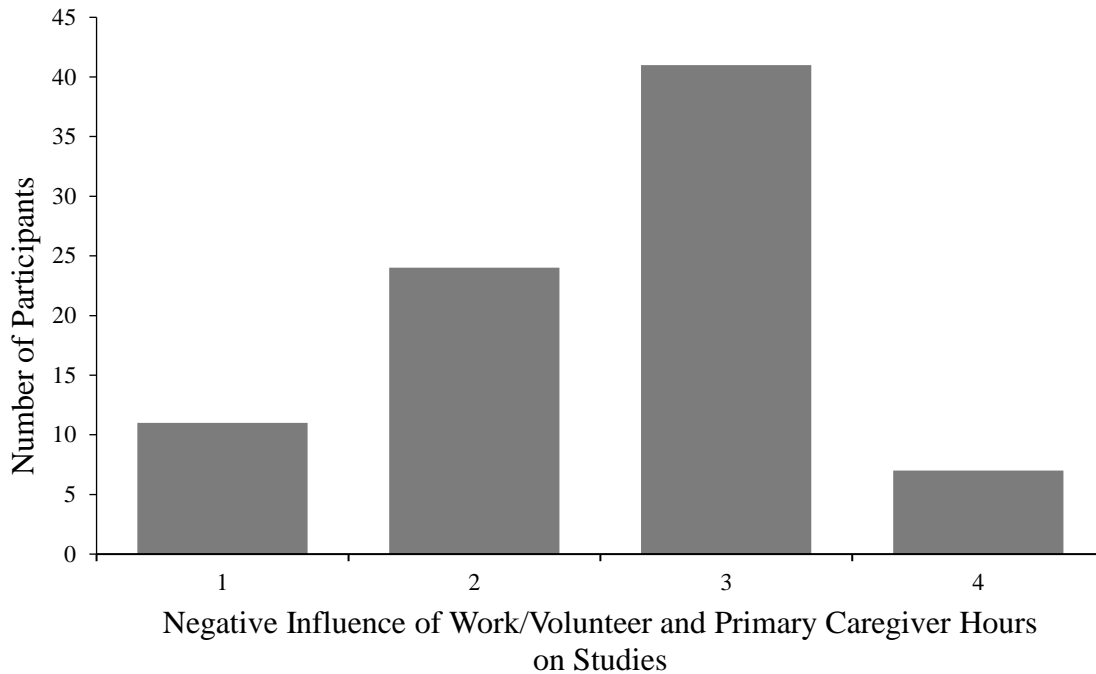


Figure 5. Participant scores for negative influence of work/volunteer and primary caregiver hours on studies. The score of 1 indicated “never”, and 5 indicated “always” ($N = 83$).

3.5.6 Daytime Sleepiness

The literature has suggested that the sleepier a student feels during the day, the more likely it was to be associated with decreased academic success. The highest attainable score for the sleepiness questionnaire was 55; a higher score suggested the student felt sleepier during the day. However, the mean sleepiness score was only 19.15, and the maximum was 35, indicating that the students from this sample were not as prone to sleepiness during the day. Consequently, the results revealed no significant association with sleepiness and final grade ($r = -.13$, $p = .24$, $95\%CI = -0.34, 0.09$), suggesting that students’ sleepiness did not influence academic success, and so the literature was not supported.

3.5.7 Wellbeing

The following section will investigate the influence of student wellbeing on academic success.

It was expected that higher levels of depression, anxiety, and stress were likely to be associated with decreased academic success. However, analysis found no relationship between the wellbeing items and final grades, (depression: $r = -.17, p = .12, 95\%CI = -0.37, 0.05$; anxiety: $r = -.05, p = .64, 95\%CI = -0.26, 0.17$; stress: $r = -.01, p = .91, 95\%CI = -0.23, 0.21$), indicating that student wellbeing was not associated with students' academic success. Table 7 showed that this study comprised of students who were almost more than double the population norm for depression, anxiety, and stress. This indicates that there are high levels of ill-being among first year university students in this sample.

Table 7

Descriptive statistics of the DASS-21 scores, with the sample means compared against the population means

	Population sample mean	Sample mean	SD	Min	Max	CI _{95%}
Depression	2.57	5.42	9.63	0	40	8.74, 12.95
Anxiety	1.74	4.86	8.53	0	34	7.85, 11.57
Stress	3.99	7.43	9.06	0	40	12.89, 16.85

Note. The population means (Crawford et al, 2011), are based on the raw scores. For comparison purposes, the sample means were halved, ($N = 83$).

3.6 Aim 3: Examining the Influence of Lifestyle Factors on Wellbeing

The last aim was to investigate the influence of lifestyle factors on student wellbeing. Student wellbeing was the outcome measure for this aim, and all correlations are presented in Table 8.

3.6.1 Depression

The results showed that more depressed individuals correlated weakly but significantly with higher levels of sleepiness ($r = .22, p = .04, 95\%CI = 0.00, 0.42$), indicating that the more depressed students were, the sleepier they felt during the day. Students that scored high on depression also had a weak negative significant relationship with healthy food ($r = -.30, p = .005, 95\%CI = -0.48, -0.09$), implying that they were less likely to consume a healthy diet. A weak, but significant positive relationship was shown with skipping breakfast ($r = .23, p = .03, 95\%CI = 0.02, 0.42$), demonstrating that the more depressed a student was, the more prone they were to skip breakfast. A weak but significant negative relationship with meal frequency was found ($r = -.34, p = .002, 95\%CI = -0.53, -0.13$), suggesting they were less likely to eat three meals every day. A moderately positive significant relationship was found with diet dissatisfaction ($r = .53, p = <.001, 95\%CI = 0.35, 0.67$), signifying that the more depressed the students were, the more likely they were dissatisfied with their diet.

3.6.2 Anxiety

Similar patterns emerged between the dietary variables and anxiety. The results showed that the more anxious students were, the less likely they were to eat healthy foods ($r = -.30, p = .005, 95\%CI = -0.48, -0.09$), since a weak but significant negative correlation was revealed.

Moreover, anxious students had a significant, but weak positive relationship with skipping breakfast ($r = .29, p = .008, 95\%CI = 0.08, 0.48$), indicating that anxious students were more likely to skip their breakfast every morning. These students also had a moderate, significant negative association with their meal frequency ($r = -.33, p = .002, 95\%CI = -0.51, -0.12$), suggesting that the more anxious they were, the less likely they were to complete three meals every day. Likewise, a moderate and positive significant relationship was established for diet dissatisfaction, concluding that the more anxious individuals were, the more likely they were to be dissatisfied with their diet.

3.6.3 Stress

Similar patterns were also found for stress. The more stressed a student was, the more likely they were to skip breakfast, as can be seen by the weak but significant positive correlation, ($r = .27, p = .01, 95\%CI = 0.06, 0.46$). Results also showed that the more stressed students were, the less they ate three meals a day ($r = -.34, p = .002, 95\%CI = -0.52, -0.13$), as can be seen by this weak, but negative significant correlation. A moderate, significant positive result also indicated that stressed students are more inclined to be dissatisfied with their diet choices ($r = .40, p = <.001, 95\%CI = 0.20, 0.57$).

Table 8

Correlation Analyses of Lifestyle variables with Student Wellbeing, and the corresponding *p* values (*N*=83)

Lifestyle Variables	Depression		Anxiety		Stress	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Healthy Food	-.30	.01	-.30	.005	-.19	.09
Unhealthy Food	.16	.14	.09	.42	.21	.06
Skip Breakfast	.23	.03	.29	.01	.27	.01
Meal Frequency	-.34	.002	-.33	.001	-.34	.002
Diet Dissatisfaction	.53	<.001	.35	.001	.40	<.001
BMI	.20	.07	.08	.48	.06	.60
Physical Activity	-.11	.30	.04	.72	-.06	.61
Drug Usage	.07	.53	.04	.74	.08	.49
Frequency of drinking	-.11	.33	-.03	.81	.00	1.00
Frequency of drinking 6 or more drinks	-.05	.66	.07	.55	-.03	.80
Drug and Alcohol influence on studies	.09	.44	.16	.16	.26	.02
Work/Volunteer	.04	.72	-.13	.24	-.05	.66
Work/volunteer hours	-.06	.59	.11	.34	.03	.76
Primary Caregiver	.06	.57	.04	.74	.08	.49
Primary caregiver hours	-.05	.63	-.09	.40	-.08	.44
Work/volunteer influence on studies	.19	.09	.06	.59	.20	.06
Daytime Sleepiness	.22	.04	.21	.06	.10	.36

Note. *r* values that have been bolded have been shown as reaching significance.

A grand correlation matrix for all of the variables in this current study is shown in Appendix A.

4 Discussion

An increasing number of students in Australia are struggling academically, and as a consequence are withdrawing from their courses. This is an obvious issue for the government but more importantly, it is perhaps indicating that students need targeted interventions that can cater to the specific predictors that may be influencing their academic success. A plethora of literature has already indicated the influence of personality traits and intellectual ability on academic success. However, considering the hectic and demanding nature of university, there was also literature, albeit limited, to suggest that university students' lifestyle and their wellbeing may impact their grades. Therefore, given the lack of literature on university students, the main purpose of this current study was to explore the factors that could predict academic success among tertiary populations.

4.1 Aim 1: Examining Previously Established Predictors on Academic Success

Previous studies have indicated that there have been a number of reliable predictors of academic success, namely intellectual ability, conscientiousness and openness. In this study we found the same pattern of results, and the following section will discuss this.

The literature has indicated a strong significant association for intellectual ability and academic success (Busato, Prins, Elshout, & Hamaker, 2000; Chamorro-Premuzic & Furnham, 2008; Schulze & Roberts, 2006; Watkins, Lei, & Canivez, 2007). However, the current study demonstrated only a moderate, but nonetheless significant association. This finding still supports the literature as it showed that students with increased levels of intellectual ability are more likely to academically score higher. Moreover, the moderate association can also be explained in

terms of the methodology as the literature frequently uses the full form of the Raven's APM, whereas this study utilised the short form to allow for quicker completion time.

Also in line with previous findings, the current study showed that conscientiousness was positively correlated with final grade; demonstrating that the more conscientious an individual was, the better they performed academically (Nofle & Robins, 2007; O'Conner & Paunonen, 2007). However, the researchers have also indicated that conscientiousness is the most prominent predictor out of the five personality traits, and so it was surprising to observe that openness to experience correlated more strongly with academic success. Openness to experience has showed mixed results in literature, as earlier studies have indicated non-significant results (O'Connor & Paunonen, 2007), but a recent meta-analysis has revealed significant associations (Vedel, 2014). This confusion mainly lies in the ambiguity of the openness factor, in the sense that it encompasses both openness to experience and intellectual orientation, and that openness plays a moderating role in the relationship between intellectual ability and academic success (Hong, Paunonen, & Slade, 2008). This study has consequently found a significant correlation between openness and intellectual ability ($r = .23$), indicating that the moderating effect might also be present in this current study; perhaps explaining why openness had a stronger relationship than conscientiousness. To minimise moderating effects, future studies should attempt to refine the openness variable.

4.2 Aim 2: Examining the Influence of Lifestyle Factors and Wellbeing on Academic Success

One of the surprising findings of this study was that we found no relationship between any of the measures of lifestyle choices (except physical activity), and academic success in

university students. This is different to what was previously suggested by literature, as numerous studies have otherwise suggested an association between these factors. The lack of a relationship for some of these lifestyle factors may be a result of the way we measured these variables, or perhaps due to a general limitation, which will be discussed further in the limitations section of the discussion, regarding a lack of variance in the students' final grades. In addition, the lack of an association may also be because there simply was no relationship to be found between these factors in university students, in this sample. Generally, there is an abundance in variation across individuals in regards to their lifestyle choices, and so simply asking questions about them may not be enough to capture the relationships, if any, between lifestyle factors and their academic success. The following sections will discuss these lifestyle factors in detail.

4.2.1 Dietary Habits

This study showed no significant associations between students' dietary habits and their academic success, and so did not support existing literature on university students (Hoyland, Dye & Lawton, 2009). This is an unexpected result as 53% of students collectively responded to eating unhealthy "often" and "every day", and 44% of students have collectively reported that they "never" and "rarely" eat three meals a day. As research has suggested, this should have a notable effect on their brain function, thus reducing their ability to perform well academically (Woodhouse & Lamport, 2012). As a result, it was surprising that in this study we found no relationship.

A possible explanation could be the ambiguity in the options that were presented in the questionnaire, as different students might interpret the options differently. For instance, for the question "how often do you eat healthy food?" one student might feel inclined to choose

“rarely”, whereas another might choose “occasionally” despite both students having similar time frames. This is signifying that the correlations that were produced for diet and academic success may not have been accurate.

4.2.2 BMI

The literature has suggested mixed results for the relationship between BMI and academic success (Baxter, Guinn, Tebbs & Royer, 2013; Taras & Potts-Datema, 2005). This study did not show a significant association between levels of BMI and final grade, implying that BMI had no influence over students’ ability to perform well academically, thus partially supporting the literature. The inconsistency in the literature may be explained by the systematic review conducted by Card and colleagues (2011). They demonstrated that depression mediated the relationship between BMI and academic success. In this study similar effects were observed, as the correlation for depression and BMI had just passed the alpha significance level ($r = .20, p = 0.06$), indicating that although not significant, there was a possibility of depression mediating the relationship between BMI and academic success in this study also.

4.2.3 Alcohol and Drug Consumption

When compared to previous literature (Walker, 2000), students in this study were not representative of the university population for alcohol and drugs as the rates for drinking and drug consumption were surprisingly low in this sample. There was minimal research conducted with university students, but the overarching finding was that increased levels of alcohol and drug consumption was associated with low academic outcomes. This current study identified no significant association with frequency of alcohol, binge drinking, frequency of drugs, and the influence of alcohol and drugs on studies, with final grades. This was unfortunately expected as

only a small number of students consumed these substances in this sample. As a consequence, these findings did not support literature.

It was interesting however, to find that students felt that their use of drugs and alcohol negatively impacted their studies, when in fact as mentioned above, there were no significant associations identified between these variables and academic success. Worryingly, a small number of students despite their beliefs continue to use these substances, perhaps as a method of coping with the demanding nature of university, as is reflected by the literature (McKenzie, Jorm, Romaniuk, Olsson & Patton, 2011).

4.2.4 Employment and Primary Caregiver Hours

Previous literature has suggested that increased hours of employment negatively contributed to academic success (Pritchard, 1996; Susan & Theodore, 2000), but the current sample showed no such association indicating that hours of employment did not influence students' final grades, and so did not support literature. However, the positive association may be explained due to the certain skill sets that are acquired from working, which are also useful for studying (Dallam and Hoyt, 1981; Pennington, Zvonkovic, & Wilson, 1989). This is important as it is implying that 30% students that do not work or volunteer in this sample may be at a disadvantage. This study also showed that 75% of students were not a primary caregiver, and so no association between primary caregiver hours and academic success was identified. This is justified as the mean age of students that participated in this study was $M = 20$, and so there would be minimal opportunities for 20-year-old students to take on the role of a primary caregiver.

4.2.5 Daytime Sleepiness

High levels of daytime sleepiness is known to influence brain function (Lo, Ong, Leong, Gooley & Chee, 2016), and so it is suggested to negatively affect academic success (Eliasson et al., 2009; Howell, 2004; Pilcher & Ott, 1998). However, this study identified no such association between daytime sleepiness and final grade, indicating that levels of sleepiness makes no difference on students' academic success, and so this finding did not support literature. The current sample also obtained a mean score of $M = 19.15$ out of 55, indicating that students of this sample were not prone to sleepiness during the day. A majority of the research conducted for this variable was performed on students from notably difficult courses, such as medicine. Consequently, these findings may be implying that daytime sleepiness does not affect psychology students because their course is commonly considered to be easier than medicine. However, the accuracy of this statement can only be tested when future researchers aim to conduct similar studies targeting psychology students.

4.2.6 Physical Activity

One of the relationships that we did find significance for, was actually the opposite of what we expected. The research on physical activity and its influence on academic success is fairly new, with a majority of findings showing a positive significant association with increased levels of exercise and academic outcomes (Mura et al., 2015; Rasberry et al., 2011). Researchers explain this relationship in terms of positive brain changes that are a result of increased levels of physical activity. Interestingly, this study found a weak, but significant negative correlation ($r = -.31, p = .005$), suggesting that as levels of physical activity increased, final grades decreased. This is not supported by the majority of literature that suggest otherwise.

This finding is difficult to interpret as it is generally understood by medical evidence that increased levels of physical activity, are connected to enhanced cognition and memory, and so positively affecting student acquisition (Shephard, 2011). A plausible explanation for this finding could be because of the low variance in scores, as the sample did not comprise of many students that possessed high physical activity. In addition, the validity of the scale utilised for physical activity is questionable, as it was targeting high school students. Questions such as “what do you do during your lunch break?” are not relevant in university as many students do not partake in physical activity in between their lectures, and as a result many students reported that they “sat down”, or “stood around”, and no students reported that they “ran around”. Both of these methodological limitations could perhaps contribute to the negative correlation.

4.2.7 Wellbeing

The sample population was first year university students, and literature has suggested that they are more vulnerable to depression, anxiety, and stress due to the changes associated with the transition from secondary to tertiary education (Thurber & Walton, 2012). This is worryingly reflected in the results as the current sample was comprised of students who were depressed, anxious, and stressed more than double than what the population norm suggested (Crawford., et al). These findings indicate the urgency of initiating interventions that aim to help first year university students to adjust to the tertiary lifestyle. For instance, explaining how to manage the sudden onset of independency may allow the students to feel more supported, and as such, better their psychological wellbeing.

There was also literature, albeit minimal, to suggest that increased levels of poor psychological health, is reported as negatively affecting brain function (Stark & Brookman,

1994). Considering the strikingly large number of students that reported deteriorating psychological health in this study, a negative correlation was expected with academic success. Interestingly, there was no association identified between wellbeing and final grade, implying that student wellbeing did not influence academic success, therefore these findings did not align with existing literature.

4.3 Aim 3: Examining the Influence of Lifestyle Factors on Wellbeing

Even though we found no relationship between lifestyle factors and wellbeing with academic success, it was interesting to note that we did see some clear associations between wellbeing and a number of different lifestyle factors. This is interesting because there is minimal literature that focus on these factors in a specific university population. The results indicated that depression, anxiety, and stress were all found to be associated with unhealthy dietary habits, with depression also showing a positive significant association with daytime sleepiness. These findings are important because the crippling levels of poor psychological health in this sample generates a sense of urgency as long term effects of lack of sleep, and poor diet may affect their ability to study anyway. This is suggesting that it is still very important to look at lifestyle factors, and promote healthy lifestyle choices for these students, in the hopes that that it might reduce these levels of psychological ill-being.

4.4 Further Limitations

One of the potential important limitations for this study was a lack of variance in the students' academic performance, in particular this study did not manage to capture the low performing students. If this study had in fact obtained students with lower final grades, perhaps more significant associations would have been identified. The underlying issue here could

perhaps be the small sample size, despite the power analysis suggesting otherwise. A larger sample size may automatically increase the likelihood of an even spread of final grades within the data, along with increasing representativeness for some of the lifestyle variables such as alcohol and drug consumption.

Moreover, the administration time for the questionnaires would not have been consistent for all students as the surveys were available for a period of two months. This is indicating fluctuations in responses for the variables, as students' lifestyle choices and wellbeing may have been influenced by external factors such as assignment due dates, or personal choice.

In addition, the accuracy of the responses is also questionable due to the course credit that was provided on completion. This incentive may have prompted students to not respond thoughtfully, and as result provide inaccurate answers. Likewise, the self-report methodology of the questionnaires may also contribute to inaccurate results, as students may feel obliged to provide responses that reflect socially desirable traits, and it may also limit the quality of responses, thus affecting the validity of the data.

4.5 Strengths

The main strength of this study was that, to the best of our knowledge it was the first of its kind to incorporate these particular lifestyle variables on first year psychology students. This not only fills a necessary gap in literature, but also emphasises the importance of future research to implement studies that look at these particular lifestyle variables on this under-researched population.

4.6 Future Research Directions

Despite the non-significant findings of this present study, it is still very important to identify the predictors for academic success, in order to create tailored intervention programs for students struggling academically. Therefore, future research should replicate this study whilst considering the limitations discussed, and should also implement different measures that are more appropriate to the university population. Moreover, it may also be worthwhile to only focus on one particular lifestyle variable, such as sleep as it is the most discussed in literature in regards to university students. In addition, the current study established the importance of improving lifestyle choices in order to improve psychological health, and so future studies should also build upon these findings and implement qualitative analysis such as interviews, in order to have a greater understanding of why depression, anxiety, and stress are so prevalent in the first year university population.

4.7 Conclusions

The results of this study were an important addition to literature as it highlighted the under researched relationships between psychological wellbeing and lifestyle choices, and moreover addressed the importance of understanding these factors better in first year university students. No relationships were found between lifestyle factors and wellbeing with academic success, which further emphasised the need for more research in this area. Furthermore, the increasing numbers of students failing their university courses adds to the urgency of identifying these predictors of academic success, as not only are students' lives heavily dependent on a university degree, but also the underlying issue of unnecessary government expenditure needs to be quickly rectified.

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Appendix A: Grand Correlation Matrix of all Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
1. Final Grade	1																									
2. Depression	-.17	1																								
3. Anxiety	-.05	.63	1																							
4. Stress	-.01	.68	.71	1																						
5. Openness to Experience	.29	.13	.07	.19	1																					
6. Conscientiousness	.24	-.31	-.13	-.01	.15	1																				
7. Extraversion	.03	-.36	-.29	-.19	.04	.35	1																			
8. Agreeableness	-.05	-.30	-.16	-.05	.12	.38	.39	1																		
9. Neuroticism	-.21	.71	.61	.70	.13	-.16	-.26	.04	1																	
10. Intellectual Ability	.46	.00	-.11	-.10	.23	.03	-.26	-.05	-.15	1																
11. Body Mass Index	-.15	.20	.08	.06	.12	-.18	-.03	-.08	.11	-.01	1															
12. Daytime Sleepiness	-.13	.22	.21	.10	-.01	-.30	-.03	-.13	.12	-.16	-.12	1														
13. Physical Activity	-.31	-.11	.04	-.06	-.04	-.02	.26	.18	-.05	-.17	-.10	-.02	1													
14. Frequency of Alcohol	.07	-.11	-.03	.00	-.08	.05	.36	-.06	-.07	-.08	-.15	-.11	.20	1												
15. Binge Drinking	.06	-.05	.07	-.03	.04	-.01	.28	-.14	-.05	-.10	-.11	.09	.27	.71	1											
16. Drug Consumption	-.07	.07	.04	.08	.15	-.18	-.05	-.20	.10	-.11	-.07	-.07	.19	.36	.37	1										
17. Drug/Alcohol on Studies	-.03	.09	.16	.26	.14	-.04	-.01	-.05	.17	-.18	-.02	.11	.05	.37	.28	.43	1									
18. Work/Volunteer Hours	-.03	.04	-.13	-.05	-.13	.01	-.18	-.07	.01	-.03	.05	.01	-.15	-.08	.00	.03	-.02	1								
19. Primary Caregiver Hours	-.01	.06	.04	.08	-.03	.00	.07	-.18	.08	-.01	-.08	-.06	-.05	.18	.12	-.01	-.04	-.05	1							
20. Work/Volunteer on Studies	.05	.19	.06	.20	.15	-.14	.20	-.08	.08	.00	.15	.17	.05	.24	.17	.23	.28	-.10	-.04	1						
21. Healthy Food	.12	-.30	-.30	-.19	.18	.20	.13	.35	-.13	.18	.07	-.34	.16	.02	-.14	.01	-.01	.00	-.06	-.11	1					
22. Unhealthy Food	.03	.16	.09	.21	-.18	.01	.12	.07	.25	-.02	.12	.12	-.22	.00	-.15	-.10	-.04	.14	.00	.25	-.21	1				
23. Skipping Breakfast	-.01	.23	.29	.27	.08	-.16	-.11	-.06	.22	.00	.10	.35	-.19	.01	.07	.14	.20	-.11	-.02	.22	-.28	.22	1			
24. Meal Frequency	.14	-.34	-.33	-.34	-.11	.13	.02	.13	-.28	.21	-.04	-.17	.12	-.01	-.07	-.14	.02	.00	.02	-.06	.37	-.01	-.53	1		
25. Diet Dissatisfaction	-.05	.53	.35	.40	-.01	-.22	-.09	-.06	.48	-.02	.10	.31	-.23	-.05	-.11	.01	.07	.12	-.07	.25	-.34	.62	.49	-.42	1	

Note. Correlation = Pearson's r , Final Grade = Academic Success; Drug/Alcohol on Studies = The Negative Influence of Drug and Alcohol Consumption on Studies; Work/Volunteer on Studies = The Negative Influence of Work/Volunteer Hours on Studies. Numbers that have been bolded have reached significance.