



## PSYCHOSOCIAL PREDICTORS OF PSYCHOLOGICAL DISTRESS AMONG AUSTRALIAN UNIVERSITY STUDENTS

RM Chand and AM Pidgeon

School of Psychology, Faculty of Society and Design, Bond University, Australia, QLD 4229

**Abstract:** Psychological distress increases university students' risk of developing mental health disorders, such as depression. The current study aims to examine the role of resilience, social connectedness and social support in predicting psychological distress among Australian university students. In addition, the current study will also examine the prevalence rates of psychological distress reported by Australian university students across year levels and compare the prevalence to an Australian community population. Online survey data was collected from 94 Australian university students and 143 Australian community participants. Data was analysed using Independent-Samples t-Tests, an analysis of variance, a hierarchical multiple regression and a mediation analysis. Results showed no significant differences in prevalence rates of psychological distress between Australian university students and Australian community participants. Prevalence rates of psychological distress were not different across year levels of study among Australian university participants. Analyses of predictors found social connectedness was the strongest predictor of psychological distress even when social support was found to mediate the relationship. Limitations of the current study such as sample characteristics and generalisability concerns were identified. Implications of the current findings for the development of prevention and intervention programs and future research are discussed.

**Keywords:** Psychological distress, social connectedness, university students

**Introduction:** The prevalence of psychological distress among university students is increasing and a cause for concern.<sup>1</sup> High levels of

psychological distress have been associated with mental health disorders such as depression, absenteeism and attrition from university studies and decreased quality of life.<sup>1,2</sup> Furthermore, prevalence rates of psychological distress among university students are significantly higher than that of the general community.<sup>3,4</sup> However, the prevalence rate of psychological distress reported by university students across year levels of study are not well

**For Correspondence:**

rebecca.chand@student.bond.edu.au

Received on: May 2017

Accepted after revision: August 2017

Downloaded from: [www.johronline.com](http://www.johronline.com)

researched in the Australian university student population. Hence, the present study aims to address this gap in the literature by comparing the prevalence rates of psychological distress across first, second, third and postgraduate Australian university students.

While elevated psychological distress among university students is of concern, resilience, social connectedness and social support have been shown to be associated with lower levels of psychological distress.<sup>5,6,7</sup> Resilience provides university students with the capacity to adapt to changes and stressful events encountered during their study.<sup>8,9</sup> University students report the use of social support as a coping mechanism to navigate the pressures of university.<sup>10</sup> However, some university students may feel less socially connected due to changes in their environment.<sup>11</sup> The predictive roles of resilience, social support and social connectedness on psychological distress warrants further investigation. Therefore, the current study aims to address this gap in literature by examining the predictive role of these psychosocial factors on psychological distress among Australian university students.

**Prevalence of Psychological Distress:** The definition of psychological distress is not consistent within current literature. For example, most often, psychological distress is defined as experiences of depression, anxiety and stress, as separate constructs, and measured with non-specific psychological distress measures (e.g. Kessler 10, General Health Questionnaire).<sup>2,4</sup> Alternatively, psychological distress has been defined as the collective experience of depression, anxiety and stress, which is in line with the Tripartite Model.<sup>3,12</sup> This model postulates that depression, anxiety and stress as a composite best reflects the construct of psychological distress.<sup>12</sup> In accordance with this, the Depression Anxiety Stress Scale (DASS) adequately measures the three dimensions of psychological distress, as identified by the Tripartite Model, and was used

to measure psychological distress in the present study.<sup>12</sup>

A literature review revealed inconsistent findings of prevalence rates of psychological distress among university students and general community populations.<sup>4,14</sup> One of the limitations of many of the studies examining the prevalence rates of psychological distress among university students is that measures not established as psychometrically adequate measures of psychological distress were utilised.<sup>4,14</sup> Therefore, the current study addresses this limitation by utilising the DASS, a psychometrically sound measure of psychological distress.<sup>12</sup> Similarly, to Larcombe *et al.* who used the DASS and established prevalence rates of normal/mild, moderate and severe/extremely severe psychological distress, the current study will also utilise this method of prevalence rate calculations.<sup>3</sup>

Larcombe *et al.* examined the prevalence of psychological distress among 4825 Australian university students.<sup>3</sup> The DASS-21 was utilised to assess psychological distress using subscale severity ratings as outlined in the DASS manual.<sup>13</sup> Results showed that 52.4% of Australian university students reported normal/mild psychological distress, 21.8% reported moderate psychological distress and 25.8% reported severe/extremely severe psychological distress. These results showed that a significant proportion of Australian university students experience a range of levels of psychological distress. However, Larcombe *et al.* compared psychological distress means of Australian university students to an Australian general community population but did not compare the prevalence rates of levels of psychological distress among Australian university students to an Australian community sample.<sup>3</sup> Therefore, the current study undertakes this analysis to address this gap.

**University Year Levels of Study:** The prevalence rates of psychological distress across university year levels of study have not been well researched. Most research focuses on

depression, anxiety and stress as separate constructs.<sup>2</sup> Furthermore, a literature review revealed inconsistent reports in the prevalence rates of psychological distress across university students in different year levels of study.<sup>4,15</sup> Therefore, the present study aims to add to this body of knowledge and examine the prevalence rates of psychological distress across first, second, third and postgraduate (fourth year and above) Australian university students.

**Predictive Role of Resilience to Psychological Distress:**

Previous literature has indicated that university students who reported having resilience also reported managing their transition into university and academic performance more effectively.<sup>9</sup> Resilience has been defined as the personal qualities of individuals, which enable them to thrive in adverse situations or an individual's successful stress-coping ability.<sup>8</sup> Connor and Davidson view resilience as a multidimensional construct and draw upon other constructs to define resilience including hardiness, control, commitment, change viewed as a challenge, having clear goals and aims, orientation toward action, strong self-esteem, confidence, adaptability to change, social problem solving skills, humour in stressful situations, stress experienced as having a strengthening effect, having secure and stable affectional bonds, previous success and achievement experiences, patience, stress or pain endurance and the role of faith and belief in a benevolent intervention.<sup>8</sup> According to the Resilience Model, individuals possess resilience and/or vulnerability factors including socio-demographic, psychosocial and health factors.<sup>16</sup> These vulnerability factors attribute personal meanings to situations upon exposure of daily stressors depending on the stressor characteristics and subjective appraisal. In turn, these personal meanings determine how an individual reacts to certain stressors as proposed by the Resilience Model.<sup>16</sup> In addition, exposure to stressors and reactivity to these stressors influence psychological wellbeing, psychological distress and physical

symptomology, which provides a feedback loop, effecting resilience and vulnerability factors.<sup>16</sup> The Resilience Model postulates that increasing resilience factors has the potential to reduce the development of psychological distress.<sup>16</sup> It has been proposed that university students who report low resilience lack the ability to bounce back after academic setbacks and stressors.<sup>17</sup> Furthermore, research supports that resilience can be a protective factor against academic pressures and change.<sup>18</sup> Therefore, resilience is an important capacity for university students to continue to cultivate.

Research shows an association between low psychological distress and high resilience.<sup>6,19,20</sup> While research supports a relationship between high psychological distress and low resilience; further research is warranted to understand this relationship among Australian university students. Hence, the current study aims to further explore the predictive contribution of resilience in levels of psychological distress experienced by Australian university students.

**Predictive Role of Social Connectedness to Psychological Distress:**

University students may experience changes in their social relationships and ability to maintain connected during university life, challenging their sense of belonging.<sup>11</sup> A lack of social connectedness has been shown to result in poorer psychological outcomes.<sup>21</sup> Research suggests that university students experience difficulty finding people and establishing social connections where they feel comfortable.<sup>11</sup> In other words, university students are at increased risk of feeling socially disconnected from people around them. Social connectedness is a term, which refers to social reassurance, social identity, loneliness, social support size, group membership and social provisions.<sup>22</sup> According to the Self-Psychology Theory, social connectedness develops early in life, through parent-child attachments, and continues throughout the lifespan. In adolescence, social connectedness is exhibited through peer relationships and group membership and in adulthood, these

relationships developed in adolescence form an overall sense of self.<sup>22</sup> In line with the Self-Psychology Theory, individuals who establish a sense of social connectedness develop functional interpersonal behaviours, which contribute to low psychological distress. However, those who do not establish a sense of social connectedness develop dysfunctional interpersonal behaviours resulting in high psychological distress.<sup>22</sup> This suggests that social connectedness may have a protective role in developing high levels of psychological distress.

Additionally, literature consistently shows an association between social connectedness and psychological distress.<sup>4,5,11,21</sup> However, due to the inconsistent measurements of social connectedness, the present study aims to contribute to the body of knowledge by examining the predictive role of social connectedness in determining psychological distress among Australian university students using the Social Connectedness Scale-Revised as a psychometrically sound general assessment tool of social connectedness.<sup>22</sup>

**Predictive Role of Social Support to Psychological Distress:** Literature suggests that university students use social support as a coping mechanism by seeking help and support from those around them.<sup>10</sup> Social support has been defined as the subjectively perceived provision of a person's basic social needs such as affection, esteem, approval, belonging, identity and security.<sup>23</sup> Family, friends and significant others can provide social support in the form of emotional interaction and/or practical help.<sup>23</sup> Cohen and Wills propose a model where social support buffers the negative effects of potential psychologically distressing events according to two propositions.<sup>24</sup> Firstly, social support may prevent an appraisal due to the perception that necessary resources are available to meet demands and/or reduce the risk of harm, increasing perceived ability to cope. Secondly, social support may provoke a reappraisal of the event, serving to inhibit

maladaptive or dysfunctional responses or strengthening adaptive and functional counter response. In line with this, research suggests that social support is related to psychological distress; however, research findings are inconsistent.<sup>7, 25</sup>

**Relationship between Predictive Factors:** The Protective-Protective Model is an interactive model, which proposes that in the presence of a protective factor, the relationship between the risk and outcome weakens, and further weakens with each additional protective factor.<sup>26</sup> Social connectedness and social support are often referred to as protective factors of resilience.<sup>27,28,29</sup> This suggests that resilience may be a stronger predictor of psychological distress than social connectedness and social support alone. However, a paucity of research has been conducted investigating social connectedness and social support as predictors of psychological distress. Nevertheless, literature suggests social support and social connectedness do not have an equal influence on psychological distress or its separate constructs.<sup>30</sup> For example, Pidgeon *et al.* explored social connectedness and perceived social support as protective factors of resilience and the role these factors played in buffering the development of depression, anxiety and stress among university students ( $N = 206$ ).<sup>30</sup> Results showed that social connectedness moderated the effects of depression and stress but not stress and anxiety. Additionally, the study found that social support did not moderate the relationship between perceived stress and depression or between perceived stress and anxiety.<sup>30</sup> This indicates that social connectedness and social support have differing effects in their relationship with depression, anxiety and stress. Moreover, it implies that social connectedness may have a stronger role than social support in predicting psychological distress.

To date, no research has adequately examined the predictive role of resilience, social connectedness and social support on psychological distress among Australian

university students. Therefore, the present study aims to examine the contribution of resilience, social connectedness and social support in predicting psychological distress.

**Aim and Hypotheses:** The current study aims to examine the prevalence rates of psychological distress among Australian university students and compare these to Larcombe *et al.*'s study.<sup>3</sup> Secondly, the current study aims to compare the prevalence rates of psychological distress among Australian university students to the general Australian community and across university year levels. Finally, the current study aims to examine psychosocial predictors of psychological distress among Australian university students.

In line with the current study's aims, the following results were hypothesised.

H1. It was hypothesised that Australian university students would report prevalence rates of normal/mild, moderate and severe/extremely severe psychological distress similar (within a 10% range) to those reported in Larcombe *et al.*'s study.<sup>3</sup>

H2. It was hypothesised that Australian university students would report significantly higher prevalence rates of psychological distress when compared to the general Australian community.

H3. It was hypothesised that first year Australian university students would report significantly different prevalence rates of psychological distress when compared with postgraduate (fourth year and above) Australian university students.

H4. It was hypothesised that resilience, social connectedness and social support, in that order, would significantly inversely predict psychological distress among Australian university students.

H5. It was hypothesised that social connectedness and social support would significantly mediate the relationship between resilience and psychological distress while social support would significantly mediate the

relationship between social connectedness and psychological distress.

#### **Method**

**Participants:** Participants in the present study consisted of an Australian community sample and an Australian university student sample, creating a total sample size of 237 participants. The Australian community sample consisted of 143 participants, including 95 (66.4%) females and 48 (33.6%) males, ranging from 18-74 years of age. The university student sample consisted of 94 participants, including 76 (80.9%) females and 18 (19.1%) males, ranging from 18-54 years. Australian university students included 23 (24.5%) first year Australian university students, 28 (29.8%) second year Australian university students, 23 (24.5%) third year Australian university students and 19 (20.2%) postgraduate Australian university students. Inclusion criteria of the university student sample stipulated that participants must be currently enrolled in an Australian university level program, be 18 years of age and provide consent prior to participation.

**Materials:** The online questionnaire package administered to participants consisted of an explanatory statement, informed consent form, a set of demographic questions, the Depression Anxiety Stress Scale (DASS-21),<sup>13</sup> the Connor-Davidson Resilience Scale,<sup>8</sup> the Social Connectedness Scale-Revised<sup>22</sup> and the Multidimensional Scale of Perceived Social Support.<sup>23</sup>

**Design:** The current study utilised the prevalence rates of normal/mild, moderate and severe/extremely severe psychological distress as reported by Larcombe *et al.*<sup>3</sup> to compare the prevalence rates of psychological distress in the current study's dataset. Independent Samples t-Tests were conducted to compare the differences in means of normal/mild, moderate and severe/extremely severe psychological distress among Australian university students and Australian community participants. A one-way analysis of variance was conducted with an independent variable of levels of study (4: first-

year, second-year, third-year, postgraduate) and dependent variable of psychological distress. A hierarchical multiple regression was conducted to assess the extent to which predictors (resilience, social connectedness and social support) accounted for the criterion (psychological distress). Finally, three separate mediations were conducted with social connectedness as the mediating variable of resilience and psychological distress in the first mediation analysis. Social support was the mediating variable of resilience and psychological distress in the second mediation analysis. Social support was the mediating variable of social connectedness and psychological distress in the third mediation analysis. Mediation analyses were conducted to additionally establish the amount of variance accounted for in psychological distress by each of the predictor variables.

## Results

**Preliminary Analyses:** G\*power was utilised to calculate the required sample size for the main analysis. To obtain a medium effect size of  $f^2 = .15$ , a power of 0.85 and a critical  $\alpha = .05$ , a total sample size of 87 participants were required for the regression analysis.

Preliminary analyses were conducted to appropriately clean the dataset and meet the requirements of statistical assumptions before performing the main analyses. These analyses resulted in the deletion of 60 cases, leaving 237 participants, which consisted of 143 Australian community participants and 94 Australian

university students in the current study. The total remaining participants met the required minimum sample size suggested by the G\*power analysis.

## Prevalence Rates of Psychological Distress:

The first hypothesis predicted that Australian university students would report prevalence rates of normal/mild, moderate and severe/extremely severe psychological distress similar (within a 10% range) to those reported in Larcombe *et al.*'s study.<sup>3</sup> To test this hypothesis, the prevalence rates of psychological distress of Australian university students, as measured by the DASS-21, were compared to Larcombe *et al.*'s findings.<sup>3</sup> Severity ratings of depression, anxiety and stress were determined by the DASS norm scores.<sup>13</sup> The psychological distress range was calculated based on Larcombe *et al.*,<sup>3</sup> namely normal/mild psychological distress was determined by participants who reported normal or mild scores across all three subscales of depression, anxiety and stress.<sup>3</sup> Moderate psychological distress was determined by participants who reported moderate scores on at least one or more subscale.<sup>3</sup> Participants who reported severe or extremely severe scores on at least one or more subscales determined severe/extremely severe psychological distress.<sup>3</sup> Table 1 shows the prevalence rates of psychological distress among Australian university students in the current study compared to Larcombe *et al.*'s findings.<sup>3</sup> Findings support the first hypothesis.

Table 1: *Current Study: Prevalence Rates of Psychological Distress Reported by University Students in the Current Study and Larcombe et al.'s University Student Sample*<sup>3</sup>

	Sample Size	%
University Students		
Normal/Mild	94	44.7
Moderate	94	25.5
Severe/Extremely Severe	94	29.8
Larcombe <i>et al.</i> <sup>3</sup>		
Normal/Mild	4825	52.4
Moderate	4825	21.8
Severe /Extremely Severe	4825	25.8

The second hypothesis predicted that Australian university students would report significantly higher prevalence rates of psychological distress when compared to the general Australian community. To test the second hypothesis, Independent Samples t-Tests were conducted to compare the differences in means between Australian university students and Australian community participants in the current study across all three levels of psychological distress. Statistical significance was accepted at  $\alpha < .05$ , as statistical test assumptions were not violated.<sup>31</sup> Results showed no significant differences between Australian university students and Australian community participants on normal/mild psychological distress,  $t(83) = -.53$ ,  $p = .601$ ; on moderate psychological distress,  $t(66) = 1.60$ ,  $p = .115$  and on severe/extremely severe psychological distress,  $t(74) = -.34$ ,  $p = .735$ .

Another Independent-Samples t-Test was conducted to compare the differences between Australian university students and Australian community participants in the current study using total psychological distress DASS scores, as calculated by Lovibond and Lovibond.<sup>13</sup> Results showed non-significant differences between Australian university students and Australian community participants on total psychological distress scores,  $t(227) = 1.23$ ,  $p = .219$ . These findings do not support the second hypothesis.

**Analysis of Variance:** The third hypothesis predicted that first year Australian university students would report significantly different prevalence rates of psychological distress when compared with postgraduate (fourth year and above) Australian university students. To test the third hypothesis, a one-way analysis of variance was conducted. Statistical significance was accepted at  $\alpha < .05$ , as statistical test assumptions were not violated.<sup>31</sup> According to Tabachnick and Fidell, unequal group sizes do not majorly influence results providing the group with the smallest sample size does not have the largest variance.<sup>31</sup> Total psychological

distress DASS scores were calculated for each year level of study: first-year ( $M = 30.43$ ,  $SD = 27.05$ ), second-year ( $M = 24.92$ ,  $SD = 21.27$ ), third-year ( $M = 29.48$ ,  $SD = 30.03$ ) and postgraduate ( $M = 24.53$ ,  $SD = 21.39$ ) Australian university students.<sup>13</sup> Results showed non-significant differences between year levels of study on psychological distress,  $F(3, 89) = 0.34$ ,  $p = .799$ . These findings do not support the third hypothesis.

#### **Hierarchical Multiple Regression Analysis:**

The fourth hypothesis predicted that resilience, social connectedness and social support, in that order, would significantly inversely predict psychological distress among Australian university students. To test the fourth hypothesis, a three-stage hierarchical multiple regression was conducted for Australian university students. Missing values were replaced with mean values to ensure there were equal cases per variable ( $N = 94$ ).<sup>31</sup> Based on the theoretical understanding, independent variables with greater theoretical importance were entered into the model first.<sup>31</sup> Statistical significance was accepted at  $\alpha = .05$  level as statistical test assumptions were met. Total Resilience scores were entered into the model at stage one, as Resilience was suggested to be the strongest predictor of psychological distress.<sup>28</sup> Total Social Connectedness scores were entered into the model at stage two, as research showed it to be a greater predictor of psychological distress than Social Support.<sup>30</sup> Social Support was entered into the model at stage three.

The hierarchical multiple regression revealed that at stage one, Resilience contributed significantly to the regression model,  $F(1, 92) = 18.90$ ,  $p < .001$ , and accounted for 16.1% of the variation in psychological distress. At stage two, Social Connectedness explained an additional 15.6% of the variation in psychological distress and this change in  $R^2$  was significant,  $F(1, 91) = 22.62$ ,  $p < .001$ . Introducing stage three, Social Support contributed significantly to the regression model,  $F(1, 90) = 17.55$ ,  $p < .001$  and accounted

for 3.1% of the variation in psychological distress. When all three predictors were included in the regression model, Resilience ( $\beta = .18$ ,  $t(92) = 1.94$ ,  $p = .055$ ) was not a significant predictor of psychological distress. The most significant predictor of psychological distress was Social Connectedness ( $\beta = .30$ ,  $t(91) = 2.61$ ,  $p = .011$ ), explaining 15.6% of the variation in psychological distress, followed by Social Support ( $\beta = .26$ ,  $t(90) = 2.30$ ,  $p = .024$ ), which explained 3.1% of the variation in psychological distress. Together, the three predictors accounted for 34.8% of the variation in psychological distress. These findings partially support the fourth hypothesis for social support and social connectedness, but not for resilience.

**Mediation Analysis:** The fifth hypothesis predicted that social connectedness and social support would significantly mediate the relationship between resilience and psychological distress while social support would significantly mediate the relationship between social connectedness and psychological distress. To test the fifth hypothesis, a mediation analysis was conducted. As Resilience did not have a significant total effect on psychological distress, the criteria for mediation could not be met.<sup>32</sup> However, Social Support and Social Connectedness had a significant total effect on psychological distress; hence, these psychosocial factors were entered into the mediation model.

To test pathway *a*, a simple linear regression analysis predicting Social Support from Social Connectedness was conducted, demonstrating Baron and Kenny's first step had been met.<sup>32</sup> Social Connectedness accounted for a significant amount of variance ( $R^2 = .42$ ) in Social Support,  $F(1, 92) = 66.35$ ,  $p < .001$ . Furthermore, the coefficient for Social Connectedness was significant,  $\beta = .65$ ,  $p < .001$ . This finding demonstrated that higher Social Connectedness was predictive of higher Social Support.

To test pathways *c*, *b* and *c'* and meet the additional steps of Baron and Kenny's model, a hierarchical multiple regression was conducted.<sup>32</sup> The analysis demonstrated the contribution Social Connectedness and Social Support accounted for in Psychological Distress. At step one, the predictor variable Social Connectedness was entered as it was found to have the most predictive total effect on Psychological Distress. Social Connectedness accounted for a significant amount of variance ( $R^2 = .28$ ) in Psychological Distress,  $F(1, 92) = 37.86$ ,  $p < .001$ . The coefficient for Social Connectedness was significant,  $\beta = -.54$ ,  $p < .001$ . This finding demonstrated that higher Social Connectedness predicted a reduction in Psychological Distress.

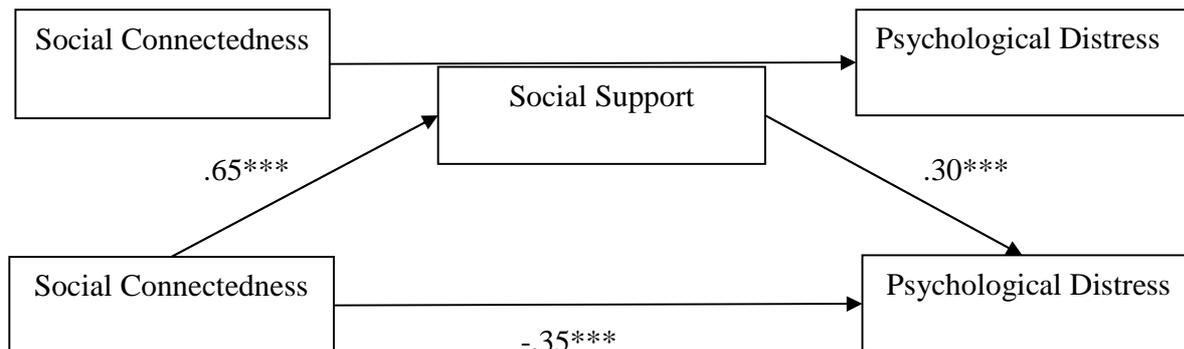
At step two, the intended mediator Social Support was entered. Social Support, when Social Connectedness was controlled, accounted for a significant amount of additional variance ( $\Delta R^2 = .04$ ) in Psychological Distress,  $F(1, 91) = 23.71$ ,  $p < .001$ . Furthermore, the coefficient for Social Support was significant,  $\beta = -.30$ ,  $p = .009$ . This finding demonstrated that higher Social Support predicted lower Psychological Distress. When Social Support was entered at step two, the coefficient for Social Connectedness decreased, however remained significant,  $\beta = -.35$ ,  $p = .002$ .

As suggested for smaller samples, a nonparametric bootstrapping analysis was conducted to test the significance of Social Support as a mediator of the relationship between Social Connectedness and Psychological Distress.<sup>33</sup> Using this method, mediation is inferred through the interpretation of bootstrapped 95% bias corrected confidence intervals. Significance of the indirect effect is demonstrated when the confidence intervals are found not to include zero.<sup>33</sup> Results of 1000 bootstrapped samples showed a significant indirect effect of Social Connectedness via Social Support (Lower 95% CI = -0.56, Upper CI = -0.02). This finding demonstrated that Social Connectedness remains a significant

predictor of Psychological Distress even when Social Support was found to mediate the relationship. This infers partial mediation, supporting the fifth hypothesis for Social Support as a mediator of the relationship

between Social Connectedness and Psychological Distress. Figure 1 displays the unmediated and mediated models of the above model.

a) Unmediated Model



b) Mediated Model

Figure 1. Direct and indirect pathways between social connectedness, social support and psychological distress.

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Discussion:** The first aim of the present study was to examine the prevalence rates of psychological distress among Australian university students compared to Larcombe *et al.*'s study.<sup>3</sup> The second aim was to compare the prevalence rates of psychological distress among Australian university students to the general Australian community and across year levels of study among Australian university students. The final aim was to examine the roles of psychosocial factors in predicting psychological distress among Australian university students.

Hypothesis one predicted that Australian university students would report prevalence rates of psychological distress similar to (within a 10% range) those reported in Larcombe *et al.*'s study<sup>3</sup> was supported. The current study demonstrated that Australian university students reported a prevalence rate of 44.7% for normal/mild psychological distress, 25.5% for moderate psychological distress and 29.8% for severe/extremely severe psychological distress. When compared to Larcombe *et al.*'s study,<sup>3</sup>

Australian university students in the current study reported 7.7% higher prevalence rates of normal/mild psychological distress, 3.7% lower prevalence rates of moderate psychological distress and 4% lower severe/extremely severe psychological distress. Therefore, the current study's findings of psychological distress prevalence rates among Australian university students were consistent with previous research by Larcombe *et al.*,<sup>3</sup> supporting the utilisation of the DASS-21 as an acceptable measure of psychological distress. These findings also provide preliminary support that Australian university students do report experiences of psychological distress, which can increase their risk of developing more serious mental health problems.<sup>1,4</sup>

Secondly, it was predicted that Australian university students would report significantly higher prevalence rates of psychological distress when compared to the general Australian community population. The current study tested this hypothesis using the same Larcombe *et al.* computations of levels of psychological

distress<sup>3</sup> and using the DASS scoring for calculating total psychological distress.<sup>13</sup> However, the results showed that hypothesis two was not supported. The results showed that there were no significant differences between Australian university students and Australian community participants' levels of psychological distress. This finding is inconsistent with previous research, which utilised different measures of psychological distress and found university students consistently reported higher prevalence rates of psychological distress than community participants.<sup>3,4,14</sup> However, the current study is the only known study to compare Australian university students to Australian community participants' prevalence rates of psychological distress utilising the DASS-21. This suggests that more research is warranted to understand the impact of the measures utilised to assess psychological distress. Previous research also used larger sample sizes.<sup>3,4,14</sup> Therefore, it can also be implied that the smaller sample size in the current study may have contributed to the lack of significant differences found between Australian university students and Australian community participants in psychological distress prevalence rates.

Thirdly, it was expected that first year Australian university students would report non-significant differences in prevalence rates of psychological distress when compared to postgraduate (fourth year and above) Australian university students. Findings did not support this hypothesis. This finding is inconsistent with previous research, which found there were significant differences between year levels.<sup>4</sup> One implication of this finding includes that psychological distress may be similar in prevalence rates across year levels of study, supporting Leahy *et al.*'s findings.<sup>15</sup> However, the current study employed a small sample size and small group sizes in comparison to previous studies or research,<sup>4,15</sup> which may have contributed to the lack of significant differences found between year levels of study.

Nevertheless, the results of the current study demonstrate that Australian university students at all year levels of study experience psychological distress.

The fourth hypothesis predicted that resilience, social connectedness and social support, in that order, would significantly inversely predict psychological distress among Australian university students. This hypothesis was partially supported. Resilience did not significantly predict psychological distress, contrary to previous research findings investigating resilience in relation to psychological distress.<sup>6,19,20</sup> This result is also in contrast to the Resilience Model<sup>16</sup> and other theories, which consistently propose that resilience is important for university students to reduce the risk of the development of psychological distress.<sup>17,18,29</sup> However, the current study has contributed to the body of knowledge to further understand the relationship between resilience and psychological distress among Australian university students.

Moreover, the results showed that social connectedness significantly inversely predicted psychological distress, providing partial support for the fourth hypothesis. This finding is in line with previous research, which supports a relationship between social connectedness and psychological distress.<sup>4,5</sup> As social connectedness inversely predicted psychological distress, findings in the current study also provide support for the Self-Psychology Theory, which encourages positive social relationships to reduce psychological distress.<sup>22</sup> This finding from the current study contributes to the body of knowledge regarding the predictive role of social connectedness in determining psychological distress among Australian university students, using the Social Connectedness Scale-Revised as a general measure of social connectedness.<sup>22</sup>

Additionally, findings of the current study support the contribution of social support in significantly inversely predicting psychological

distress, providing further partial support for the fourth hypothesis. This finding is in line with previous research, which supports a relationship between social support and psychological distress.<sup>7</sup> Additionally, this finding supports Cohen and Wills' model, which proposes that social support inversely predicts negative consequences of psychological distress.<sup>24</sup> This finding from the current study contributes to the body of knowledge regarding the relationship social support has in predicting psychological distress among Australian university students. Furthermore, the current study found social connectedness to be a stronger predictor of psychological distress than social support among Australian university students. This finding supports the protective-protective model, which suggests that factors can weaken the relationship between risk and outcome.<sup>26</sup> Previous literatures, which have examined social connectedness and social support as predictors of psychological distress, also found results consistent with findings of the current study.<sup>30</sup> However, the current study's findings indicate that resilience may not be a predictor of psychological distress among Australian university students. Hypothesis five predicted that social connectedness and social support would significantly mediate the relationship between resilience and psychological distress while social support would significantly mediate the relationship between social connectedness and psychological distress. As resilience was not found to be a predictor of psychological distress, it was not tested in the mediation analysis. However, findings of the mediation analysis, which predicted that social support would mediate the relationship between social connectedness and psychological distress, showed support for this hypothesis. Specifically, findings from the current study showed that higher levels of social connectedness were predictive of higher levels of social support. Furthermore, higher levels of social connectedness predicted low levels of

psychological distress. Additionally, higher levels of social support predicted lower levels of psychological distress. Moreover, findings showed that social connectedness remained a significant predictor of psychological distress even when social support was found to mediate the relationship between social connectedness and psychological distress. This provides support for partial mediation, supporting the fifth hypothesis of social support as a mediator in the relationship between social connectedness and psychological distress. These findings are consistent with previous research, which suggests that social support has a weaker association with psychological distress than the relationship between social connectedness and psychological distress<sup>30</sup> and provides further support for the Protective-Protective model.<sup>26</sup> The findings of the current study should be considered with attention to its limitations. Firstly, participants in the current study do not accurately depict a complete representation of Australia, limiting the generalisability of findings to the entire community and university student population of Australia. For example, the Australian community sample was largely recruited from one geographical location, while Australian university students were largely recruited from universities across a single state of Australia. As some demographics are over-represented and other demographics under-represented, prevalence rates of psychological distress found in the current study may not accurately depict true representations of the Australian community and Australian university student populations. Therefore, future research should consider using Australian community and Australian university student samples which provide a more accurate representation of the entire Australian population. Additionally, the current study, similar to any study utilising self-report measures, results can be subject to social desirability and response biases. As social desirability and response biases were not controlled, future research should consider protecting against dishonest

responses, which can alter the accuracy of findings.

Overall, the findings of the present study contributed to the body of knowledge of the prevalence rates of psychological distress among Australian university students and the general Australian community. Findings showed that Australian university students report prevalence rates of psychological distress that do not significantly differ from their Australian community counterparts, however, Australian university students do report prevalence rates of psychological distress consistent with previous research,<sup>3</sup> highlighting the need to support Australian university students from developing further mental health issues.<sup>1,4</sup> The current study did not find any differences in prevalence rates of psychological distress across year levels of study, suggesting Australian university students experience psychological distress at similar prevalence rates across all year levels of study. Furthermore, the present study examined psychosocial predictive factors of psychological distress. Findings of the current study showed that social connectedness was the strongest predictor of psychological distress mediated by social support. Results from the current study can be further utilised to inform and aid the development of intervention programs in the treatment and prevention of psychological distress among Australian university students. Future research is encouraged to further examine social connectedness and social support, with an emphasis on enhancing social connectedness among Australian university students across all year levels of study to reduce psychological distress and the negative consequences associated with it.<sup>1,2,30</sup> In conclusion, the current study supports the notion that Australian university students experience psychological distress, which should be addressed by increasing social connectedness.

**Acknowledgements:** As this is my first academic research article, I would like to thank

my co-author, AM Pidgeon, for investing into this part of my journey, for believing in my capacity and abilities and extending her academic knowledge, experience and resources so generously toward me.

I would like to thank my fellow students for constantly reminding me that I was not alone through the challenges and rewards involved in writing a thesis.

Thank you to my Aunt, Uncle, dad and sister for encouraging and supporting me to continue in the pursuit of my dreams.

To my mum, thank you for showing me that even when life is challenging, there is always room for something great – this is in memory of you.

#### References

1. Stallman, H. M., & Shochet, I. A. N. (2009). Prevalence of mental health problems in Australian university health services. *Australian Psychologist*, 44(2), 122-127. doi: 10.1080/00050060902733727
2. Bayram, N., & Bilgel, N. (2008). The prevalence and socio-demographic correlations of depression, anxiety and stress among a group of university students. *Social Psychiatry and Psychiatric Epidemiology*, 43(8), 667-672. doi:10.1007/s00127-008-0345-x
3. Larcombe, W., Finch, S., Sore, R., Murray, C. M., Kentish, S., Mulder, R. A., ... & Williams, D. A. (2016). Prevalence and socio-demographic correlates of psychological distress among students at an Australian university. *Studies in Higher Education*, 41(6), 1074-1091. doi:10.1080/03075079.2014.966072
4. Stallman, H. M. (2010). Psychological distress in university students: A comparison with general population data. *Australian Psychologist*, 45(4), 249-257. doi: 10.1080/00050067.2010.482109
5. Bales, T. S., Pidgeon, A. M., Lo, B. C., Stapleton, P., & Magyar, H. B. (2015). Cross-cultural differences in coping, connectedness and psychological distress

- among university students. *International Journal for Innovation Education and Research*, 3(2), 114-125. ISSN: 2411-2933
6. Pinquart, M. (2009). Moderating effects of dispositional resilience on associations between hassles and psychological distress. *Journal of Applied Developmental Psychology*, 30(1), 53-60. doi:10.1016/j.appdev.2008.10.005
  7. Verger, P., Combes, J. B., Kovess-Masfety, V., Choquet, M., Guagliardo, V., Rouillon, F., & Peretti-Wattel, P. (2009). Psychological distress in first year university students: Socioeconomic and academic stressors, mastery and social support in young men and women. *Social Psychiatry and Psychiatric Epidemiology*, 44(8), 643-650. doi: 10.1007/s00127-008-0486-y
  8. Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). *Depression and Anxiety*, 18(2), 76-82. doi:10.1002/da.10113
  9. Munro, B., & Pooley, J. A. (2009). Differences in resilience and university adjustment between school leaver and mature entry university students. *Australian Community Psychologist*, 21(1), 50-61. Retrieved from [http://groups.psychology.org.au/Assets/Files/21\(1\)-Munro-Pooley.pdf](http://groups.psychology.org.au/Assets/Files/21(1)-Munro-Pooley.pdf)
  10. Bouteyre, E., Maurel, M., & Bernaud, J. L. (2007). Daily hassles and depressive symptoms among first year psychology students in France: The role of coping and social support. *Stress and Health*, 23(2), 93-99. doi: 10.1002/smi.1125
  11. Rosenthal, D. A., Russell, J., & Thomson, G. (2007). Social connectedness among international students at an Australian university. *Social Indicators Research*, 84(1), 71-82. doi:10.1007/s11205-006-9075-1
  12. Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, 44(2), 227-239. doi:10.1348/014466505X29657
  13. Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33(3), 335-343. doi:10.1016/0005-7967(94)00075-U
  14. Cvetkovski, S., Reavley, N. J., & Jorm, A. F. (2012). The prevalence and correlates of psychological distress in Australian tertiary students compared to their community peers. *Australian and New Zealand Journal of Psychiatry*, 46(5), 457-467. doi:10.1177/0004867411435290
  15. Leahy, C. M., Peterson, R. F., Wilson, I. G., Newbury, J. W., Tonkin, A. L., & Turnbull, D. (2010). Distress levels and self-reported treatment rates for medicine, law, psychology and mechanical engineering tertiary students: Cross-sectional study. *Australian and New Zealand Journal of Psychiatry*, 44(7), 608-615. doi:10.3109/00048671003649052
  16. Almeida, D. M. (2005). Resilience and vulnerability to daily stressors assessed via diary methods. *Current Directions in Psychological Science*, 14(2), 64-68. doi: 10.1111/j.0963-7214.2005.00336.x
  17. Martin, A. (2002). Motivation and academic resilience: Developing a model for student enhancement. *Australian Journal of Education*, 46(1), 34-49. doi:10.1177/000494410204600104
  18. Wilks, S. E. & Spivey, C. A. (2010). Resilience in undergraduate social work students: Social support and adjustment to academic stress. *Social Work Education*, 9(3), 276-288. doi: 10.1080/02615470902912243

19. Lee, E. K. O., Shen, C., & Tran, T. V. (2008). Coping with Hurricane Katrina: Psychological distress and resilience among African American evacuees. *Journal of Black Psychology, 35*(1), 5-23. doi: 10.1177/0095798408323354
20. Hartley, M. T. (2013). Investigating the relationship of resilience to academic persistence in college students with mental health issues. *Rehabilitation Counseling Bulletin, 56*(4), 240-250. doi:10.1177/0034355213480527
21. Hendrickson, B., Rosen, D., & Aune, R. K. (2011). An analysis of friendship networks, social connectedness, homesickness, and satisfaction levels of international students. *International Journal of Intercultural Relations, 35*(3), 281-295. doi:10.1016/j.ijintrel.2010.08.001
22. Lee, R. M., Draper, M., & Lee, S. (2001). Social connectedness, dysfunctional interpersonal behaviors, and psychological distress: Testing a mediator model. *Journal of Counseling Psychology, 48*(3), 310. doi: 10.1037//0022-0167.48.3.310
23. Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*(1), 30-41. doi:10.1207/s15327752jpa5201\_2
24. Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310-357. doi: 10.1037/0033-2909.98.2.310
25. Khawaja, N. G., & Dempsey, J. (2007). Psychological distress in international university students: An Australian study. *Australian Journal of Guidance and Counselling, 17*(1), 13-27. doi: <http://dx.doi.org/10.1375/ajgc.17.1.13>
26. Hollister-Wagner, G. H., Foshee, V. A., & Jackson, C. (2001). Adolescent aggression: Models of resiliency. *Journal of Applied Social Psychology, 31*(3), 445-466. doi:10.1111/j.1559-1816.2001.tb02050.x
27. Fraser, E., & Pakenham, K. I. (2009). Resilience in children of parents with mental illness: Relations between mental health literacy, social connectedness and coping, and both adjustment and caregiving. *Psychology, Health & Medicine, 14*(5), 573-584. doi:10.1080/13548500903193820
28. Tusaie, K., & Dyer, J. (2004). Resilience: A historical review of the construct. *Holistic Nursing Practice, 18*(1), 3-10. doi: 10.1097/00004650-200401000-00002
29. Wilks, S. E. (2008). Resilience amid academic stress: The moderating impact of social support among social work students. *Advances in Social Work, 9*(2), 106-125. Retrieved from <https://advancesinsocialwork.iupui.edu/index.php/advancesinsocialwork/article/viewFile/51/195>
30. Pidgeon, A. M., McGrath, S., Magyar, H. B., Stapleton, P., & Lo, B. C. (2014). Psychosocial moderators of perceived stress, anxiety and depression in university students: An international study. *Open Journal of Social Sciences, 2*(11), 23-31. doi: <http://dx.doi.org/10.4236/jss.2014.211004>
31. Tabachnick, B. G., & Fidell, L. S. (2013). *Using Multivariate Statistics* (6th ed.) New York: Harper & Row.
32. Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173. doi: 10.1037/0022-3514.51.6.1173
33. Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*(4), 717-731. doi: 10.3758/BF03206553