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Predictors of psychological distress and well-being in a sample of Australian undergraduate students.

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Abstract

Previous research has found university students report higher levels of psychological distress compared to the general population. Our aim was to investigate the degree to which personality and contextual factors predict psychological distress and well-being in students over the course of a semester. We also examined whether resilience-building skills, such as positive self-talk, mindfulness meditation and self-management, included in a first year psychology subject, might reduce distress and improve well-being. Undergraduate first year students (n = 150) completed a battery of questionnaires in week 3 (Time 1; n = 150) and week 10 (Time 2; n = 53) of semester. At both times students reported high levels of psychological distress, as measured by the K-10, the General Health Questionnaire and the Brief Symptom Inventory, and low levels of psychological well-being, as measured by the Warwick Edinburgh Mental Well-Being Scale. Students exposed to resilience-building skills embedded in a subject (n = 24) were no less distressed at Time 2 than those not enrolled in that subject (n = 29). The personality traits of *emotional resilience* (vs. *reactivity*) and *bounce-back resilience* measured at Time 1 were the only significant predictors of psychological distress and well-being measured at Time 2. Students with high emotional and bounce-back resilience had lower psychological distress and higher well-being scores. Future research could consider development and trial of a full semester university subject designed to improve students' resilience knowledge and skills.

Key words: psychology, student experience, quantitative research

A growing body of research has found that university students experience elevated levels of psychological distress compared to the general population. In the research reported here we examine why this might be. As detailed below, we first review research that has examined psychological distress and well-being in university students. Psychological distress can be experienced as generally feeling anxious and emotionally upset and can be measured by a number of well-researched self-report instruments. We then consider the influence of situational factors on distress and well-being such as financial situation and accommodation arrangements. We also consider the influence of individual difference in personality traits, such as resilience, on distress and well-being. A third influence we examined was the effect of learning about mental health and resilience-building skills. Thus, the conceptual framework used in this study was that context, personality and knowledge interact to produce a person's psychological state. More specifically, the level of psychological distress and well-being in university students would be due to the interaction of the demands of the context, individual differences in specific personality traits, and knowledge gained in course participation.

In a sample of 7622 undergraduate students from various Canadian universities, Adlaf, Gliskman, Demers, and Newton-Taylor (2001) found that 34% reported high levels of psychological distress, a prevalence three times greater than the rate reported in a sample of the general public. In an Australian university sample, Bore, Ashley-Brown, Gallagher and Powis (2008) found that 33% of first year psychology students and 25% of first year medical students produced global psychiatric symptom scores higher than the psychiatric inpatient norm on the Brief Symptom Inventory (Derogatis & Spencer, 1982). In a series of studies (Stallman, 2008, 2010; Stallman & Shochet, 2009), 10% to 19.2% of students from several Australian universities reported 'very high' levels of psychological distress compared to estimates of 4% for the Australian general population.

The research cited above, with the exception of the Bore et al., (2008) study, used either the K10 (Kessler et al., 2002) or General Health Questionnaire (GHQ-12; Goldberg et al., 1997) both of which are well validated screening measures of possible mental illness. These measures have been widely used in large epidemiological studies such as the recent Beyond Blue National Mental Health Survey of Medical Doctors and Students (2013), a study that also found elevated psychological distress levels in medical students. Australian Bureau of Statistics (ABS) data suggests that 82-85% of people who report 'Very High' levels of distress on the K10 will have met criteria for a mental illness in the previous 12 months (Andrews & Slade, 2001). Given this, the elevated psychological distress reported by students is potentially indicative of high rates of mental illness.

The level of psychological distress reported by students cannot be accounted for by the variable of age. The majority of university students are in the 18-34 years range (ABS, 2007), and although it is known that this age group report elevated rates of distress compared to other age cohorts (ABS, 2008), Stallman (2008, 2010; Stallman & Shochet, 2009) found that students across all age groups report higher levels of distress compared to age matched data from an ABS sample.

Research has identified several potential factors that may influence students' level of psychological distress. Difficulties coping with academic load (Cooke, Bewick, Barkham, Bradley & Audin, 2006; Monk, 2004), wanting to succeed academically (Adlaf et al., 2001) and low academic performance (Stallman, 2010) have been associated with higher psychological distress suggesting that the demands of university study is a factor. However, the direction of the relationship is ambiguous as poor academic performance could be either the result of psychological distress or the cause of it. Financial stress is perhaps the most consistent factor associated with greater psychological distress (Cooke et al., 2006; Roberts, Golding & Towell, 1998; Stallman, 2010; Stewart-Brown, et al., 2000).

While some research has looked at the prevalence of student psychological distress there appears to be little research into student psychological well-being. Ryan and Deci (2001) argue that psychological well-being is more than the absence of psychological distress, and Keyes (2005) views well-being and distress not as opposite ends of a continuum but as separate unipolar dimensions. This suggests that there is a need to investigate also aspects of positive functioning in order to gain a more complete understanding of university students' experience.

One possible influence on students' reported psychological distress that has received limited investigation is personality. There is a well-documented association between the personality profile of high neuroticism and low extraversion, conscientiousness and agreeableness with the experience of mental illness symptoms (e.g., Malouff, Thorsteinsson, & Schutte, 2002). Previous research by Bore et al. (2008) demonstrated a similar personality profile of high neuroticism, low extraversion, low conscientiousness and low self-control in students reporting elevated psychological distress. Related research (Adams et al, 2015; Munro, Bore & Powis, 2008) suggests that three personality traits are related to a person's response to the demands of medical education: *involvement* with others (being empathic and confident when dealing with others) vs. *detached* (being aloof, narcissistic and detached from others); *self-control* (conscientious, orderly, restrained, industrious) vs. *disorderliness* (permissive, antisocial, impulsive); and *emotional resilience* (emotionally stable, calm, engaged, grounded) vs. *emotional reactivity* (neurotic, volatile, anxious, withdrawn). It might be that people who tend to be less involved, self-controlled and emotionally resilient are more susceptible to experiencing psychological distress within the context of tertiary education.

Resilience has also been conceptualised as the ability to bounce back from stress (e.g., Smith, Dalen, Wiggins, Tooley, Christopher, & Bernard, 2008). Whether bounce-back resilience is a learned ability or more a generalised (i.e., across situations) personality trait is

arguable. For our purposes here we considered both emotional resilience and bounce-back resilience as being generalised personality traits.

Another factor that also seems to have attracted little attention is the possible influence of subject material on students' distress and well-being. Our question here was: would an introductory course which included information about mental health, counselling and resilience building skills, such as mindfulness, have a positive impact on student levels of psychological distress and well-being?

The aims of the current study were threefold. First, to replicate previous research concerning the level of psychological distress reported by students and to extend this research to include a measure of well-being. Second, to investigate the relationships between personality, psychological distress and well-being in a sample of students; and lastly, to examine whether personality or more contextual variables, such as financial stress and subject material, predicted psychological distress and well-being over time. We expected that students would produce higher psychological distress scores and lower well-being scores compared to norms for the general population. We also expected that individual differences in bounce-back resilience, emotional resilience, involvement with others and self-control, together with the contextual variables of financial stress and subject material, would be significant predictors of psychological distress and well-being over time.

Method

Participants and Subjects

Participants at Time 1 (T1) were 150 first year undergraduate students attending an Australian university enrolled in an introduction to psychology subject which included lectures and tutorials on social and developmental psychology, intelligence, personality and abnormal psychology. The mean age of the sample was 23.2 (8.01) years, with 116 females and 134

enrolled as full time students. Participants at Time 2 (T2) were 53 students from T1. Their mean age was 24.68 (9.43) years and 39 were female.

A subset of participants at T1 (n = 77 of 150) and T2 (n = 29 of 53) were also enrolled in another psychology subject, *Pre-Professional Psychology I*, which included a two hour lecture and two hour tutorial in week 3 (of 12) of semester on counselling psychology. These students were introduced to resilience-building skills such as the practice of positive self-talk, mindfulness and self-management.

Instruments

Demographics and simple measures. Participants were asked their sex, age, enrolment status (full time or part time) and their subjective level of financial stress (none, occasional, frequent or constant). They were also asked about their accommodation situation (living with parents, partner/children, university residency, share house or alone), their entry route to university (e.g. school leaver, previous degree), hours of paid work each week and how far (in kilometres) they had to relocate in order to commence their studies.

Psychological distress. The K10 (Kessler, et al., 2002) measures non-specific psychological distress over the previous 4 weeks in order to indicate likely cases of affective and anxiety disorders. It consists of 10 items asking for the frequency of symptoms (e.g., about how often did you feel tired for no good reason?) with responses recorded using a five point scale of *None of the Time* to *All of the Time*. Scores range from 10 to 50 with the current study using the Australian Bureau of Statistics (2012b) cut offs of 10-15 = normal, 16-21 = moderate, 22-29 = high and 30-50 = very high.

The GHQ-12 (Goldberg, et al., 1997) consists of 12 items asking about recent general health and medical complaints (e.g. recently have you lost much sleep over worry?) using a four point scale anchored to the wording of each item. For the current study the binary scoring

format (0,0,1,1) was used. Based on the work of Goldberg, Oldehinkel, & Ormel, (1998) a cut-off of 4 or higher was selected for determining elevated distress.

The Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982) measures psychiatric symptom prevalence and intensity across nine symptom dimensions experienced in the previous seven days. It consists of 53 items describing symptoms (e.g. the idea that someone else can control your thoughts) with responses given on a five point scale of how distressed they have been about that symptom: *Not at All* to *Extremely*. The Global Severity Index (GSI), which is the average item response, gives a measure of the number and severity of symptoms endorsed and is considered the best single indicator of current level of distress (Derogatis & Melisaratos, 1983).

Psychological well-being. The Warwick Edinburgh Mental Well Being Scale (WEMWBS; Tennat et al., 2007) measures the positive aspects of mental well-being. Items cover experience of positive affect and life satisfaction along with positive psychological functioning, strong relationships and self-realisation. It consists of 14 statements about feelings and thoughts (e.g. I've been feeling useful) with responses given on a five point scale of frequency over the last two weeks.

Personality. The Brief Resilience Scale (BRS; Smith et al., 2008) measures resilience defined as a person's ability to bounce back from adverse situations. It consists of six statements (e.g. I tend to bounce back quickly after hard times), with responses given on a five point scale.

The Health Professions Values Survey (Bore, Munro, & Powis, 2011) assesses three personality traits: emotional resilience, self-control and involvement with others. Initial research has found adequate psychometric properties, with alpha reliabilities $> .80$ and significant and strong correlations with the Big 5 personality traits of Neuroticism,

Conscientiousness and Agreeableness (respectively) as measured by the NEO-PI-R (Costa & McCrae, 1992).

Procedure

Approval for the study was given by the university's Human Research Ethics Committee. Participants were recruited using a web-based research participation system at the university. Participants completed the questionnaires online at T1 in weeks 3 and 4 of semester 1. T2 was during weeks 10 and 11 of semester 1. Participants received course credit for participating.

Data Analysis

Mean scores from the data collected were compared to published norms using one sample t tests. Relationships between variables at Time 1 and at Time 2 were examined and used to select predictor variables for regression analyses. Linear regressions were run to reveal the unique significant predictors measured at Time 1 of psychological distress and well-being measured at Time 2.

Results

Data check revealed no unusual response patterns or missing critical information. All measures were found to have high internal reliability ($\alpha > .85$) at both Time 1 and Time 2.

Time 1 Analysis

The majority of students reported some degree of financial stress: 41.2 % reported occasional, 29.1% reported frequent and 20.9% reported constant financial stress. No significant differences in psychological distress or well-being were found due to accommodation situation, entry route to university, full time /part time enrolment, hours of paid work each week or how far participants had to relocate to commence their studies, and so these variables were excluded from further the analysis.

The means for the measures at T1 were compared with respect to gender and to norms as presented in Table 1. Males and females were found to differ on the mean scores of the BRS, $t(147) = -3.26, p = .001, d = .63$, with males reporting higher scores, and on the mean GHQ12 scores, $t(147) = 2.13, p = .035, d = .44$, with males reporting lower scores. There were significant gender differences found for the traits of *involved*, $t(39) = 3.32, p = .003, d = .72$ and *self-controlled*, $t(147) = 2.37, p = .001, d = .64$, with males producing lower mean scores on both.

Table 1

Time 1 Means, Norms and Current Sample Alpha Reliability Coefficients

	Means for Time 1			Norms*			Sample Cronbach alpha
	Male N = 33 Mean (S.D.)	Female N = 117 Mean (S.D.)	All N = 150 Mean (S.D.)	Male	Female	Combined	
Well-Being	47.70(8.63)	47.70(8.63)	46.41(7.80)	51.3	50.3	-	.89
GSI	.90(0.71)	.82(0.60)	0.83(0.63)	.25	.35	-	.97
K10	20.97(7.70)	22.31(7.75)	21.95(7.75)	13.9	14.5	-	.90
GHQ12	2.61(2.81)	3.98(3.39)	3.66(3.31)	0.83	1.02	-	.85
Bounce-Back Resilience	3.44(0.74)	2.97(0.75)	3.08(0.77)	-	-	3.53	.89
Involved	122.79(19.65)	134.40(11.74)	131.99(14.71)	-	-	121.6	.88
Emotional Resilience	70.55(13.29)	67.34(11.63)	68.14(12.05)	-	-	85.7	.91
Self-Control	67.52(8.91)	73.28(9.05)	71.99(9.28)	-	-	84.4	.86

* Well-Being norms from two samples, N = 1749, of adults from Scottish general public (Stewart-Brown & Janmohamed, 2008)

GSI norms used were adult non-patient norms from the users' manual (Derogatis & Spencer, 1982)

K10 norms from 1997 ABS National Survey of Mental Health and Well Being sample (Andrew & Slade, 2001)

GHQ12 norms 1997 ABS National Mental Health Survey sample (Donath, 2001)

Bounce-Back Resilience norm of 128 American undergraduate students (Smith et al., 2008)

Involved, Emotional Resilience & Self-Control norms from university medical program applicants, n = 4 715

On all measures of psychological distress and well-being the current sample scored more poorly compared to norms (also shown in Table 1), with moderate to large effect sizes observed. WEMWBS scores were below international reported norms for males, $t(32) = -2.4$, $p = .023$, $d = .42$, and females $t(115) = -6.18$, $p < .001$, $d = .58$. GHQ12 scores were found to be significantly higher than norms from an ABS sample for males, $t(32) = 3.64$, $p < .001$, $d = .64$ and females, $t(115) = 9.42$, $p < .001$, $d = .89$. GSI scores were above international outpatient norms for males, $t(32) = 5.26$, $p < .001$, $d = .93$, and females, $t(115) = 8.49$, $p < .001$, $d = .79$. K10 scores were higher than norms from an ABS sample for males, $t(32) = 5.28$, $p < .001$, $d = .93$ and females $t(115) = 10.85$, $p < .001$, $d = 1.01$. Bounce-back resilience scores from the BRS were combined for both genders and found to be below international reported norms from a sample of university students $t(149) = -7.64$, $p < .001$, $d = .63$. Significant differences were found for all three personality traits compared to norms from applicants for a university medical education program: the sample was more involved with others $t(149) = 8.68$, $p < .001$, $d = .71$, less emotionally resilient $t(149) = -17.85$, $p < .001$, $d = 1.46$, and less self-controlled $t(149) = -16.38$, $p < .001$, $d = 1.34$.

Using the ABS cut offs for the K10, 32.7% ($n=49$) of the sample scored in the High or Very High range compared to the most recent estimate from the general population of 10.8% meeting the same criteria (ABS, 2012a). Using available data on prevalence rates of mental illness by K10 score (Andrews & Slade, 2001), and assuming a similar pattern of correspondence in the current sample, 38% ($n = 57$) of the sample would meet the criteria for current mental illness compared to the general population estimate of 13.5%.

Correlations of T1 scores are shown in Table 2 below the diagonal. Greater financial stress was significantly associated with poorer mental health (high GSI, K-10 and GHQ scores) and lower bounce-back resilience, emotional resilience and well-being. Of the personality traits emotional resilience had the strongest relationships with the psychological health variables

being positively correlated with well-being and negatively correlated with GHQ, K-10 and GSI scores.

Table 2

Correlations Between all Variables at Time 1 (below the diagonal, n = 150) and at Time 2 (above the diagonal, n = 53).

	Age	Sex	FinStress	BB-Resil	Involved	E-Resil	S-Cont	W-Being	GSI	K-10	GHQ
Age	1.00		.28								
Sex		1.00			-.38		-.39				
Financial Stress			.77			-.40		-.34			
Bounce-Back Resil.		-.26	-.19	.84		.66		.58	-.55	-.62	-.37
Involvement		.33			.89	.34	.40	.41	-.34	-.32	
Emotional Resilience			-.33	.54	.32	.88		.76	-.80	-.71	-.48
Self-Control	.18	.26			.47	.33	.83	.36			
Well-Being			-.20	.49	.28	.73	.26	.77	-.79	-.73	-.70
GSI			.21	-.41	-.31	-.80	-.31	-.71	.81	.83	.75
K-10			.23	-.45	-.24	-.79	-.26	-.70	.87	.71	.66
GHQ Tot	.21	.17	.18	-.43		-.54		-.72	.61	.63	.56

Notes: Only significant ($p < .05$) correlations are shown. Emboldened correlations on the diagonal are test-retest coefficients. FinStress = Financial Stress, BB-Resil = Bounce-Back Resilience, E-Resil = Emotional Resilience, S-Cont = Self-Control, W-Being = Well-Being, GSI = Global Severity Index, K-10 = Kessler 10, GHQ = General Health Questionnaire.

A series of linear regressions were then performed on well-being, GHQ-12, K10, and GSI scores at T1 with the predictors gender, age, financial stress, bounce-back resilience, emotional resilience, self-control and involvement (see Table 3). The personality trait emotional resilience vs. reactivity was the strongest significant predictor in each regression, with high resilience predicting high well-being and low psychological distress. Age and bounce-back resilience were significant predictors of well-being, gender predicted GSI and age, and both bounce-back resilience and involvement predicted GHQ score.

Table 3

Significant Predictors from Linear Regression Models for each Time 1 Outcome Measure.

Criterion	$F(8,133)$	p	Adjusted R^2	Significant Predictors	β	p
Well-Being	25.4	<.001	0.54	Age	-0.12	.043
				Bounce-Back Resilience	0.17	.021
				Emotional Resilience	0.62	<.001
GSI	37.7	<.001	0.64	Gender	-0.14	.015
				Emotional Resilience	-0.80	<.001
K10	34.0	<.001	0.62	Emotional Resilience	-0.79	<.001
GHQ-12	13.7	<.001	0.38	Age	0.19	.006
				Bounce-Back Resilience	-0.17	.048
				Involvement	0.24	.003
				Emotional Resilience	-0.55	<.001

Note: Only significant predictors are reported. Gender coded as male = 1, female = 2. See text for full list of variables in each model.

Time 2 Analysis

Mean scores on financial stress, well-being, GHQ12, K10, GSI and the traits of bounce-back resilience, involvement, self-control and emotional resilience for participants who responded at both T1 and T2 (n = 53) and those who only responded at T1 (n = 97) were compared using a series of independent sample t-tests. No significant differences were found between the participants who responded at both times and those who responded only at T1. Additionally, for each variable, no significant differences were found between T1 and T2 means (n = 53).

Predicting Distress and Well-Being

We examined the relationships between predictor variables and psychological distress and well-being over time. The correlations between T1 and T2 for each variable are shown in bold on the diagonal in Table 2 and indicate acceptable test/retest reliability for all measures, with the exception of the General Health Questionnaire. Above the diagonal in Table 2 are the correlations between variables at T2; these closely replicate the relationships observed at T1 (shown below the diagonal).

To examine the predictive ability of the personality traits over time a series of regressions were run. The predictors were age, gender, and financial stress as recorded at T2 and the personality trait scores from T1 of bounce-back resilience, emotional resilience, involvement, and self-control. A variable to distinguish participants who were only enrolled in the subject Introduction to Psychology (n = 24) and participants who were enrolled in both Introduction to Psychology and the Pre-professional Psychology subject (n = 29) was created and included as a predictor variable. The outcome/criterion variables were T2 well-being, GSI, K-10 and GHQ scores. As shown in Table 4 the personality trait of emotional resilience, as measured at T1, was the only significant predictor of T2 well-being (WEMWBS), the number

and severity of psychiatric symptoms (GSI) and GHQ-12 scores. Bounce-back resilience measured at T1 was the only significant predictor of T2 K-10 scores.

Table 4

Significant Predictors from Linear Regression Models for each Time 2 Outcome Measure.

Criterion	$F(8,42)$	p	$Adjusted R^2$	Significant Predictors	β	p
Well-Being	5.7	<.001	0.43	Emotional Resilience	0.42	.017
GSI	8.0	<.001	0.53	Emotional Resilience	-0.67	<.001
K10	4.0	.001	0.32	Bounce-Back Resilience	-0.35	.029
GHQ-12	2.3	.038	0.17	Emotional Resilience	-0.46	.030

Note: Only significant predictors are reported. See text for full list of variables in each model.

Discussion

As predicted, university students reported significantly greater psychological distress and lower well-being compared to the relevant norms. The personality trait of emotional resilience vs. reactivity, measured at week 3 of semester, was found to be the only significant predictor of psychological well-being, severity of psychiatric symptoms (BSI) and psychological distress (GHQ-12) as measured in week 10 of semester. Bounce-back resilience measured at week 3 was the only significant predictor of K-10 psychological distress at week 10.

High levels of psychological distress were observed consistently at both time points of the study. Much of the research into student psychological distress has utilised a single measure such as the K-10 or the GHQ. A particular strength of our study was the use of three measures of psychological distress. Mean scores from these measures were significantly higher than the norms at T1 and remained so some 9 weeks later (with the inclusion of a mid-semester break) at T2. The lack of change in the mean score of each measure of distress between T1 and T2 and the strength of correlations between measures at the two times indicates considerable consistency in the level of distress experienced.

The high levels of psychological distress found essentially replicates the findings of previous research. Stallman (2010) reported that 83.9% of their sample of university students had scores in the Moderate to Very High range of K10: 76% of the current sample at T1 met this criterion. The proportion of our sample in the Very High range on the K10 was 18% at Time 1, compared to Stallman's reported 19.2% and estimates for the general population of 3%. In a sample of first year psychology students Bore et al., (2008) found that 25% had a GSI score above the psychiatric inpatient norm: 22% of the current sample met the same criterion. Using the GHQ-12 cut off of 4 or higher, 48% of the current sample met the criterion and this is comparable or higher than a sample of Canadian university students where it was reported

that 30% met the criterion (Adlaf et al., 2001) and a sample of Norwegian students where it was reported that 21% did so (Nerdrum, Rustøen & Rønnestad, 2006). The current sample mean GHQ-12 score was also significantly higher than the Norwegian sample mean. These comparisons suggest that the current sample had similar or higher levels of psychological distress than comparable samples of university students.

The inclusion of the measure of well-being in our study adds to these findings. Well-being was strongly negatively related to psychological distress, was generally lower in our participants compared to the norm, and displayed the same lack of change over the 9 week period of the study.

Part or full time enrolment, method of entry to the degree, accommodation and the distance travelled to attend university were not significantly related to the distress or well-being variables. However, participants with greater psychological distress and lower well-being reported experiencing higher financial distress which has been found in other research (e.g., Cooke et al., 2006; Roberts, Golding & Towell, 1998). Gender differences were also found with females tending to report higher levels of distress: again, a typical finding.

At T1, age was found to be a significant predictor of well-being, and GHQ scores and gender were significant predictors of psychiatric symptoms. However, age and gender were not found to be significant predictors of distress and well-being at T2. Financial distress was not a significant predictor of distress or well-being at either T1 or T2.

The trait involvement (vs detachment) was a significant predictor of GHQ scores at T1 but the direction of association was opposite to that predicted. Higher involvement with others was associated with higher distress. One interpretation of this finding is that as involvement measures aspects of empathy and desire to help others it could be related to over involvement, or greater negative impact caused by others' problems, resulting in increases in psychological distress.

When predicting psychological distress and well-being from variables measured some nine weeks earlier, only emotional resilience and bounce-back resilience were found to be significant predictors. This association between high resilience and low psychological distress is consistent with other research on personality and mental illness (Malouff, et al., 2002) and personality and psychological distress in students (Bore, et al., 2008).

That both emotional and bounce-back resilience were the only significant predictors over time suggests that learning to manage one's emotions is of central importance in coping with stress and improving well-being. Interventions which would build emotional and bounce-back resilience skills could reduce the levels of psychological distress and increase well-being in university students. However, our finding that brief exposure to the practice of positive self-talk, mindfulness and self-management through the *Pre-Professional Psychology I* subject was not a significant predictor of psychological distress or well-being indicates that much more is needed to build resilience skills in university students.

Stallman (2011) did examine the influence of resilience training in university students and found the experience was well received by students although measures of distress and well-being were not included in that study. Resilience and mindfulness programs have been introduced into primary and secondary schools with some success (Meklejohn et al., 2012).

While universities typically provide student counselling services, resilience training has yet to be adequately incorporated into university curricula. Our findings suggest that students with high emotional and bounce-back resilience experience lower psychological distress and greater well-being, but that brief exposure to resilience training as part of a university subject does not reduce psychological distress. Based on this, we would recommend the development and trial of a full university subject to improve resilience knowledge and skills that could be offered as part of university curricula.

A weakness of the study was the small sample size, particularly of males and of those participants from T1 who responded at T2. While this limits the T2 findings to that of a pilot study, the strength of the relationships observed were moderate to strong and so could be expected to be replicated in future research with larger sample sizes. A further limitation is that the data came from one institution which limits the generalisability of the findings.

Conclusion

University students experience elevated psychological distress and low psychological well-being which indicate a potential for high rates of mental illness. Our findings indicate that the personality traits of emotional resilience vs. reactivity and bounce-back resilience are significant predictors of psychological distress and well-being. There is a need for continued research into the risk and protective factors that may be associated with students' psychological distress and well-being. Incorporating resilience training as a full subject within university curricula has some potential to reduce the prevalence and levels of distress experienced by students.

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