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RESILIENCE ATTRIBUTES AMONG UNIVERSITY STUDENTS: A COMPARATIVE STUDY OF PSYCHOLOGICAL DISTRESS, SLEEP DISTURBANCES AND MINDFULNESS

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Abstract

Australian university students report experiencing higher levels of psychological distress compared to other Australians, and are at increased risk of developing mental health problems. Psychological distress has been connected with poor academic performance, higher attrition rates and sleep disturbances. A protective factor associated with sleep-related self-regulation is mindfulness. Mindfulness based programs have shown benefits in stress reduction and resilience. Resilience is considered a protective factor that interacts with stressors to reduce the likelihood of negative outcomes. Resilience is also associated with positive social and personal well-being together with enhanced mental health and adjustment to university life. The current study examines the attributes of resilient university students, by comparing the differences between high and low resilient students on levels of reported psychological distress, sleep disturbances and mindfulness. A total of 89 university students participated in the study aged between 18 to 57 years. Results showed that university students with high levels of resilience reported significantly lower levels of psychological distress and significantly higher levels of mindfulness, compared to university students reporting low levels of resilience. There were no significant differences reported with regard to sleep disturbances. The findings add to extant knowledge of resilience and provide support for universities to develop strategies that promote resilience in university students to reduce the risk of students developing mental health problems, thus enabling students to flourish under academic pressures.

Keywords: Resilience, Psychological Distress, Sleep Disturbances, Mindfulness

Introduction

Many university students report experiencing elevated levels of psychological distress that are significantly higher than the general population (APS, 2013; Stallman, 2010). Psychological distress is shown to negatively impact students' physical, mental and academic wellbeing (Foster, Allen, Oprescu, & McAllister, 2014). Of further concern is that many students suffering mental health problems do not seek help, due to the perceived stigma towards mental illness (Ryan, Shochet, & Stallman, 2010; Wyndaden et al., 2014). A number of risk factors are associated with psychological distress, including sleep disturbances due to the pressure of high academic workload and achieving good grades as well as intrapersonal and financial pressures (Ali, Majeed, Saba, Bodenarain, & Bukhari, 2013).

The amount of sleep university students get has also shown to impact academic performance. On average, most university students get 6 - 6.9 hours of sleep per night, and university students are typically sleep-deprived due to an overload of activities, both academically and socially. Recent research on university students and sleep indicates that insufficient sleep impacts health, mood and academic performance (Sahraeian & Javadpour, 2010). Furthermore, a recent study by Chatburn, Coussens and Kohler (2014), revealed a link between quality of sleep and resilience. The findings indicated that sleep disturbances may lead to reduced resilience. Despite studies suggesting resilience is a key factor in reducing psychological distress, little is known about the relationship between resilience and sleep disturbances among university students.

Mindfulness has been linked to improved levels of resilience (Coholic, 2001; Cole et al., 2014). Previous research indicates that high levels of resilience and mindfulness are significant predictors of low levels of psychological distress. However, a paucity of research has examined whether mindfulness is a characteristic of resilient university students (Keye & Pidgeon, 2013; Thompson, Arnkoff, & Glass, 2011). This current study will examine the characteristics of high and low resilient university students on mindfulness, psychological distress and sleep disturbances in order to further contribute to knowledge in the field of positive education, promoting both skills in education and personal wellbeing (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009).

Resilience

Resilience is widely considered an individual's dynamic capacity to overcome adversity and to adapt successfully to their environment (Wagnild & Young, 1993). Connor and Davidson (2003) define resilience as a personal quality that enables one to thrive in the face of adversity, whilst Block and Kremen (1996) characterise resilience as a predisposition to resist

anxiety; having a positive temperament, and being open to experience. Resilience has been likened to a set of attributes that help people succeed and cope effectively in the face of adversity (Cyrulnik, 2009).

University students are a population who experience increased levels of academic stress and psychological distress, resulting in many students leaving university without completing their chosen studies (Andrew et al., 2008). The Australian Federal Government Department of Education, Science and Training reported the attrition rates for first-year international undergraduate students ranged between 4% and 22.5%, similarly, the attrition rates for local university students were reported at approximately 19% per annum (Australian Department of Industry, 2013). University students have been identified at the National Summit on Mental Health of Tertiary Students, as a group who would benefit from resilience training, in order to build mental health in a proactive way (Young, Peter, Sercombe, Sachdev, & Naeb, 2013). Research suggests students are not flourishing but feeling burnt out, overloaded, depressed and find insufficient time for friends and family (Slvin, Hatchett, Shibnall, Schindler, & Fendell, 2011).

With the growing research in positive psychology resilience has gained momentum and recognition as a framework to examine the differences between students who flourish within the university environment and those who struggle to cope (Pidgeon, Rowe, Stapleton, Magyar, & Lo, 2014; Seligman, Ernst, Gillham, Reivich, & Linkins, 2009; Stallman, 2010). Seligman (2011) defines flourishing as an individuals' state of well-being exemplified by positive emotions, relationships and achievements. Resilience has been positively correlated with effective coping styles, whilst negatively correlated with psychological distress (Klohenen, Vandewater, & Young, 1996; Swanson, Valiente, Lemery-Chalfant, & O'Brien, 2011).

Within the university environment resilience has been viewed as an asset that supports university students' mental health requirements (Hartley, 2012). An overarching theme among university students is that resilience is a protective factor associated with fewer mental health problems and successful adjustment to university life (Khawaja & Stallman, 2011). Therefore examining the attributes of resilient students may reveal important contributing factors of resilience that reduce psychological distress.

Resilience and Psychological Distress

Higher levels of resilience have been linked to lower levels of psychological distress among university students (Hjedmdal et al., 2006; Stallman, 2011). University students with higher levels of psychological distress who have reported lower levels of resilience also report higher attrition rates (DeRoseier et al., 2013). Stallman (2010) found that academic

stress among university students is associated with increased levels of psychological distress resulting in reduced academic performance and psychological well-being (Felston, 2004; Stroeber & Rambow, 2007).

Due to the strong relationship between academic stress and psychological distress, it is important to cultivate resilience among university students. Resilience equips students with the capacity to adapt skillfully and cope with stressors unique to university life and prevent psychological distress (Stallman, 2010).

Resilience and Sleep Disturbances

Recurrent sleep disturbances are a serious health issue affecting up to 35% of the general adult population (Breslau et al., 1996). Sleep disturbances are often comorbid with mental disorders (40-60%) with longitudinal studies indicating that a lack of sleep over time increases the likelihood of developing mental health problems, such as depression and anxiety (Talbot, McGlinchey, Kaplan, Dahl, & Harvey, 2010). Poor sleep quality and shorter sleep duration have been associated with a lowered sense of well-being and decreased quality of life (Pilcher, Ginter, & Sadowsky, 1997).

The co-occurrence of sleep disturbances and mental disorders are closely linked (Ohayon, Caulet, & Lemoine, 1998). Stressful life events can result in poor sleep quality and give rise to mental health problems (Hall, 2013). The impact of sleep deprivation has been observed in adolescents' resulting in reduced academic performance, daytime dysfunction, increased anxiety, depression and somatic pain (Marshall, Bartlett, Matharu, Williams, & Grunstein, 2007). Similarly sleep disturbances are increasing within university populations with further research to inform and develop programs to reduce sleep deprivation being recommended by researchers (Lund, Reider, Whiting & Prichard, 2010).

Research to date has identified a positive link between resilience and improved physical and mental health (Hjemdal et al., 2006). Meta-analyses on sleep reveal that sleep disturbances are the most modifiable risk factor for depression (Riemann & Voderholzer, 2013). Recently evidence has emerged of an association between resilience and sleep disturbances based on neural factors. For example, McCrory, De Brito and Viding (2010) suggest sleep disturbances inhibit the prefrontal brain activity, which is necessary to develop resilience. Chatburn, Coussens and Kohler (2014) investigated this phenomenon further in children and found that sleep disturbances reduced resilience. As emergent research is now suggesting that sleep problems precede emotional problems in children, a similar consequence of sleep disturbances is reduced resilience.

Recent work in the field of optimism and mental toughness have similarly suggested sleep may be an impending factor contributing to resilience (Brand, Gerber & Kalak, 2013). To date no studies have examined this relationship between resilience and sleep disturbances among university students. Therefore this present study will address this gap in the research and explore the differences between university students reporting high and low levels of resilience as well as its links to sleep disturbances.

Resilience and Mindfulness

Mindfulness is defined as paying attention to the external world and what is going on around us, and paying attention to the internal world by being aware of the body and what is going on in our minds (Bucheld, Grossman, & Walach, 2001). Mindfulness practice has shown to improve one's ability to cope effectively with stress, which is a key component of resilience (Pace et al., 2009).

Mindfulness is a significant predictor of resilience and is associated with lower psychological distress and increased psychological well-being, acting as a protective mechanism against academic stressors (Pidgeon & Keye, 2014; Keye & Pidgeon, 2013). The effectiveness of mindfulness based stress reduction (MBSR) has been used to enhance the resilience of nurses and midwives to reduce psychological distress (Foureur, Besley, Burton, Yu, & Crisp, 2013). Significant increases in mindfulness and decreases in psychological distress have also been shown in university students through mindfulness interventions (Lynch et al., 2011).

Mindfulness has been shown to improve levels of resilience and to be a positive factor in managing psychological distress (Maddi, 2006). Furthermore, mindfulness and resilience have been shown to be significant predictors of psychological well-being among university students (Pidgeon & Keye, 2014; Vago & Silbersweig, 2012). However, a study conducted by May (2012) found that only 22.6% of Australian university students used mindfulness or mediation regularly suggesting the majority of university students are not utilising mindfulness. Thus the current study aims to further extend the body of literature with regard to the relationship between resilience and mindfulness to investigate whether resilient students are more mindful.

The Current Study

The present study aims to add to extant body of knowledge on resilience by examining the attributes of resilient university students across mindfulness, psychological distress and sleep disturbances.

Hypothesis 1. It is predicted that a significant negative correlation will exist between resilience and psychological distress, and resilience and

sleep disturbances; while a significant positive correlation will exist between resilience and mindfulness.

Hypothesis 2. It is predicted that compared to university students reporting low levels of resilience, students who report high levels of resilience would report significantly lower levels of psychological distress and sleep disturbances; and higher levels of mindfulness.

Method

Participants

A total of 89 university students between 18 and 57 years of age volunteered to participate in this study (M = 25.3, SD = 8.44). Of the sample, 74 were female (83.1%) and 15 (16.9%) were male. A convenience sample of non-probability participants were recruited from an Australian University. Recruitment of participants were obtained utilising the university research participant pool online notice board. Students were also recruited from public spaces on the campus common ground and asked if they would like to take part in the research project. Data collection took place over one university semester. In order to ensure reliability of the study, the inclusion criteria for the study required participants to be currently enrolled students at the university. Participants were not recruited from other online methods such as facebook or other universities online to maintain data integrity. All participants were volunteers and were provided with a written explanation of the research project and were given a link to complete the questionnaire via a confidential online survey.

Measures

The Resilience Scale (RS-14)

The RS-14 is a 14-item self-report scale designed by Wagnild and Young (1993). The RS-14 was selected as it is a modern, easy to administer, sound psychometric scale. The RS-14 is designed to measure one's coping ability when facing adversity and measures the five characteristic foundations of the resilience including: equanimity, meaning, perseverance and existential aloneness. The short scale was selected over the original 25 item scale in order to keep participants engaged and is considered as reliable as the longer scale. Higher levels of resilience are indicated by higher scores. All items are positively worded and it includes items such as "I usually manage one way or another" and "my life has meaning."

The Depression Anxiety Stress Scale-21 (DASS-21)

The DASS-21 is a 21 item self-report scale, designed to measure the severity of negative emotions including depression, stress and anxiety (Lovibond & Lovibond, 1995). The DASS-21 is measured on a 4-point

Likert Scale, with higher scores indicative of higher levels of psychological distress. Sample statements included "I felt that I had nothing to look forward to" and "I found it difficult to relax".

The Pittsburgh Sleep Quality Index (PSQI). The PSQI is a 19-item measure of global sleep disturbance severity with seven component scores including subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication and daytime dysfunction (Buysee, Reynolds, Monk, Berman & Kupfer, 1988). Higher scores indicate higher levels of sleep disturbances. A sample scale item for the sleep disturbance component was "how often have you had trouble sleeping because you have pain". A sample item from the sleep medication component is "how often have you taken medicine to help you sleep," and a sample item from the daytime sleep dysfunction component is "how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?"

The Freiburg Mindfulness Inventory (FMI)

The FMI is a 14 item instrument that measures mindfulness with higher scores indicating higher levels of mindfulness (Buchheld, Grossman, & Walach, 2001). Items include example statements such as "I am open to the experience of the present moment" and "I am able to smile when I notice how I sometimes make life difficult". Of these 14 items, one item required reverse scoring with the statement "I am impatient with myself and others".

Prior to the research being conducted, ethics approval was obtained from the university human research and ethics committee. The scales were combined within a single online package of questionnaires including an explanatory statement and general demographics section. Once questionnaires were completed, correlation analyses were conducted between the variables of resilience, psychological distress, sleep disturbances and mindfulness. To determine the differences within each group, the means of the high and low resilience groups were compared to each dependent variable using a one-way between groups multivariate analysis of variance (MANOVA). A MANOVA was selected in preference to individual ANOVA's in order to minimise the risk of family-wise inflation error (Tabachnick & Fidell, 2013). All statistical analyses used an alpha level of .05 for interpretation, except for violations of Levene's Test of Equality of Error Variances which utilised and alpha level of .01.

Results

Prior to the MANOVA analysis, Pearson's correlations were performed on resilience, psychological distress, sleep disturbances and mindfulness as can be seen in Table 1. As predicted, and in line with the

hypotheses, a range of significant correlations were observed between key variables, with moderate effect sizes. However, the negative association between resilience and sleep disturbances and sleep disturbances and mindfulness were not significant. Results revealed the highest correlation was a significant positive relationship between sleep disturbances and psychological distress (r = .59, p <.001) suggesting as scores on sleep disturbances increased, scores on psychological distress increased. Results revealed a positive association between resilience and mindfulness (r = .57, p <.001) indicating that as scores on resilience increased, scores on mindfulness increased. As predicted, resilience also depicted a negative association with psychological distress (r = -.24, p = .022) showing that as resilience scores increased, scores on psychological distress decreased. Furthermore an inverse relationship was observed between mindfulness and psychological distress (r = -.25, p <.05) such that as mindfulness scores increased, psychological distress scores decreased.

Table 1 Summary of Intercorrelations, Uncentered Means, and Standard Deviations for Resilience, Psychological Distress, Mindfulness and Sleep Disturbances (N = 89)

Variable	*1*	*2*	*3*	*4*	*M*	*SD*
1. Resilience	-				79.34	12.63
2. Psychological Distress	-.24*	-			4.08	5.40
3. Mindfulness	.57**	-.25*	-		37.66	8.04
4. Sleep Disturbances	.04	.59**	-.09	-	9.08	3.62

Note. *p < .05. **p < .001

A one-way between groups MANOVA was conducted to test the hypothesis that significant differences would be found between high and low levels of resilience groups on psychological distress, sleep disturbances and mindfulness. The three dependent variables in the analyses were psychological distress, mindfulness and sleep disturbances. The independent variable measured was resilience measured at high and low levels. High and low resilience groups were classified by Wagnild's high and low groups using the recommended cut-off scores. Multivariate results showed significant differences between the groups on the combined variables, F(3, 77) = 18.26, p < .001, $\tilde{\eta}^2$ = .42, power => 1, with resilience levels accounting for 42% of the total variance in the dependent variables.

To follow up the significant main effect, investigation of univariate analyses of variance were assessed for the dependent variables. Results showed significant univariate effects for resilience (high resilience versus low resilience) across the dependent variables of psychological distress, F(1, 79) = 8.23 , p = .005, $\tilde{\eta}^2$ = .09, power = .81 and mindfulness F(1, 79) =

50.01, p = < .001, $\tilde{\eta}^2$ = .39, power => 1. However, the groups did not significantly differ on sleep disturbances $F(1, 79) = .30$, $p = .586$.

Table 2 displays the means and standard deviations for the dependent variables between high and low levels of resilience. As noted in Table 2, the high resilience group reported significantly lower levels of psychological distress than the lower resilience group. Furthermore, the high resilience group reported significantly higher levels of mindfulness than the low resilience group.

Table 2 Means and Standard Deviations between Groups (High versus Low Resilience), Psychological Distress, Mindfulness and Sleep Disturbances

N = 89

Variable	High Resilience (n = 45)		Low Resilience (n = 36)	
	M	*(SD)*	*M*	*(SD)*
Psychological Distress	3.89*	(6.23)	9.91*	(11.26)
Mindfulness	43.53**	(6.44)	33.29*	(6.50)
Sleep Disturbances	8.83	(3.28)	9.28	(3.89)

Note. *p < .05. **p < .001

Discussion

The purpose of this study was to examine attributes of resilience among university students. The study compared university students reporting high and low levels of resilience on psychological distress, sleep disturbances and mindfulness. Despite studies suggesting resilience is a key factor in reducing psychological distress, there have been few studies that have explored the attributes of resilient university students. Importantly, no studies have explored the differences in the role of resilience in university students with high levels of resilience, in comparison to university students with low levels of resilience, on sleep disturbances. Furthermore, a paucity of research has been conducted on the relationship between mindfulness and resilience.

Hypothesis one predicted that a significant negative correlation would be found between resilience and psychological distress, and resilience and sleep disturbances, while a significant positive correlation would be found for resilience and mindfulness. The results partially supported this hypothesis.

A significant negative relationship was observed between resilience and psychological distress, no significant correlation was found between

resilience and sleep disturbances; whilst a significant positive correlation was found between resilience and mindfulness.

The significant negative relationship found in this study between resilience and psychological distress, was consistent with previous research, with higher resilience related to lower psychological distress (Klohenen, Vandewater, & Young, 1996). Furthermore, the positive correlation between resilience and mindfulness found in this study is consistent with previous finding by Chavers (2013) which showed a significant correlation between mindfulness and resilience, with mindfulness being a significant predictor of resilience.

Hypothesis two predicted that in comparison to university students reporting low levels of resilience, university students who reported high levels of resilience would report significantly lower levels of psychological distress, lower levels of sleep disturbances; and higher levels of mindfulness. This hypothesis was partially supported.

As predicted university students with high levels of resilience reported significantly lower levels of psychological distress in comparison to students with low levels of resilience. This result provides support for previous research that suggests that university students with higher resilience experience lower levels of psychological distress (Stallman, 2011).

University students reporting high levels of resilience compared to students with low levels of resilience did not report lower levels of sleep disturbances. These results did not support previous research, whereby Chatburn et al., (2014) found that sleep disturbances in children resulted in reduced levels of resilience. As sleep disturbances are a concern among university students it is suggested that future research investigate the relationship between resilience, sleep disturbances and mental health problems among university students

As predicted university students with high levels of resilience compared to the low level of resilience group, reported significantly higher levels of mindfulness. This finding supports previous research which indicated that mindfulness is a significant predictor of resilience (Keye & Pidgeon, 2013). The results of this study found that mindfulness was related to psychological distress, such that higher levels of mindfulness were associated with lower levels of psychological distress supporting previous research. Mindfulness has shown to be negatively associated with psychological distress and has been shown to mediate between academic stress and depression (Buchheld, Grossman, & Walach, 2001). These findings offer support for universities to implement training in mindfulness, to promote resilience in order to prevent psychological distress.

The results from this current study suggest that a significant proportion of the variance in the resilience of university students is

accounted for by psychological distress and mindfulness. The dependent variables of psychological distress and mindfulness accounted for 42% of the variance in resilience levels suggesting that resilience was significant in depicting scores on the combined measure of variables for psychological distress and mindfulness.

It is recommended that this study be replicated using a larger sample size. Convenience sampling within the university environment limits generalizability of the findings to global university settings. However, a strength of this study is that participants were recruited from one Australian University in order to improve validity of the results. Expanding the sample population to other universities, online or Facebook, could have improved sample numbers, however, in order to preserve and strengthen the internal reliability of the data, the generality or external validity may have been sacrificed. Importantly, the present study provided support that higher levels of resilience are related to lower psychological distress in university students. Future research could examine the causal relationship between these variables.

Finally, this study holds important implications for future research and for current application to university student populations, namely that resilience fosters beneficial reductions in psychological distress among university students. Given the high rates of psychological distress and the lack of students seeking help due to the stigma of mental illness, the cultivation of resilience could be promoted by implementing mindfulness based resilience training programs in universities (Wyndaden et al., 2014).

Psychological distress, sleep disorders and mindfulness are important areas of interest to psychologists and the current study is amongst the first to explore the differences between university students with high and low levels of resilience across all three variables. Resilience may be the key to reduce the risk of students developing mental health problems, and the development and dissemination of protective resilience interventions may benefit university students in Australia and beyond.

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