A Comparative Study of Depression, Anxiety and Stress in Australian and Chinese Business Students

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ABSTRACT: This study reports the results of a survey of 167 undergraduate business students at a major Australian university. Using the Depression Anxiety and Stress Scale (DASS), it was found that Chinese international students displayed significantly higher levels of stress and anxiety than local, Australian students, both of which fell within the “moderately severe” category. Levels of depression were normal in both groups with no significant differences between them. Qualitative analysis of an open-ended item suggested that the main stressors for Chinese students included academic, life balance and family stressors. Implications for student wellbeing are discussed and organisational initiatives for addressing these complaints are suggested.

Keywords: Cross-cultural behaviour; stress and stress management; values; individual learning

China is the largest single nation contributor to Australia’s international student population, with one fifth of all lodged and granted visa applications coming from Chinese students (Australian Bureau of Statistics, 2011). A recent study found that the number of Chinese choosing to study overseas is estimated to increase seven times within the next 5-10 years, with Australia the most popular destination in the Asian region (HSBC, 2013). Many students choose to return to China upon completion of their studies, while others stay for the long term, working for Australian organisations and contributing to the development of our cultural ties between Australia and the Asian region.

As the proportion of Chinese students in our universities continues to grow, it is critical for universities to understand the challenges of adjustment facing these students and to assist them to cope with the demands of studying in a foreign country. Aside from a new and very different educational system, these students are faced with a new social environment, culture shock, financial difficulties, language barriers, discrimination and homesickness, all of which can be potential sources of stress and places them at an increased risk for psychological disorders (Hyun, Quinn, Madon & Lustig, 2007; Mori, 2000; Ward & Low, 2004).

The period of undergraduate education is often regarded as critical in the development of an autonomous personal life, a transitory period between adolescence and adulthood where students
struggle to cope with academic and social demands and prepare for their professional careers (Bayram & Bilgel, 2008). However, there is evidence to suggest high rates of psychological morbidity in undergraduate students all over the world, especially symptoms of depression and anxiety (Stanley & Manthorpe, 2001). For international students, university life may be even more stressful as they are faced with the additional demands of a new cultural environment, language barriers, financial difficulties and so forth. As these stressors accumulate, a student’s ability to cope is compromised and their physical and psychological resources become depleted (Misra & Castillo, 2004). This induces physical impairments, such as lack of energy, loss of appetite, headaches or gastrointestinal complaints (Winkelman, 1994). According to Mori (2000), international students may somaticize their feelings of stress in order to avoid the cultural stigma associated with seeking professional psychological help. For example, these students may attribute headaches or sleep problems to physical illnesses despite the fact that such symptoms have no organic basis (Khoo, Abu-Rasain & Hornby, 1994). While there is much knowledge about international students’ perceptions of academic challenges, much less is known about their mental and physical wellbeing. There is increasing evidence in the literature to support the view that academic performance is related to the psychological wellbeing of students, and that successful coping strategies not only influence positive adaptation but also reduce psychological distress and contribute to improved performance (Grey, 2002; Rosenthal, Russell & Thomson, 2008).

Chinese traditional culture places a strong emphasis on academic success and as such, academic factors may be a large contributor to the mental health of Chinese international students (Han, Han, Luo, Jacobs & Jean-Baptiste, 2013). Since the one child policy was implemented in Mainland China in the 1970’s, most students are the only children in their family and this creates added pressure for the child to live up to the very high expectations of their parents in terms of academic success. This, along with the Chinese cultural emphasis on strong connectedness with family ties, means that students studying outside of their home country have difficulty establishing independence from their parents (Settles, Sheng, Zang and Zhao, 2012). Acculturation, or negotiating the conflicting demands of the home and the new culture, is thus a crucial factor in determining the international student’s psychological adjustment to studying in a foreign country. Yeh (2003) found
that Asian immigrant youths who were less acculturated to the American environment reported more mental health symptoms than the more acculturated “American-Asian” youths. Such findings may be partly explained by the fact that more assimilated immigrants experience less cultural conflict due to higher proficiency in language and a greater level of comfort with the local culture.

A number of studies have demonstrated a higher incidence of psychological morbidity amongst international students from the Asian region who experience greater difficulty acculturating to life in Western countries compared with students from European countries (Cross, 1995; Cheung, 2011; Han et al., 2013; Hsieh, 2006). A recent study of 130 Chinese international students at Yale University found a high incidence of depressive symptoms (45%) and anxiety (29%). Several factors were identified as being associated with depressive and anxiety symptoms, including academic stress, social isolation, culture shock and language difficulties (Han et al., 2013). Similarly, in a very large study of 7915 first year tertiary education students in Hong Kong using the 42 item Depression Anxiety Stress Scales (DASS) (Lovibond & Lovibond, 1995), depression, anxiety and stress levels of moderate severity and above were found in 21%, 41% and 27% of the sample respectively (Wong et al., 2006). These levels were well above the means of previously published normative data (Lovibond & Lovibond, 1995b; Crawford & Henry, 2003).

The incidence of psychological morbidity is reported to be much higher in Chinese students than in the general (non Chinese, local) student population, which according to one study of 2,843 US students, was 15.6% in undergraduates and 13% in postgraduates (Eisenberg, Gollust, Golberstein & Hefner, 2007). Still, other studies have found an even higher incidence than this of negative psychological symptoms in Chinese students. Cheung (2011) found a prevalence rate of 47.5% for depressive symptoms and 48% for anxiety symptoms amongst 144 mainland Chinese students studying at a major US university, while Wei, Heppner, Mallen, Ku and Wu (2007) found a prevalence rate of 32% for depressive symptoms amongst 189 Chinese international students in a Midwestern U.S. university. Indeed, such frequencies will vary according to the different instruments employed, geographical factors or varying levels of acculturation within the sample groups.

Regardless, there appears a consistent finding in the empirical literature that Chinese international
students are experiencing significantly greater levels of negative psychological symptoms than their local counterparts.

Only a handful of studies have examined the mental health of Chinese international students in the Australian tertiary education context. In a large study of 979 international students in an Australian university, Rosenthal, Russell and Thomson (2008) found students from Asia to exhibit higher mean scores for the DASS (Lovibond & Lovibond, 1995) subscales of Depression (8.7), Anxiety (7.6) and Stress (11.7) than non-Asian students. These scores were also above the normative scores established in a non-clinical Australian sample (Lovibond & Lovibond, 1995). In addition, the study found stress to be most strongly associated with student self-perceptions of low academic progress. Similarly, Khawaja and Dempsey (2008) found that international students in an Australian university experienced more symptoms of stress due to lack of social support, used more dysfunctional coping strategies and had greater incongruence between their expectations and experiences of university life, than local students. Finally, in a report summarising findings of a decade of national studies on the first year university experience, students from SE Asia, Hong Kong and China were more likely to have below average scores on a “comprehending and coping” scale containing items such as “I frequently feel overwhelmed by all I have to do” and “I have difficulty adjusting to the style of teaching at University” (DEST, 2005).

The current study examines the prevalence of negative psychological symptoms amongst a group of undergraduate business students at an Australian university. Specifically, the study aims to identify any differences in the levels of depression, anxiety and stress between local Australian and Chinese international students. Secondly, the study will summarise the main contributors, or stressors, contributing to negative psychological symptoms in these two groups of students and offer suggestions for addressing these issues at the institutional level.
METHODS

Subjects

The subjects of this study were students of a second year subject in management at a major
Australian university. As part of the curriculum for the subject, students develop skills and knowledge
in self-awareness, including awareness of their own vulnerability to stress, anxiety and depression.
From a total of 310 students, 260 surveys were returned. As the purpose of the study was to compare
international students from China with local Australian students, only students who indicated that they
were local Australian students or Chinese international students were included. The final sample
comprised 167 students, 83 local Australian students and 84 international Chinese students. 71
students were male (42.5%) and 96 were female (57.5%).

Procedure

Students were provided with the self-administered survey in class and were given sufficient
time to complete the survey, which students then self-scored and individual results were discussed
amongst the larger class group. The survey was completely anonymous, and students had the option to
provide their survey to the class lecturer at the end of class for group level analyses. The class
lecturers strongly encouraged students to complete the open-ended item and ample time was given for
them to do this. Students were informed that there was no requirement to submit the survey to the
lecturer and that they could not be identified in any way. Chinese students were provided with the
option of filling in the Chinese language version of the survey. However, interestingly, all students
opted to complete the English version. Students were also informed that their results were not
indicative of a clinical diagnosis and if they were concerned about their results, they should seek the
advice of a qualified practitioner for further evaluation.

Instrument

The survey instrument comprised a number of demographic items and questions relating to the
student’s international student status, their length of time in Australia, work experience and number of
children. Also included was a self-report item on the level of life stress relative to other individuals his/her age, an open ended item allowing subjects to describe the main sources of stress and anxiety in their life, and Lovibond and Lovibond’s (1995) 42 item Depression Anxiety Stress Scale (DASS).

The DASS is a self-administered survey comprising 42 negative emotional symptoms. Subjects are asked to rate the extent to which they have experienced each symptom over the past week, on a four point severity/frequency scale. Scores for the subscales of Depression, Anxiety and Stress are then determined by adding the scores for the relevant 14 items.

The DASS has very well established psychometric properties in clinical and community samples, with the factor structure being substantiated by both exploratory and confirmatory factor analysis (Lovibond & Lovibond, 1995, 1995b). It measures three subscales of depression, anxiety and stress and has been found to differentiate between these three states. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-depreciation, lack of interest or involvement, anhedonia and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety and subjective experience of anxious affect. Finally, the stress scale assesses difficulty relaxing, nervous arousal, being upset or agitated easily, irritability, over-reactivity and impatience (Lovibond & Lovibond, 1995).

Internal reliability (coefficient alpha) for each scale for the DASS normative (non-clinical) sample is: Depression 0.91; Anxiety 0.84; Stress 0.90 (Lovibond & Lovibond, 1995b). Strong convergent validity and moderate discriminant validity has been established (Crawford & Henry, 2003). While the scale discriminates between the three negative emotional syndromes, Lovibond and Lovibond (1995b) found the subscales to be moderately highly correlated with each other, and in particular the Stress scale to be more highly correlated with Anxiety than with Depression.

Analysis

Quantitative data was entered and analysed using SPSS version 21. Only completed surveys were included in the analysis, and surveys were included by order in which they were received, until approximately equal numbers of Australian and Chinese students were achieved. The remaining
surveys were not included in the current study. Means and standard deviations were calculated for the overall sample. Subscales for Depression, Anxiety and Stress were calculated by adding the data for the 14 relevant items in each subscale. T-tests were conducted to evaluate differences in means for the three subscales according to nationality (Australian or Chinese) and gender.

Data from the open-ended item relating to the main sources of stress in the individual’s life was content analysed and coded into seven main themes. Frequencies for the two groups of students (Chinese and Australian) were then recorded for each of these themes.

RESULTS

Mean scores for the three DASS sub-scales of Anxiety, Stress and Depression, were calculated for the whole sample as well as for the Australian and Chinese groups of students (see Table 1). For the whole sample, the mean score for Anxiety was 10.5 (SD7.5). Using guidelines of severity based on Lovibond and Lovibond’s (1995) normative sample (see Table 2), this indicates “mild” levels of anxiety. For the Stress sub-scale, overall mean score was 19.8 (SD6.9), indicating “moderate” levels of stress and for the Depression sub-scale, overall mean score was 8.3 (SD6.9), indicating “normal” levels of depression according to Lovibond and Lovibond’s (1995) classifications.

Independent samples t-tests (two tailed) were conducted to examine the differences in mean scores between local Australian and Chinese international students on the three sub-scales of the DASS, being Depression, Anxiety and Stress (see Table 1). Australian (local) students showed lower levels of Anxiety (M=7.5, SD=4.8) than Chinese international students (M=13.5; SD=7.5) and this difference was significant (t=5.7; p<.001). Anxiety levels for Chinese students were at the upper end of the “moderately severe” category, while Australian students were at the upper end of the “normal” category.

In relation to the Stress sub-scale, Australian students also scored lower on average (M=18.2, SD=7.9) than Chinese students (M=21.4, SD=10.2) and this difference was statistically significant
Stress levels for Australian students were at the upper limit of the “mild” category, bordering on “moderately severe”, while Chinese students’ levels fell within the “moderately severe” category for Stress.

Mean scores for the Depression sub-scale were in the “normal” category for both Australian (M=8.4; SD=8.0) and Chinese (M=8.2; SD=5.8) students, with no significant differences between the scores for the two student groups.

Table 3 presents the results for the qualitative, or open-ended item, where subjects were asked to describe the main sources of stress or anxiety in their lives. A total of 105 of 167 students responded to this item, with some providing several sources of stress. The high response rate is best explained by the fact that students were given ample time in class to complete the survey. There were seven main themes arising from the content analysis and these were labelled as “academic/study stressors” (eg understanding assessments, heavy workload, poor grades), “work stressors” (eg stress associated with part time or full time work), “financial stressors” (eg strain on parent’s income, loans and debt), “life balance stressors” (eg not having time for girlfriend, friendships, sports, travel, hobbies), “family stressors” (eg expectations of parents), and “personality/personal stressors” (eg self esteem, perfectionism, ADHD, shyness, fear of failure). The greatest stressors identified by the local Australian students were “academic/study stressors” (30 students), “work stressors” (19 students) and “life balance” (13 students), while the greatest stressors identified by the Chinese international students were “academic/study stressors” (42 students), “life balance stressors” (23 students) and “family stressors” (17 students).

With respect to the “academic/study” stressors, a number of Chinese students mentioned ideas of not understanding what was required or differences in expectations across the two countries. For example, one student wrote, “Australian teachers expect students to do more research”. Another student commented, “We are not given enough examples for how to do the essay”. Local, Australian students on the other hand, tended to cite heavy workload more often, for example “all the assignments are due at once and then the exams altogether as well, it is too much at once”. In the “life
balance” category, many Chinese students specifically mentioned a lack of time for social pleasures and friendships while Australian students focused more on relationships with partners and troubles pursuing sport and exercise goals. The “family” category was derived mostly from the responses of the Chinese students. One student wrote “my parents use Skype to watch me study and tell me work harder and late at night”. Another wrote, “if I fail my subjects, my parents will not talk to me”, and another “I need to make my family feel proud and happy”. Interesting responses were also found within the “personal/personality” category where students described the source of their stress as arising from their own low self-esteem, sense of perfectionism, fears of failure and inability to make friends. Others described themselves as having an “anxious personality”, or being clinically diagnosed with depression or ADHD. There were no obvious differences in the responses for this category between the two student groups.

**DISCUSSION AND CONCLUSION**

The purpose of this study was to examine the incidence of depression, stress and anxiety in a group of undergraduate students, and to observe and describe differences between local Australian students and Chinese international students. While many studies have examined the mental health of international students generally (eg. Misra & Castillo, 2004; Mori, 2000; Rosenthal, Russell & Thomson, 2008) or students from the “Asian” continent (eg. Yeh, 2003), few studies have specifically targeted international students from Mainland China. Given the unique sources of stress derived from cultural influences such as family expectations, the one child policy and a strong emphasis on academic success (Han et al., 2013), it appears critical that empirical research focus specifically on students from Mainland China rather than grouping them with other international students.

Results from this study showed Australian students to have normal levels of depression and anxiety, with stress levels averaging in the “mild” to “moderately severe” range. Chinese international students were found to have significantly higher levels of stress and anxiety than local students, and these levels both fell within the “moderately severe” categories established by Lovibond and Lovibond (1995). These results are consistent with those of previous studies, which have found higher levels of negative psychological symptoms amongst international students from Asia or China specifically
Qualitative data suggested that the main sources of anxiety and stress for the Chinese students were academic factors, such as study workload and ambiguity over assessment tasks or teaching styles, life balance stressors such as lack of time for relationships and social activities and family stressors, including high expectations and pressure to succeed from parents.

Although the DASS is not a diagnostic instrument, levels of anxiety and stress at or above moderate severity are likely to be associated with functional impairment and in some cases may warrant attention from a mental health practitioner. Psychological morbidity not only affects students’ educational attainment but also their overall quality of life, their personal and family relationships and future career prospects. Anxiety, stress and other negative affects can be directed inwards or may be expressed in behaviours that damage the individual and others. Furthermore, prolonged exposure to the symptoms of anxiety and stress also make these individuals more vulnerable to developing depression as well as physiological complaints such as cardiovascular concerns.

Academic success appears to be a major cause of concern amongst Chinese international students and this is consistent with Chinese cultural norms that place considerable emphasis on this. An academic failure for a Chinese student could mean a loss of face, a sense of shame, severe criticism from one’s family and a lifelong sense of failure. Unlike in Western countries where mental illness is a separate and distinct field of treatment, Chinese culture does not define mental illness as a separate entity. Rather, somatic symptoms such as headaches and gastrointestinal symptoms may be interpreted as physiological and many Chinese will visit their regular physician for treatment. As such, the underlying psychological causes are not addressed and the cycle of physiological symptoms will likely continue and perhaps worsen.

Universities have a duty of care to address the phenomena of psychological morbidity amongst Chinese international students. It has been suggested that Chinese international students often do not seek psychological help because of cultural stigmas or lack of awareness of available services (Wei et al., 2007). Mental health services, including counselling and academic support, should be
advertised to students during orientation and reinforced constantly during the semester as stress and anxiety accumulate. Students applying for special consideration on the basis of headaches, gastrointestinal symptoms, insomnia and other physiological complaints should be followed up and advised to seek help from a mental health practitioner. Academics should be educated about the specific mental health issues that pertain to Chinese students and Chinese speaking counsellors should be recruited by University counselling services.

The current study has provided important insight into the mental health of undergraduate students specifically those from Mainland China. Future research should investigate the cultural moderators influencing anxiety and stress levels in these students and explore potential initiatives for addressing the phenomena, especially those that are culture specific.
REFERENCES


Table 1: Descriptive statistics and national differences for DASS subscales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Whole Sample (n=167)</th>
<th>Australian (n=83)</th>
<th>Chinese (n=84)</th>
<th>t, df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>10.5 (7.5)</td>
<td>7.5 (4.8)</td>
<td>13.5 (7.5)</td>
<td>5.7***, 165</td>
</tr>
<tr>
<td>Stress</td>
<td>19.8 (6.9)</td>
<td>18.2 (7.9)</td>
<td>21.4 (10.2)</td>
<td>2.3*, 165</td>
</tr>
<tr>
<td>Depression</td>
<td>8.3 (6.9)</td>
<td>8.4 (8.0)</td>
<td>8.2 (5.8)</td>
<td>0.58, 165</td>
</tr>
</tbody>
</table>

*p<.05; **p<.01; ***p<.001; Equal variances were assumed (using Levene’s test)

Table 2: Cut-off scores for “Severity” labels (adapted from Lovibond and Lovibond, 1995)

<table>
<thead>
<tr>
<th></th>
<th>Depression</th>
<th>Anxiety</th>
<th>Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0-9</td>
<td>0-7</td>
<td>0-14</td>
</tr>
<tr>
<td>Mild</td>
<td>10-13</td>
<td>8-9</td>
<td>15-18</td>
</tr>
<tr>
<td>Moderate</td>
<td>14-20</td>
<td>10-14</td>
<td>19-25</td>
</tr>
<tr>
<td>Severe</td>
<td>21-27</td>
<td>15-19</td>
<td>26-33</td>
</tr>
<tr>
<td>Extremely Severe</td>
<td>28+</td>
<td>20+</td>
<td>34+</td>
</tr>
</tbody>
</table>
Table 3: Main sources of stress identified by Australian and Chinese students (N=105)

<table>
<thead>
<tr>
<th>Source of Stress</th>
<th>Examples from the Survey</th>
<th>Frequency (Chinese students)</th>
<th>Frequency (Aust. Students)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic/Study</td>
<td>Assignments, examinations, keeping up with workload, achieving good grades, understanding requirements of assessment</td>
<td>42</td>
<td>30</td>
</tr>
<tr>
<td>Work</td>
<td>Demands of outside work, balancing work and study demands, difficult people/boss at work, switching from part time to full time work</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Financial</td>
<td>Insufficient funds for study, living, extra curricular activities; worries about strain on family/parent’s finances, student loans, debts</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Life balance</td>
<td>Lack of time or trouble balancing priorities -for friends, relationships, family, hobbies, sports; looking after children, parents or elderly/sick relatives</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>Family</td>
<td>Managing expectations of parents/family (esp. in relation to achieving good grades)</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Personal/Personality factors</td>
<td>Low self-esteem, perfectionism, fear of failure, inability to make friends, anxious personality, biological/clinical factors eg diagnosed depression, ADHD</td>
<td>11</td>
<td>6</td>
</tr>
</tbody>
</table>

Note: Students often gave more than one main stressor; others did not respond at all.