

*What is the relationship between indicators of stress
and academic performance in third year university
students? A follow up study*

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Abstract

Previous studies have identified certain factors that influence student's academic performance at university level. These factors have included such things as previous tertiary education, marital status, emotional support, financial support, part time employment and ENTER or high school leaving results. This study invited all third year students enrolled in the B.Sc. (Clinical Sciences) Osteopathy degree at Victoria University in 2003, to participate in a follow up study to previous research that investigated first year students and the factors that influence academic performance. State Trait Anxiety Inventory, Beck Depression Inventory, Life Orientation test, COPE scales, external work hours and job satisfaction were used to determine factors that may affect academic performance and were compared against average exam grades. This study also investigated other possible indicators of stress factors including: hours of part time work, job satisfaction emotional and financial support and any previous education undertaken which may also influence academic performance. The results of this study showed that ENTER scores, job satisfaction (especially in females), part time work hours and denial of coping provided the strongest correlations with academic performance. High levels of anxiety, depression and the use of non-functional coping mechanisms were not demonstrated to have any correlation with academic performance in this cohort. Similar results were originally identified in first year students of the same program of study. It is important that universities identify these factors as possible indicators of stress that may adversely affect academic performance.

Introduction

Stress has the potential to significantly interfere with the academic performance of any university student (Barker, 1987). Available evidence indicates that there are personal characteristics which play a role in a student's ability to cope. In addition, a variety of external factors may contribute to the stress experienced at university. Previous studies have found some indicators of university student's stress include, previous education undertaken, financial support, emotional and social support, part time employment and students own coping and stress managing mechanisms (Tchen et al, 2001, Spielberger, 1983).

This study was designed to expand research which previously identified predictors of stress on academic performance in first year osteopathic medicine students at Victoria University. This study specifically investigated any changes in third year student's coping, and their perceived stress and anxiety levels, in the same course. The study by Tchen and co-workers (2001) investigated influences on academic performance in these first year students and identified high levels of perceived stress, anxiety and the use of non-functional coping mechanisms. This study identified factors that affect academic performance in third year students by using a previous research model with first year students studying the same course in an Australian university setting.

Stresses

Assessment and other components of learning can be stressful to a student. It is not only the tasks, but also the way in which a student deals with them, that will ultimately affect their overall academic performance at university. Apart from these specific university stressors, there are a myriad of factors external to study which can increase a student's stress. These may include; financial insecurity, lack of previous tertiary education, external activities such as part time work and social support, the student's ability to cope with these stressful events and they way in which they are able to adapt to the stressful situation (Shumaker, & Bromwell, 1984).

Previous studies have found that students with financial difficulties experience greater stress levels during their education (Deary 1994, Stewart et al 1999a). These studies confirmed the research by (Folman & Lazarus, 1980) who discovered that students who lived away from home, and were financially independent of their parents or guardian, suffered increased levels

of depression and a poorer academic performance due to not having regular funding whilst at university. On the other hand, the same study found that students who had strong financial support, such as regular income from part time work or other funds, had increased levels of optimism and lower scores of anxiety and depression. It has been suggested by previous researchers that students who were free of financial stress may have been more settled within the tertiary institution and were able to study more effectively as it was one less event or problem to concern them (Tchen et al 2001). This would possibly allow the student to be more optimistic towards their study and thus may have a positive effect on their academic performance.

Social support is also thought to play an important role in students' well being during their education (Thelan, 1954). Social support in this instance is defined as any external support from family, friends, colleges other students and teachers. Such support has been found to promote well-being and health by reducing the effects of stressful lifestyle events (Huebner, Royer and Moore 1981). The students' perception of the level of social support that they are receiving has been found to have a positive effect on academic performance. (Thelan 1954, Sheppard 1976, Shumaker & Bromwell 1984, Bernard 1991).

Sheppard's study (1976) investigated the relationship between an adolescent's experience of interpersonal relations with peers and teachers and their academic performance. It found that there was a significant positive correlation between academic performance and this form of social support, being support from partners, spouses and peers, received by the student. It was suggested that social support positively affects a student's academic performance because students feel comfortable and able to deal with university workload more effectively.

Shumaker and Bromwell, (1984) suggested that a student was able to receive positive reinforcement from social support such as that provided by family and friends more readily than students who were lacking social support.

Tchen and co-workers (2001) found that educational support from lecturers strongly correlated with academic performance in first year osteopathy students, and she postulated that tertiary students may be more likely to turn to peers and lecturers for school related concerns. It follows that without such support being available to students their overall academic outcome may be negatively affected. Social support acts as a buffer to the new environment, which has been shown to be a source of stress particularly for first year tertiary students. (Stewart et al 1999b)

Investigations by Dobson, Sharma and Haydon (1997), found that tertiary students perform better if they have previously completed tertiary qualification when compared to those who have not completed, or attempted any other, tertiary study. McClland and Kruger (1993)

discovered that university student's who had undertaken previous tertiary studies, achieved higher mean performances than school leavers. This may be a contributing factor in the reduction of external stressors by the coping mechanisms already developed by the individual.

Another source of stress to be considered is other past academic achievements of the student. Not surprisingly previous secondary academic achievement is positively correlated with first year university marks. Tchen et al (2001) found that Equivalent National Tertiary Entrance Rank (ENTER) scores, which are an indication of Australian secondary academic performance, predict academic results in first year students and that low ENTER scores predict weaker academic performance. This is a similar result found in other studies (McCellan & Kruger 1993).

The number of paid external hours worked by students can be another predictor of academic performance and source of potential stress. Long working hours (>15-20 hours per week) are thought to interrupt student's own schoolwork and create an overloaded study environment Steinberg & Cauffman (1995). Robinson et al (1999) found that year 11 students, who worked for less than 10 hours per week in part-time work, were more likely to finish their schooling compared to students who worked more than 10 hours per week. Robinson (1999) also concluded that students who work more than 10 hours per week during year 11 and 12 had lower grade point averages than students that did not work as many hours. Therefore work hours are a contributing factor in both secondary and tertiary students academic performance. There is some variation in the maximum number of working hours found in the studies and there are positive as well as negative correlations with work. Cheng's (1995) study concluded that students who work up to 10-15 hours per week demonstrated a higher academic performance in comparison to both students with no jobs and students who worked more than 15 hours per week. Cheng suggested that students who have some form of part time work develop more effective time management skills and are more able to delegate their workload demands. Tchen et al (2001) demonstrated that osteopathic students' academic performance was poorer if their working hours exceeded 15-20 hours per week, and that 10-15 hours of part time work per week does not have any detectable affect on academic performance.

Apart from the total number of hours worked there has been some consideration of whether the type of work and the level of satisfaction with it can also be important (Tchen 2001). This issue is considered in the current research.

Intrinsic measures of Anxiety and Depression

Every student utilizes coping mechanisms in an academic environment. The way in which an individual student is able to apply these coping mechanisms may have positive or negative

effects upon academic performance (Spielberger 1983). Aspinwall & Taylor (1992) predicted that poor academic performance is associated with denial and self-distraction. Denial and self distraction may reflect an inability to adjust to a new environment such as a university setting and the academic demand it places on an individual and as such is a non functional coping mechanism (Carver, Sheier and Weintraub 1989, Tchen 2001).

There is, however, the possibility of developing coping skills and Lazarus & Folkman (1980) found that third year medical students were more able to adapt to the university environment in comparison with first year medical school students. The authors suggested a number of reasons that can be considered for this evidence: changing coping skills with age, specific experience, increasing financial stability and perhaps an increased level of social support. Apart from skills, which can be learnt, there are also enduring personality characteristics, which have been shown to impact on university grades. Stewart et al (1999a) research found that high levels of trait anxiety seemed to have a negative influence on academic performance. Tchen et al (2001) also found that trait anxiety strongly correlated with poor academic performance in first year university students. Her study, using the state trait anxiety inventory, indicated that students who began the year with higher stress levels achieved poor academic performance.

Overall evidence demonstrates there is a variety of factors that may influence a student's academic performance. This current study aimed to investigate these factors in third year student's and also the relationship that they have on a student's individual coping mechanisms. In particular this study identified any apparent changes in third year student's perception and patterns of coping in third year university and then compared these results with research from The Tchen et al (2001) study that identified patterns of coping in first year student's of the same course. It is important to identify students who find it difficult to cope and manage with the demands of university environments as it has be shown to have an effect on academic performance and they may be able to be assisted by university support services.

Methods

Subjects

Fifty-five students were enrolled in third year in the B.Sc (Clinical Sciences) Osteopathy degree at Victoria University for the 2003 academic year were invited to take part in this study. Thirty-two students agreed to participate in this study and completed informed consent participation forms (14=male, 18=female). This study was approved by the Victorian University Human Research Ethic Committee.

Measures

Academic Performance

Participant's exam grades were obtained from the students at the end of first semester. Higher scores indicated greater academic performance.

Previous Academic Performance

The ENTER scores for each participant were obtained via questionnaire and Grade Point Averages (an aggregate score representing a mean of all university results) were obtained via student examination records given by the participant. These scores were particularly important, as entry to the osteopathy course was based on ENTER score, which had to be greater than 85. Higher scores indicated better academic performance.

Depression & Anxiety

The Beck Depression Inventory, which measures depression (Beck, 1967) and the State- Trait Anxiety Inventory (Spielberger, 1983) were used to measure the levels of stress and depression indicated by students. The Beck Depression Inventory consisted of 21 groups of statements. Participants were asked to circle the number next to the most applicable statement. Each statement was allocated a score, which ranged from zero-three.

The State -Trait Anxiety Inventory measures perceived anxiety and contains 20 items that are ascribed a numerical result using a Likert scale. Participants were asked to indicate the extent to which they agreed with each of the 20 items. The following format was used, 1= not at all, 2= somewhat, 3= moderately, and 4= very much so.

Personality Measures

The Life orientation Test (Sheier & Caver, 1985) measured the level of optimism by asking several items that assessed optimism and pessimism. The test consists of eight items, plus four other items which were fillers. The latter are included to help disguise the underlying

purpose of the test. A five point Likert scale was used to measure the students' responses. Participants indicated the way in which they agreed or disagreed to the items. The following format was used for assessment, 0= strongly disagree, 1= disagree, 2= neutral, 3= agree, and 4= strongly agree. Four of these items were positively directed and four negatively. All of the negative based items were reversed prior to scoring in order to eliminate discrepancies. The higher the score the greater level of optimism experienced.

Coping mechanism

The COPE scale was used to identify the type of coping mechanism used by each student (Carver, Scheier & Weintraub, 1989). Students were able to report their coping strategies which include "active coping", "planning", "use of emotional support", "religion", "acceptance", "self distraction", "use of instrumental support", "behavioural disengagement", "denial", "alcohol/drug use", "positive reframing", and "humour". A four-point Likert scale was used. Participants indicated the extent to which they agreed with each of the items. The participants used the following responses format, 1= I haven't been doing this at all, 2= I have been doing this a little bit, 3= I have been doing this a medium amount, and 4= I have been doing this a lot. The higher score indicated a greater use of the particular coping mechanism.

Basis of Admission

Participants were asked to indicate their highest level of previous education. The options were school leaver (directly completing secondary schooling, year 12) and Mature age students. Mature students were defined as a person over 18, who has been out of full time schooling in the last 12 months and may/ may not have completed or attempted a year 12 qualification; TAFE study; higher education study; and post graduate study.

Participants who have attempted further education were also asked to indicate whether they had completed the course of study or not.

In addition participants were asked to indicate whether additional studies, such as science courses or year 12 equivalent, were undertaken to meet selection criteria prior to entering the course.

Working Hours

Participants were asked to indicate the average number of weekly hours worked. Participants indicated this on a scale ranging from 0-5, 6-10, 11-15, 16-20, and >20.

Job Satisfaction

A 5 point Likert scale was used to measure the level of job satisfaction. Participants were asked to indicate the extent in which they were satisfied with their jobs using the following format; 1= not at all, 2= somewhat, 3= neutral, 4= moderately so, and 5= very much so. The higher score indicated greater job satisfaction.

Social support

Participants were asked to indicate whether they received financial, emotional and/or educational support from their peer group, parents, boyfriends, girlfriends, partners and/or lecturers. The level of support was measured by 0= never, 1= sometimes, and 2= often. The higher score indicated a greater perception of social support.

Student profile

Participants indicated their gender and whether they were living at home or away from home. Participants also indicated their marital status by stating if they were single, not married or married, involved in a romantic relationship and if they were currently in a de facto relationship.

Procedure

All the students involved in this study received an oral presentation about the study and its aims. Students were then invited to participate and given information and consent forms. Participation was entirely voluntary and students were able to elect not to be involved at any time during the study by not completing the questionnaire. To ensure confidentiality, participants' details were recorded using an alpha-numeric coding of the quantitative elements of the data namely questionnaires, participants' ENTER, GPA and exam results that the student provided for purpose of the investigation. The qualitative data was coded numerically also, to ensure confidentiality. Students were asked to complete the questionnaires in March and then again in June. The repetition was undertaken to determine whether there was a change in any of the measures between early in the semester and close to the mid-year examination period.

Statistics

All data was analysed using SPSS version 11 (Microsoft, USA) and significance was set at $p \leq 0.05$.

Bivariate analyses

Bivariate analysis was used to correlate (Pearson's R) ENTER scores and GPA scores with individual subject grades. These scores were also correlated (Pearson's R) with average exam grades. The average exam grades were correlated (Spearman's rho) with job satisfaction and the levels of social support. Simple correlations (Spearman's rho) were then used for average exam grades compared with personality measures, stress and coping mechanisms. Partial correlations were undertaken to control for ENTER scores to further investigate significant correlations that were found on Pearson's analysis, between GPA scores, finance and support from teachers and peers.

One-way ANOVA

One-way ANOVA was used to compare differences in average exam grades with the different bases of admission, additional studies undertaken, number of hours per week involved in part-time work and marital status.

Independent t-test

Independent t-tests were used to compare the differences in average exam grades between the genders and if students had completed further education. Independent t-test were also used to compare the differences in average exam grades between students who lived at home and students who are living away from home.

Results

Correlations of GPA against ENTER score, part time employment, marital status, job satisfaction living away from home, financial support and support from family friends and lectures are documented in Table one and two. Significant correlations of GPA versus ENTER score ($R = 0.333$, $p = 0.031$), financial support ($R = -0.298$, $p = 0.049$) and job satisfaction of females ($R = 0.777$, $p = 0.04$) were observed. Small to insignificant correlations were demonstrated when comparing GPA with job satisfaction of males, emotional support sort by partners boyfriends and girlfriends.

Table 1: Average exam grades of third year students (n=32)

Correlations of GPA versus	R Values	P Values
ENTER Score	0.333	0.031
Part Time Employment Hours	0.213	0.121
Financial Support from Guardian/Partner	-0.298	0.049
Lecturer's/Peer Support	0.083	0.326

Table 2: Average exam grades of third year students (n=32)

GPA Correlation With	R Values	P Values
Job Satisfaction (Females) March	0.777	0.040
Job satisfaction (females) June	0.054	0.001
Job Satisfaction (Males)	0.223	0.082
Emotional Support Partner/girlfriend (males)	0.091	0.091
Emotional Support Partner/Boyfriend (Females)	0.0357	0.053

GPA was also correlated with job satisfaction and the amount of part time hours worked and lecturer support. Moderate significance was seen in Table 3 between job satisfaction and part time hours worked ($r = 0.540$ $p = 0.001$). Correlations of March scores of coping, state trait anxiety and depression show significance in march ($r = 0.329$ $p = 0.006$) of self distraction and denial ($r = -0.253$ $p = 0.043$). Again the scores were analysed in June and GPA correlation with self distraction was significant ($r = 0.317$ $p = 0.006$) however denial was not ($r = 0.0138$ $p = 0.471$). State trait anxiety and depression scales showed no significance at 0.05 significance. Table 4 shows partial correlations when controlling for ENTER scores, partial correlations were analysed with GPA and hours worked, financial support teacher and peer

support as well and family and friend support. Of the analysis, the correlation of GPA versus finance showed significance at the set level ($r=0.312$ $p=0.044$) whereas correlation of hours worked and teacher and peer support did not demonstrate significance ($r=0.1647$ $p=0.188$, $r=0.0138$ $p=0.471$)

Table 3: Average exam grades of third year students (n=32)

GPA Correlation With	R Value	P Value
Job Satisfaction & Hours worked	0.540	0.001
Lecturer /Peer Support	0.32	0.009
MARCH		
Self-Distraction	0.329	0.006
Denial	- 0.253	0.043
JUNE		
Self-distraction	0.317	0.006
Denial	0.0138	0.471

Table 4: Average exam grades of third year students (n=32)

Partial Correlations Co-Efficients (Controlling for ENTER scores)	R Value	P value
GPA vs Hours Worked	0.1647	0.188
GPA vs Finance	0.3124	0.044
GPA vs Teacher/Peer Support	0.0138	0.471

Discussion

This investigation found ENTER scores in third year students were still positively correlated to academic performance of the students involved in this study ($r=0.333$, $p=0.031$). These results are supported by previous research which found that students in first year university who began the year with low academic scores had poor university academic performance, especially when compared with students who had performed better in previous academic schooling (Cambiano, Denny and Devhoe 2000, Tchen, 2001). However, it is noteworthy that in the current study the effect appears to have lasted for three years so far.

Other research has found that students with previous tertiary education experience achieved higher academic marks than students who had no such experience (McClelland and Kruger, 1993). However, this correlation was not evident in the current study ($r= 0.213$, $p=0.121$). Of the 32 participants, 14 had some previous tertiary study before entering the course. The 18 students who had no academic experience at a tertiary level performed just as well as students who did have some previous experience. This aspect of the study may suffer from low subject numbers and future studies should investigate a larger cohort.

Of the 32 participants in this study 22 undertook some form of part time employment. There was no significant relationship with academic performance and the number of hours worked ($r= 0.213$, $p<0.05$) out side of university, and the majority of participants ($n=17$) worked no more than 10-15 hours per week. Tchen and co-worker's (2001) study found that working between 10-15 hours per week did not affect overall academic performances. This is also supported by Robinson's research, which found that working more than 10-15 hours per week would achieve negative impact on academic performance in high school students. Ruscoe et al (1996) also support this although their research claimed that a slightly higher number of working hours namely between 15-20 hours per week would reflect poorly on students' grades in high school. Fewer than 15 hours each week was not negatively correlated with high school grades in this research.

An interesting finding is the apparent significance of job satisfaction when compared with part time hours worked combined with the student's academic performance. This is particularly noticeable when males and female students were considered separately in this study (Females March $r= 0.777$, $p=0.040$, June $r=0.054$ $p=0.001$). Analysis of the data revealed that females, who were less satisfied in their part time employment, had lower academic performance. Male participants did not follow this trend. A possible conclusion is that unhappiness at work may negatively reflect mood and behaviour, which may then have an impact on university demands and performance (Coles et al 1994). It is not possible with the available data to postulate about the reasons for the gender differences.

Overall for part time work between 10-15 hours per week, did not seem to alter students' academic performance. However, female students who were satisfied in their work achieved a better academic performance compared with students who were not satisfied in their part time work although job satisfaction was not an issue for males.

Previous research indicated that financial support from a spouse, partner or guardians was positively correlated with academic performance (Tchen et al 2001). Results from this study are similar. Analysis of the data found that financial support from partner, spouse or guardian was strongly correlated with academic performance in third year students ($r=-0.298$ $p<0.05$). Third year students may find that university academic demands, and the burdens of university financial requirements, may add to any existing stress which in turn may impact on a student's academic performance.

Not only does financial support have an impact on academic performance but so does emotional support, especially from partners, spouses and boyfriend, girlfriend. Financial support differs from emotional support as it is purely support offered via money whereas emotional support can be deemed as any other help that is given to students from parents, guardians, friends, family and partners.

The finding, which had statistical significance, was that third year female participants achieved greater academic performance when receiving emotional support from partners or boyfriends ($r=0.0357$ $p=0.053$). This can be explained as the more emotional support and understanding a student receives the more confident and satisfied a student will become and this has possible reflection on academic performance (Steinberg & Cauffman 1995). Again the difference between the sexes is intriguing.

Students involved in this study also stated that teacher and peer support affected academic performance. Support from lecturers and fellow peers indicated a positive relationship that can be correlated with greater academic performance ($r=0.32$, $p=0.009$). This is not surprising as greater educational support and relations between peers and teachers would enhance the academic growth of students and have an effect on academic performance no matter how many years a student has completed at a tertiary level.

Students' own personality measures have been shown to greatly affect a student's academic performance. Stress and anxiety are known to be important factors in causing academic difficulties (Vitaliano et al 1989). While the results of this study demonstrated no correlation between anxiety and depression with academic performance some students who scored high levels of anxiety and depression may have been unable to focus on their educational problems and found it difficult to seek emotional support and these could have impacted negatively on academic performance. This was demonstrated by the correlation results of self-distraction

with GPA ($r = 0.317$, $p = 0.006$), which assumes poor coping skills, and increased levels of anxiety associated with this. Tchen and co-workers (2001) study found that in first year student's trait anxiety strongly predicted poor academic performance. Data from the State Trait Anxiety Inventory indicates that students who began the year with higher stress levels had poorer academic performance. Data collected closer to the time of examination (June $r = -0.284$, $P = 0.049$) revealed that students noted increased stress levels. Higher stress levels have been shown to predict poor academic performance in students, however in this study individual rises in levels of stress were unable to be noted due to student's confidentiality (Stockhard & Wood, 1984). It would be important to identify students that had higher depression and anxiety levels to prevent possible poorer outcomes in regards to academic performance, particularly by third year. Previous research suggests that students with some higher level education experience, such as third year students, would be able to recognise when stress levels were increasing and they are unable to cope with demands or educational difficulties (Spielberger et al 1983).

Students who can overcome levels of stress and anxiety may have differing coping mechanisms from other students who perform poorly. These can reveal both negative and positive outcomes when compared with academic performance (Tchen 2001, Stewart, Lam, Betson, Wong & Wong 1999, Spielberger, 1983). Research in this study found that adept coping tools that students employ have a positive affect on overall academic performance (March self-distraction $r = 0.0329$ $P = 0.006$, June $r = 0.317$ $P = 0.006$, denial March $r = -0.253$ $P = 0.043$). Students who perceived themselves to be coping, measured here with self distraction and denial, performed better academically and seemed to be more positive at university. Those students who found they were not coping tended to be negative toward university and their academic performance suffered.

Such a relationship between perception of coping and academic outcome is supported by previous research, (Schreier & Carver 1983), which looked at American medical students in Israel and their ability to cope with stress. Their study demonstrated that a number of students found their experiences difficult and were dissatisfied with medical school and manifest these reactions as anger and achieved poor academic performance. The study concluded that students who were less problem focused in their coping, and had an inability to utilise coping skills, performed poorly and were less satisfied at medical school

It is interesting to observe that even in third year students denial and self- distraction are significant indicators in the inability to cope with university demands and stressors. It could be thought that by the third year of university, students would be more efficient at utilising

individual coping mechanisms when stressful academic situations arise. Perhaps a reason for this is university requirements also increase with greater academic workload and this may affect a student's ability to cope continuously over a period of a university degree. The ability to cope well predicts better performances academically in third year university students (Carver & Scheir, 1989).

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Conclusion

This study emphasised the effects of a range of variables, when considering third year B. Sc. (Clinical Science)- Osteopathy students in Australia, and their academic performance over one semester. The study identified trends, which reinforces those found in previous research, particularly Tchen & co-workers (2001) study and suggests they continue throughout the three years of the degree. They can be regarded as strong correlators of academic performance.

This study reinforces and extends previous research, particularly Tchen & co-workers (2001) study. The study found ENTER scores, just as they were with first year students, are correlated with academic performance in third year students. This maybe explained as reflecting a great similarity in the type of academic work between the osteopathic course in each of the undergraduate years and that of the final years of secondary schooling. It is also concluded that increase of more than 15 hours per week of part time work outside of university is positively correlated with poor academic performance and optimal hours to work is between 10-15 hours as this has no affect on academic performance. Job satisfaction, as well as hours worked, also plays a role to a student's performance academically, particularly females.

It is important to note that adequate coping mechanisms still have significant relationships with a student's academic ability as they advance through their tertiary education.

University demands and work-load can cause considerable anxiety and depression in third year students. Continuing emotional support from partners, spouses, peers and teachers, and financial support other than that derived from part time work seem to ease the burden somewhat throughout the three years of B. Sc. (Clinical science)- Osteopathy degree.

ATTACHMENT A

Informed Statement to Participants

The Relationship between Indicators of Stress and Academic Performance

INFORMATION TO PARTICIPANTS

We would like to invite you to participate in a follow up study that previously has investigated the relationship between indicators of stress and its effect on academic performance in first year students.

The aim of this study is to explore any relationship between stress and academic performance during third year of tertiary education. To participate in this study you must be currently enrolled in third year Bachelor of Clinical Sciences (Osteopathy) at Victoria University and over the age of 18.

This is a questionnaire-based study; strict confidentiality will be maintained by the use of alpha numeric coding of questionnaires, ENTER scores and examination results. Questionnaires will be distributed to all third year students. Participation is entirely voluntary and not connected to the requirements of the course, and you may elect not to be involved in the study or withdraw at any stage without concern that their academic progress may be affected. An explanation of the study will be attached to the questionnaire, further informing any invoiced participants of the ability to withdraw from the study at any time without prejudice. Participants will return completed questionnaires to a locked box in the student teaching clinic on the city campus. Participants will receive the questionnaires at the commencement of the program, mid program and after the third year examinations.

There will be nothing to identify you on them, just a code number. Please keep this information sheet so that you can refer to it at any time, during or after you participates, should you decide to partake. Please feel free to ask any questions.

ATTACHMENT B
Participant Consent Form
The Relationship between Indicators of Stress and Academic Performance

INFORMATION TO PARTICIPANTS:

We would like to invite you to participate in a study investigating the relationship between indicators of stress and its effect on academic performance in third year university students.

CERTIFICATION BY SUBJECT:

I,
of,

Certify that I am at least 18 years of age and that I am voluntarily giving my consent to participate in the study entitled, "The relationship between indicators of stress and academic performance" being conducted at Victorian University.

I certify that the objectives of the study, together with any risks to me associated with the procedures listed hereunder to be carried out in the study, have been fully explained to me by Deanna Flint, and that I freely consent to participation involving the use on me of these procedures.

I give specific consent to allow the researchers to access my previous ENTERs and GPAs from first semester third year results of 2003. I recognize that this information will be entirely confidential and that my identity will remain undisclosed through the entirety of the study.

Procedures: This is a questionnaire-based study; strict confidentiality will be maintained by the use of alpha numeric coding of questionnaires, ENTER scores and examination results. Questionnaires will be distributed to all third year students. Participation is entirely voluntary and students may elect not to be involved in the study or withdraw at any stage without concern that their academic progress may be affected. An explanation of the study will be attached to the questionnaire, further informing any invoiced participants of the ability to withdraw from the study at any time without prejudice. Participants will return completed questionnaires to a locked box in the student teaching clinic on the city campus. Participants will receive the questionnaires at the commencement of the program, mid program and after the third year examinations.

I certify that I have had the opportunity to have questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardize me in any way.

I have been informed that the information I provide will be kept confidential.

Signed:.....

Date:.....

Witness other than the researcher:.....

Date:.....

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Glossary of Terms

Stress: Stress is defined as a disturbing physiological or psychological influence, which produces a state of severe tension in an individual (Dorland 1994). Certain events, problems or pressures may produce stress and in this study can be defined as levels of anxiety and depression. Students who are undertaking any form of tertiary degree would be thought to have experienced some of these stressors. The way, in which the student is able to deal with, and adapt to, any form of tension is a person's coping mechanism. Dorland (1994) describes coping as, "to struggle or contend with a fair degree of success".

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2003