

Perceived Stress Related to Nursing Education and Its Influence on Nursing Students' Academic and Clinical Performance

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ABSTRAK

Stres memberi kesan negatif ke atas kesejahteraan jururawat pelatih dan menghalang pembelajaran atau memberi motivasi dan menggalakkan pembelajaran. Kajian ini mengkaji tentang stres dan faktor-faktor yang mempengaruhi kehidupan harian pelajar-pelajar kejururawatan Diploma dan Sarjanamuda. Seramai 241 pelajar kejururawatan terlibat dalam projek penyelidikan ini. Hasil kajian ini menunjukkan bahawa pelajar-pelajar kejururawatan yang muda (<21 tahun) menganggap lebih banyak stres daripada pelajar kejururawatan yang lebih senior (≥21 tahun). Pelajar-pelajar program Diploma tahun dua menyatakan signifikan stres daripada rakan-rakan mereka (1 dan 3 tahun). Masalah peribadi adalah isu utama yang membimbangkan di kalangan pelajar-pelajar tahun kedua Diploma. Beban kerja pendidikan kejururawatan dan takut gagal kursus kejururawatan adalah tekanan yang utama di kalangan pelajar kejururawatan pertama program kohort Sarjanamuda berbanding senior mereka. Terdapat gabungan kolerasi signifikan yang negatif dan positif diantara akademik dan skor klinikal di kalangan pelajar kejururawatan Diploma dan Sarjanamuda. Stres pelajar kejururawatan tidak dapat mempengaruhi skor GPA mereka. Terdapat kolerasi signifikan yang negatif diantara stres dan skor klinikal di kalangan pelajar kejururawatan Diploma. Terdapat korelasi signifikan yang negatif diantara umur dengan CGPA dikalangan pelajar Sarjanamuda kejururawatan. Pelajar lelaki dan perempuan kejururawatan Diploma dan Sarjanamuda dianggap tidak ada perbezaan dalam tekanan. Hasil kajian ini memberi maklumat penting untuk pendidikan kejururawatan di institut yang dikaji dalam kajian ini, dan mempunyai implikasi bagi penyelidikan masa depan.

Kata kunci: stres jururawat terlatih, stres dan jururawat terlatih, kejururawatan dan stres, pendidikan kejururawatan, keciciran

ABSTRACT

Stress has a negative effect on student nurses well-being and can impede learning or motivate them and is conducive to learning. This study examined the perceived stress and factors that influenced daily students' life among both the Diploma and Bachelor of

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Nursing students. A total of 241 nursing students were involved in this research project. Findings of this study indicated that junior nursing students (<21 years) of both cohorts perceived significantly more stress than older (≥ 21 years) nursing students. Second year students of the Diploma group claimed being more stressed than their peers (1st and 3rd years). Personal problems were the main issue of concern among the second year Diploma students. Workload of nursing education and fear of failing the nursing programme were the major stressors among the first year nursing students of the Bachelor cohort as compared to their seniors. A mixture of negatively and positively significant correlations was observed between academic work and clinical scores among the Diploma and Bachelor of Nursing students respectively. Both the Diploma and Bachelor of Nursing students' stress did not influence their GPA scores. Negatively significant correlation was noted between stress and clinical scores among the Diploma of Nursing students. A negatively significant correlation was found between age and CGPA scores among the Bachelor cohort. Both male and female Diploma and Bachelor nursing students perceived no differences in stress related to their academic work. The findings of this study provide important information for nursing education at the institute examined in this study, and have implications for future research.

Key words: nursing students' stressors, nursing students and stress, perceived stress and nursing, nursing education, attrition

INTRODUCTION

Nurses were reportedly encountering endless stress while pursuing their undergraduate programme (Timmins & Kaliszer 2002a; Evans & Kelly 2004). Their inability to overcome stressors faced at various levels during their nursing education caused many to leave nursing (Glossop 2002; Last & Fulbrook 2003). Research conducted over many years demonstrates a consistent high level of stress experienced by student nurses (Jones & Johnston 1999; Gibbons et al. 2008). Nursing students' stress was related to various academic, clinical and personal aspects encountered throughout their tertiary education (Jones & Johnston 1997; Timmins & Kaliszer 2002a; Lo 2002; Evans & Kelly 2004; Prymachuk & Richards 2007; Gibbons et al. 2008).

To the best of our knowledge, there has been no study in Malaysia exploring this phenomenon among nursing students. In

the past, few studies have examined stress related to nursing education among nursing students across all year levels (Lo 2002; Burnard et al. 2007). Therefore, the aim of this study was to examine the undergraduate nursing students' perceptions of the intensity of perceived stress, the influence of demographic variables on students' perceived stress and the relationship between students perceived stress and their academic and clinical performance.

Academic stress is related to various factors that nursing students encounter such as examinations/ assignments (Jones & Johnston 1997; Lindop 1999; Timmins & Kaliszer 2002a; Deary et al. 2003; Evans & Kelly 2004; Gibbons et al. 2008), amount of class-work (Evans & Kelly 2004; Tully 2004) and longer study hours (Beck & Srivastava 1991; Jones & Johnston 1997; Lo 2002; Timmins & Kaliszer 2002a). Nursing students irrespective of the nursing programme (Bachelor and Diploma) reported similar

common stressors in the studies of both Beck and Srivastava (1991) and Timmins and Kaliszer (2002a). Demographic factors which contribute to academic stress are age and gender. Academic stress is more prominent among female students with children during the period of examinations (Gibbons et al. 2008).

Student's stress in the clinical setting is associated with the complexity and acuity of patient care, interacting with members of the multi-disciplinary team and clinical environment. Students reported that caring for dying patients (Timmins & Kaliszer 2002a; Evans & Kelly 2004), critically ill patients (Lo 2002), patients diagnosed with HIV/AIDS (Jones & Johnston 1997) and newborns (Mahat 1998) as very stressful and could lead to attrition. Student nurses also experience stress when interacting with colleagues, patients, other staff (Mahat 1998; Lo 2002; Timmins & Kaliszer 2002a; Evans & Kelly 2004) and nurse educators (Mahat 1998; Timmins & Kaliszer 2002a; Magnussen & Amundson 2003).

The negative attitudes shown by the ward staff towards nursing students (Brodie et al. 2004; Evans & Kelly 2004; Gibbons et al. 2008) and lack of positive relationships with nursing staff (Mahat 1998; Timmins & Kaliszer 2002a) has been shown to increase student stress. In addition, the negative attitude of tutors was reported by Lindop (1989) as a contributing factor to the nursing students' attrition (20%) from their nursing course.

The clinical environment coupled with the use of complex equipment (Lo 2002), heavy workload, interpretation and implementation of lengthy and complex nursing care plans (Magnussen & Amundson 2003) and working with patients (Mahat 1998; Jones & Johnston 1997) are constant sources of student stress. Similarly, stress related to working in an understaffed environment was also reported by Brodie et al. (2004) and Lindop (1989).

Student nurses' stress is also related to personal factors such as adaptation to new environment, financial burden and problems related to family matters. Students have to adjust to new surroundings away from home (Brown & Edelmann 2000; Deary et al. 2003; Prymachuk & Richards 2007), new learning environments, which highlights the difference between what is taught in the university setting and what is practiced in the clinical environment (Jones & Johnston 1997; Evans & Kelly 2004; Gibbons et al. 2008) and adapting to new student roles (Brown & Edelmann 2000; Deary et al. 2003; Prymachuk & Richards 2007; Gibbons et al. 2008). Nursing students stress is further compounded by their financial burden as the majority of student nurses have to work to support their study (Brown & Edelmann 2000). This results in limited free time and ultimately further stress (Prymachuk & Richards 2007).

MATERIALS AND METHODS

A non-experimental descriptive exploratory survey was carried out to examine the student nurses' level of perceived stress and factors that may influence this variable. The Student Nurse Stress Index (SNSI) developed by Jones and Johnston (1999) was used to measure student nurses stress levels. Selection of the SNSI (self-report instrument) was based on the review of the literature and review of the instrument based on the areas of study and, the reliability and validity characteristics of the instrument. The SNSI instrument used in this study was tested for reliability with the population of the present study. The Cronbach alpha of 0.87 for SNSI and 0.688 to 0.817 for the domains in the present study is consistent with that reported ($\alpha \geq 0.7$) by other authors (Jones & Johnston 1999). The SNSI which consisted of 22 items clustered into four

domains: academic workload, clinical concerns, personal problems and interface worries. All items used a Likert scale ranging from 1=not stressful to 5=extremely stressful.

The research population was student nurses of Universiti Kebangsaan Malaysia (UKM). Probability sampling was used and students' selection was based on criteria that were carefully considered to represent the population under study. Bachelor of Nursing students (year 1- 4) and Diploma of Nursing students (year 1- 3) age 18 years and above were included in this study. Student nurses undergoing an accelerated Bachelor of Nursing study (2 years program) were excluded from this study. A sample of 241 nursing students returned completed questionnaires with a response rate of 97%. The nursing students of the Diploma program who participated in this study (n=172), comprise of year 1 (n=55), year 2 (n=58) and year 3 (n=59). The Bachelor of Nursing students who participated in this study (n=69), include year 1 (n=19), year 2 (n=18), year 3 (n=14) and year 4 (n=18).

Approval to conduct the study was granted by the Research & Ethics Committees of the UKM in Malaysia and Flinders University in Australia. The tool was accompanied by an information statement outlining the purpose of the survey, requesting voluntary participation and instructions on how to complete the survey and student nurse consent forms. Participants who consented to their academic and clinical results were requested to provide their student identification number.

Data was analysed using Predictive Analytics Software (PASW) Statistics 17. Demographic data were analyzed using descriptive statistics. ANOVA and the Kruskal-Wallis test were used to determine whether the mean scores across year levels of both the Diploma and Bachelor groups differed. Spearman Rho

was used to test the relationship between perceived stress and its domains (academic load, clinical concerns, personal problems and interface worries) and demographic variables (age, gender and qualification at entry in the nursing programme) and students' performance.

RESULTS

In this study, both the Diploma and Bachelor groups contained a higher percentage of female than male nursing students (Table 1). The participation of Diploma nursing students is higher as compared to the Bachelor. Entry into the Bachelor programme required at least a pre-university level of education while the Diploma programme did not (Table 1). This difference in entry requirements is also reflected in the average age of students with a statistically significant ($t=4.798$, $p=0.000$) larger proportion of Bachelor students being older than Diploma students.

A significant difference in the severity of stress among the Diploma nursing students across different year levels was observed (Table 2). Post-hoc comparisons using Tukey's Honestly Significant Difference (HSD) test revealed that the second year students (Diploma group) claimed being more stressed than their peers in the first and third years (Table 2). However, there were no significant differences in the severity of stress perceived by the Bachelor of Nursing students across the four year levels (Table 3).

Significant differences in the severity of stress related to personal problem domains of perceived stress were noted among the Diploma of Nursing students across the different years of study (Table 2). Post-hoc Tukey's HSD demonstrated that significantly second year students (of the Diploma programme), claimed that personal problems was the main domain of the perceived stress that contributed to

Table 1: Students' gender, years of study and qualifications on entry in nursing course.

Participants (N = 241)		Type of Nursing Programme	
		Diploma {n (%)}	Bachelor {n (%)}
Gender	Male	12 (7%)	6 (9%)
	Female	160 (93%)	63 (91%)
Years of study in university	1 st year	56 (32%)	19 (28%)
	2 nd year	57 (33%)	18 (26%)
	3 rd year	59 (35%)	14 (20%)
	4 th year	N/A	18 (26%)
Highest qualification on entry in nursing course	High school	155 (90%)	N/A
	Pre-university	17 (10%)	69 (100%)

N/A: not applicable

Table 2: Diploma programme student nurse mean score differences in perceived stress by years of study.

	Mean ± SD			F (df) (p value)	Tukey's HSD (p value)
	1 st year (n=56)	2 nd year (n=57)	3 rd year (n=59)		
Total perceived stress	60.68 ± 10.868	66.39 ± 14.060	63.95 ± 11.538	3.095 (p = 0.048)	Year 2>Year 1, Year 3 (p=0.037)
Academic load	16.73 ± 2.976	18.14 ± 3.563	17.54 ± 2.806	2.881 (p = 0.059)	NS
Clinical concerns	14.38 ± 4.043	16.04 ± 4.690	15.41 ± 4.665	1.975 (p = 0.142)	NS
Personal problems	9.48 ± 2.770	11.37 ± 3.754	9.61 ± 2.954	6.239 (p = 0.002)	Year 2>Year 1, Year 3 (p=0.006)
Interface worries (lack of free time, peer competition, schools responsiveness, others attitudes)	20.09 ± 4.135	20.84 ± 5.178	21.39 ± 4.165	1.198 (p = 0.304)	NS

NS = not significant

Table 2a: Diploma nursing student mean responses to factors within personal problems domain of perceived stress that may cause stress.

Personal problems domain	Diploma Nursing Programme			Mean, F (df) (p value)
	Year 1 (n=56)	Year 2 (n=57)	Year 3 (n=59)	
Physical health of other family members	2.86 ± 1.341	3.56 ± 1.180	2.98 ± 1.122	F(2,169) = 5.427 (p=0.005)

their stress levels compared to their peers (Table 2). The main item that was perceived to cause stress in the majority of the second year Diploma students was their family members' health problems (Table 2a). However, nursing students across the different years of the Bachelor programme perceived that personal problems did not cause stress to them (Table 3).

Comparisons using the Mann-Whitney U test revealed that the student nurses in the first year of the Bachelor programme perceived that the academic load domain of the perceived stress significantly caused more stress to them than their course-mates (2nd, 3rd and 4th years) (Table 3). The main items that were reported as very stressful to the first year Bachelor

students were workload of nursing education and fear of failing the nursing programme (Table 3a).

Nursing students of both programmes, irrespective of the year of study, perceived that clinical concerns and interface worries domains of the perceived stress were not the major factors that contributed to their stress (Tables 2 and 3).

There were no significant differences between male and female nursing students of either the Diploma and Bachelor programme in their level of stress related either to the total perceived stress or individual domains (academic load, clinical concerns, personal problems and interface worries) (Table 4).

Older Bachelor of Nursing students (≥ 21 years) perceived a significantly lower level of stress related to the academic domain only compared to their younger peers (< 21 years) (Table 5). No significant differences in the level of stress related to all the domains of perceived stress (academic load, clinical concerns, personal problems and inter-

face worries) were found among the nursing students of the Diploma programme irrespective of age groups (Table 5).

No significant correlations were noted between perceived stress and all its domains (clinical concerns, personal problems and interface worries) except for academic load and Cumulative Grade Point Average (CGPA) scores among the nursing students of the Diploma cohort (Table 6). A negatively significant correlation was noted between the academic load domain of the perceived stress and CGPA scores among the nursing students of the Diploma cohort (Table 6). Student nurses of the Diploma program who were able to overcome stress related to workload of nursing education in the classroom, difficulty of the workload of the nursing education, examinations and fear of failing nursing course obtained higher CGPA scores. However, no significant correlations were observed between perceived stress and its domains (academic load, clinical concerns, personal

Table 3: Bachelor programme mean score differences in perceived stress by years of study.

	Mean				χ^2 (df) (p value)	Z-value (p value)
	1 st year (n=19)	2 nd year (n=18)	3 rd year (n=14)	4 th year (n=18)		
Total perceived stress	38.08	32.22	32.89	36.17	1.010 (p=0.799)	NS
Academic load	45.79	33.75	29.96	28.78	8.274 (p=0.041)	Year 1 > Year 3 - 2.071 (0.038) Year 1 > Year 4 - 2.666 (0.008)
Clinical concerns	33.00	34.72	33.25	38.75	0.935 (p=0.817)	NS
Personal problems	31.05	39.36	33.79	35.75	1.685 (p=0.640)	NS
Interface worries (lack of free time, peer competition, schools responsiveness, others attitudes)	41.11	28.28	34.14	35.94	3.881 (p=0.275)	NS

NS = not significant

Table 3a: Bachelor nursing student mean responses to factors within academic load domain of perceived stress that may cause stress.

Academic load domain	Bachelor Nursing Programme				Mean, χ^2 (df) (p value)
	Year 1 (n=19)	Year 2 (n=18)	Year 3 (n=14)	Year 4 (n=18)	
Amount of classwork material to be learned	47.26	32.94	29.93	28.06	$\chi^2(3)=11.425$ (p=0.010)
Fear of failing a course	41.16	40.25	31.82	25.72	$\chi^2(3)=8.019$ (p=0.046)

Table 4: Student nurse mean score differences in perceived stress and gender

Domains	Diploma (n = 172)		Mean±SD t (df) (p value)	Bachelor (n = 69)		Mean±SD t (df) (p value)
	Gender			Gender		
	M	F	M	F		
Academic load	17.42±2.31	17.48±3.22	t(170)=-0.068 (p=0.946)	17.00±4.43	17.32±3.30	t(67)=-0.219 (p=0.827)
Clinical concerns	16.08±6.60	15.22±4.33	t(170)=0.640 (p=0.523)	14.67 ±4.80	15.56±4.18	t(67)=-0.492 (p=0.624)
Personal problems	10.58±3.06	10.12±3.31	t(170)=0.472 (p=0.638)	10.00±1.79	10.00±3.27	t(67)=0.000 (p=1.000)
Interface worries (lack of free time, peer competition, schools responsiveness, others attitudes)	22.92±5.70	20.62±4.40	t(170)=1.702 (p=0.090)	22 ±3.58	21.16±3.99	t(67)=0.498 (p=0.620)
Total perceived stress	67.00±14.72	63.44±12.21	t(170)=0.959 (p=0.339)	63.67 ±9.09	64.03±11.17	t(67)=-0.077 (p=0.938)

problems and interface worries) and CGPA scores among the Bachelor students (Table 6).

Likewise, no significant correlations were noted between perceived stress and its domains (academic load, clinical concerns, personal problems and interface worries) and Grade Point Average (GPA) scores among both the Diploma and Bachelor groups (Table 6).

Negative significant correlations were observed between perceived stress and all its domains (academic load, clinical concerns, personal problems and interface worries) and clinical score among the Diploma group (Table 6). On the other hand, positive significant correla-

tion was observed between academic load domain (of perceived stress) alone among the Bachelor of Nursing students (Table 6).

DISCUSSION

The nursing students of both the Diploma and Bachelor programmes in this study experienced stress related to academic components of their undergraduate nursing education. Academic load which incorporates workload, students' difficulties in the classroom, examinations and fear of failing was perceived as a non-significant stressor by the Diploma students but as significantly

Table 5: Correlation between perceived stress and demographic variables among the Diploma and Bachelor nursing students.

Variables	rs (p value)		
	(< 21)	(≥ 21)	QOE
Total perceived stress	0.025 (0.742) (Dip)	0.031 (0.802) (Bach)	0.118 (0.125) (Dip)
Academic load	0.020 (0.798) (Dip)	-0.283 (0.019) (Bach)	0.079 (0.305) (Dip)
Clinical concerns	0.047 (0.539) (Dip)	0.137 (0.261) (Bach)	0.103 (0.180) (Dip)
Personal problems	-0.091 (0.235) (Dip)	0.072 (0.558) (Bach)	0.050 (0.513) (Dip)
Interface worries (lack of free time, peer competition, schools responsiveness, others attitudes)	0.049 (0.526) (Dip)	-0.072 (0.554) (Bach)	0.086 (0.260) (Dip)

QOE: highest qualifications on entry in nursing course; Dip: Diploma program (n =172); Bach: Bachelor program (n = 69)

Table 6: Correlation between perceived stress and nursing students' achievement among the Diploma and Bachelor nursing students.

Variables	rs (p value)		
	CGPA	GPA	Clinical score
Total perceived stress	-0.131 (0.086) (Dip) 0.097 (0.429) (Bach)	-0.131 (0.086) (Dip) 0.091 (0.456) (Bach)	-0.224 (0.003) (Dip) 0.115 (0.346) (Bach)
Academic load	-0.220 (0.004) (Dip) 0.194 (0.111) (Bach)	-0.077 (0.316) (Dip) -0.037 (0.760) (Bach)	-0.235 (0.002) (Dip) 0.241 (0.047) (Bach)
Clinical concerns	-0.081 (0.290) (Dip) 0.005 (0.964) (Bach)	-0.025 (0.744) (Dip) 0.078 (0.525) (Bach)	-0.166 (0.029) (Dip) 0.099 (0.420) (Bach)
Personal problems	-0.048 (0.536) (Dip) -0.028 (0.821) (Bach)	0.007 (0.929) (Dip) -0.002 (0.985) (Bach)	-0.170 (0.025) (Dip) 0.051 (0.676) (Bach)
Interface worries (lack of free time, peer competition, schools responsiveness, others attitudes)	-0.087 (0.254) (Dip) 0.186 (0.125) (Bach)	-0.035 (0.649) (Dip) 0.143 (0.241) (Bach)	-0.165 (0.031) (Dip) -0.047 (0.700) (Bach)

CGPA: cumulative grade point average; GPA: grade point average; Dip: Diploma program (n = 172); Bach: Bachelor program (n = 69)

stressful by first year students of the Bachelor programme compared to their seniors in the present study. Workload of nursing education and fear of failing the nursing programme were reported as the major stressors. Stress related to “class-work” of nursing education was also found to be a significant cause of stress to the 1st year students in the study by Deary et al. (2003). Stress related to workload is

not only a frequently reported issue of concern among the nursing students (Evans & Kelly 2004) but it is also a common issue among university students irrespective of the type of study undertaken (Prymachuk & Richards 2007). On the contrary, Junious et al. (2010) found that the most significant stressor among senior-level nursing students (n=10) was workload of nursing

education. Similarly, in a study by Jimenez et al. (2010), experienced Spanish nursing students (2nd & 3rd year) reported greater stress related to academic load than the novice (1st year) students and workload of nursing education was found to be more stressful among the second year students.

The findings of Brodie et al. (2004) support the possible explanation for the higher degree of perceived stress related to workload by first year students as relating to the imbalance in the perceived and actual complexity of nursing education by the first year Bachelor nursing students as they were novices to nursing education. Even though the effect of stress related to workload was not examined in the present study, the study by Timmins and Kaliszer (2002b), showed that stress related to workload led to nursing students' being absent from lectures and clinical placements.

The first year Bachelor of nursing students' fear of failing was not shared by their peers (1st year) of the Diploma cohort and their seniors of the Bachelor programme. The possible explanations for this could be due to the senior Bachelor students' previous year/s achievement and awareness of the high chance of being employed upon graduation due to the current shortage and high demand for nurses in Malaysia (Edwards 2008). The senior Bachelor of Nursing students' confidence in securing a Registered Nurse position after graduation was shared by the nursing students in the study by Norman et al. (2005). The fear of failing while studying was reported as commonly causing stress to nursing students (Jones & Johnston 1997). The fear of failing among first year Bachelor of Nursing students could cause them to study hard to obtain good CGPA scoring as a negatively significant ($p=0.000$) correlation was found between age and CGPA scores among the Bachelor students in this study.

On the other hand, perceived stress related to academic load domain was not significantly obvious among Diploma nursing students in this study. This finding is consistent with the findings of Burnard et al. (2008) who reported constant levels of stress related to academic aspects among the Diploma nursing students from Wales, Malta and Albania-Korce throughout their three year course. However, Tully (2004) reported significant level of workload stress among Diploma nursing students. The "amount of classwork to learn" and "exams and grades" of the academic load domain were reported as extremely stressful by first year Diploma students whereas "amount of classwork to learn" and "fear of failing course" were noted as major stressors among second year students.

A mixture of negatively and positively significant correlations was observed between academic load domain of the SNSI instrument used in this study and clinical score among the Diploma and Bachelor nursing students respectively.

Clinical concerns relating to patients' attitudes towards student nurses and their profession, the responsibility of caring for patients, the clinical setting and students' relationships with other health care personnel were explored. Nursing students in all years of both the Diploma and Bachelor of Nursing programmes did not see the clinical aspect of their nursing education as a significant stressor. These findings are consistent with those of Jones and Johnston's (1997). Unlike other studies (Jones & Johnston 1997; Timmins & Kaliszer 2002a; Lo 2002; Magnussen & Amundson 2003; Evans & Kelly 2004) the nurses' responsibility for caring for patients was also perceived as non stressful in this study. In previous studies increased levels of student stress was associated with the burden of covering shifts and limited time to care for patients in understaffed wards (Brodie et al. 2004;

Gibbons et al. 2008) and caring for complex patients (Jones & Johnson 1997; Timmins & Kaliszer 2002a; Lo 2002; Magnussen & Amundson 2003; Evans & Kelly 2004). Non-significant correlations were noted also between the student nurses' clinical concerns and their clinical scores for Bachelor of Nursing students. Conversely, a negative significant correlation was observed between clinical concerns and the clinical score/grade for Diploma of Nursing students.

The majority of the studies comparing clinical and academic related stress revealed that the academic component is the greatest source of stress to nursing students (Timmins & Kaliszer 2002a; Evans & Kelly 2004; Burnard et al. 2007). Contradictory results were observed in a study by Burnard et al. (2008) where Diploma of Nursing students from Albania-Tirana reported stress related to clinical aspects of their programme as greater than that related to academic aspects. In the same study however, Diploma nursing students from Brunei and Malta reported greater academic than clinical aspects related stressors. Students in two other studies also found clinical as more stressful (Lindop 1989; Beck & Srivastava 1991).

Students' personal problems in this study were related to physical health, family and relationships with parents and other personal problems. Tully (2004) also found that personal problems were the main factor contributing to stress among second year Diploma of nursing students when compared to their peers. In particular was their concern about the physical health of family members ($p=0.025$) which significantly influenced their stress levels. Student's concern for their own physical health was not perceived as being stressful by the nursing students of either the Diploma or Bachelor programmes.

The item "relationships of oneself with parents" was not perceived as stressful by either Diploma or Bachelor of Nursing

students in this study. The non-significant contribution of the factor "relationship with parents" to stress in this study is in line with the findings of Jones and Johnston's (1997) among Scottish nursing students. Personal related stress is the second major source of stress after academic related stress (McLaughlin et al. 2008) and these two stressors were reported as the main reasons for nursing students' absence from lectures and clinical areas (Timmins & Kaliszer 2002b).

Student nurse variables such as lack of free time, peer competition, schools' responsiveness to student nurse needs and other health care personnel's attitudes towards student nurses were reported as non-significant concerns by students in all years of both the Diploma and Bachelor of Nursing programmes. These findings are inconsistent with those Jones and Johnston (1997), Beck and Srivastava (1991) and Tully (2004). Both Jones and Johnston (1997) and Beck and Srivastava (1991) reported nursing students stress being related to "lack of free time" and "schools' responsiveness to student needs" and Tully (2004) found peer competition to be an aggravating factor contributing to distress among nursing students.

Type of programme, year I of study, age, gender and qualifications on entry in the nursing programme had the potential to impact on students' perceived stress. The findings of this study revealed no significant differences in the perceived levels of stress for nursing students in either the Diploma or Bachelor programmes. Statistically significant higher levels of stress were however noted among second year nursing students of the Diploma programme compared to their peers in the first and third year.

In this study, older (≥ 21 years) students rated lower stress levels related to their academic workload domain of the SNSI instrument than younger (< 21 years) stu-

dents of the Bachelor programme. This finding could not be compared with the findings of Gibbons et al. (2008) of increased stress for mature aged students because of the vast differences in age among the participants in the present study (19-24 years) and that of Gibbons et al. (2008) (18-42 years). In the study by Gibbons et al., mature nursing students with children experienced problems coping with the academic aspects of their nursing course. The finding of this study is consistent with the finding of Misra and McKean (2000) where older undergraduate non-nursing students reported significant lower stress levels. Both male and female Diploma and Bachelor nursing students perceived no differences in stress level related to their academic work. Tully (2004), on the other hand, reported a significant perceived high stress level related to academic aspects between female and male Diploma of nursing students as there are limited studies investigating the effect of gender and academic stress comparisons are difficult. Likewise in the present study no difference in the level of academic stress was observed among Diploma nursing students holding different qualifications (pre-university and high school). This result is inconsistent with Tully's (2004) finding where students with previous qualifications scored lower academic related stress levels than those with no previous qualifications.

CONCLUSION

The findings of the present study provide important information for nursing education and have implications for future research. The fact that nursing education is stressful to nursing students is further supported by the findings of this study. Stress related to workload of nursing education, fear of failing the nursing programme are commonly reported stress

ors in many studies and was evident among the nursing students, in addition to stressors related to the physical health of their family members. The finding that age affects the stress level is an important finding.

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