

## ORIGINAL ARTICLE

# Stress Levels and Associated Factors Among Nursing Students From Different Ethnic Groups in Malaysia

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## ABSTRACT

**Introduction:** Nursing education and training is known to be an inherently stressful experience and poses challenging demands for students. The aim of this study is to evaluate the stress levels among nursing students from different ethnic groups in Malaysia. **Methods:** This cross-sectional study recruited the January to February 2020 nursing students from a private university in Malaysia with a self-administered questionnaire. Participants' level of stress was measured using the Perceived Stress Scale (PSS) developed by Sheu and colleague in 2002. Data collected were analyzed with, One-way ANOVA and Spearman analysis to determine the significant factors associated with stress. **Results:** Two hundred nursing students across years one to three enrolled. The mean monthly household (family) income was MYR4686.25 ± 4660.38. Stress was significantly associated with ethnicity and monthly household (family) income ( $p < 0.05$ ). Bonferroni post-hoc test demonstrated that the mean stress level of Malay students is statistically significant compared to Chinese and Indian students ( $p < 0.001$ ). The PSS determined the nursing students' stress level to be moderate. **Conclusion:** The association of stress levels with ethnicity, and monthly household (family) income suggested the need for suitable cultural and sufficient financial support for nursing students to reduce their stress levels.

**Keywords:** Stress, Nursing students, Household income, Ethnic groups, Malaysia

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## INTRODUCTION

College and university students are constantly facing various types of challenges such as academic, social and financial stress to the point where students' inability to embrace these "challenges and demands" has become a factor in them leaving their studies (2, 3). The challenges students face in their daily lives (for example, personal, interpersonal, cultural and financial) compound the stressors encountered in adapting to university life (4), such as living away from home, weighty curricula and lack of mentoring (5). Pressure to perform at a high level while coping with rapid changes in technology, socio-cultural norms, bureaucratic directives and economic trends has been identified as creating higher stress levels among today's students than experienced by previous students (6-8). It is known that excessive stress levels among students can reduce academic performance and lead to drug use and psychological issues, such as stress-

related anxiety, depression (9) and suicidal tendencies (10). Over time, the impact of stress can be fatal (11).

Globally, studies have reported nursing education to have one of the most stressful academic curricula, which negatively affects nursing students' physical and mental health (12, 13). Nursing students not only experience the same stressors as other university students (14) but also encounter stressors unique to the clinical training component of the nursing curriculum (15). Nursing students must be highly committed, dedicated and prepared to put in the extra time demands required to successfully complete their nursing studies. The constant demand to demonstrate a high-level of knowledge and dexterity, both academically and clinically as students transform into competent, well-informed registered nurses, is a major stressor that may increase burnout and decrease wellbeing (16, 17). Some studies have demonstrated that unmanaged stress among nursing students may influence their ability to deliver quality care (18, 19).

In Malaysia, "most Malaysian students experience excessive stress" (20) from higher education. The

World of Buzz (2015) (21) has suggested that the rise in numbers of student suicides in Malaysia may be due to higher societal expectations of, and standards imposed on, students, and increased family and cultural pressure to get good grades to secure a good career. With an increased knowledge on the adverse effects of stress on undergraduates' students both in Malaysia and internationally, the stressors impacting Malaysian nursing from different ethnic groups are not well studied. It is inevitable that nursing students have to face various types of stressors in academic and clinical areas. It is essential that nursing educators identify the significantly stressful factors, to be able to better support students to cope with them. This study aims to assess the stress levels of different stress factors among Malaysian nursing students from different ethnic groups.

## MATERIALS AND METHODS

### Design

This cross-sectional study was conducted from 1st January to 28th February 2020 in a private university located in a metropolitan city in Selangor, Malaysia. Participants completed an English language two-part self-administered questionnaire. Part one consisted of socio-demographic questions, including age, year of diploma nursing study, ethnicity, sponsorship, monthly household (family) income and last GPA obtained. Part two consisted of Sheu, Lin, Hwang, Yu, Hu, and Lou's (1997) 29-item Perceived Stress Scale (PSS) (22); using a five-point Likert scale that nursing students state the level of agreement to the stress and stressors statements. The agreement to each statement ranges from 'always' to 'never' (5 = always, 4 = very often, 3 = fairly often, 2 = sometimes, 1 = almost never, 0 = never). The questionnaires have eight aspects covering patient care, five factors associated to assignments and workload, three factors regarding lack of professional nursing knowledge and skills, three factors with regards to the clinical environment and four factors on relating to peers' pressure and daily life; and six factors on teachers and nursing staff. In this study, computed data comprising the total and subtotal scores was performed with high scores indicating high level of stress. Scores of 0-1.33 are considered to be low stress, 1.34-2.66 indicate moderate stress and 2.67-4.00 indicate high stress. The Cronbach's alpha ( $\alpha$ ) measure the internal validity and reliability of a questionnaire, a value of  $\alpha \geq 0.9$  is excellent and  $0.9 > \alpha \geq 0.8$  is good. Studies have reported Cronbach's alpha of 0.89 (1, 23) as good and reliable. For this study, Cronbach's alpha was 0.839, indicating good reliability.

### Sample

All 2020-year 1-3 nursing students enrolled in the university's diploma nursing programme were invited to join in the survey. Slovin's formula (Glen nd.) calculation for a margin of error of 5%, the sample size is estimated to be 202 (24). However, only 200 (99%)

nursing students participated. Reasons for withdrawal of two participants are unknown.

### Data collection

To minimize the effect of other factors that may impact participants' stress levels, such as assignment and examination pressure, the questionnaires were collected after their clinical rotation. Participants were informed that the questionnaire takes approximately 15 minutes to complete, and that they had three days to complete and return. Participation was entirely voluntary, and free to withdraw from the study at any time without any loss of benefits to which they were entitled, and that all data collected would be anonymous and confidential. All informed consent was obtained prior to completing the questionnaires. All completed anonymous questionnaires were returned to two drop boxes in the nursing school office. No information was collected regarding participants' identity.

### Data analysis

The Statistical Package for Social Sciences (SPSS) software (version 26.0) was used to compute the frequency, percentage, mean, and standard deviation, when applicable. One-way ANOVA and Spearman analysis were used to determine the factors that were significantly associated with stress. A p-value of  $\leq .05$  was set as statistically significant.

### Ethical clearance

The ethics for this study protocol was approved by the Research Ethics Committee of Sunway University [Ref No: SUREC 2020/003], and sampling and data collection were undertaken in accordance to the Declaration of Helsinki ethical principles for medical research involving human.

## RESULTS

Two hundred nursing students from Sunway University nursing department completed the questionnaire Table I shows the nursing students' socio-demographic variables (6.5 % Malay, 78.5% Chinese, 7.5% Indian and 7.5% others – the small number of Malaysian Siamese who do not fit into the three major categories). Eighty-six participants (43%) were studying in first year, 54 (27%) in second year and 60 (30%) in third year (final year to graduate). The mean household income was MYR4686.25  $\pm$  4660.38 and most students (105, 52.5%) obtained Grade A. One hundred and eighty-three (91.5%) nursing students were sponsored by Sunway Medical Center.

Table I demonstrated that there is no association among the socio-demographic variables (study year, sponsorship and last GPA obtained) with regards to the stress levels. However, there was statistical significance in the mean of stress level and ethnicity ( $p < 0.001$ ) among the students. Post-hoc Bonferroni test revealed

**Table I: Association between socio-demographic variables (years in nursing study, ethnicity, sponsorship and last GPA obtained) and stress level among nursing students (n=200)**

Variables	N (%)	Mean (SD)	F statistics (df)	p-value
Years in study				
1 <sup>st</sup> year	86 (43.0)	51.95 (17.14)	2.01 (2, 197)	0.136*
2 <sup>nd</sup> year	54 (27.0)	57.70 (16.61)		
3 <sup>rd</sup> year	60 (30.0)	55.45 (17.18)		
Ethnicity				
Malay	13 (6.5)	71.69 (16.74)	6.70 (3, 196)	< 0.001*
Chinese	157(78.5)	53.99 (16.17)		
Indian	15 (7.5)	44.47 (12.77)		
Others	15 (7.5)	55.67 (21.32)		
Sponsorship				
Self-sponsor	16 (8.0)	57.25 (14.60)	1.02 (2, 197)	0.361*
Sunway Medical Center	183 (91.5)	54.20 (14.24)		
Others	1 (0.5)	0.00 (0.0)		
Monthly household (family) income (MYR)		4686.25 (4660.38)		
Last GPA obtained				
3 – 4	105 (52.5)	52.70 (16.66)	1.75 (2, 197)	0.177*
2 – <3	82 (41.0)	57.26 (17.01)		
1 – <2	13(6.5)	52.46 (20.20)		

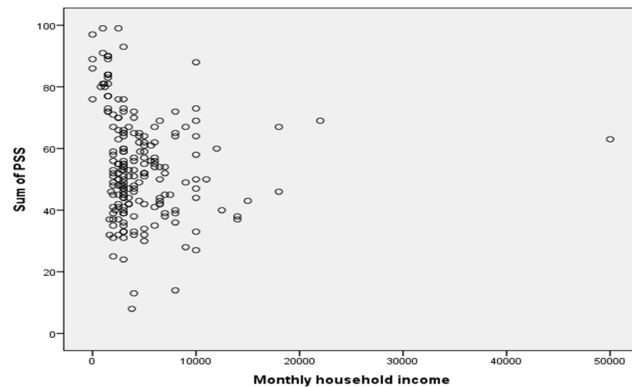
\*One-way ANOVA

Post-hoc analysis using Bonferroni: Malay vs Chinese,  $p=0.001$ ; Malay vs Indian,  $p< 0.001$ ; Malay vs others,  $p=0.064$ ; Chinese vs Indian,  $p=0.197$ ; Chinese vs others,  $p=> 0.95$ ; Indian vs others,  $p=0.378$

that the mean (M) and standard deviation (SD) stress level of Malay students (M = 71.69, SD = 16.74) was statistically significant compared to Chinese (M = 53.99, SD = 16.17;  $p = .001$ ) and Indian (M = 44.47, SD = 12.77;  $p < 0.001$ ) students, but not statistically significant with students in the “others” group ( $p=0.064$ ). Nor was there any statistical significance between the mean stress levels of Chinese students and Indian students ( $p = 0.197$ ), Chinese students and “others” students ( $p= 0.95$ ), or Indian students and “others” students ( $p= 0.378$ ).

Figure 1 shows the correlation between monthly household income and stress level. There was a significant correlation between monthly household income and student’s stress level ( $p < 0.001$ ). The lower the monthly household income, the higher the student’s stress level increases. The observed correlation coefficient,  $r = -.278$ , suggests a negative linear relationship and small correlation.

Table II displayed the results of the six categories of PSS (mean and SD). The mean and SD perceived stress from taking care of patients was  $1.59 \pm 0.50$ ; stress from assignments and workload was  $2.19 \pm 0.71$ , stress from lack of professional knowledge and skills was  $1.84 \pm 0.75$ , stress from area of practice was  $1.85 \pm 1.04$ , stress from peers and daily life was  $2.11 \pm 1.02$ , and stress from teachers and nursing staff was  $1.91 \pm 1.00$ . These results demonstrate a moderate level of perceived stress



**Figure 1: Correlation between monthly household (family) income and stress level**

among the nursing students, similar to Sheu et al. (2002) (1).

## DISCUSSION

It is common knowledge that nursing student faces different levels of mild, moderate and high stress during their studies and clinical training. The transition to independent living and academic challenges in college life have been reported as one of the stressors, and this finding reflects the study by Gomathi and Jasmindehora (2017) (25). In this current study, all six elements related to mean PSS scores showed moderate stress levels experience among nursing students, which is similar to

**Table II: Perceived stress scale (PSS) among nursing students (n=200)**

PSS	Never n (%)	Rarely n (%)	Sometimes n (%)	Frequently n (%)	Always n (%)	Mean ± SD
<b>Stress from taking care of patients</b>						<b>1.59 ± 0.50</b>
Lack of experience and ability to provide nursing care and make judgements	4 (2.0)	64 (32.0)	118 (59.0)	13 (6.5)	1 (0.5)	1.72 ± 0.64
Do not know how to help patients with physio-psycho-social problems	6 (3.0)	56 (28.0)	114 (57.0)	23 (11.5)	1 (0.5)	1.79 ± 0.70
Unable to meet one's expectations.	6 (3.0)	61 (30.5)	111 (55.5)	18 (9.0)	4 (2.0)	1.77 ± 0.74
Unable to provide appropriate responses to teachers' and patients' questions.	5 (2.5)	64 (32.0)	109 (54.5)	18 (9.0)	4 (2.0)	1.76 ± 0.73
Worried about not being trusted or accepted by patients or patients' families.	19 (9.5)	72 (36.0)	71 (35.5)	32 (16.0)	6 (3.0)	1.67 ± 0.96
Unable to provide patients with good nursing care.	23 (11.5)	92 (46.0)	75 (37.5)	9 (4.5)	1 (0.5)	1.37 ± 0.77
Do not know how to communicate with patients.	43 (21.5)	93 (46.5)	55 (27.5)	7 (3.5)	2 (1.0)	1.16 ± 0.84
Experience difficulties in changing from the role of a student to that of a nurse.	32 (16.0)	69 (34.5)	77 (38.5)	19 (9.5)	3 (1.5)	1.46 ± 0.92
<b>Stress from assignments and workload</b>						<b>2.19 ± 0.71</b>
Worry about bad grades.	1 (0.5)	28 (14.0)	51 (25.5)	73 (36.5)	47 (23.5)	2.69 ± 1.00
Experience pressure from the nature and quality of clinical practice.	1 (0.5)	40 (20.0)	94 (47.0)	48 (24.0)	17 (8.5)	2.20 ± 0.87
Feel that one's performance does not meet teachers' expectations.	1 (0.5)	43 (21.5)	92 (46.0)	45 (22.5)	19 (9.5)	2.19 ± 0.90
Feel that clinical practice requirements exceed one's physical and emotional endurance.	9 (4.5)	63 (31.5)	87 (43.5)	30 (15.0)	11 (5.5)	1.86 ± 0.92
Feel that dull and inflexible clinical practice affects one's family and social life.	11 (5.5)	55 (27.5)	73 (36.5)	40 (20.0)	21 (10.5)	2.03 ± 1.06
<b>Stress from lack of professional knowledge and skills</b>						<b>1.84 ± 0.75</b>
Unfamiliar with medical history and terms.	12 (6.0)	77 (38.5)	84 (42.0)	25 (12.5)	2 (1.0)	1.64 ± 0.82
Unfamiliar with professional nursing skills.	5 (2.5)	73 (36.5)	86 (43.0)	12 (6.0)	24 (12.0)	1.89 ± 1.00
Unfamiliar with patients' diagnoses and treatments.	7 (3.5)	57 (28.5)	92 (46.0)	20 (10.0)	24 (12.0)	1.99 ± 1.01
<b>Stress from area of practice</b>						<b>1.85 ± 1.04</b>
Feel stressed in the hospital environment where clinical practice takes place	11 (5.5)	78 (39.0)	64 (32.0)	17 (8.5)	30 (15.0)	1.89 ± 1.14
Unfamiliar with the ward facilities.	19 (9.5)	73 (36.5)	63 (31.5)	17 (8.5)	28 (14.0)	1.81 ± 1.17
Feel stressed from rapid changes in patients' conditions.	17 (8.5)	70 (35.0)	66 (33.0)	19 (9.5)	28 (14.0)	1.86 ± 1.15
<b>Stress from peers and daily life</b>						<b>2.11 ± 1.02</b>
Experience competition from peers in school and clinical practice.	15 (7.5)	53 (26.5)	59 (29.5)	34 (17.0)	39 (19.5)	2.15 ± 1.23
Feel pressure from teachers who evaluate students' performance by comparison.	8 (4.0)	33 (16.5)	61 (30.5)	43 (21.5)	55 (27.5)	2.52 ± 1.17
Feel that clinical practice affects involvement in extracurricular activities.	14 (7.0)	38 (19.0)	66 (33.0)	37 (18.5)	45 (22.5)	2.31 ± 1.21
Cannot get along with peers.	53 (26.5)	71 (35.5)	38 (19.0)	9 (4.5)	29 (14.5)	1.45 ± 1.32
<b>Stress from teachers and nursing staff</b>						<b>1.91 ± 1.00</b>
Experience discrepancy between theory and practice.	8 (4.0)	52 (26.0)	87 (43.5)	18 (9.0)	35 (17.5)	2.10 ± 1.10
Do not know how to discuss patients' illness with teachers or nursing personnel.	23 (11.5)	83 (41.5)	58 (29.0)	10 (5.0)	26 (13.0)	1.67 ± 1.67
Feel stressed because teachers' instructions differ from one's expectations.	9 (4.5)	39 (19.5)	80 (40.0)	36 (18.0)	36 (18.0)	2.26 ± 1.10
Doctors lack empathy and are unwilling to help.	14 (7.0)	71 (35.5)	62 (31.0)	20 (10.0)	33 (16.5)	1.94 ± 1.18
Feel that teachers do not evaluate students fairly.	21 (10.5)	77 (38.5)	52 (26.0)	14 (7.0)	36 (18.0)	1.84 ± 1.26
Lack of care and guidance from teacher.	28 (14.0)	85 (42.5)	47 (23.5)	9 (4.5)	31 (15.5)	1.65 ± 1.24

Ahmed and Mohammed (2019) (26). It could be argued that academic requirements contributed substantially to stress level of the nursing students. Nursing students are constantly subjected to different kinds of stressor and have been reported to affect nursing students' health and academic functions; and one of the common stressors is academic pressure with an obligation to succeed (25, 26).

The findings in this study showed that the nursing students' stress level was associated with ethnicity. There is a statistically significant between the mean stress level

of Malay students compared to Chinese and Indian students. This result agrees with the findings of Johari and Hassim (2009) (27) studies on medical undergraduate students in Malaysia. Shamsuddin et al. (2013) (28) also showed that Malay undergraduate students have a higher stress scores in comparison to the other ethnic groups. There are several possible explanations for this result, and one, could be due to the cultural differences and factors. Nevertheless, Sherina et al. (2004) reported among medical undergraduates, Indians were more emotional stress compared to Malays, Chinese and others (29) While, Salam et al. (2013) systematic review

reported that there is no difference in emotional stress among Malays, Chinese, Indians and students from other ethnicity (30). This finding also differs from the Commonwealth Minority Health Survey of Williams (2000) (31), who reported that there was a dramatic variation among the Asian subgroups where Chinese were reported to score higher levels of stress than any other group in the study. Similar to Zhao, Selman and Haste (2015) (32) conducted on Chinese students in China shows that academic stress has become a grave social problem in the Chinese society. However, in current contemporary society, several questions remain unanswered at present. Malaysia is a multi-cultural society of which the population is made up of three main different ethnic groups. The association between ethnicity and stress among nursing students in Malaysia remains unclear. Hence, this is an important issue for future research.

Besides, ethnicity, lesser monthly household (family) income also contributes to higher student's stress level. Parallel to this finding, Kean and Pamela (2005) (33) reported that there is a significant association with monthly household (family) income and student stress levels. Teh et al. (2015) (6) reported Melaka Manipal Medical College undergraduate students stress scores were significantly associated with ethnicity and monthly household (family) income. Additionally, in concord to this finding, Bataineh (2013) (34) reported that college students are more stressed with financial problems, supported by other studies. Although more than three quarter of the nursing students were sponsored by Sunway Medical Center, other stressors could include higher cost of living expenditure at a metropolitan city and also living independently, away from home. There is no significant association between the year of study, sponsorship and last GPA obtained with stress.

One of the strengths of this study includes non-bias random selection of students as all students of the same semester were invited to participate. The PSS measurement showed good reliability and validity (1, 22), could be applied to a wide range of settings, different subject types, and could measure both the reactions to stressful situations and the level of stress. The Cronbach's alpha value of 0.839 demonstrated good reliability of the self-administered survey questionnaire. There are several limitations of this study, such as all participants are all from one institute, the selections of sponsored students might contribute some institutional bias such as, student recruitment profiles, institutional focus and student support, that could thwart generalizability of the findings. Future research should aim at recruiting a larger sample of nursing students from private and public nursing institutions with similar demographic factors. Second, due to the nature of the research design, a cross-sectional study, the results did not properly portray the voice of the nursing students' perceptions to stress over the full progression of their nursing education and

training. A qualitative study would be better equipped to provide information of stress levels for nursing students and how it has affected nursing students.

## CONCLUSION

Overall, the nursing students scored moderate level of stress. Ethnicity and monthly household income were identified as the two factors that had a direct impact on nursing students' stress levels. Suitable support is needed to reduce further stress, particularly in the area of academic and clinical performance anxiety, with additional targeted support required to assist with stress reduction in students adversely impacted by ethnicity and income factors. Further research is recommended to investigate the areas where the results were not significant and to understand the subjective experience of nursing students' stress levels vis-a-vis a qualitative approach.

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