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Original Article

Relationship between perceived stress, general self-efficacy and socio-demographic factors of an undergraduate student population in Sri Lanka: A cross-sectional study

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Abstract

Nearly 80% of students in higher education worldwide experience psychological stress during their university life due to various stressors. Stress among students can be viewed as the body's reaction, both neurologically and physiologically, to adapt to new conditions. Stress can lead to poor academic performance and underachievement among students. The present study assessed the levels of perceived stress, general self-efficacy, and their association with socio-demographic factors among a selected group of undergraduates at a higher educational institute. A descriptive cross-sectional study was performed using stratified random sampling among 393 undergraduates. The data were collected through the Perceived Stress Scale (PSS-10), General Self-Efficacy Scale (GSES) and a questionnaire to determine the socio-demographic factors. The data were analyzed using IBM SPSS version 23. The mean age of the sample (n=393) was 22.36±2.33 years. The results showed a mean perceived stress score of 20.72±4.96, indicating moderate perceived stress. The majority of the participants (79.4%) had moderate perceived stress, followed by high stress (12.7%) and low stress (7.4%). There was no significant difference between the stress levels of male and female students. No significant association was observed between perceived stress and socio-demographic factors assessed (age, gender, civil status, residence status, financial status, the program of study, employment prospects) using the chi-squared test. Spearman correlation showed a statistically significant negative correlation between perceived stress levels and general self-efficacy ($p<0.001$, $r = -0.293$). Intervention strategies to reduce perceived stress and to improve general self-efficacy should be implemented among the undergraduates. Further studies are needed to understand the factors contributing to stress and their interrelations among undergraduate students.

Keywords : Perceived stress, General self-efficacy, Higher education

Introduction

Stress is one of the predators that has been evolving silently among mankind and reaching the "Health Epidemic of the 21st century," as reported by the World Health Organization (WHO). Hans Hugo Bruno Selye, the "Father of stress," defined stress as "the non-specific response of the body to any demand for change" thus, it can be considered to affect the health of a person. Good health can be viewed as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (WHO, 1946).

Stress can cause a catastrophic impact on an individual if not identified and treated. Long term higher levels of stress can lead to depression, hypertension, headaches, back pain, skin disorders, irritable bowel syndrome, ulcers, panic disorder, general adaptation syndrome, phobia, and post-traumatic stress disorder (PTSD) (Badur-un-Nisa, Kashif, & Khan, 2016). Moreover, stress is a well-known contributor to mood swings, mental disorders, and it also increases suicide risk (Ang & Huan, 2006). Globally, nearly 800,000 people die due to suicide every year, which is one person every 40 seconds. Suicide thoughts can stir up people at any point in their lifespan, and it is considered the second leading cause of death among 15-29-year-olds globally (WHO, 2019). According to the 2020 World Population Review, Sri Lanka is reported to be the 29th country, showing a high rate of suicides, and this can be emphasized as an issue of concern. Further, the suicide rate for Sri Lanka is reported as14.6 suicides per 100 000 in 2020 (World Population Review, 2020).

Stress has become a striking issue among young adults. A recent study done in Sri Lanka revealed that the second-leading age group that becomes a victim of stress lies between 20 – 30 years (Senavirathna & Sanjeewani, 2019). At this particular age, most of these young adults are engaged in tertiary education, and thereby it is noteworthy that higher education challenges might be a contributory factor for stress levels of young adults. Globally, around 80% of students following higher education experience stress during their lives (Scott, 2009). The WHO had predicted an increase of related psychological problems from 10% in 1990 to 15% in 2020 among students in tertiary education worldwide. In the United Kingdom, it's estimated that stress causes a minimum of 600 students (15–24 year-olds) to commit suicide every year, and further, a survey done in 2009 by the American College Health Association indicated suicide as the second leading reason for death among college students (Poon, Lee, & Ong, 2012). According to one of the Sri Lankan studies, psychological distress is more significant among university students than in the general population in Sri Lanka (Kuruppuarachchi, Kuruppuarachchi, Wijerathne, & Williams, 2002).

Furthermore, previous studies had emphasized that perceived stress varies among different socio-demographic groups (Pau et al., 2007). The majority of students with stress reported high scores of poor self-esteem, and about half scored high on depression scales (Bedewy & Gabriel, 2015). Self-efficacy has shown high correlations with self-esteem, self-regulation, and optimism, as well as being inversely correlated with depression, anxiety, and lower mental health status (Kumar, Talwar, & Raut, 2014). Various attempts have been made to assess the stress levels and to discover the factors that contribute to higher stress levels. Research evidence concludes that social, emotional, and physical conditions affect the ability of proper learning and education. Socio-demographic factors, gender, rural or urban background, financial constraints, marital status, and type of residence were found to be some of the critical factors behind high-stress levels (Rathnayake & Ekanayaka, 2016; Raushanova et al., 2015).

Further, university students endure a critical transitory period in which they transform from adolescence to adulthood and can be one of the most stressful times in a person's life (Buchanan, 2012). The perception of life events during this transformation is a fundamental need at present to assess the stress levels of the university population, as they are the future workforce in any country. Early detection and assessment of stress levels in students will be beneficial where identification of the level of stress can lead the way to reduce or prevent it from developing into a chronic or severe form of stress that may ultimately lead to catastrophic outcomes such as suicidal thoughts. At the same time, they can be directed to necessary support from the expertise and control their stress level, which will enable them to have a healthy life and encouragement to face the challenges in a university setting. Most of the universities in Sri Lanka have counseling systems, where some of the students gain support, but unfortunately, the majority chose to suppress their problems and mental status where the outcome becomes cataclysmic. Therefore, the current study was implemented to evaluate the students' perceived level of stress and general self-efficacy and their association with socio-demographic factors to find potential stress-causing factors among the undergraduates. The findings of this study strengthen the evidence on this avenue. Also, it seals the gaps of knowledge that will be beneficial to society in discovering and understanding the factors of stress. Moreover, it will pave the way for finding potential solutions for this critical issue among undergraduate students.

Methodology

A descriptive cross-sectional study was conducted at a Higher Educational Institute (HEI) in Sri Lanka in 2019 among a selected group of undergraduates following various study programmes. The samples were selected by stratified random sampling according to the program of study. Ethical approval for the study was obtained from the Ethics Review Committee of KIU (KIU/ERC/19/12). The sample size was

calculated using the following equation; n = N / 1+ N e2 (Yamane, 1967). A total of 393 undergraduates were randomly recruited into the sample. The inclusion criteria were undergraduate students of the institute, and the exclusion criteria were participants with previously diagnosed psychiatric disorders, chronic illness, and pregnancy.

Data were collected using pre-tested self-administered questionnaires consisted of socio-demographic data, perceived stress scale (PSS-10), and general self-efficacy scale (GSES). The socio-demographic section consisted of 10 questions, which are related to the student's personal and socio-demographic details. The perceived stress scale consisted of 10 items, created by Sheldon Cohen and was used to assess the stress level about feelings and thoughts of all the participants during the past month. The scores were given based on a point scale as 0-never, 1-almost never, 2-sometimes, 3-fairly often, and 4-very often. The total PSS scores ranging from 0-13 were considered as low stress, 14-26 as moderate stress, and 27-40 as high perceived stress (Cohen, 1994). The general self-efficacy scale was correlated to emotion, optimism, and work satisfaction. It consisted of 10 questions designed by Schwarzer et al. The scores were given based on a four-point Likert scale as 1-not at all true, 2-hardly true, 3-moderately true, and 4-exactly true. The total scores ranging from 10 to 40 is considered as high general self-efficacy (Schwarzer & Jerusalem, 1995).

All information obtained from participants was kept strictly confidential. Statistical analysis SPSS version 23 was used for all data processing and analysis. A descriptive statistics tool was applied to the responses given by the students. The chi-square test analyzed categorical data, and the Shapiro Wilk test was applied for the normality check of the data obtained from participants. Spearman correlation analysis was used for the data that deviated from the normal distribution. The level of significance was set at two-tailed with $p>0.05$.

Results and Discussion

Demographic profile

A total of 393 undergraduates participated in the study. Among the total undergraduates (n=393), there were 301 (76.6%) females students. The mean age of the sample was 22.36 ± 2.33 years. Of the study participants, 87.3% (n=343) were in the age group of 20-23 years. The majority of the students were living with the parents (57.8%), followed by private accommodation (33.1%), university hostels (4.6%), nursing quarters (2.3%), and other resident areas (2.0%). Table 1 shows the distribution of participants according to the socio-demographic profile.

Table 1 : Socio-demograhphic factors of the participant. (n=393)

Socio-demographic factors		n	%
Gender	Female	301	76.6
	Male	92	23.4
Civil status	Unmarried	383	97.5
	Currently Married	10	2.5
Residence	Living with parents	227	57.8
	Boarding place	130	33.1
	University hostel	18	4.6
	Quarters	9	9
	Other	8	2
Only child	Yes	45	11.5
	No	340	86.5
Study program	BMS	174	44.3
	Management	117	29.8
	Psychology	71	18.1
	Nursing	16	4.1
	Acupuncture	12	3.1
	Kaatsu	3	0.8
Current year of study	First-year	179	45.5
	Second-year	178	45.3
	Third-year	34	8.7
	Fourth year	1	0.3
Financial method for studies	Parent's support	106	27
	Student loan	260	66.2
	Occupation during semester	21	5.3
	Occupation during breaks	4	1
	Scholarships	1	0.3
	Other	1	0.3
Employment status	Full time	49	12.5
	Part-time	41	10.4
	Contract-based	2	0.5
	Training/ Internships	9	2.3
	Unemployed	282	71.8
	Other	3	0.8

Perceived stress level

All the undergraduates had a mean perceived stress score of 20.72±4.96 (moderate PS), and the perceived stress scale showed 312 (79.4%) students had moderate perceived stress among the study group (236 females and 76 males). Of the sample, 50 (12.7%) students had high perceived stress (42 females and 8 males), while 31 (7.9%) students had low perceived stress levels (23 females and 8 males), Figure 1.

The mean perceived stress among female and male students were 20.86±4.97 and 20.27±4.92, respectively. There was no significant difference between the stress levels of male and female students. No significant association was observed between perceived stress levels and any other socio-demographic data (age, gender, residence status, financial status, the program of study, employment prospects) among the undergraduates (Table 2).

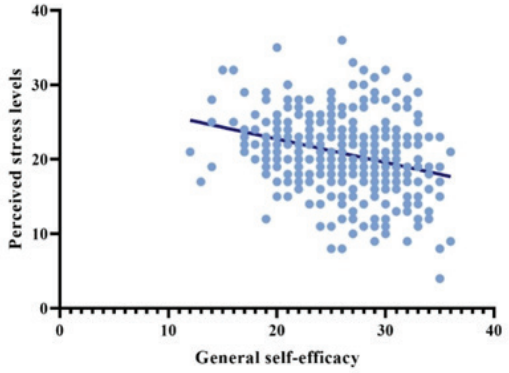

Fig.3. – Correlation between Perceived Stress Level and General Self-efficacy among Participants (n=393)

Stress has been defined as the imbalance of physical, mental, and social well-being; thus, it can be considered to affect the health of a person (Fink, 2017). Further stress affects a person's productivity either by increasing it (eustress), resulting in optimal performance or decreasing it (distress), leading to poor performance and underachievement (Kumar, Sharma, Gupta, Vaish, & Misra, 2014). The present study assessed the perceived stress (PS) levels of undergraduate students at a selected HEI and the association between perceived stress with various demographic factors and general self-efficacy.

Studies done in many regions of the world have come up with varying amounts of stress levels among undergraduates. In a study conducted by Ranasinghe et al., an average PS score level indicating moderate stress level was reported among medical undergraduates in the 2nd year, 4th year, and 5th year (Ranasinghe, Wathurapatha, Mathangasinghe, & Ponnamperuma, 2017). Similarly, many other studies worldwide reported a moderate perceived stress level among the students following higher education (Kashif et al., 2016). The risk for disorders related to depression and anxiety can be predicted by the perceived stress level (Rosal et al, 1997). According to numerous studies, higher levels of depression and anxiety were associated with higher levels of stress (Bunevicius, Katkute, & Bunevivius, 2008).

In the present study, all the participants showed perceived stress to some extent (low, moderate, and high), with the highest number being among the moderate perceived stress levels. This indicates that students have a moderate vulnerability to stress. Having a moderate stress level among the majority of the undergraduates and a comparatively lower percentage having a high-stress level in the present study could be a positive sign where the risk of depression and anxiety-related disorders could be relatively less in this student population. However, if appropriate measures are not taken to resolve the moderate stress in these students, it might advance into chronic stress and ultimately into high levels of stress. Thus, identifying the low-stress levels and moderate stress level is important in securing the good mental health of these students by necessary interventions such as counseling sessions, stress release activities that can be implemented among higher education institutes.

The present study showed that the mean perceived stress score was 20.72 among participants. The mean score was comparable to an approximate score of 20 from 2nd year Sri Lankan medical undergraduates (Ranasinghe et al., 2017), 18 from students in North England (Shaw, Peart, & Fairhead, 2017), and 19 from students in a Turkish University (Örücü & Demir, 2009). The differences in the mean age of participants in these studies may have contributed to the differences in PS scores. Furthermore, the results among these studies may have been affected and varied by bias that resulted from culture, social status, educational background, and the main subject of study. Moreover, the higher stress score has predicted that university life can be exhausting for students with an increasing load of academic work, career development, and family problems according to other studies (Pau et al., 2007; Raushanova et al., 2015). The study performed by Wani et al. have found a high prevalence of burnout among medical students as per the existing undergraduate curriculum (Wani & Qazi, 2019). The study implemented by Sing et al. in 2018 showed a high level of stress prevalence among government nursing students and private college nursing students (Singh et al., 2018). However, when comparing the findings of the present study to other studies, it must be pointed out that the current study had a cohort of students following multiple study programs. The mean age group of the sample was different from the other studies, where the present research surprisingly did not show a significant difference in perceived stress levels based on the socio-demographic factors assessed among the undergraduates of the HEI. The present study had a higher number of undergraduates from the lower year (first and second year) than the undergraduates from higher classes (third and fourth year), and this could be a plausible explanation as to why there was no significant difference in PS between study years among the students because the study lacked a balanced sample number from each year. A study conducted by Saat et al. showed that first-year students showed the highest mean stress score among the three study years, followed by the third year and second-year students. Nevertheless, according to his study, there was no significant difference in mean stress scores among study years showing comparability to the present study (Saat et al., 2010).

The present study revealed that there was no significant difference in PS between females and males, and the mean perceived stress score was almost similar among both the groups. This shows that both female and male students experience an equal amount of stress in their university life. Similar findings have been reported by Saat et al. (Saat et al., 2010). However, these findings contradict some of the past studies (Pariat, Rynjah, Joplin, & Kharjana, 2014), which concluded that male students have a higher level of perceived stress compared to female students while some studies emphasized that female students have higher perceived stress than male students (Kashif et al., 2016; Kumar et al., 2013; Thawabieh & Qaisy, 2012). Moreover, Misigo et al. (2015) argued that both the female and male gender experience an equal amount of stress in their

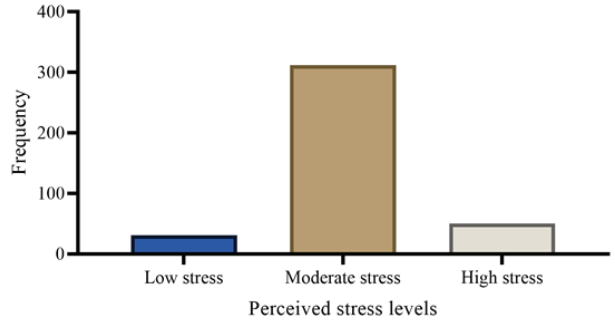

Fig.1. – Perceived Stress Level among Participants (n=393)

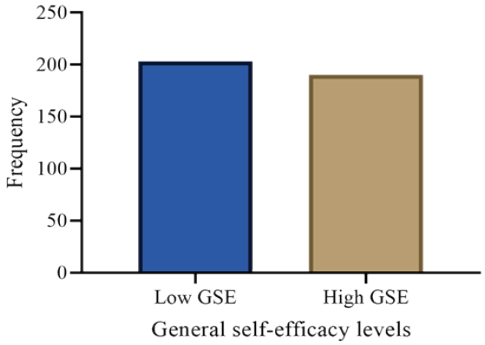

Fig.2. – General Self-efficacy levels among Participants (n=393)

Table 2 : Association of Perceived Stress Level and Socio-demographic factors of the participants. (n=393)

Socio-demographic factors		Perceived stress level			Chi-Square Test
		Low	Moderate	High	
Gender	Female	23	236	42	0.409
	Male	8	76	8	
Civil status	Unmarried	30	305	48	0.741
	Currently Married	1	7	2	
Residence	Living with parents	17	177	33	0.927
	Boarding place	12	104	14	
	University hostel	1	15	2	
	Quarters	0	9	0	
	Other	1	6	1	
Only child	Yes	5	33	7	0.640
	No	25	272	43	
Study program	BMS	16	137	21	0.150
	Management	5	96	16	
	Psychology	9	52	10	
	Nursing	0	16	0	
	Acupuncture	0	9	3	
	Kaatsu	1	2	0	
Current year of study	First-year	18	142	19	0.888
	Second-year	11	141	26	
	Third-year	2	27	5	
	Fourth year	0	1	0	
Financial method for studies	Parent's support	8	77	21	0.389
	Student loan	22	209	29	
	Occupation during semester	1	20	0	
	Occupation during breaks	0	4	0	
	Scholarships	0	1	0	
	Other	0	1	0	
Employment status	Full time	1	40	8	0.527
	Part-time	3	30	8	
	Contract-based	0	2	0	
	Training/ Internships	0	7	2	
	Unemployed	27	224	31	
	Other	0	2	1	

Table 3 : Association of General Self-efficacy and Socio-demographic factors of the participants. (n=393)

Socio-demographic factors		General Self-efficacy level		Chi-Square Test
		Low	High	
Gender	Female	145	156	0.901
	Male	45	47	
Civil status	Unmarried	189	194	0.014*
	Currently Married	1	9	
Residence	Living with parents	109	118	0.036*
	Boarding place	67	63	
	University hostel	5	13	
	Quarters	7	2	
	Other	1	7	
Only child	Yes	24	21	0.229
	No	160	180	
Study program	BMS	82	92	0.248
	Management	52	65	
	Psychology	40	31	
	Nursing	11	5	
	Acupuncture	4	8	
	Kaatsu	1	2	
Current year of study	First-year	89	90	0.689
	Second-year	84	94	
	Third-year	16	18	
	Fourth year	0	1	
Financial method for studies	Parent's support	53	53	0.256
	Student loan	124	136	
	Occupation during semester	12	9	
	Occupation during breaks	0	4	
	Scholarships	0	1	
	Other	1	0	
Employment status	Full time	27	22	0.272
	Part-time	15	26	
	Contract-based	1	1	
	Training/ Internships	4	5	
	Unemployed	138	144	
	Other	3	0	

General self-efficacy (GSE)

The median score of the GSE scale among the students was 27 (IQR=23-30), and this value was taken as the cut off value to determine the two groups (Kumar et al., 2014). Of the sample, 51.7% had high self-efficacy (GSE > 27), while 48.3% had low self-efficacy (GSE <27) (Figure 2). It was found that the general self-efficacy level had statistically significant association with residence (p=0.036) and civil status (p=0.014) of students. There was no significant association between the general self-efficacy level and other socio-demographic factors (age, gender, financial status, the program of study, employment prospects) (Table 3)

Correlation between perceived stress level and general self-efficacy among participants

The Shapiro Wilk test showed that the data were not normally distributed (p=0.017). A Spearman correlation was administered to determine the relationship between perceived stress level and general self-efficacy levels. There was a weak, negative correlation between perceived stress levels and general self-efficacy among the participants, which was statistically significant (p<0.001, r= -0.293). This depicts, higher the PS level, lower the GSE of the participants of the study. Figure 3.

everyday life in terms of challenges, social position, and the roles played by them (Misigo, 2015). This could perhaps explain the findings of the present study among female and male students.

Furthermore, the present study did not show any significant difference between the PS in students following different study programmes.

The present study also aimed at finding the general self-efficacy levels where it was revealed that the majority of the students had a general self-efficacy level of 27, which is lower than the level reported from a previous study conducted among first-year medical students in India (Kumar et al., 2014). In the present study, the results indicated a significant association between the general self-efficacy and the residence and civil status. This suggests that students are affected by the place they stay and personal problems related to their relationships.

The findings of the present study also revealed a significant negative correlation between perceived stress and general self-efficacy. The higher the perceived stress, the lower the general self-efficacy among the participants in this study. Similar results have been observed in the studies done elsewhere, where high perceived stress has been associated with lower general self-efficacy (Moeini et al., 2008). Personal life factors influence the general self-efficacy of individuals, which in turn can become a contributory factor for stress. Further interventional studies with a larger and representative sample are needed to find the specific factors contributing to lower self-efficacy. Limitations of the present study include the fact that the students may have under-reported their perception of stress and self-efficacy, as they may have felt expressing their thoughts and feelings in a university background unsettling, although the anonymity of the self-administered questionnaire was maintained. Others might have over-reported their opinion on being stress and self-efficacy depending on life events and academic pressure. The differences in these perceptions can be ruled out to some extent since there was a large sample size of more than 300. Although the effects of these factors are negligible, future studies need to focus on the statistical power of calculating the sample size and the proportionality of selecting the participants to the research.

In conclusion, perceived stress was present among all the students, while the moderate stress level was predominant. Moderate stress was commonly prevalent among undergraduates irrespective of their gender and other socio-demographic factors. Nearly half of the undergraduate population studied had low general self-efficacy, which correlated negatively with perceived stress.

Recommendations

The necessary interventions to reduce perceived stress and increase self-efficacy can be implemented among the undergraduates. Further studies with enhanced sample proportions are needed to recognize the specific factors contributing to stress and self-efficacy among undergraduate students.

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