Original Research Article

Are peer caring behaviours associated with stress level among undergraduate medical students? A cross-sectional study in Malaysia

ABSTRACT

Medical school is a stressful environment to cope in without peers' supports. The ability to show care for others is crucial among those in the healthcare profession. While stress motivates students in their journey of pursuing a medical degree, it could negatively impact their mental wellbeing. We aimed to (1) assess the peer caring behaviour among undergraduate medical students, (2) find out the factors associated with it and (3) determine the relationship between the peer caring behaviour and stress level among undergraduate students. A cross sectional study was conducted among the undergraduate medical students in private medical university in Malaysia from February 2022 to April 2022. An online questionnaire was distributed and a total of 107 students participated. Independent t-test, one-way ANOVA, and simple linear regression were calculated. Our study shows a positive peer caring behaviour (mean=80.43) among medical students. Among the respondents, 72% had moderate stress level while 22.4% had high stress and only 5.6% had low stress level. There were no statistically significant association between the demographic factors and peer caring behaviour. Though it is not statistically significant association depicted between peer caring behaviors and stress, social and academic support received from peers may have been effective in reducing the stress level throughout the education.

Keyword: peer caring, stress, medical students, cross-sectional

INTRODUCTION

Caring may be well defined as a display of kindness and concern for others. It adds significance to human existence [1]. The term caring comprises of two major domains; the psychosocial domain and the action domain. Feelings of love, unconditional acceptance, empathy, genuineness, and respect are derived from the psychosocial domain whilst sense of professionalism, fulfilling needs, self-offering, support and providing a suitable environment comes from the action domain [2]. It was strongly suggested by Warshawski S [3], that caring begins within one's self and those closest to oneself. It comes with no surprise that medical school is a rather stressful environment to cope in. It may be tough for one to get through medical school without peers' supports or even the care from another. The aspects of caring and being able to give care for others is a crucial requirement among those in the medical profession [1]. As peer caring is a learned behaviour which is likely to get transformed into

better patient caring, these caring behaviours should be cultivated early among the undergraduate students for improved academic as well as professional outcomes [4]. Studies have shown that year of study, gender, type of family, and living arrangement were associated with peer caring behaviour among health professional students including nursing and medical students. Junior year students, male, those who had joint family, and the students who lived in hostel showed better peer caring behaviour than their counterparts [2,5].

In the journey of pursuing a medical degree stress can be a double-edged sword as it drives students to keep moving forward while bad amount of stress negatively impact students [6]. Mental stress is a form of stress that occurs because of how events in one's external or internal environment are perceived, resulting in the psychological experience of distress and anxiety [7]. High level of mental stress can be exhausting and harmful to a student's mental health and lead to a decline in academic performance which then precipitate to unwanted events. Medical school stress is often correlated with nervous symptoms like anxious, palpitations, difficulty breathing and trembling among medical students [8]. Among Malaysian medical students, the prevalence of stress was ranged from 14.3% to 56 % [9]. It is well known that stress can cause various detrimental effects on our bodily system [10]. Moreover, stress-induced burnout is not uncommon among medical students as a staggering 65.9 % was reported [11]. This prompt us to find out what may be contributing to high stress level among medical students and serve as the main objective of this study.

It was shown that positive social and peer support influence the medical student's abilities to deal with stress; and those who had lack of social support and caring is often associated with more distress, higher levels of problem behavior, and lower life satisfaction [12,13]. Besides, peer caring would help medical students with mental illness not only to be able to cope with stress but also to realize personal strengths, set goals, and assess their quality of life which would be helpful in experiencing meaningful [14]. It is important of medical students to be able to manage effectively with stress in order to have benefits in their learning and academic performance in medical school [15]. Moreover, healthy and positive peer support is consistently associated with lower level of stress, and it also brings better quality of work-life balance, even in the face of a pandemic [16].

Previous studies have been conducted to study peer support and peer caring within a healthcare concept and professional, methods of providing peer caring as well as its association with stress and resilience [5,14,16-18,19]. These studies have shown that peer caring behaviour is an integral part of the studying or working environment [17,18]. In Malaysia, a study conducted on the impact of social support on nurse's motivation has shown that social support positively affects motivation [20]. Among Malaysian medical students, there is limited knowledge about association between peer caring behaviour and stress, as well as the factors associated with peer caring behaviour. Therefore, we conducted this cross-sectional study to determine the following research objectives.

Research objectives

1. To assess peer caring behaviours among undergraduate medical students;
2. To determine the factors associated with peer caring behaviours;
3. To determine the relationship between peer caring behaviours and stress level among undergraduate medical students.

METHODS

We conducted a cross-sectional study from February 2022 to April 2022 among the undergraduate medical students at private medical college in Malaysia. There are two campuses in our university and the study was taken place in both of the campuses. The target population of this study was undergraduate medical students from pre-clinical years (Semester 1 to 3) and clinical years (Semester 6 to 10).

The sample size was calculated using Epi info software version 7.2.5.0, and expected frequency of moderate to extremely severe stress among medical students is 16.6% [21], 95% confidence interval, 7% acceptable margin of error. The minimum sample size required was 96. By considering 10% of non-response rate, the final sample size was 107.

We employed non-probability purposeful sampling and volunteers are invited to answer the questionnaire. We included the students who provide informed consent, who are above the age of 18 years old and MBBS undergraduate students of our university. The exclusion criteria were pre-medical students, BDS undergraduate students, and those who did not complete the required part of the questionnaire.

A questionnaire in the type of an online form (googleform) was created and was distributed via social media, such as whatsapp and email. The questionnaire comprised of three parts; the demographics, peer caring behavioural scale, and the perceived stress scale (PSS). The demographics included the gender, age, nationality, ethnicity, academic year, number of siblings, birth order, family structure, parent's marital status, and current residence. We used the peer caring behavioural scale after we granted the permission from the author [4]. The scale consisted of 17-items which uses a six-point Likert scale (1 indicating "strongly disagree", 2 indicating "moderately disagree", 3 indicating "slightly disagree", 4 indicating "slightly agree", 5 indicating "moderately agree", and 6 indicating "strongly agree"). Going forth, the final part of the questionnaire, the perceived stress scale (PSS) was used to assess the stress levels of medical students. In perceived stress scale, there were 10-items using a five-point Likert scale as follows; 0= never, 1=almost never, 2=sometimes, 3=fairly often, 4=very often. We checked the internal consistency of peer caring behavioural scale and perceived stress scale by calculating Cronbach's alpha coefficient. The Cronbach's alpha coefficient of peer caring behavioural scale was 0.946 and perceived stress scale (PSS) was 0.800.

Data were entered and processed in Microsoft Excel and analyzed using Epi Info version 7.2. Regarding peer caring behaviours, total score was calculated. Higher score indicates the better peer caring behaviours among the students. Regarding perceived stress scale (PSS), total score was calculated. PSS total score was ranged from 0 to 40 with higher scores indicating higher perceived stress. The score was categorized into three groups of perceived stress such as low (0-13), moderate (14-26) and high (27-40). For quantitative variables, mean and standard deviation (SD) were calculated and for qualitative variables, frequency and percentage were descried. We calculated simple linear regression to find association between peer caring behaviours and stress level. We also determined the association between age group, gender, nationality, ethnicity, academic year, number of

siblings, birth order, structure of the family, parent marital status, current residence and peer caring behaviours using statistical tests shown in table 1. P value less than 0.05 was considered statistically significant.

An informed consent form which consisted all the important and relevant particulars of the study were given to the participants at the first part of the questionnaire. Written informed consent was obtained before answering questionnaire. The participants were given full freedom of choice to participate in this study. The participation was solely voluntary that no incentives was given to encourage participation, nor the participants were coerced or forced into taking part in this study. Whatever information that was provided by the participants in this study was kept confidential and strictly served only the purpose of this study. Maintenance of the anonymity and privacy of the participants were ensured. This research was approved by the Research Ethics Committee, Faculty of Medicine, Manipal University College Malaysia (MUCM), Malaysia (MUCM/FOM/Research Ethics Committee – 25/2022).

Table 1: Statistical tests used in the study

Independent variable	**Dependent variable**	**Statistical test**
Gender (Male, Female)	Peer caring behaviours	Independent t-test
Age (≤22, >22)	Peer caring behaviours	Independent t-test
Nationality (Malaysian, International)	Peer caring behaviours	Independent t-test
Ethnicity (Malay, Chinese, Indian, Others)	Peer caring behaviours	One way ANOVA
Academic years (Pre-clinical, Clinical years)	Peer caring behaviours	Independent t-test
Number of siblings (Only child,1-3, ≥4)	Peer caring behaviours	One way ANOVA
Birth order (1^{st} ,2^{nd},3^{rd} or more)	Peer caring behaviours	One way ANOVA
Peer caring behaviours	Perceived stress	Simple linear regression

RESULTS

Table 2: Demographic characteristics among undergraduate medical students (n = 107)

Variable	N (%)
Age (years)	
≤22	63 (58.9)
>22	44 (41.1)
Gender	
Male	43 (40.2)

Female	64 (59.8)
Ethnicity	
Malay	14 (13.1)
Chinese	38 (35.5)
Indian	45 (42.1)
Others	10 (9.4)
Nationality	
Malaysian	100 (93.5)
International	7 (6.5)
Academic year	
Pre-clinical years	12 (11.2)
Clinical years	95 (88.8)
Number of siblings	
Only child	11 (10.3)
1-3	88 (82.2)
≥4	8 (7.5)
Birth order	
First	44 (41.5)
Second	33 (31.1)
3rd or more	29 (27.4)
Structure of family	
Nuclear family	90 (84.1)
Joint family	17 (15.9)
Parent's marital status	
Married	102 (95.3)
Divorced	2 (1.9)
Separated	1 (0.9)
Widowed	2 (1.9)
Others	
Where & with whom do you live currently?	
Parents/relatives	8 (7.5)
Hostel	73 (68.2)
Friends outside campus	25 (23.4)
Alone outside campus	1 (0.9)

Table 2 shows the demographics of the undergraduate medical students. A total of 107 students participated in this study. The students were at an average of 22 years old, and 40.2% were males while 59.8% were females. The students participated were of different ethnicities, categorised into Malay, Indian, Chinese and Others with percentages of 13.1%, 35.5%, 42.1%, and 9.4% respectively. 93.5% were Malaysians and 6.5% were international students. Majority of the participants (88.8%) were from clinical years. The students with number of siblings ranging from 1 to 3 were the highest in number, 82.2%, followed by the

students with no siblings, 10.3%, and then the students with 4 or more siblings, which were 7.5% of them. 84.11% of them came from nuclear families, whilst the remaining 15.9% were from joint families. Majority of the students' parents are still married, making up 95.33%. 68.2% of students lived in the hostels., while 23.4% lived out with their friends, 0.9% live out alone and 7.48% live with their parents/relatives. [Table 2]

Table 3: Peer caring behaviours and stress level among undergraduate medical students (n = 107)

Variable	**N (%)**
Peer caring behaviour score (17-102)	
Mean (SD)	80.4 (13.5)
Minimum – Maximum	39-102
Perceived stress (0-40)	
Low stress (0-13)	6 (5.6)
Moderate stress (14-26)	77 (72.0)
High stress (27-40)	24 (22.4)
Mean (SD)	21.98 (6.2)
Minimum – Maximum	2-37

Table 3 shows the mean of peer caring behaviour score was 80.4 with a standard deviation of (13.5) showing positive peer caring behaviours among the medical students. Regarding perceived stress, 72.0% of the students had moderate level followed by 22.4% with high level and 5.6% of low level. [Table 3]

Table 4: Association between demographic variables and peer caring behaviour among undergraduate medical students

Variable	Peer caring behaviour Mean (SD)	Mean difference (95% CI)	P value
Age (years)			
≤22	80.6 (13.0)	0.38 (-4.9, 5.7)	0.886[a]
>22	80.2 (14.4)		
Gender			
Male	79.0 (12.6)	2.31 (-3.0, 7.6)	0.387[a]
Female	81.4 (14.1)		
Ethnicity			
Malay	83.1 (13.3)	-	0.183[b]
Chinese	79.9 (11.9)		
Indian	78.3 (14.2)		
Others	88.0 (14.4)		
Nationality			
Malaysian student	79.7 (13.2)	10.55 (0.2, 20.8)	0.449[a]

International student	90.3 (14.3)		
Academic year			
Pre-clinical years	78.1 (14.1)	2.64 (-5.6, 10.9)	0.525[a]
Clinical years	80.7 (13.4)		
Number of siblings			
Only child	83.0 (5.6)	-	0.604[b]
1-3	79.9 (14.2)		
≥4	83.8 (13.8)		
Birth order			
First	82.8 (14.0)	-	0.158[b]
Second	81.4 (11.7)		
3rd or more	76.8 (13.4)		
Structure of family			
Nuclear family	80.9 (13.7)	-3.03 (-10.1, 4.1)	0.398[a]
Joint family	77.9 (12.0)		
Parent's marital status			
Married	80.6 (13.5)	-3.60 (-15.9, 8.68)	0.563[a]
Divorced/Separated /Widowed/Others	77.0 (13.6)		
Where & with whom do you live currently?			
Hostelite	80.1 (13.7)	-1.18 (-6.8, 4.4)	0.675[a]
Non-hostelite (Parents/relatives/Friends outside campus/Alone outside campus)	81.2 (13.2)		

95% CI = 95% confidence interval; [a] Independent t-test; [b] one way ANOVA

Table 4 shows that there were no significant association between demographic variables and peer caring behaviours among undergraduate medical students. [Table 4]

Table 5 shows the simple linear regression analysis of association between peer caring behaviour and stress among undergraduate medical students. There was positive association between peer caring behaviour and perceived stress., but it was not significant association. [Table 5; Figure 1]

Table 5: Association between peer caring behaviour and stress among undergraduate medical students

Variable	Perceived stress b (95% CI)	SE	R^2	P value
Peer caring behaviour	0.003 (-0.086, 0.092)	0.045		0.949

B=regression coefficient; 95% CI = 95% confidence interval

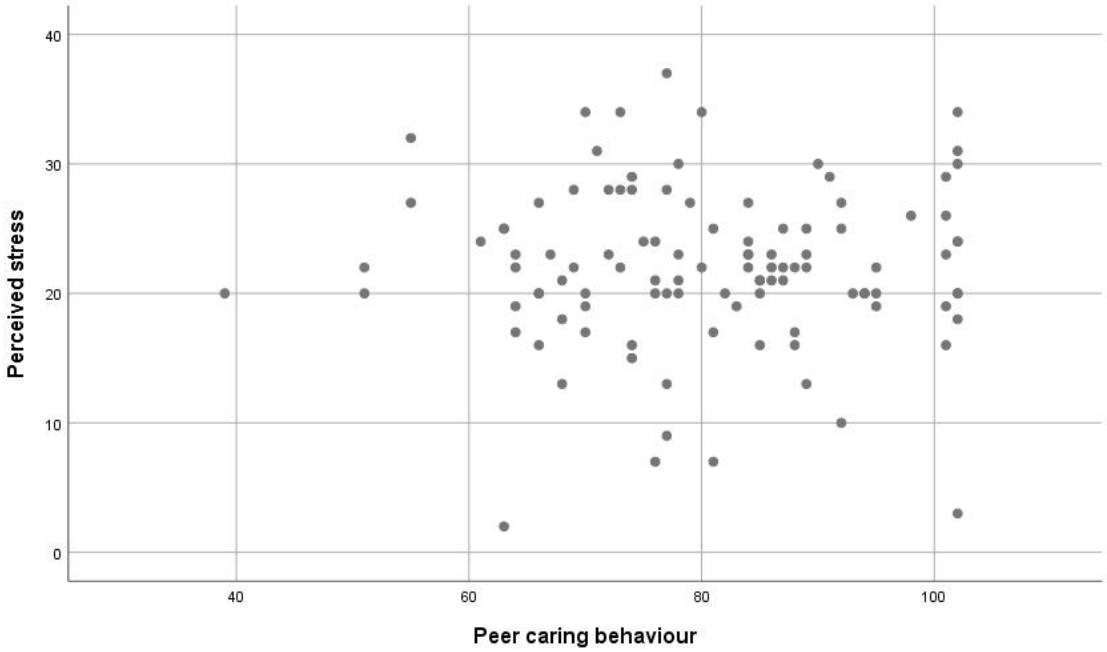

Figure 1: The association between peer caring behaviour and stress among undergraduate medical students

DISCUSSION

Peer caring is a crucial requirement in the medical profession as it can transform the individual to provide better patient care [1,4]. As caring behaviours should be cultivated early among the undergraduate students, we need to understand these behaviours to improve academic as well as professional outcomes. Therefore, we conducted this cross-sectional study to assess peer caring behaviours among undergraduate medical students and its related factors, and determine the relationship between peer caring behaviours and stress level among undergraduate medical students. Our results have shown the mean score of peer caring behaviours was 80.4 among our participants, which was considered positive peer caring behaviours. Even though in different cultural and study setting, a previous study done among nursing and medical students in Mid-Eastern China also revealed the similar finding of positive peer caring behavior among the students [18]. Another study done in North India also revealed that there was similar positive peer caring behaviour among the nursing students [2]. On the other hand, a study showed that the level of peer caring among the nursing students were moderate [25].

Among our participants, most of the students (72%) had moderate stress level while 22.4% had high stress level and only 5.6% had low stress level. Based on previous studies done in Saudi Arabia, the common factors which contributes to high stress level among medical students were frequency of examinations, performance in practical's, unhappiness with the class lectures, less personal interest in medicine, lengthy academic curriculum/syllabus, worrying about the future and periodic examinations performance [26].

Besides, based on a previous study done among stress level in final year medical student, the common reasons to high stress level includes pressure of passing exams, pressure of living up to family's expectations, fear of stepping into the real world of medicine, and dissatisfaction with the administration because it widely said that medical course is highly demanding and requires utmost focus and expertise [27]. Another study was done previously about the burnout among medical students during the first years of undergraduate school and one of the factors associated with it was stress, such as students' experiences of stress whenever there is a problem-based learning (PBL) and it is often due to various doubts among students about PBL and apprehension due to the process of evaluation of the content learned and also a prevalent feeling among these students is unpreparedness [28]. A previous study done among undergraduate medical student in our college had shown that the prevalence for moderate to extreme stress was 16.6%. From this study, it is believed that high stress level among medical students might be due to enormous syllabus has to be covered in a limited time period in medical school, sudden change of the lifestyle of studying among medical students, thought of appearing or failing in exams and inadequate time allocated to clinical postings [21]. Covid-19 pandemic also associated with high level of stress among medical students because it was witnessed that during the present COVID-19 pandemic, many schools and universities have deferred regular teaching activities because there was termination of teaching sessions in-person (face to face) and it were substituted by video lectures or live streams and health education is seen to be challenging and interrupted since medical students could not gain experiences on clinical studies in hospitals [29].

Even though our study shows there were no statistically significant association depicted between peer caring behaviors and stress, it was observed that the stress levels of a student may well be affected by peer caring behaviors in many previous researches. Based on a recent study conducted among the medical students in the United States, it was suggested that students who reported increased engagement in self-care, incorporating good support systems, be it with peers or family members may be utilizing a positive approach for reducing the effects of stress [22]. That being said, it has been proven that healthy and positive peer support is associated with lower stress levels [16]. It was also revealed that a multifaceted approach to self-care that includes interpersonal relations and stress management, may thus collectively reduce the consequences of stress on quality of life by increasing the strength of the caring behaviours [23]. In addition to that, another study has proven that the social and academic support received from the peers decreased the students' clinical stress levels throughout their education. It was proven to decrease students' clinical stress level throughout their education, the communication established with the peers have been effective in decreasing students' total stress level in this process [30].

In our study, there were no significant association between age, ethnicity, nationality, parent's marital status, current residential place and peer caring behaviours. Though it was not significant association between gender and peer caring behaviours, we found that female medical students had higher peer caring score than male students which was consistent with the study in China [5]. Previous studies had also shown that year of study was significantly associated with peer caring behaviours among health professional students including nursing and medical students. Contrary to our findings, these studies had shown that junior year students showed better peer caring behaviours than their counterparts [2,5]. We found that

students who hailed from nuclear family had higher peer caring score which also contradict with previous study. However, similar result showing that non hostelites exhibited higher peer caring score than hostelites was found in our study [2]. Even though the number of sibling and peer caring bahaviours was not significant in our study, it has already been found that being a single child in the family tend to express more care with their peer [31].

We had encountered few limitations. As the duration allocated for this study was only 6 weeks which is the duration of our community medicine posting, we were unable to include all undergraduate medical students of our university. Moreover, we were only able to observe the participants at one point of time and were not able to observe changes over time. As this study was conducted in one private university in Malaysia, we were not able to generalise our findings to other settings or other institutions.

Peer caring is an essential component of medical school life. With good peer caring, students will be able to alleviate stress and problems by sharing them with friends, find comfort among friends after leaving home. Most importantly, this can lead to a good teamwork which contributes to the student's success, hence enabling them to reach their goal. Cultivating caring behaviour among students begins from home. A study has shown that parents or family are the first contributors to the development of caring behavious among students. [24] Hence, teaching children from a young age to care for other family members and other members of the community is very important in cultivating the caring bebaviours among students. The best method to cultivate caring behaviours in an educational facility is by being taught, learned and trained. This can be done by role play, group projects, group discussions and reflective learning. Faculty members teaching can effectively improve student levels of caring through their curriculum and instruction choices. For an example, putting students in real-life scenarios (including simulations of real-life events) where they engage in caring behaviours can be beneficial to their long-term ability to be effective at caring for others including their peers. Secondly, having students reflect on the level of care they delivered during patient contacts can be an excellent way to make students conscious and aware of their caring levels and to improve. Group talks about caring, seminars on caring components and how to care for peers, the use of a caring behaviour self-assessment tool, and caring journaling are all possibilities for contemplation. Assigning peer mentors to every student can also be a beneficial initiative from the side of the faculty. Finally, having peer support groups or associations in which students talk and share their problems among each other in college is one of the most effective way to encourage caring behaviours among medical students.

CONCLUSION

Peer caring is essential for good teamwork which contributes to the student's success, hence enabling them to reach their goal. Our medical undergraduates had positive peer caring behaviours, but these behaviours were not associated significantly with stress level. Further enhancement of positive peer caring behaviours among medical students can be done by role play, hospital visits, small group discussions, group projects and reflective learning. Peer mentors and peer support groups or associations may also be beneficial to encourage caring behaviours among medical students.

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