



Original Research Article

Education Stress and Coping Strategies among Physiotherapy Students

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ABSTRACT

Higher perceived stress levels and the absence of effective coping abilities affect the students in their professional education. The effect of stress among students doing physiotherapy is well documented. However, no studies were conducted in Malaysia among physiotherapy students about their ongoing educational stress. A cross sectional study was conducted to investigate the ongoing educational stress and coping strategies among students doing Diploma in Physiotherapy program in a private college. A total of 51 students participated in this study. Perceived Stress Scale-14 (PSS14) and ACOPE were used to measure the stress level and coping strategies among the students. A total of 12 data was not completed and hence excluded from analysis. Thus, a total of 39 data was included in the analysis using the SPSS - 19 statistical program. Results showed that the PSS14 score ranged between 33 to 58 with a mean PSS14 score of 45.4. More than three fourth of the students had a score of 45 which indicated a high stress level among the students. The overall coping strategies score shown by ACOPE was 156 ± 20.4 which indicated a moderate level of coping among the students. However, Spearman's rho correlation test showed no significant correlation ($r = .112$, $p = 0.49$) between stress level and the coping strategies among the students. This study concludes that there is a high level of ongoing educational stress with an unfamiliar coping pattern among students doing the Diploma course in Physiotherapy.

Keywords: educational stress, coping strategies, physiotherapy

INTRODUCTION

Education stress among college students are a big challenge for the educators nowadays.^[1-6] College students' particularly first year students are prone to stress due to the transitional nature of college life.^[7] First year college students started to move away from their home for the first time, which lead them to stay away from their parents and family members, who

has been their strong moral support since their childhood.^[7] Students may also have difficulty in adjusting and maintaining the expectation of the new learning environment.^[7, 8]

Physiotherapy students are prone to stress due to studies which can be highly demanding and challenging because of complex learning environment.^[9] Physiotherapy graduates need to have

techniques and characteristics relevant to their day-to-day practice to enable them to be confident and competent.^[8, 9] They also need skills and proficiency that will enable them to adapt to changes and develop professionally.^[8, 9] The impact of this highly complex learning environment can lead to increase the stress level among students which eventually can affect the student's academic performance and also their psychological wellbeing.^[1]

Lazarus & Folkman (1984) defined stress as two ways process, where the environment produces stressors and the individual will find a way to deal with the stresses.^[10, 11] Stress is perceived when there is discrepancy exists between the demand of a situation and the amount of resources available.^[10, 11] The amount of stress perceived by an individual is purely depends on how effectively they had coped up with their previous problems.^[11, 12] Hence, it's important for an individual to learn effective coping strategies so that they can effectively solve their problem by minimizing the risk of getting stressed.

Coping strategies defined as any cognitive skills *or* behavior efforts to manage the discrepancy occurs between the internal and external environment.^[13] Coping strategies can be broadly categorized into three types, appraisal focused, problem focused and emotion focused ^[14, 15] Appraisal focused strategies occur when an individual try to run away from his/her problems without trying to solve the problems or when they are in a denial stage.^[14, 15] Studies conducted among Korean medical students has stated that avoidant coping strategies were the most preferred type of coping strategies used to relieve from their academic stress.^[16] Problem focused coping strategies are totally opposite from appraisal focused strategies.^[14, 15] In problem focused strategies the individual will try to solve

their problem by finding out new ways and skills.^[14, 15] William R. Cobin has mentioned in his article that first year students preferred to suppress their stress level by drinking alcohol, which is an example of problem focused strategies.^[16] There are also people who try to solve their problems by showing off their emotions like screaming, crying meditating and relaxing, which is an example of emotion focused strategies.^[14, 15] Typically, all this three type of coping strategies is used by an individual to solve their problems, but for a betterment of an individual life, problem focused coping strategies are the best. ^[14, 15]

The effect of stress among physiotherapy students is well documented in developed countries,^[2, 3] but no studies have been conducted in Malaysia among physiotherapy students and their ongoing education stress. The high amount of perceived stress and failure of effective coping strategies can lead to failure in professional education and eventually can lead to suicidal intentions among students.^[16, 17] This has been confirmed in numerous studies that high level of stress and inefficient of coping strategies will cause psychological distress among college students.^[18, 19, 20] Thus, the current study is conducted to assess the stress level and coping strategies used by Physiotherapy students in Malaysia.

METHODOLOGY

This research was conducted in one of the private colleges in Kuala Lumpur. The target populations of the study involved are physiotherapy students enrolled during 2010 to 2012. Cross sectional study technique was adopted. A sample of 51 students was participating in the study of which 12 participants are excluded due to incomplete data. The tools used for data collection are Perceives Stress Scale (PSS-

14), and Adolescent Coping Strategies (ACOPE).

Perceived stress scale (PSS-14), was developed by Sheldon Cohen and his colleagues.^[21] The PSS has become the most widely used psychological instruments for measuring nonspecific perceived stress since 1983.^[21] It has been used in studies assessing the stressfulness of situations and the effectiveness of stress reducing interventions.^[21] Eun Hyun lee has identified in his/her studies that PSS is very convenient to use with very well acceptable psychometric properties.^[22] The PSS-14 contains 14 items. Each item is rated on a 5 point scale ranging from never (1), almost never (2), sometimes (3), fairly often (4) and very often (5). The highest score of PSS-14 determines the highest level of stress perceived by the students.

Adolescent coping strategies or ACOPE was developed by Patterson and used to evaluate the different type of coping strategies used by students to overcome their stress.^[23] This instrument contains about 54 items which were sub categorized into 12 different domains. It is a 5 point scale varying from never (1), hardly (2), sometimes (3), often (4) and very often. (5)^[15]

Informed consent was taken from the participants. Questionnaire comprised of socio demographic data, PSS-14 scale and ACOPE scale was distributed to the students. Clear instructions were given to the students after distributing the questionnaire form. Anonymity and confidentiality of the subjects were maintained during the study. The final data of PSS-14 and ACOPE score for each student was evaluated by using SPSS-15 software. The relationship between socio demographic data and psychological instrument (PSS-14 & ACOPE) was interpreted using ANCOVA and analyzed using descriptive statistics.

RESULTS

Socio demographic data

This study found 79.5% of physiotherapy students were female whereas 20.5% were males. The majority of the students were juniors (64.1%) and only 35.9% are seniors. Next, 87.0% of students are belonging to nuclear family while 12.8% are belonging to joint family. Further data indicated that only 23.1% and 17.9% physiotherapy student's father and mother respectively had their education up to graduation. Around 71.8% of student's fathers were working in the non – government sector while 76.9% of student's mother were not working. About 56.6% of the students belong to families having monthly income less than RM2000 per month. Further findings also indicated that majority of students received their source of education from loan (64.1%) while source of monthly expenses from their parents (79.4%). Almost 61.5% of students revealed that their sources of monthly expenses are not sufficient. The study also stated that 76.3% of physiotherapy students resided in the hostel while 43.7% students score below 3.00 CGPA in their recent academic performance.

Perceived Stress scale among physiotherapy students.

The physiotherapy student's stress level was measured using Perceived stress scale (PSS-14). The average score for each student's score on PSS-14 is calculated (Fig 1). The total scores of the all the subjects were further averaged and categorized using an interquartile range into three categories: Low (25%), moderate (50%) and severe (75%) stress. Finding revealed that out of 39 students, 35 (89.7%) had moderate stress while 4 students (10.25%) had severe stress.

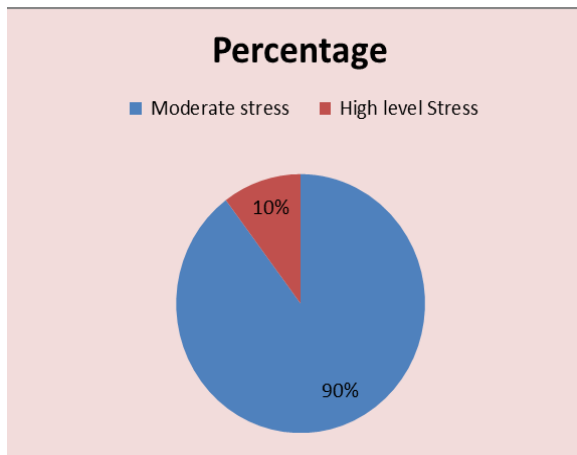


Fig 1: Stress level Among Physiotherapy students.

Student's mean score for PSS-14 was 45.41. The majority of the students reported that sometime during the last month, they remain upset (51.2%), unable

to control the important things in life (30.76%), felt nervous and stressed (35.8%), able to deal successfully with day to day problems (53.8%), effectively using coping strategies (35.8%), and feeling confident about ability in handling personal problems (46.1%).

It was further reported that (46.1%) of students sometimes during last month felt that things are happening on their way, could not cope up with the things (48.37%), feeling on top of things (48.7%), getting angry because things were happening outside of control (51.2%) and able to control the way of spending time (48.7%).

Table 1: Frequency of stress level during last month by Diploma in Physiotherapy students measured using PSS-14 Scale.

ITEMS	Never (%)	Almost Never (%)	Sometimes (%)	fairly often (%)	very often (%)
Being upset that happened unexpectedly	7.69	10.25	51.20	20.50	10.25
Feeling unable to control the important things in life	17.90	15.38	30.76	23.00	12.80
Feeling nervous and stressed	5.12	15.30	35.80	33.33	10.25
Able to deal successfully with day to day problems and annoyances	5.12	7.68	53.80	30.72	5.12
Feeling effectively coping with important changes	0	15.38	35.80	33.33	15.38
Feeling confident about ability to handle personal problems.	0	2.56	46.10	15.38	35.80
feeling things were going according to own way	5.12	17.90	46.10	20.50	10.25
feeling unable to could not cope with all things that should be do	15.38	10.25	48.37	20.50	5.12
Able to control irritations of life	2.56	17.90	33.33	33.33	12.80
Feeling on top of things	15.38	2.56	48.70	23.00	10.25
Being angered because things were happening outside of control	2.56	0	51.20	28.20	17.90
Thinking about things need to be accomplished	5.12	7.69	15.30	30.76	41
Able to control the way you spending time	7.69	7.69	48.70	28.20	7.69
Feeling that difficulties were piling up so high that they could not be over overcome	23.00	15.38	20.50	23	17.90

The relationship of socio demographic data on PSS score was analyzed using ANCOVA. There was significant main effect for family type $F(1, 10) = 13.9, p=0.05, n^2 = 0.57$, maternal education $F(3, 10) = 5.43, p=0.018, n^2 = 0.62$ on the PSS score. No significant main effect was observed for the rest of demographic data on the PSS score, $p > 0.05$.

This study also found that subjects who reported to have nuclear families had higher PSS score compared to those who lived in joint families (56.34 ± 10.00 vs. 37.37 ± 5.71) but this differences was not significant, $p=0.09$. Subjects who had mothers with primary education presented higher mean PSS scores (52.36 ± 5.58) compared to those whose mothers had either secondary education (40.38 ± 7.85) or higher

education (34.30±7.67) but these findings

were also not significant, p= 0.195.

Table 2: The relationships between social demographic data and PSS-14 scale

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Non cent. Parameter	Observed Power ^b
Corrected Model	1139.361 ^a	27	42.199	2.555	.061	.873	68.972	.751
Intercept	1411.179	1	1411.179	85.427	.000	.895	85.427	1.000
Gender	5.294	1	5.294	.320	.584	.031	.320	.081
Class	2.466	1	2.466	.149	.707	.015	.149	.064
Type Of Family	217.913	1	217.913	13.191	.005	.569	13.191	.904
Paternal Education	32.075	3	10.692	.647	.602	.163	1.942	.141
Maternal Education	269.078	3	89.693	5.430	.018	.620	16.289	.802
Paternal Occupation	.701	2	.351	.021	.979	.004	.042	.052
Maternal Occupation	88.752	3	29.584	1.791	.212	.349	5.373	.333
Family Monthly Income	188.451	4	47.113	2.852	.081	.533	11.408	.558
Living Residence	29.240	2	14.620	.885	.443	.150	1.770	.162
Source Of Finance Education	2.498	2	1.249	.076	.928	.015	.151	.059
Source Of Monthly Expenses	185.186	4	46.296	2.803	.085	.529	11.210	.549
Is The Monthly	69.335	1	69.335	4.197	.068	.296	4.197	.457

Coping strategies

The coping strategies used by students to overcome stress were measured using ACOPE. The most commonly used strategy by the students for ventilating feelings was by crying (23%). Further, it has been seen the most of the time the students listen to music, stereo, radio (69.2%) or, go shopping (38.46%), or sleeping (41.2%) or watch TV (30.76%) or eat food (23%) or day dreaming (23%) to divert their mind and to relax them during periods of stress. In the area of self-reliance, most of the time the students try to think or see good things (28.2%) and try to organize their life (35.8%). Around (17.9%) of physiotherapy students try to cope up by helping others and (25.6%) by making new friends in solving their family problems.

ACOPE showed that most of the times, (20.50%) of physiotherapy students try to do things with families and another (15%) of the physiotherapy students talk to their mothers. Around 33.33% of the

physiotherapy students seek spiritual support by performing prayers during period of stress. Another (28.20%) of students try to be release their stress by being close to someone that they care of. More than 23% of students try to cope up with stressful situations by figuring out the way to solve their problems while improving their work or by improving themselves by getting body in shape, get good grade and etc. respectively. Around 23% of physiotherapy students reported that the stress was relieved by being humorous and making jokes.

It has been further shown that the least common strategies used by physiotherapy students to cope up with stress were using drugs (79.4%), smoking (74.3%), using drugs prescribed by doctors (79.4%), drinking beer, wine, liquor (69.2%), getting professional counseling (58.9%), talking to the counselors (46.1%) and try talk to fathers what bothers them (41%).

Table 3: Frequency of coping strategies used last month by Diploma in Physiotherapy students measured using ACOPE.

	never	hardly	sometimes	often	Very often
Ventilating feelings					
• Say mean things to people be sarcastic	17.90%	28.20%	43.50%	10%	0.00%
• Swear	28.20%	28.20%	20.50%	17.90%	5.12%
• Let off steam by complaining to family members	38.40%	20.50%	38.40%	0%	2.56%
• Get angry and yell at people	25.60%	25.60%	38.40%	5.12%	5.12%
• Let off steam by complaining to friends	28.20%	25.60%	25.60%	15.38%	5.12%
• Cry	15.30%	15.30%	23.00%	23.00%	23.00%
Seeking diversion					
• Go To Movie	10.25%	12.80%	35.80%	23.00%	17.90%
• Play Video Games	23.00%	15.30%	25.60%	10.25%	25.60%
• Use Drugs	79.40%	5.12%	10.25%	2.56%	2.56%
• Listen To Music, Stereo or Radio	2.56%	5.12%	5.12%	17.94%	69.20%
• Read	12.80%	15.30%	38.40%	20.50%	12.80%
• Go Shopping, Buy Things You Like	12.80%	2.56%	17.90%	28.20%	38.46%
• Watch T.V	7.69%	10.25%	30.76%	20.50%	30.76%
• Sleep	5.12%	10.25%	23.00%	20.51%	41.02%
Relaxing					
• Work on a hobby	23.00%	12.80%	33.33%	20.50%	10.25%
• Eat food	20.50%	2.56%	28.20%	25.60%	23.00%
• Day dream	0	10.24%	28.20%	38.40%	23.40%
• Ride around in the car	33.33%	15.30%	30.76%	12.80%	7.69%
Self-reliance					
• Get a job or a work harder	25.60%	25.60%	33.33%	10.25%	5.12%
• Try to think of good things	7.69%	2.56%	15.30%	46.10%	28.20%
• Try to make your own decisions	0	7.69%	48.70%	35.80%	7.69%
• Organize your life that what you have to do	2.56%	5.12%	5.12%	30.76%	35.80%
• Get more involved in activities in school	28.20%	2.56%	33.33%	15.30%	10.25%
• Tell yourself that problem(s) is not important	10.25%	7.69%	48.70%	25.64%	7.69%
Developing social support					
• Blame others for what's going on	35.80%	33.33%	17.90%	5.12%	7.69%
• Apologize to people	15.30%	35.80%	33.33%	30.70%	10.25%
• Try to help other people solve their problems	7.69%	10.25%	33.33%	33.33%	17.90%
• Try to keep up friendships or make new friends	15.38%	2.56%	41%	15.38%	25.60%
• Say nice things to others	5.12%	12.80%	43.58%	25.60%	12.80%
• Talk to friends about how you feel	7.69%	0	51.20%	33.33%	7.69%
Solving family problems					
• Talk to your father about what bothers you	41.00%	17.90%	25.60%	5.12%	10.25%
• Try to reason with parents and talk things out, compromise	17.90%	17.90%	38.40%	17.90%	7.69%
• Go along with parents request	5.12%	20.50%	56.40%	12.80%	5.12%
• Do things with your family	15.38%	15.38%	33.33%	17.90%	20.50%
• Talk to a brother or sister about how you feel	38.40%	15.30%	33.33%	7.69%	5.12%
• Talk to your mother about what bothers you	12.80%	20.50%	25.60%	25.60%	15.30%
Avoiding					
• Smoke	74.30%	7.69%	15.30%	0	2.56%
• Use drugs prescribe by doctors	79.40%	12.80%	5.12%	2.56%	0
• Try to stay away from home as much as possible	33.33%	10.25%	25.60%	12.80%	17.90%
• Try to see the good things	7.69%	7.69%	33.33%	35.89%	15.38%
• Drink beer ,wine , liquor	69.20%	12.80%	5.12%	5.12%	7.69%
Seeking spiritual support					
• Talk to minister, priest or rabbi	56.40%	10.25%	24.10%	10.25%	5.12%
• Go to church	20.50%	12.80%	30.76%	23%	12.80%
• Pray	12.80%	5.12%	15.38%	33.33%	33.33%
Investing in close friends					
• Be close with someone your care about	10.25%	5.12%	28.20%	28.20%	28.20%
• Be with a boyfriend or girl friend	33.33%	15.30%	25.60%	12.80%	12.80%
Seeking professional support					
• Get professional counseling	58.90%	17.90%	15.30%	5.12%	2.56%
• Talk to counselor at school about what bothers you	46.10%	25.60%	17.90%	7.69%	2.56%
Engaging in demanding activities					
• Do a strenuous physical activity jogging, biking etc	17.90%	10.25%	33.33%	20.50%	17.90%
• Try, on your own, to figure out how to deal with your problems and tensions	5.12%	5.12%	43.50%	23%	23%
• Try to improve yourself get body in shape, get better grades, etc.	2.56%	5.12%	33.33%	35.80%	23%
• Work hard on school work or school projects	10.25%	10.25%	33.33%	33.33%	17.90%
Being humorous					
• Joke and keep a sense of humor	7.69%	5.12%	33.33%	30.76%	23%

ANCOVA was performed to identify the main effect of the demographic data on ACOPE score. There was significant main effect for maternal education $F(3, 3) = 15.59$, $p = 0.025$, $n^2 = 0.94$, source of finance for education $F(2, 3) = 12.78$, $p = 0.034$, $n^2 = 0.89$ and recent academic performance of the students $F(97, 3) = 11.47$, $p = 0.035$, $n^2 = 0.96$ on ACOPE score. The mean ACOPE score was significantly different between subjects with mothers who had completed education until primary education (112.88 ± 9.73), secondary education (190.53 ± 13.70) and higher education (182.39 ± 13.39), with p value is 0.025. Next, Mean ACOPE was significantly different among subjects with different sources of finance education with p value is 0.034. Mean score for source of finance for education from parent was (119.87 ± 12.99), mean score for source of finance for education from siblings was (243.88 ± 26.84) and source of finance for education from loan was (113.71 ± 8.79). The mean ACOPE score was significantly different among subjects with different CGPA, with p value is 0.035.

Table 4: The effect of socio demographic data on ACOPE.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	15650.289 ^a	34	460.303	8.462	.051	.990	287.716	.649
Intercept	8886.000	1	8886.000	163.361	.001	.982	163.361	1.000
Gender	122.280	1	122.280	2.248	.231	.428	2.248	.187
Class	4.425	1	4.425	.081	.794	.026	.081	.055
Type Of Family	367.826	1	367.826	6.762	.080	.693	6.762	.433
Paternal Education	905.677	3	301.892	5.550	.096	.847	16.650	.431
Maternal Education	2544.202	3	848.067	15.591	.025	.940	46.773	.825
Paternal Occupation	735.504	2	367.752	6.761	.077	.818	13.522	.479
Maternal Occupation	1135.088	3	378.363	6.956	.073	.874	20.868	.512
Family Monthly Income	678.724	4	169.681	3.119	.189	.806	12.478	.278
Living Residence	264.497	2	132.248	2.431	.236	.618	4.863	.214
Source Of Finance Education	1390.083	2	695.042	12.778	.034	.895	25.555	.727
Recent Academic Performance	4367.334	7	623.905	11.470	.035	.964	80.289	.746
Source Of Monthly Expenses	658.646	4	164.662	3.027	.195	.801	12.109	.272
Is The Monthly expenses is sufficient?	8.361	1	8.361	.154	.721	.049	.154	.059

Spearman coefficient of correlation was used to identify the correlation between PSS and ACOPE scores. No significant correlation was observed between PSS and ACOPE scores.

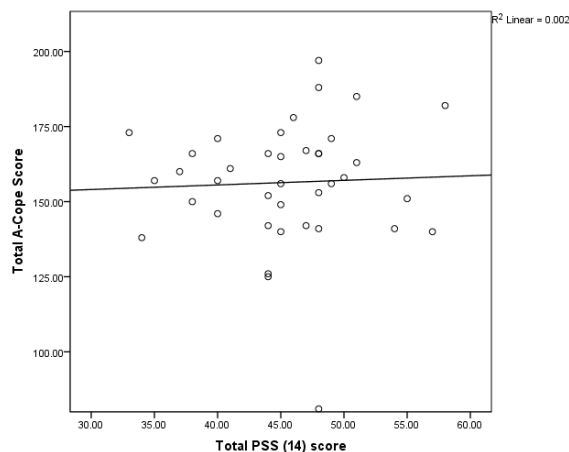


Figure 2: Correlation between Total ACOPE score and Total PSS (14) score.

DISCUSSIONS

Stress among physiotherapy students may result in psychological distress, physical complaints, behavior problem and poor academic performance. [1] This study has been conducted to assess the stress level and various coping strategies used by physiotherapy students to overcome their educational stress.

Findings revealed that out of 39 physiotherapy students, 89.7% had moderate stress level and 10.25% had severe level of stress with the overall mean score for PSS value is 45.41. The mean value for PSS

score is above the normal range indicates that there are quite number of students were undergoing stress period during last month. This study result correlates very well with the studies done by *J.M Walsh among physiotherapy students from Irish*, in which the studies stated that physiotherapy students perceived very high level of stress.^[2]

The effect of socio demographic data on PSS-14 showed that students who came from nuclear family and students who had mother's with low education present with higher mean PSS score. Based on report, produced by the UK government under (Save the Children, 2011), mothers who had very low education correlate very well with the child's health status.^[24] A study conducted in Malaysia among medical students has also confirmed that mother's education associate very well with psychological impairment among students.^[25] Besides that, the child who came from low socioeconomic status such as lack of financial support, no proper living resident and families with mother's who have low education are four times prone to die in an accident, having a mental disorder, respiratory infections and gastrointestinal disease.^[24, 26]

It has also found that physiotherapy students who came from nuclear family had high perceived stress score level because students from nuclear family more likely to become isolated from their extended family members.^[26, 27] They do not get to see their extended family members which can be beneficial to the students during their hard time, such as sharing personal problems and getting advices from the elderly.^[26, 27, 28] Most of the time, both parents in a nuclear family will have very less time to spend with their children due to their heavy work schedule, which is necessary for the parents to meet the financial needs of the family.^[26, 27]

Coping strategies are examples of behavioral and psychological techniques which adopted by individuals to minimize their stressful event^[13] WHO/EHA guidelines have stated that there are no any correlation present between the socio demographic data and coping strategies.^[23] However this study revealed that there was significant main effect of maternal education, source of finance education and recent academic performance on ACOPE score.

Research conducted by Purdue University, Indiana found that children learn from what their parents do and they try to copy what they have seen.^[29] Parents who use violence to manage anger or drugs to cope with difficult situations and emotions was modeling these negative coping strategies for their children and at a same time parents who was able to demonstrate effective anger management techniques, such as deep breathing also taught their children to utilize this tool as well.^[29] However, there were very less studies showing the correlation between financial status and academic performance on coping strategies.

In the present study majority of the students tend to use healthier coping strategies compare to negative or unhealthy ones. The frequently used coping strategies were seeking diversion example like listening to the music/radio (69.2%), go shopping (38.46%) and sleeping (41.2%), whereas least common strategies were identified as using drugs, smoking, drinking alcohol and seeking professional support. These findings were consistent with a study which has been done among nursing students in Punjab were seeking diversion was the most used coping strategies by the nursing students.^[23]

CONCLUSION

This study revealed that physiotherapy students perceived high stress level and overcome their stress by using different type of coping strategies. This study also shows that there is correlation present between maternal education level and type of family on PSS-14 and ACOPE. Hereby, it is important for the parents and also the educators to recognize the sources of stress and also the coping strategies used by the physiotherapy students so that they can help the students to overcome and cope well with the upcoming problems.

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