National Journal of Physiology, Pharmacy and Pharmacology

RESEARCH ARTICLE

Coping response to same stressors varies with gender

Smriti Sinha, Latha G S

Department of Physiology, Dr. B. R. Ambedkar Medical College, Bengaluru, Karnataka, India

Correspondence to: Smriti Sinha, E-mail: drsmritisinha@gmail.com

Recieved: February 20, 2018; **Accepted:** March 21, 2018

ABSTRACT

Background: Stress is unavoidable, but the way one responds to same stressor depends on the gender. These responses are called coping strategies and broadly it can be either problem or emotion focused. **Aim and Objectives**: To determine the prevalence of stress in young adults and to determine the common coping strategies used by a male and a female. **Materials and Methods**: Cohen's perceived stress scale to estimate the prevalence of stress and a pre-structured, pre-tested questionnaire for determining the gender variation in coping strategies. **Results:** About 84.7% were under moderate or high stress and coping strategies showed that females used more emotion focused while males had a problem-focused approach. **Conclusion:** The institution as well as the mentors should have an idea about the stressors as well as the maladaptive strategies used by a young adult so as they can educate and help them to reduce the stress.

KEY WORDS: Stress; Coping Strategies; Emotion Focused; Problem Focused

INTRODUCTION

According to The Journal of the American Medical Association, the prevalence of depression among medical students id alarmingly high, i.e. every 1 out of 4 students are depressed and 11% of them are having suicidal tendencies.[1] Another study conducted in the UK on the 1st year medical students reveals that they are under highest level of metal stress.[2] Stress is omnipresent and unavoidable in the modern society, and all age groups have their own stressors. Hans Selye, Father of stress research, popularized the concept of stress by defining it as the "non-specific response of the body to any demand on it." Joining of a graduation course is a transitional period where students undergo new experiences, meet new people, and face opportunities which may compound the stress in their lives. Faced with a stress a person responds at various levels, i.e., cognitive, emotional, and behavioral. Cognitive response is the way an individual thinks and perceives the stress, the processing of this happens in ventromedial prefrontal cortex, which is a center for processing emotions such as risk and fear, decision-making, self-control, and morality. Emotional response is determined by the activation of limbic system mainly amygdala and hippocampus. The behavioral response is the physical manifestation in an individual which can be explained and correlated with increased sympathetic activity and high parasympathetic activity activation.

The way we respond to the same stress depends on gender, culture, personality, and life experiences. These physiological responses developed by an individual to adapt are called coping. In psychology, coping means to invest one's own conscious efforts to solve personal and interpersonal problems to try to master, minimize, or tolerate stress and conflicts. Coping has been broadly classified into problem focused versus emotion focused. Problem focused relies on using active ways to directly tackle the situation that caused the stress, for example, information seeking, taking control of the situation, analyzing the situation, etc., while emotion focused is used to handle feelings of distress, rather than the

Access this article online	
Website: www.njppp.com	Quick Response code
Doi: 10.5455/njppp.2018.8.0206921032018	

actual problem itself, for example, distancing, seeking social support, exercising self-control, etc. Problem-focused coping is healthy adaptation, whereas emotion focused has short-term benefits, and in long term, it is maladaptive, because it does not deal with the core issues. If maladaptive techniques are used to cope then physical and psychological impact of this stress can disrupt one's development long after, the event is over to the extent of damaging the neuroplasticity which is essential for learning and memory.

Many studies have been done on medical students to assess the prevalence of stress, its common causes, coping strategies, its gender variations, but none have emphasized on the initial 1 month period of the course, where the psychological stressors overweigh the academic and health issue. Moreover, our study addresses this gap in knowledge. The objectives of our study were to assess the prevalence of stress in young adults and to determine the difference in coping strategies among the male and female students who have newly joined graduation courses.

As young adult age group is a crucial stage of developing professional as well as personal skills, it is imperative to provide strong foundation by aiding them to develop positive virtues such as initiativeness and industrious attitude over the negatives such as inferiority and self-doubt. As they are young in their profession, new stressors will get added in due course of time and it is always better that they are aware of the right way to respond to stress and eliminate or reduce it then and there itself because the unsolved stress accumulates with time and leads to repercussions in the form of anxiety and depression, obesity, precipitates autoimmune disorders, causes oxidative stress, suppresses growth hormone,TRH, and promotes unhealthy habits such as smoking and alcohol.

MATERIALS AND METHODS

The study was conducted on a total of randomly selected 190 1st year medical and dental students of 2017 batch at Dr. B. R. Ambedkar Medical College and Hospital, a prestigious private medical college situated at Bengaluru, Karnataka.

Ethical clearance was obtained from the Institutional Ethical Committee.

Inclusion Criteria

A group of apparently healthy 1st year undergraduate students in the age group of 19–20 years were included.

Exclusion Criteria

The students having a major physical or mental health problems such as epilepsy and asthma, who were differently abled, ones on any continued medication or who have suffered a recent demise of a family member were excluded from the study.

No student should have examination in the following 3 months.

Informed explained consent was taken before conducting the study. Complete anonymity was maintained while administering the questionnaire. The students were asked to fill the questionnaire quickly so as prevent subject bias.

Subjects' personal data were taken and they were asked to fill two sets of questionnaires: First set of questionnaire was administered to assess the stress levels by Cohen's perceived stress scale, which is the standard internationally accepted stress scale.

The students who were found to be under moderate and high stress were asked to fill another set of questionnaire regarding their coping strategies commonly used, while the students under mild stress were considered physiological and were not included in the further study.

To know the common coping strategies, the second set of questionnaire which included a carefully drafted eight items pre-structured and pre-tested questionnaire, in which the common coping strategies were divided into two groups as (Table 1):

a. Emotion focused
b. Problem focused.

Each question was scaled using 5-point Likert scale as 0 (never), 1 (rarely), 2 (sometimes), 3 (frequently), and 4 (always).

The total score for emotion-based and problem-based coping styles was calculated for individual students. And then, the mean scores of all the males were compared with means of all the females.

Table 1: Emotion- and problem-focused questions

Type	Examples
Emotion focused (5 items)	
Distancing	Reading novel, playing video game, outdoor games
Self-control	Meditation, praying
Seeking social support	Spending time with family friends, phone calls
Avoidance	Frequent visits to home, bunking, not talking to friends
Positive reappraisal	Looking toward positive future prospects
Problem focused (3 items)	
Confronting	Questioning the authority
Accepting responsibility	Increasing work duration
Planful problem solving	Net browsing for finding a solution, suggestions from seniors

Statistical Analysis

Statistical analysis was done using SPSS software and paired *t*-test results revealed that the emotion-focused coping strategies were used significantly higher in females as compared to males ($P < 0.05$) while problem-focused coping strategies were used significantly higher in males when compared with females ($P < 0.05$).

RESULTS

Out of 200 students, 190 participated in the study in which 104 were males and 86 were females. Results obtained by Cohen's perceived stress scale [Table 2] showed that 15.3% were average stressed, 31.6% moderately, and 53.1% were highly stressed. Table 2 also showed that 161 students (84.7%) were under moderate or high stress, out of which 95 were males and 66 were females. Observation from the second set of questionnaire filled by 161 students under stress for coping strategies was as shown in Table 3. Mean value for emotion-focused coping strategy is higher in females (6.51 ± 2.39) as compared to males while mean value for problem-focused coping strategy is higher in males (3.55 ± 2.93).

DISCUSSION

In our study, the prevalence of stress was found to be 84.7%, among them, 15.3% were average, 31.6% moderate, and 53.1% under severe stress. Females used emotion-focused coping strategy significantly while males used problem-focused coping strategy significantly. The most commonly used emotion-focused strategy was seeking social support and positive reappraisal while the most commonly used problem-focused strategy was accepting responsibility. Coping skill varies with gender at both physical and psychological levels. These differences are basically due to their:

a. Physiological makeup of different sex hormones and their interaction with the stress hormones, adrenaline, noradrenaline, and cortisol being the three major stress hormones.
b. Also genetically, the SRY gene proteins have effects on the hormonal secretions and have direct effect on the structure of the brain.
c. Cannon called the emergency-induced discharge of the sympathetic nervous system is the "preparation for flight or fight." It is a physiological reaction that occurs in response to stress.[3] These studies were vastly done on males but physiologically women respond to stress by secreting more endorphins and oxytocin instead of norepinephrine and cortisol. Therefore, in men, the response is fight or flight while for women it is tend and befriend.[4]

   The gender variation for the differences in coping strategies can also be explained by the fact that oxytocin enhances the end and befriend behavior, now, testosterone being inhibitor of oxytocin shows aggressive and defiant behavior, whereas estrogen which enhances the oxytocin helps in tending and befriending. These gender-specific coping strategies are highlighted only during the reproductive years and gradually diminish after menopause.

Table 2: Cohen's perceived stress scale

Sample size (*n*)	Average stress	Moderate stress	High stress
190 (100)	29 (15.3)	60 (31.6)	101 (53.1)

Table 3: Comparison of means of male and female

Coping strategies	mean ± SD		*P*
	Males (*n* = 95)	Females (*n* = 66)	
Emotion focused	5.68 ± 2.75	6.51 ± 2.39	0.031*
Problem focused	3.55 ± 2.93	2.57 ± 2.41	0.018*

*Statistical significance $P < 0.05$. SD: Standard deviation

The other causes for difference in coping styles could be because of sexual dimorphism in the brain which is due to the hormonal, chromosomal, and structural differences found in a male and a female brain which is illustrated in Table 4. From Table 4, it can be deduced that the coping style in women shows increased limbic system activity, so mood is affected and they seek social support while in men sympathetic system shows increased activity so expression of flight and fight is prominent.

The results are consistent with the study conducted by Matud who has concluded that women coping style is more emotion focused than that of men.[5] Furthermore, it coincides with the study conducted by Leadbeater *et al.*, who found that girls internalize symptoms which can be explained because of a girl's vulnerability to interpersonal relationships, whereas boys risked for externalizing problems which is partly explained by their vulnerability to self-criticism[6] and performance. However, in contrast, Felsten in his study concluded that there is no gender difference in coping strategies, and observed the strong association of stress depression in participants who used problem-focused coping, whereas the association of stress depression was less in participants who used emotion-focused coping style.[7] Moosa and Munaf concluded that coping plays a great role in lives of individuals, especially with reference to psychological well-being. Healthy individuals used problem-focused coping, whereas neuropsychiatric patients used emotion-focused strategies when confronted with stress, so they have recommended that coping strategies can be a focus of attention and intervention in people having

Table 4: Causes for gender difference in coping strategies

Causes	Women under stress	Men under stress
Amygdala	Increased activity	Decreased activity
Fusiform area	Increases activity	Decreased activity
Hypothalamus	Estrogen leads to sluggish HPA response, i.e., lesser release of cortisol and norepinephrine	Greater HPA and autonomic activity
Hippocampus	Estrogen increases neurogenesis so long-lasting memory of stress	Absence of such effects
VMPC	Right side activated	Left side activated
Hormones	Oxytocin and endorphin release	Cortisol and norepinephrine

VMPC: Ventromedial prefrontal cortex, HPA: High parasympathetic activity

psychological problems.[8] In a study on coping strategies in preclinical medical students, Fares *et al*. have proposed that coping strategies such as personal engagement and positive reinterpretation are among the major coping mechanisms to reduce anxiety stress and burnout.[9] Hence, it is important to identify the maladaptive strategies and introduce the effective adaptive strategies. A study by Lawrence *et al*. revealed significant differences between males and females in terms of engagement in coping strategies. Specifically, males exhibited greater ability to detach themselves from the emotions of a situation and were more inclined to demonstrate emotional inhibition or bottling up of emotions and reported higher self-esteem.[10] Another study by Madhyastha *et al*. has concluded that support-seeking coping strategies were increasingly used among females while humor, a positive emotion-focused strategy and self-blame, and a maladaptive strategy were used more by males.[11]

Strength of our study is that we have concentrated on newly joined medical and dental students for stress and the coping strategies in contrast to other studies which concentrate on the later part of the course. As the causes for stress changes with time, gender, and upbringing, coping styles have to be tailor-made considering all these factors. The major limitation of the study was that we did not consider the hormonal changes during the menstrual cycle of a female which has an influence on the coping mechanism. Second, stress assessment was questionnaire based and was not supported by blood parameters. Finally, family history, socioeconomic status, and history of an individual were not included which can contribute to the coping style.

CONCLUSION

In our study, males commonly used problem-focused coping strategy and female's students used emotion-focused coping strategy, with some overlapping. Stress causes both mental and physical aging. Hence, knowledge and awareness about different coping styles applicable specifically to different gender helps to evolve and adapt in a healthy way. These healthy strategies should be incorporated by the institution, and the students must be encouraged to develop these skills.

REFERENCES

1. Rotenstein LS, Ramos MA, Torre M, Segal JB, Peluso MJ, Guille C, *et al.* Prevalence of depression, depressive symptoms, and suicidal ideation among medical students: A Systematic review and meta-analysis. JAMA 2016;316:2214-36.
2. Guthrie E, Black D, Bagalkote H, Shaw C, Campbell M, Creed F, *et al.* Psychological stress and burnout in medical students: A five-year prospective longitudinal study. J R Soc Med 1998;91:237-43.
3. Barrett KE, Barman SM, Boitano S, Brooks H. The autonomic nervous system. Ganong's Review of Medical Physiology. New York: McGraw-Hill; 2010. p. 261-72.
4. Dess NK. Tend and befriend. Psychol Today 2000;33:22-3.
5. Matud MP. Gender differences in stress and coping styles. J Pers Individ Diff 2004;37:1401-15.
6. Leadbeater BJ, Kuperminc GP, Sidney B, Christopher H. A multivariate model of gender differences in adolescents internalizingand externalizing problems. J Dev Psychol 1999;35:1268-82.
7. Felsten G. Gender and coping: Use of distinct strategies and associations with stress and depression. J Anxiety Stress Coping 1998;11:289-309.
8. Moosa E, Munaf S. Emotion and problem focused coping strategies: A comparative study of psychiatric patients and normal adults. J IPEDR 2012;53:96-100.
9. Fares J, Hayat T, Zein S, Christopher M, Hussam A. Stress, burnout and coping strategies in preclinical medical students. North Am J Med Sci 2016;8:75-81.
10. Lawrence J, Ashford K, Dent P. Gender differences in coping strategies of undergraduate students and their impact on self-esteem and attainment. Active Learning in higher education. J Inst Learn Teach 2006;7:273-81.
11. Madhyasdha S, Latha KS, Kamath A. Stress, coping and gender differences in third year Medical Students. J Health Manage 2014;16:1-25.

How to cite this article: Sinha S, Latha GS. Coping response to same stressors varies with gender. Natl J Physiol Pharm Pharmacol 2018;8:1053-1056.

Source of Support: Nil, **Conflict of Interest:** None declared.