Cause of stress and coping mechanism among medical students year 2013 – 2015 in Universitas Airlangga

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Abstract. Background: Stress is response and acknowledged as a natural respond to problems in daily life. Coping is defined as a process used to confront stress with various degree of effectiveness. Purpose: To correlate cause of stress and coping mechanism based on sex and year of admission among Universitas Airlangga medical students year 2013, 2014, and 2015. Method: This study was observational analytic study. Data were taken by self-administrated questionnaires (demographic, Medical Student Stressor Questionnaire, and BriefCOPE) Result: Respondents were dominated by female (60%) and out of 90 answers, the most frequent stressor was Academic Related stressor (45.12%) regardless of the gender and admission year, and the most frequent coping mechanism is Planning (79.50%) and Religion for female students (80.75%) and 2013 students (78.75%). There was a significant correlation between stressor Intrapersonal and Interpersonal and Teaching and Learning Related also coping mechanism Planning, Humor, and Religion between male and female participants. There was also significant correlation between different admission year for coping mechanism Denial, Humor, and Self Blame. Conclusion: The most common stressor of the student year 2013, 2014, and 2015 with medical major in Universitas Airlangga is Academic Related and the most common coping mechanism is Planning.

Keywords: medical student, academic stressor, coping mechanism, observational analytic study

Summary. Stress is a response to particular occurrence in life. Stressors are the external factors that causes stress, and each individual perceives it differently depending on their background (eg. thoughts, attitudes, beliefs) and previous experience. Medical students are more liable to stress compared to other non-medical students due to heavy workload, whether it is new reading material to study or communication with patient. The prolonged effects of this phenomenon is burnout and may also depression than leads to a decrease in students’ performance at their study or in the hospital. Coping is defined as a process used to confront stress, the effectiveness and compliance of each coping strategies is determined by the results of their use. This study is an observational descriptive study aiming to find out which stressor and coping mechanism is the most commonly used among the participants, adopting a cross sectional strategy and questionnaire to gather data from some of the student year 2013, 2014, and 2015 with medical major in Universitas Airlangga.

The participants that answered to this study’s questionnaire are dominated by female (60%). Out of 90 answers, the most common stressor is Academic Related stressor (45.12%) regardless of the gender and admission year, and the most common coping mechanism is Planning (79.50%) and Religion for female students (80.75%) and 2013 students (78.75%). It is found that there is a significant correlation between stressor Intrapersonal and Interpersonal and Teaching and Learning Related between gender also coping mechanism Planning, Humor, and Religion between male and female participants. There is also significant correlation between different admission year for coping mechanism Denial, Humor, and Self Blame.

Introduction
Stress is defined as the result of pressure, a relationship between a person and their environment where they judge that their resources are no longer adequate, therefore the situation becomes endangering to their well-being. All aspects of human functioning are
affected by stress, and the manifestations can appear very general. The cause of stress however is perceived very differently by people built upon their belief whether the pressure and the resources to take care of it is deemed appropriate or not, and the best judge of the cause and also the severity of stress is the person themselves.\(^1\)

Medical students are prone to get stress due to demanding study schedule and heavy workload. This condition is very susceptible for them to develop particular cumulative reaction, also known as the burnout syndrome, characterized by severity, disruption of adaptation, and negative attitudes and behaviors leading to lower personal achievement at school. If it is not handled properly, the stress will not only affect personal life of the students but also the quality of patient’s care in the later stage of their education.\(^2\)

Habit of intentionally avoiding help seeking behaviours is common among medical students because of the belief that mental health problems are viewed as a weakness and might disturbs their career progression. It is also supported by the condition where they are expected to learn with exhaustive workload but also told by society to act like professional. The constant negligence of unresolved stress might goes into something much more worrisome like sleep disorders and emotional conditions such as depression.\(^3\)

People have different ways to handle their stress. The techniques are generally known as coping mechanism. It depends on which kind of stressor that predetermines and also their environmental condition.\(^1\) some medical students in their residency tend to use some inappropriate and not effective stress-coping strategy which may lead to higher stress level and unwanted outcome.\(^4\)

**Materials and methods**

This research study was observational analytic study which aim to correlate cause of stress and coping mechanism based on sex and year of admission among Universitas Airlangga medical students year 2013, 2014, and 2015. Data were taken by self-administered questionnaires (demographic, Medical Student Stressor Questionnaire, and BriefCOPE)

**RESULTS**

A total of 90 respondents were dominated by female (n = 54; 60%) and out of 90 answers, the most frequent stressor was Academic Relater stressor (45.12%) regardless of the gender and admission year, and the most frequent coping mechanism is Planning (79.50%) and Religion for female students (80.75%) and 2013 students (78.75%). There was a significant correlation between stressor Intrapersonal and Interpersonal and Teaching and Learning Related also coping mechanism Planning, Humor, and Religion between male and female participants. There is also significant correlation between different admission year for coping mechanism Denial, Humor, and Self Blame.

The distribution of cause of stress based on year of admission is shown in Table 1.

| Stresor                   | Year       | P value | Total (%) |
|---------------------------|------------|---------|-----------|
|                           | 2013 (%)   | 2014 (%)| 2015 (%)  |
| Academic Related          |            |         |           |
|                           | 23.43 (45.06)* | 21.07 (40.52)* | 23.87 (45.90)* | 0.135 | 23.46 (45.12) |
| Intrapersonal and Interpersonal | 11.87 (42.39) | 11.00 (39.29) | 10.17 (36.32) | 0.469 | 11.01 (39.32) |
| Teaching and Learning Related | 10.30 (36.79) | 9.30 (33.21) | 9.80 (35.00) | 0.669 | 9.08 (32.43) |
| Social Related            | 8.17 (34.04) | 7.50 (31.25) | 7.37 (30.71) | 0.668 | 7.68 (32.00) |
The distribution of coping mechanism based on year of admission is shown in Table 2.

Table 2: Distribution of cause of stress based on year of admission

| Stresor                  | Year             | P value | Total (%) |
|--------------------------|------------------|---------|-----------|
|                          | 2013 (%)         | 2014 (%)| 2015 (%)  |            |
| Self Distraction**       | 5.80 (72.50)     | 5.40 (67.50) | 5.83 (72.88) | 0.396      | 5.68 (71.00) |
| Active Coping            | 6.10 (76.25)     | 6.40 (80.00) | 6.17 (77.13) | 0.580      | 6.22 (77.75) |
| Denial**                 | 3.07 (38.38)     | 2.37 (29.63) | 2.90 (36.25) | 0.028*     | 2.78 (34.75) |
| Substance Use**          | 2.13 (26.63)     | 2.33 (29.13) | 2.00 (25.00) | 0.223      | 2.16 (27.00) |
| Emotional Support        | 5.93 (74.13)     | 5.53 (69.13) | 5.63 (70.38) | 0.583      | 5.70 (71.25) |
| Instrumental Support     | 5.77 (72.13)     | 5.47 (68.38) | 5.93 (74.13) | 0.516      | 5.72 (71.50) |
| Behavoiral Disengagement**| 3.57 (44.63)   | 2.93 (36.63) | 3.03 (37.88) | 0.132      | 3.18 (39.75) |
| Venting**                | 4.97 (62.13)     | 4.80 (60.00) | 4.33 (54.13) | 0.194      | 4.70 (58.75) |
| Positive Reframing       | 6.20 (77.50)     | 6.27 (78.38) | 6.10 (76.25) | 0.910      | 6.19 (77.38) |
| Planning                 | 6.03 (75.38)     | 6.67 (83.38)* | 6.37 (79.63)* | 0.157      | 6.36 (79.50) |
| Humor                    | 5.00 (62.50)     | 3.93 (49.13) | 4.97 (62.13) | 0.018*     | 4.63 (57.88) |
| Acceptance               | 6.23 (77.88)     | 6.43 (80.38) | 6.23 (77.88) | 0.778      | 6.30 (78.75) |
| Religion                 | 6.30 (78.75)*    | 6.23 (77.88) | 5.90 (73.75) | 0.609      | 6.14 (76.75) |
Discussion
According to the data obtained, Academic related stressor such as tests / examinations, large amounts of contents to be learnt, and lack of time to review what have been learnt is the most frequent stressor chosen regardless of the participants’ sex. This result is supported by a study done before with 359 Malaysians medical students as participants where the top stressors are Academic Related Stressor.² There is a decrease in the result of 2015 students to their senior 2014 students, same as the data stated from a bilingual anonymous questionnaire study among both gender held in College of Medicine, King Saud University, Saudi Arabia with the result of 68% for the third year participants and decreasing to 43.2% for the fourth year students.² The author suggested the increase of stress prevalence for the clinical students is caused by sudden change in environment and schedules. New responsibilities and demands to do well in clinical skills by not only the patients but also supervisors and friends alike may also play part in the increase of stress level.
Anonymous participants of stress assessing questionnaire consisted of the 110 students also reported a high prevalence of stress during their start of clinical training (up to 40%) and steadily decreases as the time goes.³ 86 clerkship students from Marmara University School of Medicine and 115 clerkships students from Dokuz Eylul University School of Medicine who participated in the study said that fear of making mistakes that could harm the patients was at the top of the list of sources of anxiety and stress, along with performing core clinical skills such as suturing patients, taking blood from patients and giving injections and also communication with patients and breaking bad news.³

From the table, most coping mechanisms used gradually gets better as the students’ progress to the next stage to their study, this is a contrary to the result of a study done to undergraduates medical students of Manipal College of Medical Sciences, Pokhara, Nepal were involved as participants in similar study, from 407 data taken, the common coping strategies used are positive reframing, planning, acceptance, active coping, self-distraetion and emotional support.⁹ It can be assumed that this change is due to the change of environment before and after clinical rotation where students are less required to think things through but demanded to be able to perform clinical skills and patient communication and care well more.

Research done in 2011 involving 359 first year medical students from four Malaysian public universities; Universiti Sains Malaysia, Universiti Putra Malaysia, Universiti Malaysia Sabah, and Universiti Malaysia Sarawak as participants of the same questionnaire used in this study stated that Religion (6.28) is the most common coping strategies used, along with active coping (6.12), positive reinterpretation (6.05), acceptance (5.97), and planning (5.90).³ The result is parallel to this study where overall positive coping strategies are more commonly used than their counterpart.

A study done to students with 2013 and 2012 year admission stated similar result where positive coping mechanism such as active coping, making strategy, and acceptance are commonly used. Humor is also high on the list.¹⁰ Another study also supports the result of this one where students use religion as coping mechanism more. 370 students of DR. V.R.K. Women’s Medical College, Hyderabad during the period from June 2014 to October 2014 wrote that 88% of the whole coping mechanism is meditation-praying / yoga.¹¹

Conclusion
In conclusion, the most common stressor of the student year 2013, 2014, and 2015 with medical major in Universitas Airlangga is Academic Related and the most common coping mechanism is Planning.

| Self Blame** | 5.40 | 5.77 | 4.77 | 0.035* | 5.31 |
|--------------|------|------|------|--------|------|
| (67.50)      | (72.13) | (59.63) | (66.38) |
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