

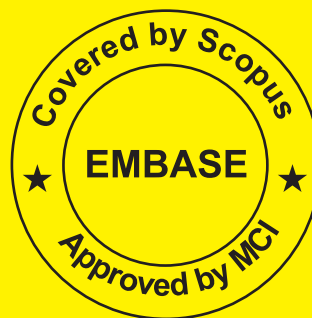


# Indian Journal of Public Health Research & Development

An International Journal

## SCOPUS IJPHRD CITATION SCORE

Indian Journal of Public Health Research and Development  
Scopus coverage years: from 2010 to 2016 Publisher:  
R.K. Sharma, Institute of Medico-Legal Publications  
ISSN:0976-0245E-ISSN: 0976-5506 Subject area: Medicine:  
Public Health, Environmental and Occupational Health  
Cite Score 2015-0.02  
SJR 2015-0.105  
SNIP 2015-0.034



Website:

[www.ijphrd.com](http://www.ijphrd.com)

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**Print-ISSN:** 0976-0245-Electronic-ISSN: 0976-5506, Frequency: Quarterly  
(Four issues per volume)

**Indian Journal of Public Health Research & Development** is a double blind peer reviewed international journal. It deals with all aspects of Public Health including Community Medicine, Public Health, Epidemiology, Occupational Health, Environmental Hazards, Clinical Research, and Public Health Laws and covers all medical specialties concerned with research and development for the masses. The journal strongly encourages reports of research carried out within Indian continent and South East Asia.

The journal has been assigned International Standards Serial Number (ISSN) and is indexed with Index Copernicus (Poland). It is also brought to notice that the journal is being covered by many international databases. The journal is covered by EBSCO (USA), Embase, EMCare & Scopus database. The journal is now part of DST, CSIR, and UGC consortia.

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**Dr. R.K. Sharma**  
Institute of Medico-legal Publications  
501, Manisha Building, 75-76, Nehru Place,  
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## Printed, published and owned by

**Dr. R.K. Sharma**  
Institute of Medico-legal Publications  
501, Manisha Building, 75-76, Nehru Place,  
New Delhi-110019

## Published at

## Institute of Medico-legal Publications

501, Manisha Building, 75-76, Nehru Place,  
New Delhi-110019



# Indian Journal of Public Health Research & Development

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## Contents

Volume 8 Number 4

October-December 2017

1. Detention, Nepotism and Truancy as Predictors of Workplace Deviance in ..... 01  
Service Organizations: India's Experience  
*Sainath Malisetty, K Vasanthi Kumari*
2. A Comparative Study of Satisfaction of Midwives and Mothers of Adherence to Patient Rights ..... 07  
*Maryam Soheily, Akram Peyman, Beheshteh Tabarsy*
3. Indian Diabetes Risk Score for Screening of Undiagnosed Diabetes ..... 13  
Individuals of Eluru City, Andhra Pradesh, India  
*Chandrasekhar Valleppalli, K Chandra Sekhar, U Vijaya Kumar, P G Deotale*
4. Awareness and Predictors of PCOD Among Undergraduate Students ..... 18  
*CAnn Mary Nelson, Lekha Viswanath, Anju Philip T*
5. The Effectiveness of Mindfulness on the Reduction of Anxiety ..... 23  
and Depression of Divorced Women  
*Yasamin Hojatifar, Mina Hosein Zadeh, Fariborz Dortaj*
6. A Study on Clinical Profile and Trend in Suicide Attempters in Psychiatry Consultation ..... 28  
*D Naveen Kumar*
7. "A Study of Organo-phosphorous Compound Poisoning with Reference to ..... 33  
Blood Sugar and Pseudocholinesterase Levels"  
*Nithinkumar S Kadakol, Sunilkumar S Biradar, Smitha M, Mallikarjun KBiradar*
8. Prevalence of Intestinal Parasitic Infections in School Going Children in ..... 37  
Rural Areas of Hapur District, UP, India  
*KamyaVerma, Krati R Varshney, Sanjeev Dimri, S P Garg*
9. Study of Osteoporosis in Women of Malwa Region of Punjab ..... 41  
*Veerendra Choudhary*
10. The Effectiveness of Mindfulness-Based Group Therapy on Reducing Internet ..... 44  
Addiction and Increasing the General Health of Adolescent Girls  
*Nasrin Rahimi Shadbad*
11. Role of Social Support and Coping Styles in Mental Health of Women Who Apply for Divorce ..... 49  
*Farhad Asghari, Hajar Ramazannia*

## II

12. Fine Needle Aspiration Cytology as A Diagnostic Procedure in Head and Neck Swellings in Rural Population of Hapur Region (U.P.), India <i>Amit Kumar Nirmal, HarsimratSingh, Payal Vadehra, Jay Kant Jha</i>	54
13. Effect of Aggression Management and Violence Prevention Training Program Among Nurses Working in Psychiatric and Emergency Setting-A Mixed Method Protocol <i>Binil V, Christopher Sudhakar, Supriya Hegde</i>	58
14. The Relationship Between Marital Intimacy and Quality of Life <i>Sara Naddaf, Alireza Heidari</i>	63
15. Fine Needle Aspiration of Follicular Lesions of the Thyroid: Cytohistologic Correlation and Accuracy at Hapur Region <i>Amit Kumar Nirmal, Harsimrat Singh, Jay Kant Jha</i>	68
16. Factors Associated with Malnutrition Among Under-Five Children in Migrant Population of Udupi District <i>AmeekaShereen Lobo, Binu Margaret E, Twinkle Dan Pothiyil</i>	73
17. Predicting Marital Disaffection based on Marital Conflict and Attachment Styles <i>Yasamin Hojatifar, Mina Hosein Zadeh, Abolghasem Noori</i>	79
18. Decompression Illness Among Fishermen Divers in Tanjung Papuma Beach, Jember Regency, Indonesia <i>Ana Islamiyah Syamila, Tjipto Suwandi, Arief Wibowo</i>	84
19. Usageof Teaching Aids in A Medical College- Students Perceptions <i>Suvarna Madhukumar, Sudeepa D, Pavithra M B</i>	89
20. Orthopedic Treatment Results of Fully Edentulous Patients by Overdenture Supported by Endosseous Implants and Complete Dentures (Comparative Study) <i>Egor E Olesov, Semen A Zaslavskii, MariaM Pozharitskaya, Natalya F Beresten, Narine A Uzunyan, Victoria R Shashmurina</i>	94
21. The Effect of Gymnastic Exercises on Motor Skills in Autistic Children <i>Azadeh Zamani, Rasoul Hemayat Talab, Mahmoud Sheikh, Farnaz Torabi</i>	99
22. A Study of Psycho-social Factors Associated with Nocturnal Enuresis in Children Between 6-10 Years of Age & Factors Affecting the Outcome of Behaviour Therapy <i>Pankaj Mittal, Mayank Rawat, Nikhil Raghav, Alka Agarwal</i>	104
23. Maternal Preconception Body Mass Index and Gestational Weight Gain: AProspective Cohort Study Potentially to Prevent Low Birth Weight <i>Andi Imam Arundhana, Asry Dwi Muqni, Abdul Razak Thaha, Veni Hadju, Nurhaedar Jafar</i>	110
24. Microwave Breast Cancer Screening for Women Welfar <i>P Hamsagayathri, P Sampath</i>	115

25. Stress Among Clinical Resident Doctors of Odisha: A Multi-Centric Mixed Methodology Study .....	122
<i>J S Kshatri, S Das, P Kar, S K Agarwal, R M Tripathy</i>	
26. An assessment of The Stress Levelsof Students Entering Medical School in Indonesia .....	127
<i>HardismanDasman, Amelyanis</i>	
27. Can Hypocalcaemia Predict Adverse Outcome in Malaria?- preliminary .....	132
Data From Tertiary Care Centre in Western India <i>Ravindranath Sahay, Kavita S Joshi</i>	
28. Amniotic Fluid Index - A Valuable Screening Test for Predicting Fetal .....	136
Distress and Perinatal Outcome <i>Harpreet Kaur, Sarvjit Kaur, Balpreet Kaur</i>	
29. Store AmbianceInfluence on ConsumerImpulsive Buying Behavior .....	140
towardsApparel:S-O-R Model <i>K Bharathi, S Sudha</i>	
30. The Relationship Between Benzene Vapor's Exposure and Immunoglobulin A .....	145
Among Shoes Worker in the Village of Tambak OSO Wilangun Surabaya <i>Herlina Novita Hasyim, Abdul Rohim Tualeka, Noeroel Widajati</i>	
31. Perceived Emotional Stress and Pre-Eclampsia: A Case-control Study .....	151
<i>Anirudh K Menon, Praveen N Kumar, Kanchana Nagendra</i>	
32. "Effectiveness of Reiki Therapy on Dysmenorrhoea Among Adolescent Girls" .....	155
<i>Ananya Das, Anusuya V Prabhu, Pratibha</i>	
33. Visual Acuity of Dentists Under Simulated Clinical Conditions - A Cross-sectional Study .....	161
<i>Shikha, Kundabala Mala, Ramya Shenoy, Neeta Shetty</i>	
34. The Social and Health Problems of People Living with HIV / AIDS in Lucknow Uttar Pradesh .....	166
<i>ArjitKumar</i>	
35. Comparative Post Irrigation Evaluation of Calcium Loss and its .....	172
Effect on Microhardness of Radicular Dentin <i>Manak Khosla, Kundabala Mala, Ramya Shenoy</i>	
36. Assess the Vision Related Quality of Life in Patients After .....	178
Corneal Transplantation in AIMS, Kochi <i>Linda Varghese, Manju Mohan M</i>	
37. Construct Validity and Reliability of Jefferson Scale of Empathy-health .....	184
Care Provider (Student version) Among Final Year, Interns and Post-graduate Students of a Dental College in India <i>Kuldeep Singh Shekhawat, Arunima Chauhan, S Sakthi Devi, Simi Kunjumon</i>	

38. Comparison of Diet Quality of Low and Middle Income Adolescents in Delhi, India .....	193
<i>Arushi Jain, Pulkit Mathur</i>	
39. Prevalence of Depression Among Elderly People in the Place of their Residency, ..... in the Urban Field Practice Area of Navodaya Medical College, Raichur	199
<i>Kusuma, Bheemayya Badesab, Sunil, Kurre Bhaskar</i>	
40. To Study the Reasons Given by Mothers of Under 5 for not Attending the Pulse Polio ..... Immunisation at Sultanpalya UHTC of Dr. B R Ambedkar Medical College, Bangalore	204
<i>Margaret Menzil, Ashoojit Kaur Anand</i>	
41. An Explorative study of Operationalizing Mission Indradhanush: Experiences ..... from Rural Health Training Centre - Sampaje	208
<i>Narayana Holla V, Sharanya Kaniambady, Bhavani L</i>	
42. Evaluation of Vaginal Ph as a Screening Tool for Bacterial Vaginosis and Impact ..... of Screening and Treating for Bacterial Vaginosis on Preterm Births	214
<i>Achla Batra, Rekha Bharti, Preeti Sainia, Garima Kapoor, Karishma Thariani, Sumathi Muralidhar, Abha Aggarwal, Aruna Batra</i>	
43. Impact of Brief Educational Intervention Among Medical Students on ..... Knowledge Regarding Tobacco and Alcohol use Disorders	220
<i>George P Jacob, Muralidhar M Kulkarni, Vibha SP, Sravan Kumar Reddy T, Samir Kumar Praharaj, Thippeswamy V, Sanjeev Kumar M</i>	
44. Perception of Health-care Personnel Regarding Noise and Attitudes ..... Regarding Implementation of Music in the Neonatal Intensive Care Unit	225
<i>Sonia R.B D'Souza, Pratibha Kamath, Sweety J Fernandes, Judith A Noronha, Sushmitha Karkada, Shobha Kamath, Leslie E Lewis</i>	
45. Ecological Balance and Air Pollution on Environment: A Threat to Humanity ..... <i>Hiranmaya Nanda, Chinmaya Kumar Mohapatra</i>	231
46. Effect of Proper Irrigation and Sterilization of used Equipment in Endoscopic ..... Operations on Awareness and Performance of Operation Room	236
<i>Maryam Karami, Nooshin Abbasi Abyaneh</i>	
47. Analysis of Factors Related to the Occurrence of Near Miss Accident ..... <i>Rizki Wibisono, Noeroel Widajati, Oedojo Soedirham</i>	241
48. Spectrum of Rheumatological Disorders In Children From ..... A Tertiary Care Hospital In Bhubaneswar, Odisha	246
<i>Natabar Swain, Prasanta Padhan, Sibabratna Patnaik</i>	

49. Fetal Outcome in Gestational Diabetes Mellitus .....	253
<i>Madhu Raj, Rajni Agarwal</i>	
50. Maternal Factors Affecting the Birth Weight of a New Born a Case Control Study .....	258
<i>Sandhya varsha D, Padmaja R Walvekar, M D Mallapur</i>	
51. Premarital Sex Among Rural Adolescents in North India: A School Based Study .....	262
<i>Vinod Chayal, Pardeep Khanna, Ramesh Verma</i>	
52. Epidemiological Characteristics of Dengue Cases Reported in District Amritsar in Year 2015 .....	267
<i>S L Mahajan, P Devgun</i>	
53. Epidemiological Characteristics of Dengue Cases Reported in District Amritsar in Year 2015 .....	271
<i>S L Mahajan, P Devgun</i>	
54. An Increasing Health Concern in Women- A Cross Sectional Study .....	275
<i>Revati, Ranjan, Mehendale, B S Garg</i>	
55. Knowledge and Awareness about Tuberculosis in a Tertiary Care Hospital of North India .....	279
<i>HM Kansal, Saurabh Srivastava, DheerendraKuber, Ashutosh Niranjana</i>	
56. Prevalence of Rotavirus Diarrhea in Children of Perak, Malaysia .....	285
<i>Nurul Ain Binti Mohd Salim, Durgadas Govind Naik, Maher D Fuad Fuad</i>	
57. Prevalence on the Occurrence of Computer Vision Syndrome to VDT .....	291
Operator in Bank Surabaya, Indonesia	
<i>Riana Alfi Hasanah, Tjipto Suwandi, Arief Wibowo</i>	
58. Symptom Analysis of Patients with Impaired Renal Function in the Critical .....	296
Care Units of Selected Tertiary Care Hospital of Udupi District, Karnataka State	
<i>Daisy Josphine Lobo</i>	
59. Bacteriological Profile and Antimicrobial Susceptibility Pattern Among .....	301
Critically Ill Patients; A Cross Sectional Study	
<i>Sheetal Raj M, Damodar Shenoy, Archith Boloor</i>	
60. Root Resorption in Orthodontics: A Recent Update .....	307
<i>Mithun K, Harshitha V, AshithM V, Naveen Kumar, Anil Kumar</i>	
61. Exploring Employee Creativity As A Driver to Empower .....	313
Employees in Hospitality Industry	
<i>Mithun K, Harshitha V, AshithM V, Naveen Kumar, Anil Kumar</i>	

62. A Study of Supine Vs. Prone Positioning on Responses of Preterm Infants on Ventilator Support- A Randomized Controlled Trial Protocol <i>Sonia R B D'Souza, Leslie Edward Lewis, Laveena D'Souza</i>	319
63. Quantification of Weight and Duration of Schoolbag Carriage Based on Socioeconomic Status and its Correlation with Occurrence of Pain Among Urban Children of West Bengal, India <i>Bibaswan Basu, Koumi Dutta, Ruchira Mukherjee, Romana Barman, Devashish Sen</i>	324
64. Forming Local Support System (LSS) Model As Agent of Change Behavior of Clean and Healthy Household in Riverbanks of Banjar Regency <i>Fauzie Rahman, Dian Rosadi, Anggun Wulandari, Dewi Muti Sari, Farida Asyha T</i>	329
65. Stakeholders' Misbehavior Conduct in HIV/AIDS Mitigations in the Era of Indonesian Decentralization and Democracy <i>Husaini, Maman Saputra, Ismi Rajiani</i>	335
66. Evaluation of Waste Water Treatment Toward Physical, Chemical, and Biological Parameters in WWTP Basirih Banjarmasin, Indonesi <i>Husaini, Muhammad Khairiyandi Rosyadi, Nita Pujiанти, Ratna Setyaningrum, Fauzie Rahman, Maman Saputra</i>	340
67. Bridging Healthcare with Wellness Tourism in India <i>Shalini P</i>	345
68. Falls At Home: A Community Based Study on Awareness and Prevention Among Adults <i>George P Jacob, Chythra R Rao, Asha Kamath, Vandita Pahlwa, Jaun Zeb</i>	351
69. Potential Health Risks Among Oncology Staff Nurses of Selected Hospitals Due to Antineoplastic Drug Exposure <i>Sweta Kumari, Daisy Josphine Lobo, Leena Sequira</i>	358
70. Correlates of Quality of Life Patients with Cirrhosis of Liver Admitted in Selected Hospitals of Udupi Taluk, Karnataka <i>Jijomon PP, DasyJosphine Lobo, Flavia Castelino</i>	362
71. Hair Care Product Usage Purposes and Brand Predilection of Male Consumers <i>P Jagadeesan, P Balaji</i>	367
72. Effectiveness of Human Resource Practices and its Impact on Organisational Commitment Among it Employees in Chennai City <i>P Jagadeesan, R Elavarasan</i>	372
73. Comparative Study on Effect of Misoprostol and Oxytocin in the Active Management of Third Stage of Labor in A Tertiary Hospital in Manipur, India <i>Rajib Roy, Manisha Vernekar</i>	376
74. Assessment of Pulmonary Health Status Among Stone Quarry Workers At Kashipur, Silchar, Assam <i>DibakarDey, Sanjeev Kumar, Supriyo Chakraborty</i>	382
75. Service Recovery- An Opportunity To Enhance Shipper's Loyalty In Ocean Freight Forwarding <i>S Subhashinia1, S Preetha2</i>	387



# An Assessment of The Stress Levels of Students Entering Medical School in Indonesia

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## ABSTRACT

**Introduction:** Many studies have reported that distress and related psychological health problems are higher among medical students compared to the general population. There have been no studies in Indonesia that have assessed the stress level of medical students entering medical schools and longitudinally. This study assesses baseline stress levels of students entering medical schools.

**Method:** A cross sectional survey was conducted on 2013 intake of new medical students. We recruited 263 participants between September and October 2013 during the first two months of their university life. Level of distress was measured using an Indonesian version of the WHO General Health Questionnaire-12 (GHQ-12).

**Result:** Of 263 students, 52.2% were classified as being at risk of stress and 14.8% were classified as "stressed". There were no significant difference in level of stress between male and female students and those students with different socioeconomic status and geographic category ( $p > 0.05$ ). However, students from lower socioeconomic background and those from rural regions reported slightly higher levels of stress, though this difference was not significant ( $p > 0.05$ ). Students who obtained specific government scholarship due to low socioeconomic status were significantly higher of stress level ( $p < 0.05$ ).

**Conclusion:** The study shows that new medical students had high levels of stress compared to the general public as measured by GHQ-12. Follow up study is planned to assess the effect of stress longitudinally in relation to academic performance.

**Keywords:** New Medical Student, GHQ-12, Stress, Indonesia

## INTRODUCTION

The objective of the study is to examine the level of stress of new medical students as a baseline for future follow up longitudinally. The study was done in a medical school in Indonesia because newly implemented admission system entering university in the country since 2013. The new admission system is through school matching program with the admission criteria based on high school performance as an addition to the existing admission examination test. The government imposes that universities have to allocate at least 50% proportion of new students from the school matching program. In supporting the

program, the government also give scholarship to all students from low socioeconomic status. The programs affect on demographic characteristic of new students with substantial proportion of students from rural and low socioeconomic status. The students from rural and low socioeconomic status may feel isolated and lead to stress. As many studies reported that students the prevalence of psychological disorders is relatively higher in medical students, which includes distress, anxiety and depression.<sup>5,7-12</sup> Some of the causes include feeling isolated, lack social support and financial problem.<sup>11,23,24,26</sup>

Stress is automatic and unspecific body response to stressor or threat as mechanism of adaptation. The response has been known as 'fight or flight responses, which means struggle or run to avoid the threats.<sup>1</sup> The responses of stress initially begin with alarm stage, when someone starts to aware the psychological burden or threat. If the stressor or threat occurs persistently, the

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response will continue to resistance stage. The resistance toward stressor involves psychological defence and adaptation. When someone cannot adapt to the stressor, he/ she will fall into exhaustion or decompensation stage that adaptation disorder appears which is also known as a distress condition.<sup>2,3</sup> Adaptation disorders or distress appears with many psychological and physical symptoms, such as sleep and eating disorders, cognitive and emotional imbalance.<sup>1,2,4</sup> Someone in distress condition cannot do their daily activities normally. If the condition happens on students, there is possibility effect on their academic performances. On the other hand, learning in university level especially in a medical school also becomes stressor.<sup>5-7</sup>

## METHOD

Cross sectional study has been conducted in FMAU on new medical student intake 2013. Participants were selected randomly, which 263 out of 360 students participate in the study. The data was collected between September and October 2013 in the first two months of their university life and before taking any summative exam.

Level of distress was measured by using Indonesian version of General Health Questionnaire-12 (GHQ-12).

The GHQ-12 is a valid and reliable tool to assess general psychological and adaptation disorders, which has been used widely in various population.<sup>12-17</sup> The instrument that has been used for this study was Indonesian version of GHQ-12,<sup>18</sup> however the scoring system refer to the original version.<sup>19</sup> The Likert scale scoring system 0-3 used in this study, with possibility of the score between 0 and 36. Cut of point of general population is 11/12, and someone is identified in distress condition with the score more than 15.<sup>15,20</sup> The data was analysed descriptively, and later statistical analysis was employed to see relationship between demographic factors and level of stress.

## RESULT

A total of 263 participants were included in the analysis of the study, which most of them were female (76%) and from middle and rich socioeconomic family background (86.3%). Majority of them are also coming from West Sumatera Province (66.9%) and high school location in town or big city (91.6%) (Table 1). The admission pathway was comparable between high school matching programs or based on high school mark and national university entry written examination. The study also found 52.2% students had GHQ-12 scores above cut off point (CoP) of general public GHQ-12 and 14.8% were distress (table-1).

**Table 1. Characteristic of participant's and GHQ-12 Score**

Characteristics		f (%) n=263
Sex	Male	63 (24.0)
	Female	200 (76.0)
Socioeconomic status	Poor Family	36 (13.7)
	Middle class and rich family	227 (86.3)
High school location	District region	22 (8.4)
	Town and big city	241 (91.6)
Province of origin	West Sumatera Province	176 (66.9)
	Outside of the province	87 (33.1)
Admission Pathway	High school Matching Program	159 (59.3)
	National Entry Written exam	107 (40.7)
Government Scholarship	Supported	34 (12.9)
	Not supported	229 (87.1)
GHQ-12 Score	Below CoP	125 (47.5)
	Above CoP	138 (52.5)
Level of stress	Normal	224 (85.2)
	Distress	39 (14.8)

By comparing level of distress, there were no differences among participants in the different sex, province of origin and admission pathway ( $p > 0.05$ ). Participants from lower socioeconomic status were

slightly more in distress level (25.0%) than participants from middle class and rich family (13.2%). The participants who schooled previously in district region were also slightly more in distress level (27.3%) than

the participants from town or big city (13.7%). However, these are not significant ( $P>0.05$ ). The participants who obtained specific government scholarship for

the student from low socioeconomic status were significantly more in distress level ( $p<0.05$ ) (table-2).

**Table 2. Relationship between demographic factors and level of stress**

	Factors	Level of Stress		pValue <sup>#</sup>
		Normal	Distress	
Sex	Male	53 (84.1%)	10 (15.9%)	0.789
	Female	171 (85.5%)	29 (14.5%)	
Socioeconomic status	Poor family	27 (75.0%)	9 (25.0%)	0.065
	Middle class and rich family	197 (86.8%)	30 (13.2%)	
High school location	District region	16 (72.7%)	6 (27.3%)	0.086
	Town and big city	208 (86.3%)	33 (13.7%)	
Province of origin	West Sumatera province	150 (85.2%)	26 (14.8%)	0.971
	Outside of the province	74 (85.1%)	13 (14.9%)	
Admission pathway	Matching program	132 (84.6%)	24 (15.4%)	0.759
	National entry written exam	92 (86.0%)	15 (14.0%)	
Government scholarship	Supported	24 (70.6%)	10 (29.4%)	0.010
	Not supported	200 (87.3%)	29 (12.7%)	

<sup>#</sup>calculated by chi-square

## DISCUSSION

Based on the GHQ-12 level of stress indicator, the study found 14.8% participants were distress. Moreover, the study revealed that 52.2% participants had GHQ-12 scores above cut off point (CoP) of general public GHQ-12. This study in Indonesian context confirms various previous study about high prevalence of distress in medical students.<sup>5,8,10,11</sup> The study also confirm that learning in medical school become a big stressor for the students.

Various literatures mentioned that the level of stress in medical students is relatively higher because many factors, such as academic burden<sup>8,21,22</sup> or dislike to study of medicine.<sup>23</sup> Other non-academic factors may also have significant impact, such as feeling minority,<sup>24</sup> lack of social support,<sup>11</sup> facing bad social experience<sup>25</sup> and financial problem.<sup>26</sup> All these factors may also contributed to distress condition of new medical students in FMAU. In this study we did not explore deeper the cause but we only analysed few demographic factors that possibly related to level of stress.

By comparing level of distress, there were no differences among participants in the different sex, province of origin and admission pathway ( $p>0.05$ ). Participants from lower socioeconomic status were slightly more in distress level (25.0%) than participants from middle class and rich family (13.2%). The

participants who schooled previously in district region were also slightly more in distress level (27.3%) than the participants from town or big city (13.7%). The participants who obtained specific government scholarship for the student from low socioeconomic status were significantly more in distress level ( $p<0.05$ ). Despite we did not explore deeply, this result confirm briefly that feeling isolated, socioeconomic and financial factors also affect on level of stress.<sup>11,24,26</sup>

## CONCLUSION

This study showed that new medical students had higher average GHQ012 score or stress level than general public and few students tend to fall into distress level. Academic and non-academic factors may contribute to the condition. Furthermore, psychological test in admission and preparation for medical students need to be considered. Further study need to be conducted to explore specific factors that cause distress in medical student in Indonesian context, and to oversee the relation to academic performance.

**Ethical Clearance:** A formal permission taken from dean office of Faculty of Medicine of Andalas University.

**Source of Funding:** The research partially funded by Faculty of Medicine of Andalas University.

**Conflict of Interest:** Nil

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