

## A STUDY ON EFFECT OF STRESS ON THE HEALTH OF MEDICAL STUDENTS

T. Siva Kala<sup>1</sup>, Y. Padma Sri<sup>2</sup>

### HOW TO CITE THIS ARTICLE:

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**ABSTRACT: INTRODUCTION:** Medical education is perceived as very stressful. Amongst medical students, stress had been reported to be due to academic demands, exams, inability to cope, increased psychological pressure, and too much work load. All this can result in altered physical and mental health among students. In this context this study is done to identify stress factors and their influence on the health of medical students of Kurnool Medical College.

**OBJECTIVES:** 1) Comparison of perceived academic stress between 3<sup>rd</sup> and 7<sup>th</sup> semester medical students. 2) To identify the Causes of the perceived academic stress 3) to study the Changes in physical, mental, psychological and emotional health. 4) To study Life-style changes since entering medical college.

**METHODOLOGY:** A cross-sectional study was conducted during September and October 2014, at Kurnool medical college, Kurnool. The 3<sup>rd</sup> & 7<sup>th</sup> semester Medical students (279 in number) were included in the study and prior consent is taken after explaining the objectives of the study.

**THE STUDY INSTRUMENT:** The latest version of the questionnaire (2007) on the "Influence of Studying on Students' Health" (ISSH) developed by the International Federation of Medical Students' Association (IFMSA) slightly modified to the local context.

**STATISTICAL ANALYSIS:** chi-square test and percentages. **RESULTS:** 279 3<sup>rd</sup> semester & 7<sup>th</sup> semester medical students are interviewed in the study, of that 92.47% had experienced stress at one time or another due to studies. **CONCLUSIONS:** Medical students were at higher risk of physical and mental health problems due to academic stress. Perceived stress and stress related health problems are found in majority of medical students which are increasing as the semester's progress.

**KEYWORDS:** Stress; health effects, Medical Education; Medical students.

**INTRODUCTION:** "Stress is mind and body's reaction to an event or change."<sup>1</sup> It is generally believed that the health of students is affected by the stresses of academic life. Medical education across the globe is perceived as being stressful. These stressors may affect their learning ability, academic performance and health. This can have an adverse effect on Physical, mental & emotional health of the students. Several international studies have revealed high rates of health problems in undergraduate medical students as a result of their studies.<sup>2,3,4</sup> In this context this study is done to identify stress factors and their influence on the health of medical students of Kurnool Medical College. Objectives: 1) to compare perceived academic stress between 3<sup>rd</sup> and 7<sup>th</sup> semester medical students. 2) To study the changes in physical, mental, psychological and emotional health. 3) To identify the determinants associated with perceived academic stress. 4) To study Life-style changes since entering medical college.

# ORIGINAL ARTICLE

**MATERIALS AND METHODS:** This study was a cross sectional & descriptive study conducted among 3<sup>rd</sup> semester & 7<sup>th</sup> semester medical students during September and October of 2014, at Kurnool medical college, Kurnool. A total of 279 medical students including 143 third semester and 136 seventh semester students were interviewed using the latest version of the questionnaire (2007) on the "Influence of Studying on Student's Health" (ISSH)<sup>5</sup> developed by the International Federation of Medical Students' Association (IFMSA) after slightly modifying to the local context. Statistical analysis was done using chi-square test and percentages and the data analyzed by EPIINFO software version 7.

**RESULTS:** A total of 279 Medical students participated in the study, with 143 students from 3<sup>rd</sup> semester and 136 from 7<sup>th</sup> semester. The mean age was 21.39 yrs. 92.47% had experienced stress at one time or the other due to studies.<sup>Fig. 1</sup> 7<sup>th</sup> semester students (23.53%) experienced frequent academic stress than 3<sup>rd</sup> semester students.

11.9% of 3<sup>rd</sup> term students reported worsening of physical health status, after entering into medical college due to stress when compared to past, which increased to 26.47% among 7<sup>th</sup> term students and this was statistically significant ( $p < 0.05$ ) Self-reported changes in musculo-skeletal problems were more than that of gastro-intestinal or Respiratory system and infectious diseases. (Figure 2) Deterioration of mental health in terms of concentration, memory and judgment was also reported to be significantly more frequent among 7<sup>th</sup> semester medical students than 3<sup>rd</sup> semester students which was statistically significant. ( $P < 0.005$ ; 0.00003; 0.0411 respectively)<sup>Tables 3,4</sup> Overall, psychological and emotional health problems in 3<sup>rd</sup> and 7<sup>th</sup> semester students were depression (30.77% vs. 45.59%), mood disturbance (27.27 vs 41.18%), anxiety (22.38% vs. 30.15%), and phobia (20.28% vs. 24.26%), and were reported to have occurred in a large proportion of the student population after the start of their college studies. 7<sup>th</sup> semester medical students suffered significantly more frequently from psychological/emotional problems than 3<sup>rd</sup> semester students. 3<sup>rd</sup> semester students were having more Frustration (34.47%) than 7<sup>th</sup> semester students (3.68%).<sup>Fig. 3</sup>

Reported causes of study-related stress included a fear of failure (3<sup>rd</sup> term 41.26% vs. 50% by 7<sup>th</sup> term), an overloaded curriculum (3<sup>rd</sup> term 48.95% vs 41% by 7<sup>th</sup> term); unsuitable teaching methods (3<sup>rd</sup> term 13.98% vs. 34.55% by 7<sup>th</sup> term %); non-supportive relationships with other students (3<sup>rd</sup> term 8.39% vs. 17.65% by 7<sup>th</sup> term), and an unsuitable study environment at their place of residence (3<sup>rd</sup> term 4.89% vs 9.55% by 7<sup>th</sup> term); an unsatisfactory study environment at the faculty (3<sup>rd</sup> term 4.19% vs 7.35% by 7<sup>th</sup> term %).<sup>Fig. 4</sup>

Overall, the most common negative change in life-style was lack of physical exercise (6.99% vs. 43.38%), followed by decreased sleeping hours (10.49% vs. 38.97%), inadequate time for hobbies and recreational activities (24.48% vs. 34.56%), inadequate social interaction with family and friends (6.29 vs. 31.26%) and also lack of self-health care (4.90% vs. 30.88%). These changes in their life-style were significantly reported more by 7<sup>th</sup> semester medical students than 3<sup>rd</sup> semester students.<sup>Fig. 5</sup>

Majority of the students 238(85.30%) did not report any economic problems. Among the few who did, it was significantly more among 7<sup>th</sup> semester students than 3<sup>rd</sup> semester medical students ( $P < 0.01$ ). Emotional problems and problems related to study were again reported

## ORIGINAL ARTICLE

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significantly more among 7th semester students than 3<sup>rd</sup> semester medical students ( $P < 0.001$ ;  $P < 0.05$ ) On the other hand, 48 medical students reported social problems among them 23 (47.92%) were of 3<sup>rd</sup> semester, 25(52.08%) were of 7<sup>th</sup> semester. There were no significant differences between the two groups of students with respect to social and family problems ( $P > 0.05$  and  $P > 0.05$ ).<sup>Table 5</sup> Majority of the students suggested some of the coping strategies to be more interactive teaching sessions, (39.71% of 7<sup>th</sup> semester students), sports and cultural activities (42.66% of 3<sup>rd</sup> semester students) followed by yoga, counselling etc<sup>fig. 6</sup>

**DISCUSSION:** In a study done by Badria. K, 96.3.% medical students had experienced stress at one time or the other due to studies similar to the present study. Reported causes of study-related stress included an overloaded curriculum (84.2%); unsuitable teaching methods (77.2%); fear of failure (70.7%); an unsatisfactory study environment at the faculty (40.5%)<sup>6</sup> Seth G.S. Medical College, Mumbai study revealed 73%perceived stress at one or more times among medical students. They also reported Stress to be significantly more in Second and Third MBBS students rather than First MBBS levels ( $p < 0.05$ )<sup>2</sup> A study done by Barikani. A et al reported 45% of perceived academic stress among medical students.<sup>7</sup> Mishra et al reported that Physiological benefits from leisure activities significantly reduced academic stressors (conflict, change, and frustration) and reactions to stressors (behavioral and cognitive) among college students.<sup>8</sup> Sharif F et al in their study found that the implementation of an intervention programme reduced their anxiety, increased the nursing students' self-esteem and improved their grade point average over time.<sup>9</sup>

**CONCLUSIONS:** Perceived stress and stress related health problems were found in majority of the medical students which were increasing as the semester's progress. This was reported mostly due to higher academic demands and the time constraints to fulfill them. Other frequently reported factors were fear of failure (41.6%); and unsuitable teaching methods (13.98%). Deterioration of mental health in terms of concentration, memory and judgment was also reported to be significantly more frequent among 7<sup>th</sup> term than 3<sup>rd</sup> term students. All of which resulted in perceived anxiety and depression, negative life-style practices and a worsening status of physical and mental health since the start of their college studies.

**RECOMMENDATIONS:** There is a need for Periodic health checkups and counseling sessions for all the medical students. The Mode of education should be shifted to student centered learning with more interactive sessions. Student support committee should be established at college to provide knowledge about the unhealthy consequences of stress, self-awareness, and positive methods to cope with stress and to encourage help seeking behavior among the students. Stress management Programs should focus on encouraging students to construct 1) Effective time management plan for studies and 2) Leisure activities during their academic years.

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# ORIGINAL ARTICLE

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<b>Physical health (compared to past health)</b>	<b>3<sup>rd</sup> Semester</b>	<b>7<sup>th</sup> Semester</b>	<b>P-Value</b>
Worse	16 (11.9%)	36 (26.47%)	< 0.05
Similar	86 (60.14%)	63 (46.32%)	
Better	41 (28.67%)	37 (27.21%)	

**Table1: Self-reported change in physical health among medical students**

<b>Concentration</b>	<b>3<sup>rd</sup> semester</b>	<b>7<sup>th</sup> semester</b>	<b>P-Value</b>
Worse	33 (23.08%)	59 (43.38%)	0.0005
Similar	49 (34.26%)	27 (19.85%)	
Better	61 (42.66%)	50 (36.77%)	

**Table 2: Self-reported change in Concentration among Medical students**

<b>MEMORY</b>	<b>3<sup>rd</sup> semester</b>	<b>7<sup>th</sup> semester</b>	<b>P Value</b>
worse	14 (9.79%)	40 (29.41%)	0.00003
similar	7 (51.75%)	58 (42.65%)	
better	55 (38.46%)	38 (27.94%)	

**Table 3: Self-reported change in memory among medical students**

# ORIGINAL ARTICLE

Judgment	3 <sup>rd</sup> semester	7 <sup>th</sup> semester	P-value
worse	6 (4.20%)	17 (12.50%)	0.0411
similar	53 (37.06%)	45 (33.09%)	
better	84 (58.74%)	74 (54.41%)	

Table 4: Self-reported change in judgment during study-period

Problem	3 <sup>rd</sup> semester	7 <sup>th</sup> semester	P value
Economic problems	13 (9.09%)	28 (20.59%)	0.0066*
Social problems	23 (16.08%)	25 (18.38%)	0.6
Family problems	10 (6.99%)	14 (10.29%)	0.32
Emotional problems	18 (12.59%)	41 (30.15%)	0.00033*
Problems related to study	15 (10.49%)	26 (19.12%)	0.041*

Table 5: Psychosocial, Family problems experienced by medical students

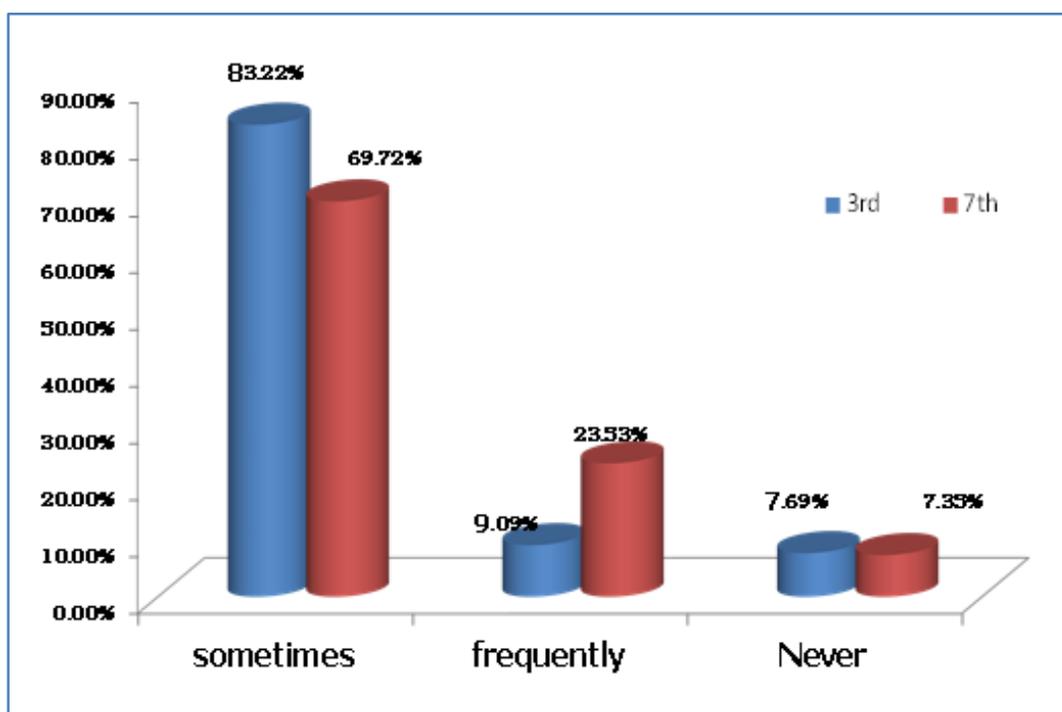
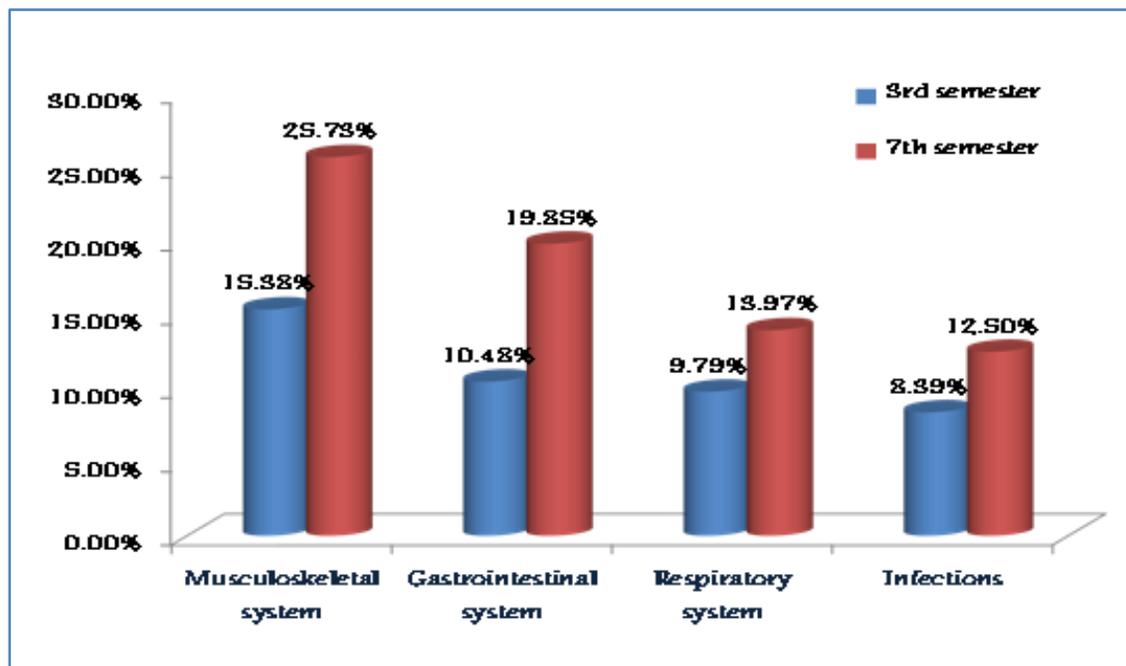
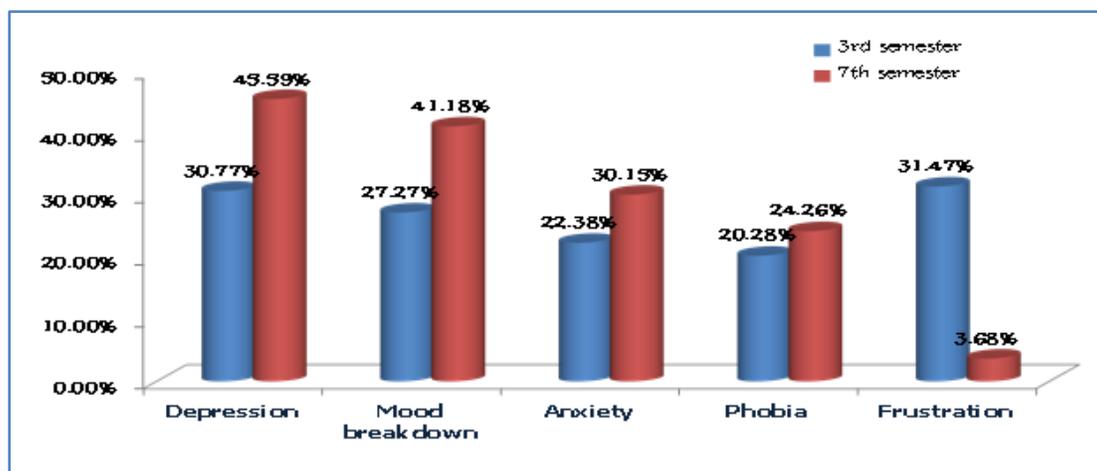


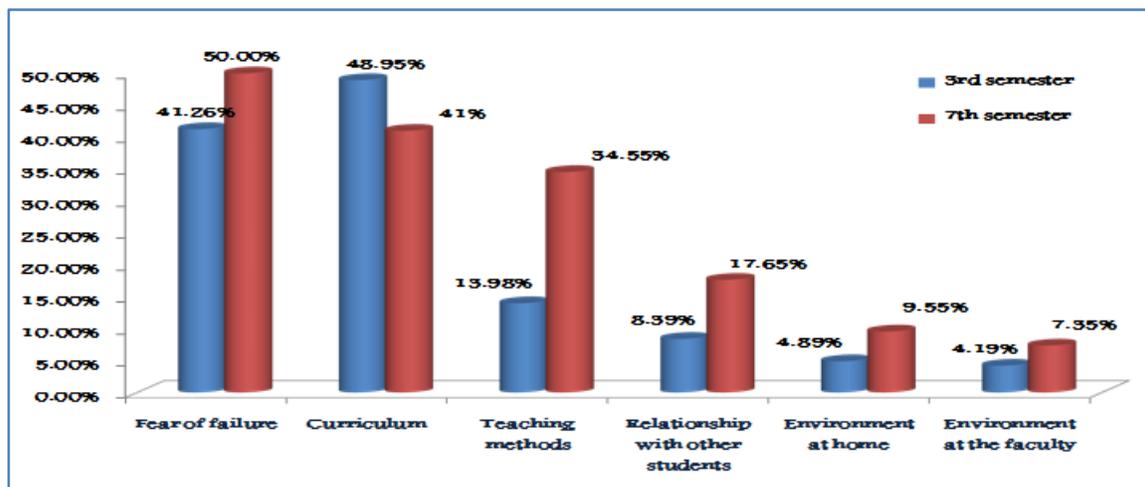
Fig. 1: Perceived stress among medical students



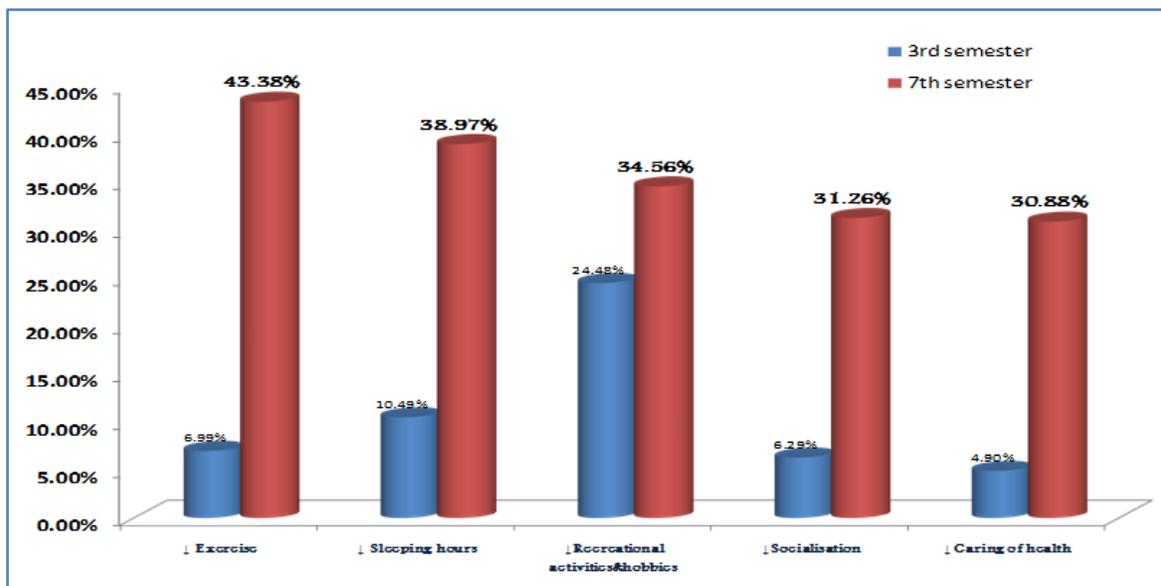
**Fig. 2: Health problems as reported by the students**



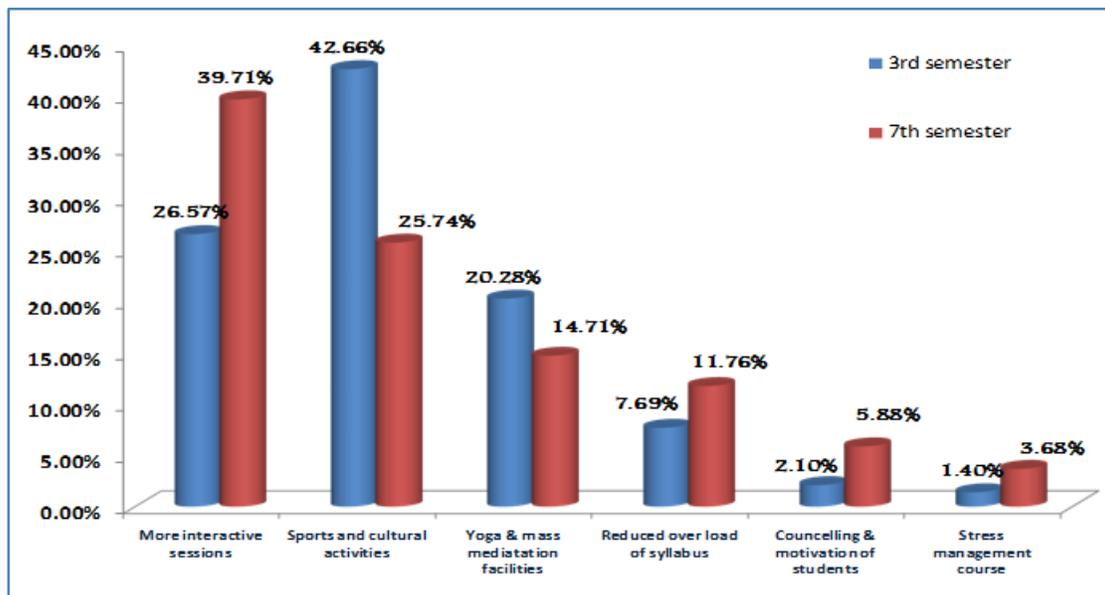
**Fig. 3: Self-reported psychological problems among medical students**



**Fig. 4: Reported Determinants associated with perceived academic stress**



**Fig. 5: Negative Changes in life-style due to studying**



**Fig. 6: Coping strategies suggested by the students**

**AUTHORS:**

1. T. Siva Kala
2. Y. Padma Sri

**PARTICULARS OF CONTRIBUTORS:**

1. Senior Resident, Department of Community Medicine, RIMS, Ongole.
2. Associate Professor, Department of Community Medicine, Kurnool Medical College, Kurnool.

**NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:**

Dr. Y. Padma Sri,  
Department of Community Medicine,  
Kurnool Medical College,  
Kurnool, Andhra Pradesh.  
E-mail: padmasriyalamanchili@yahoo.co.in

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