

EFFECT OF TRAFFIC CONGESTION ON MENTAL HEALTHVenkatesh S¹, Pushpa G²**HOW TO CITE THIS ARTICLE:**

Venkatesh S, Pushpa G. "Effect of Traffic Congestion on Mental Health". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 42, September 08; Page: 10490-10493, DOI: 10.14260/jemds/2014/3368

ABSTRACT: INTRODUCTION: Bangalore is one of the most sought-after cities in the country with rapid growth in IT industry and rise in the number of job opportunities which has led to increase in vehicular population to about 1.5 million, with an annual growth rate of 7 – 10%. Traffic congestion has been found to disturb mood, lead to frustration and work absences. Hence the present study was undertaken to know the emotional states of stress, anxiety and depression in city bus drivers and compare the results with non-drivers of similar working environment. **OBJECTIVES:** To measure stress, anxiety and depression in city bus drivers. And, to compare the results with non-drivers of similar working environment. **METHODOLOGY:** Comparative parallel study done with 30 male city bus drivers as cases and 30 male bus conductors as controls in the age group of 20-60 years. The study group was matched for working hours and socio economic status. Appropriate inclusion and exclusion criteria were excised and informed consent was taken. Depression, anxiety and stress scale (DASS), a 42 item questionnaire evaluating depression, anxiety and stress was administered to all subjects. **RESULTS:** compiled and statistically analyzed. Drivers were more stressed compared to non-drivers which was statistically significant ($p < 0.01$), whereas anxiety and depression scores showed a similar trend though without a statistical significance. **CONCLUSION:** Results highlight that city bus drivers are more stressed compared to non-drivers working in the same environment. Therefore measures to combat the stress need to be emphasized.

KEYWORDS: Traffic congestion, stress, anxiety, depression.

INTRODUCTION: Mental health is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community.¹

The term "stress", as it is currently used was coined by Hans Selye in 1936, who defined it as "the non-specific response of the body to any demand for change".²

Anxiety is a feeling of fear, worry, and uneasiness, usually generalized and unfocused as an overreaction an to a situation that is only subjectively seen as menacing.³

Depression is a common mental disorder that presents with depressed mood, loss of interest or pleasure, decreased energy, feelings of guilt or low self-worth, disturbed sleep or appetite, and poor concentration.⁴

Bangalore is one of the most sought-after cities in the country with rapid growth in IT industry and rise in the number of job opportunities. With the rising population in the city there is also a corresponding increase in occurrence of traffic congestion in which one experience increases trip times, slower vehicular speed and increased line ups. There has been an increase in vehicular population to about 1.5 million, with an annual growth rate of 7–10%.⁵

Traffic congestion has been found to disturb mood, lead to frustration and work absences. Studies have reported a larger BMI and higher BP in individuals exposed to increased periods of time behind the wheels.⁶

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A study has shown association between exposure to peak traffic condition and on the job elevation of urinary catecholamine's in urban bus drivers showing the linkage between traffic congestion and psycho-physiological stress.⁷

MATERIALS AND METHODS: A comparative parallel study was done on 30 male bus drivers and 30 male bus conductors as controls of age group 30 to 60 years, those working for 8 hours per day with a minimum of 1 year of experience and married and belonging to upper middle class according to kuppaswamy classification of socioeconomic status, and belonged to BMI less than 24.

Those who had any infections at the time of study, H/o any systemic illness, diabetes hypertension and those who are on any anti-psychotic medications currently were excluded. A written informed consent was taken. Detailed medical examination done and the procedure was explained to subjects.

Depression anxiety and stress scale (DASS), a 42 item questionnaire evaluating depression anxiety and stress was administered to all subjects. Those who didn't understand English the questionnaire was translated in their understandable language. Subjects were asked to use 4 point severity/ frequency scale to rate the extent to which they have experienced each state over the past week. The score for each of the respondents over each of the subscale, were then evaluated as per the severity rating index below

	Depression	Anxiety	stress
Normal	0 - 9	0 - 7	0 -14
Mild	10 - 13	8 - 9	15 -18
Moderate	14 - 20	10 - 14	19 - 25
Severe	21 - 27	15 - 19	26 - 33
Extremely severe	28 +	20 +	34+

STATISTICAL ANALYSIS: Stastical measures such as mean, standard deviation, percentages and ANOVA were implicated to describe and analyze the data $P < 0.05$ was considered significant

RESULTS:

	Drivers	Non-Drivers	P value
Age	42.4 ± 8.4	39.7 ± 6.9	0.22
Work experience	13.8 ± 8.5	11.2 ± 6.5	0.2

Table 1: Age Distribution and Work Experience between Drivers and Non-Drivers

	Stress	Anxiety	Depression
Drivers	16.53±5.5	6.5±3.9	6.3±4
Non Drivers	8.2±5.7	5±3	4±4.2
P Value	<0.001	0.08	0.08

Table 2: Comparison of Stress, Anxiety and Depression Between Drivers And Non-Drivers

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Graph 1: Comparison of Stress, Anxiety and Depression between Drivers and Non-Drivers.

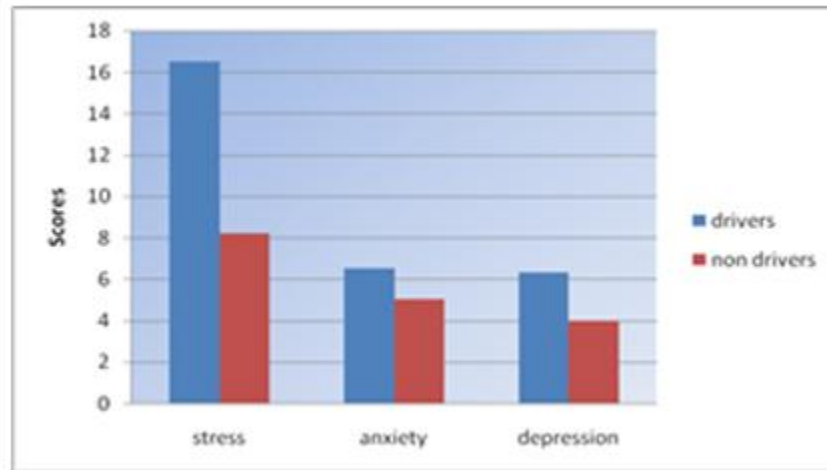


FIG. 1

	1 -10 yrs	11-20 yrs	>20 yrs	P value
Stress	17.9 ± 5.1	17.2 ± 3.6	13.8 ± 6.2	0.22
Anxiety	8.25 ± 2.5	5.7 ± 3.6	6.3 ± 4.5	0.35
Depression	6.4 ± 4.9	4.3 ± 2.8	8.25 ± 1.2	0.12

Table 3: Comparison of Stress, Anxiety and Depression with Years of Experience in Drivers

Graph 2: Comparison of Stress, Anxiety and Depression with Years of Experience in Drivers.

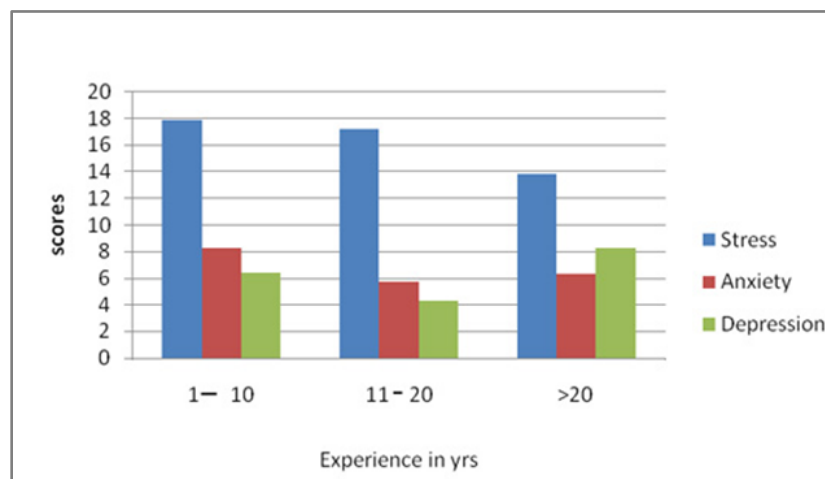


FIG. 2

DISCUSSION: The present study was conducted to examine the differences in emotional states of stress, anxiety and depression in city bus drivers and non-drivers working in similar environment. Age, work experience, working hours and socio economic status were matched. There was an

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increased level of stress among drivers as compared to non-drivers ($p < 0.001$). But anxiety and depression scores were within normal range in both the groups. Compared with the number of years of experience among drivers, there was no significant difference in the scores.

Driving in traffic congestion causes chronic stress which targets brain- Hippocampus and hypothalamus leading to increase in noradrenergic system, serotonergic system, dopaminergic neurotransmitters and glucocorticoids. This causes stress induced structural remodeling of Hippocampus, Amygdala and Pre frontal cortex which causes altered behavioral and physiological response like frustration, increased number of road traffic accidents and road rage.

CONCLUSION: Results of the study show that city bus drivers are more stressed compared to non-drivers working in the similar environment. This highlights that driving in traffic congestion has a negative impact on mental health. It leads to adverse effects like road traffic accidents which have risen to alarming levels. Hence measures to combat the stress need to be emphasized among drivers.

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AUTHORS:

1. Venkatesh S.
2. Pushpa G.

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Physiology, Bangalore Medical College and Research Institute.
2. Post Graduate, Department of Physiology, Bangalore Medical College and Institute.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Venkatesh S,
Associate Professor,
Department of Physiology,
Bangalore Medical College and
Research Institute.
Email: venkie1971@rediffmail.com

Date of Submission: 19/08/2014.
Date of Peer Review: 20/08/2014.
Date of Acceptance: 01/09/2014.
Date of Publishing: 06/09/2014.