

Study the Impact of Stress & Fatigue Accumulation on Bus Drivers

Dr. Ambalika Sinha

Abstract—In today's rapidly changing life & environment, human have to respond according to requirements of situation. Hence, it is important to have a good & harmonious culture at work place, which can be very helpful to minimize the conflict & stressful situation. Selecting the wrong decision or rejecting the right decision could turn out to be costly mistakes for the individual & concerned organization. Conflict & stress management is one area where the internal & external psycho-social factors for conflict & stress can be minimized by using various tools for the best results. This study discuss an effective assessments of impact of stress during working (as driving in this study)& the importance of other related factors cause stress which leads to the road accidents.

Study starts with gathering complete information about the individual, his work & his mental ability before & after working. The importance of this study is that it leads to minimize the road accident by eliminating or minimizing responsible factors of road accidents & by utilizing stress management techniques. The recent trend in the recruiting and selecting process of employees is to access them under stressful situation & psychometric test to check the compatibility of bus drivers for future on road problem.

Keywords— Stress and Conflict, management Techniques.

I. INTRODUCTION

THIS research study deals with the stress & fatigue of bus driver's at the workplace because of anything related to their job responsibility, working condition, conflicts, management, family etc.

Bus drivers frequently report tension, mental overload, fatigue and sleeping problems. (Kobasa,1979)[3]Bus drivers also have more frequent absences from work and of longer duration than workers in other occupations. A large proportion of the work absences are attributable to stress-related disorders such as digestive problems and anxiety. Bus drivers retire earlier and at a younger age than other civil servants. Early retirement is usually accompanied by disability. The main health problems leading to disability are related to the back, tendons and joints, mental illness, and heart and blood vessel disease. Physiological reactions to stress can have consequences for health over time. Researchers(Selyes,1974,[6]Lazarus,et.al,1978[5]) have been studying how stress affects the cardiovascular system, as well as how work stress can lead to hypertension and coronary artery disease. These diseases, along with other stress-induced

illnesses tend to be quite common in American work-places.

Stress is believed to play a significant role in causing two of the diseases (heart and blood vessel disease and digestive disorders) found in excess in bus drivers. Typically, stressful jobs are those which have high psychological demands and little decision-making control, in combination with low social support on the job. Bus driving is a classic example of a stressful job. Bus drivers must respond to multiple demands over which they have little control. The main tasks of a bus driver are to drive safely, keep on schedule, and treat passengers in a professional and courteous manner. Yet two of these tasks are inherently contradictory — maintaining the schedule and serving the public. In order to accomplish one, the other may have to be compromised. Traffic congestion is another stressor which enters this equation.

Social support helps protect individuals experiencing stress. Bus driving interferes with social support in two ways. The job itself is solitary with little chance for face-to-face contact between coworkers. The work schedule disrupts family and social life. (MFL Occupational Health centre, Inc.1998)

According to Sinha (2008) [7] Signs of stress may be cognitive, emotional, physical or behavioral. Signs include poor judgment, a general negative outlook, excessive worrying, moodiness, irritability, agitation, inability to relax, feeling lonely, isolated or depressed, aches and pains, diarrhea or constipation, nausea, dizziness, chest pain, rapid heartbeat, eating too much or not enough, sleeping too much or not enough, social withdrawal, procrastination or neglect of responsibilities, increased alcohol, nicotine or drug consumption, and nervous habits such as pacing about, nail-biting and neck pains.

Hence, the study consists of the following objectives & hypotheses .

Objective of Study Access the effect of driving on stress level of bus drivers.

1. Access the effect of driving on fatigue accumulation of bus drivers.
2. Access the impact of other factors responsible for stress & fatigue both.
3. Access the effect of bus climate in terms of stress & fatigue both.
4. Comparative analysis of AC & Non-AC buses.
5. Comparative analysis of public & private buses.
6. To explore the tools, techniques & strategies for stress

management.

Hypothesis of the Study

- 1 AC bus drivers feel less stress in comparison to Non-AC bus drivers after driving
- 2 AC bus drivers feel less fatigue in comparison to Non-bus drivers after driving.

II. RESEARCH METHODOLOGY

A. About Study

This study focused on the impact of stress & fatigue accumulation on bus drivers & for this purpose subjects selected were from public & private bus drivers of AC & non-AC busses. This study has great importance due to the daily occurrences of accidents across the road by the bus drivers.

B. Demography of Area of research-

The research has been conduct on the bus drivers of Allahabad district & nearby cities/districts cover under the Transport Corporation of Uttar Pradesh as,

1. Allahabad-Kanpur
2. Allahabad-Lucknow
3. Allahabad-Varanasi
4. Allahabad-Jaunpur
5. Alld.-Mirzapur
6. Alld.-Sultanpur.

Type of research- It's an empirical study to access stress & fatigue accumulation amongst the bus drivers (Kothari,2002)[4]

C. Type of sampling-

In this study purposive, stratified & sequential sampling was used simultaneously to fulfill the study requirements

Data collection-

Primary data was collected in this study

Tool used- This study used a schedule with five points rating scale

D. Sampling size-

The total sample size was hundred bus drivers, they comprised of,

Thirty (30) AC bus drivers of public corporation

Sixty (60) non-AC bus drivers of public corporation

Ten (10) non-AC bus drivers of privately owned buses

E. Pilot Study-

Experts' view & opinions were utilized to assess the tool effective.

F. Discussion of the schedule used -

In this study it's tried to interrelate various information of drivers of different types of buses. It asked questions related to demography, e.g. age, qualification, experience, etc.

This schedule also tries to explore various background information which leads to stress.

1. Does conflict occurs amongst the bus staff?

2. Do you smoke?
3. Had you faced any Accident?
4. How many years are left in your retirement?
5. How much you feel family tension?

This schedule asked for information related to stress & fatigue accumulation felt by them at work place as,

1. How much you feel stress during work?
2. How much you feel fatigue during work?
3. How much you feel stress after work?
4. How much you feel fatigue after work?

This study further did a before after test using a tool which consists four non-verbal reasoning questions asked by the drivers before departure from work place & also took their response after they came back to the same place where they were administered the tool before their duty.

So in this way time taken & percentage of correct response before & after is noted which provides the information related to stress & fatigue accumulation felt by them at work place in terms of time taken & percentage of correct response.

If they took more time & (or) gave less percentage of correct responses after duty in comparison to before duty then bus drivers indicated that they were stressed & full of fatigue after their duty.

To compare the public-private, AC-Non AC buses & their facilities the following questions were asked through schedule.

1. What is the number of staff members in bus during duty?
2. What is the number of working days in a month?
3. What is the type of bus ownership?
4. What is the type of bus which you drive during your duty?

To know that how much AC buses are comfortable according to drivers view and to explore how bus climate affects stress & fatigue accumulation among bus drivers following question asked,

To what extent are AC buse more comfortable in comparison to non-AC buses in doing your job smoothly?

III. DATA ANALYSIS AND INTERPRETATION

Age of maximum drivers fell between 31-40(42%), With regards to experience most drivers fell in the range 0-10 (42%), next,11-20 years (39%). With regards to frequency of conflict occurring among bus staff 39% said that no conflict occurred,49% said that 25% of the time conflict occurred. With regards to smoking habit, 66% were smokers. As far as family tensions were concerned 40% reported that they felt family tensions 25% of time, 29% did not feel any tension.

With regards to stress at work 43% felt stressed 25% of time,35% felt no stress. On fatigue at work 49% felt fatigue 25 % of time,32% felt no fatigue, after duty 34% felt stresses 75% of time,32% felt stresses after work 50% of time, 36% felt fatigued 50% of time,27% felt fatigued 25% of time.

On the before and after mental ability test it was found that

persons took less time in solving mental ability problems as compared to after duty, the percentage of correct answers were also higher before going on duty as compared to after duty.27% took 2-4 minutes before duty as compared to 21% after duty,51% took 4-6mins before duty as compared to 47% after duty,19% took 6-8 mins as compared to 25% after duty. 3% took 8-10 minutes before duty as compared to 6% after duty. From these findings it is revealed that as tiredness is accumulating time taken for performance of mental ability test was increasing, this showed decrease in concentration with duty coming in between.

With regards to correct responses 8% drivers gave 100% correct responses before duty as compared to 2% after duty,13% drivers gave 75% correct responses before duty as compared to 7% after duty,35% gave 50% correct responses

before duty as compared to 18% after duty,31% gave 25% correct responses before duty as compared to 45% who gave 25% correct responses after duty.13% gave no correct response before duty as compared to 28% who gave no correct responses after duty. Correct responses are being given less by more subjects after duty which shows that they feel so fatigued that they cannot give high level mental ability answers correctly.

Results show that time taken in solving the mental ability questions before departure is lesser than time taken in solving the mental ability questions after arrival & Percentage of correct answers given before departure is comparatively more than the Percentage of correct answers given after arrival.

TABLE I
CROSS TABULATION
WHAT IS THE TYPE OF BUS WHICH YOU DRIVE DURING YOUR DUTY? * TIME TAKEN IN SOLVING THE MENTAL ABILITY QUESTIONS AFTER ARRIVAL IS, CROSS TABULATION

Count		Time taken in solving the mental ability questions after arrival is,					Total
		0-2 min	2-4 min	4-6 min	6-8 min	8-10 min	
What is the type of bus which you drive during your duty?	AC bus	0	7(23.3)	14(47)	9(30)	0	30
	Non-AC bus	1(3.33)	14(20)	33(47.14)	16(22.86)	6(20)	70
Total		1	21	47	25	6	100

TABLE II
CROSS TABULATION
WHAT IS THE TYPE OF BUS WHICH YOU DRIVE DURING YOUR DUTY? * NUMBER OF CORRECT ANSWERS GIVEN AFTER ARRIVAL IS, CROSS TABULATION

		Number of correct answers given after arrival is,					Total
		0	25	50	75	100	
What is the type of bus which you drive during your duty?	AC bus	10(33.3)	15(50%)	2(6.67)	2(6.67)	1(3.33)	30
	Non-AC bus	18(26%)	30(42.9)	16(23%)	5(7.14)	11(43)	70
Total		28	45	18	7	2	100

TABLE III
HYPOTHESIS TESTING

2- One-Sample Test	Test Value = 0					
	t	d.f.	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
1. Time taken in solving the mental ability questions before departure is,	38.947	99	.000**	2.980	2.83	3.13
2. Number of correct answers given before departure is,	15.612	99	.000**	43.000	37.53	48.47
3. Time taken in solving the mental ability questions after arrival is,	36.810	99	.000**	3.140	2.97	3.31
4. Number of correct answers given after arrival is,	11.473	99	.000**	27.500	22.74	32.26

Significance at 0.01 levels

Here, Mean time taken in solving the mental ability questions before departure is less than mean time taken in solving the mental ability questions after arrival & Mean of number of correct answers given before departure is comparatively more than Mean of number of correct answers given after arrival. But the t test score for both the variables, viz; amount of time taken for solving mental problem is significant; same can be said for correct responses. In both before and after situations both are revealing significant results, thus this indicates that duties of drivers are not influencing their mental processes very much, they are used to them hence they don't take them in a stressful manner.

A. Pros & Cons of AC & Non-AC Bus Climate

The air conditioned bus climate is very suitable to work smoothly & because of comfortable climate bus drivers feel comparatively less stress But this comfort zone/climate of AC bus sometimes makes the drivers totally stress & fatigue free so which often incites them to drive the bus fast & overtake in wild manner which often may lead to severe accidents.

On the another way non-AC bus driver are always stressed & feel fatigue just because of unfavorable bus climate which makes the concerned driver comparatively more attentive than normal which may further leads to more stress & decision-making capacity declined at particular period of stressed situation.

IV. OBSERVATION & FINDINGS

Excessive work-load is very near to the suicidal cases & sometimes it create severe problem in human if it's promoted by the various types of stressors. This finding has also been observed by Phil Hanley(1999)[1]in his study of Bus drivers Fatigue and Stress Issues Study. Human error is a causative factor in 85% or more of all clashes. Fatigue has been a very important factor contributing to fatalities due to vehicle drivers. Traffic congestion

1. Work Factors associated with Stress-related Health problems include A-constant time pressure, B-little or no input into how work is organized or implemented, C-disorderly passengers, D-threat of physical assault and crime, E-work schedule interference with home life and leisure activities, F-social isolation on the job
2. Negative attitude & poor socio-economic conditions work as catalyst in promoting stress & fatigue both.
3. Nature of the perception, psyche, cognition & natural habits stimulate anyone to react under stress.
4. Various hassles are responsible for creating a fix part of stress on daily basis
5. Conductor & helper feel least stress in comparison to drivers.
6. On the other way a person with balanced attitude are not much influenced by such stresses but a long run hassles or stressors may be outburst in future.
7. Daily hassles vary person to person according to their

perception & how the individual cope, manage the hassles.
Suggestions & Recommendations

1. Bus should have proper stoppages at certain intervals for certain limited time just for refreshing & re-energizing.
2. Bus drivers should take sufficient rest & sleeping hour should not be less than seven hours to reduce the stress & fatigue up to an inactive level.
3. Everyone must do proper exercise, slow breathing, diversification of thinking, improved nutrition, relaxation, stress resistant thinking, etc., because it help, not only to reduce our stress, but also reduce our risk of developing a number of severe health problems.
4. As given by Sinha (2008)[8] man should utilize common man de-stressing techniques to get instant relief.

In conclusion it can be said that if any person enjoys the tools, techniques, and strategies of stress management to resist the stress then, definitely that person will achieve the benchmark of healthy personality because it provides the proper & easy coping strategy which leads to health excellence.

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