# Mushrooming traffic congestion and its psychological implications among drivers

**ABSTRACT**

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Traffic congestion on roads occurs when space becomes shorter as compare to traffic. Drivers locked there for hours and do not able to get out of it. Long traffic hours directly or indirectly affects mental health, spoils quality of life and increases anxiety and stress among drivers and commuters on road. The present investigation is the study of traffic congestion and its psychological implications among drivers. The sample consists of 900 drivers of the tricity and subjects were administered with a demographic data, mental health inventory, quality of life and DAS-21. After administering the tests the scoring was done with the help of manual and further SPSS 25 version was used for the analysis. Descriptive statistics and correlation was calculated. Results revealed that there exist positive and significant relationship between mental health and quality of life (r= .329, p<0.01) among drivers. Further it was also found that mental health was negatively and significantly related with depression (r= -.371, p<0.01), anxiety (r= -.331, p<0.01), and stress (r= -.344, p<0.01) among drivers.

Keywords: Traffic congestion, mental health, drivers, stress, depression

## Introduction

It is not easy indeed to define a sensible measure of traffic congestion for the purpose of comparing different cities. In simple language traffic jam or traffic congestion means delay caused by one vehicle to others. The time of delay is equally important as the speed of the vehicle also matters. Traffic congestion means when the vehicles are more on roads then the space required for them to move freely. Everybody has to rush from one place to another due to their various home and job assignments. Life is becoming a fast due to the nature of job and life style of the people especially for young adults. In routine there is a heavy traffic on roads especially in the morning and in the evening hours. Basically there are two types of traffic congestion one is recurrent traffic jam which refers to the everyday rush hour stop and go traffic. Another is non recurrent traffic jam means the congestion which is not regular. It is the delay caused by non-predictable events that disrupt traffic flow. It is not the everyday rush hour traffic jam. These traffic congestions affect the person psychologically as well as physiologically. Mental health is reflected in our abilities to assume responsibility, solve problems make decisions and find satisfactions and happiness in our accomplishments and to live effectively with other people. Traffic congestion has negative impact on mental health. Sullman (2015) found that trait anger and driving anger are related to losing control of the vehicle, loss of concentration etc.

According to clinical psychologists road rage happens just because of being caught in traffic congestion. This leads to frustration, stress, anxiety among drivers and all this further leads to aggression which is the reason of road rage incidents (Miller, 1941 & Berkowitz, 1989). Venkatesh and Pushpa (2014) conducted a study on traffic congestion and its effects on mental health of the city bus drivers. It was also found that drivers were stressed and traffic congestion leads to frustration, disturb mood and work absence.

A small relationship has also been found between road traffic noise and symptoms of mental health. This evidence suggests that although noise can cause psychological symptoms, it does not play a major role in causing mental illness. Driving is a highly complex process as information processors in the driving system, drivers must constantly receive, process, and respond to information derived from a constantly changing environment as well as modulate their internal states. Therefore, they require efficient cognitive and interpersonal function. In an attempt to understand the human error causes motor vehicle crash, researchers have studied an exhaustive array of human factors including mood, aggression, risk taking behaviour, stress, age, gender etc. (Taylor & Dorm, 2006). Li, Wang and Zhou (2017) conducted study on driving anger and job demands. The results indicated that hindrance and challenge demands were positively related to exhaustion, rash driving on road which leads to accidents and resulted in traffic jam and other major chaos. Person who is behind the wheel is not always satisfied one physiologically or mentally. Anxiety whether provoked by the traffic environment or by individual circumstances can alter the physical or psychological conditions that are necessary in order to accomplish the complex task of driving safely.

Previous researches concluded that emotional state of the person also affects driving. Healthy emotional state is required for safe and happy driving. If the person behind the wheels is feeling low, anger or agitated it increases the risk of an accident by 10 times and further it reduces the subjective experience of the individual's life. For better quality of life what person need is simply the satisfaction which is derives from his/her own materialistic things or otherwise. During traffic congestion the person stuck at a point and he is not able to move his vehicle and due to this all his allotted assignments remains pending from which the person gets irritated and then use abusive language. According to Davis, Joseph, Raina and Jagannathan (2017) traffic congestion is on the rise and it affects health and quality of life.

Sukhai, Seedat, Jordaan and Jackson (2005) reported that road rage and aggressive driving behaviour was among the major public problems in their study. Researchers used multiple linear regressions modeling to identify different determining variables at the different levels of aggressive road behaviour and further it was revealed that aggressive driving behaviour affects mental health of the driver and further slows down the quality of life.

This research is important because day by day traffic congestion or jam worsens our quality of life and has become increasingly very difficult for road users to plan their schedules and journeys. As the commuters start their journey in the morning they face traffic congestion, worsen bad conditions of roads, cars, buses, bikes, auto rickshaws all stuck on the road and they all are not able to get out of it easily. This ruins their journey, their way to go to office, schools etc. This directly affects their mood; enhance negative feelings which further leads to bad quality of life. Quality of life involves the satisfaction, happiness, growth in the life and traffic congestion affects these directly. This research congestion and will also reveal the effects of traffic jam on roads and finally from this study the researcher will be able to suggest the possible outcomes to the difficulties occurred due to traffic congestion. The present study mainly focuses on the young drivers and their behaviour.

## METHODOLOGY
## OBJECTIVES

1. To study the effect of traffic jam on mental health, quality of life, depression, anxiety and stress among drivers

2. To study the effect of traffic jam on mental health (positive self evaluation, integration of personality, autonomy, group oriented attitude, environmental mastery and perception of reality) in relation to quality of life, depression, anxiety and stress among drivers.

## HYPOTHESES

1. It is assumed that mental health (dimension wise positive self evaluation, integration of personality, autonomy, group oriented attitude, environmental mastery and perception of reality) found to be low among drivers
2. It is assumed that overall mental health is positively related to quality of life among drivers.
3. It is assumed that mental health is negatively related to depression, anxiety and stress among drivers.

## Sample

The present research aims to study the mushrooming traffic congestion and its psychological implications among drivers. The sample for the study is comprised of 900 young adults ranging in the age of 25 to 40 years and was selected randomly from tricity i.e. Chandigarh, Panchkula and Mohali.

## Inclusion Criteria
- Only those drivers were included who are having valid driving license.
- Drivers having experience of driving of last five years were included in the present study.

## Exclusion Criteria
- Drivers having any psychological or physiological problems were excluded from the present study.
- Drivers having experience of less than five years of driving were also excluded.
- Drivers having any substance or drug abuse were not included in the research.

## Tools Used:
1. Quality of Life (Vandana Kaushik and Purva Jaggi, 2008)
2. Depression Anxiety and Stress Scale (Lovibond & Lovibond, 1995)
3. Mental Health Inventory (Jagdish & Srivastava, 1983)

## Procedure

After developing a good rapport, consent was taken from the subjects and the purpose of study was shared. After having structured interview instructions were provided to the subjects and standardized tools were administered. The participants were assured of having anonymity and confidentiality. The administration of tools was followed by a brief interview with every driver.

## Results and Discussion

### Table 1
### Mean and SD of the measured variables among drivers

| Variables | Mean | SD |
|---|---|---|
| Positive Self Evaluation | 26.40 | 2.52 |
| Integration of personality | 28.56 | 3.55 |
| Autonomy | 14.66 | 2.24 |

| Group Oriented Attitude | 26.00 | 2.80 |
|---|---|---|
| Environmental Mastery | 21.75 | 2.73 |
| Perception of Reality | 19.96 | 2.46 |
| **Total Mental Health** | **137.33** | **7.18** |
| Quality of life | 69.50 | 12.47 |
| Depression | 5.53 | 3.91 |
| Anxiety | 6.70 | 3.58 |
| Stress | 8.02 | 3.09 |

Table 1 revealed the mean and standard deviation of all the measured variables. The mean±SD for the positive self evaluation found to be 26.40±2.52, integration of personality 28.56±3.55, autonomy 14.66±2.24, group oriented attitude 26±2.80, environmental mastery 21.75±2.73, perception of reality 19.96±2.46, total mental health 137.33±7.18, quality of life 69.50±12.47, depression 5.53±3.91, anxiety 6.70±3.58 and stress 8.02±3.09 among young adult drivers.

Thus hypothesis no. 1 was upheld.

From comparing raw scores with the standard scores mentioned in the manual of the mental health the mean values found to be poor. The self evaluation, confidence and identity were found to be poor. The drivers on road found to be not skilled and evaluate themselves to be so negative because they got stuck on the road and not able to get out of it. They were high in the presence of fantasies and do not have broad outlook on the world. Scores on the integration of personality also revealed that drivers not able to concentrate on their work, occupation as traffic jam on road spoils the mental health of the drivers while driving. Drivers do not have the ability to get along with others as the group oriented attitude also depicts poor scores. It means it was one of the reasons of road rage as they do not have patience and have to rush from one place to another. They were more dependable on the other drivers too.

The raw scores of quality of life found to be above average and simultaneously the raw scores of depression, anxiety and stress clearly depicts that drivers were low on depression however high on anxiety and stress.

**Table 2**
**Correlation between the measured variables among drivers**

| Variables | Quality of Life | Depression | Anxiety | Stress |
|---|---|---|---|---|
| **Positive Self Evaluation** | .050 | -.093** | -.077* | -.146** |
| Sig p Value | .133 | .005 | .020 | .000 |
| **Integration of Personality** | .181** | -.226** | -.269** | -.198** |
| Sig p value | .000 | .000 | .000 | .000 |
| **Autonomy** | .086** | -.146** | -.092** | -.123** |
| Sig p value | .000 | .000 | .000 | .000 |
| **Group Oriented Attitude** | .280** | -.306** | -.243** | -.235** |
| Sig p value | .000 | .000 | .000 | .000 |
| **Environmental Mastery** | .067* | .025 | .031 | .005 |
| Sig p value | .043 | .445 | .353 | .874 |
| **Perception of Reality** | .323** | -.208** | -.172** | -.194** |
| Sig p value | .000 | .000 | .000 | .000 |

| Total Mental Health | .329** | -.371** | -.331** | -.344** |
|---|---|---|---|---|
| Sig p value | .000 | .000 | .000 | .000 |

The above table revealed that there exist positive and significant relationship between quality of life and integration of personality (r= .181, p<0.01), autonomy (r= 0.086, p< 0.01), group oriented attitude (r= .280, p<0.01), environmental mastery (r= .067, p<0.05), perception of reality (r= .323, p<0.01) and overall mental health (r= .329, p<0.01) among drivers.

Thus Hypothesis no. 2 was upheld.

These positive and significant values depict that as the mental health increases the quality of life of the drivers also raises. Quality of life in terms of satisfaction with occupational, personal and social life increases only when the person find himself or herself confident, worthful, able to do the tasks etc. In the present investigation the road congestion makes the person's mental health poor and further quality of life too. Integration of personality was significant and positively related with quality of life which portrays that the drivers mental traits like intelligence, emotions, sentiments and acquired reactions increases the healthy lifestyle. Congestion makes the person's emotions, creativity low and it leads to negative outcomes. Drivers feel so low on skills and due to this frustration also generates.

Autonomy and group oriented attitude are two different aspects in which one is independent and other is to move with the group in different situations which revealed the dependency. Low scores on autonomy and group oriented attitude also mold the quality of life towards negative energy. The physical well being, satisfaction, skills start decreases in the congestion when drivers are unable to drive their vehicle. The hurdle of long travel which also includes congestion during road construction, long trip distances that delay the drivers and passengers at home (Gee & Takeuchi, 2004) construct dissatisfaction with life. Overall mental health scores in which correlation value was set up to be .329 determine the affirmative association with the well being among drivers. When drivers' stucked in the traffic jam self acceptance and realization of one's potentials also reduces.

Previous researchers also found the same results and concluded that traffic congestion leads to frustration, disturb mood and work absenteeism (Venkatesh & Pushpa, 2014).
According to researchers those who spent more time in driving and road congestion were likely to report obesity, poor quality of life, high psychological distress and have physical and emotional problems.

With depression, anxiety and stress the dimensions of mental health found to be negative and significant in majority of the cases. There was negative and significant association between depression and positive self evaluation (r= -.093, p<0.01), integration of personality (r= -.226, p<0.01), autonomy (r= -.146, p<0.01), group oriented attitude (r= -.306, p<0.01), perception of reality (r= -.208, p<0.01) and overall mental health (r= -.371, p<0.01), among drivers.

There was negative and significant association between anxiety and positive self evaluation (r= -.077, p<0.01), integration of personality (r= -.269, p<0.01), autonomy (r= -.092, p<0.01), group oriented attitude (r= -.243, p<0.01), perception of reality (r= -.172, p<0.01) and overall mental health (r= -.331, p<0.01), among drivers.

There was negative and significant association between stress and positive self evaluation (r= -.146, p<0.01), integration of personality (r= -.198, p<0.01), autonomy (r= -.123, p<0.01), group oriented attitude (r= -.235, p<0.01), perception of reality (r= -.194, p<0.01) and overall mental health (r= -.344, p<0.01), among drivers.

Thus hypothesis no. 3 was upheld in majority of the cases.

Poor mental health automatically shapes negative cognitive process towards others as well as towards self. From the findings the researcher is able to mention that drivers living with ill mental health or poor mental health were at higher risk of chronic condition likes depression, anxiety and stress. Due to traffic congestion the drivers can suffer from frustration, irritability, low appetite, disturbed sleep, poor concentration on work, tiredness, feeling anxious or worry when planned to go out. Psychological stress takes place when an individual perceives that the

environmental demands exceed his/her adaptive capacity. Traffic congestion, time pressure, shift patterns, social isolation are linked to high levels of psycho physiological stress.

Previous studies also found the same results. Mina, Verma, Balhara and Ul Hasan (2014) concluded that traffic congestion makes the drivers aggressive. They attempted that frustration aggression theory describes that traffic jam are goal blocking and it interferes driving progress. Overcrowding of vehicles and people leads to chaos in parking as well as on roads respectively.

Hill et al. (2017) found the depression among drivers and anti depression has negative impact for the long term.

## Conclusion and Implications

From the above results and discussion it was concluded that the mental health of the drivers was poor and mental health and quality of life was positively and significantly associated. It was also concluded that depression, anxiety and stress was negatively and significantly related with each other.

The solutions of traffic congestion are diverse from one city to another, depending on the city's infrastructure and the culture of the residents. Some solutions such as metro system, which includes underground railways, buses, and bicycles may not success in developing countries that suffers from overpopulation and people have own car as a culture. However, starting with public transport (buses) and encouraging people to use it instead of private cars could solve a part of the traffic problem, and gradually people change their thinking about using private cars every time.

Mental health of the drivers can be improved if all of us abide by the rules and regulations laid down by the government. The rules for issuing driving licenses be more strict and the vehicles should be monitored by fixing a tracking device/GPS system at the time of manufacturing of the vehicle. Taxes on private vehicles are heavily laid down by the government. So that more and more people start using government/public transport which also enhances the income of transport department. The quality and frequency of public transport be improved and increased by government like in other countries e.g. Singapore etc.

The results of the present investigation have clear implications for the young adult drivers, traffic police, engineers, road designers other workers of road construction. Traffic congestion affects mental health, quality of life, increases stress and frustration and this was without any doubt clear from the present investigation. The findings from the present research should be taken into consideration by the government, policy makers, companies of manufacturing the vehicles, drivers as well as the other commuters. The government has to make such policies which can help in the reduction of air pollution, noise pollution and fuel consumption too.

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