

## **Impacts of Commuting on Commuters' Physical and Psychological Health Well-Being: A Case Study of Moradabad City**

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### **Abstract**

Commuting is basically an economically oriented form of mobility which is performed particularly by the working population between their place of residence and place of work on daily basis. Nonetheless, it provides an economic link between two areas and contributes in minimizing the economic disparity existing between two regions through the dissemination of sources of livelihood and thus leads to upliftment of overall socio-economic development of population residing in those areas, however, its negative implications are not negligible as the exhaustive routine of commuters associated to both at place of work and during travel to and from their work place causes a high stress on them. The problems faced at place of work as well the problems faced during the travel take a heavy toll on physical and psychological health well-being of commuters. This condition is worsened when they face the more difficulties in traveling, boarding, standing in scorching, traffic jam and exposure to poisonous gases. Having these things into mind, the present study has been carried out as an attempt to investigate the major implications on commuting on commuters' physical as well as psychological health well-being. The study also tries to find out changes in behaviours of commuters. For this purpose, the data has been collected by conducting a very comprehensive field survey in 2017, in Moradabad city through the direct interview method by using a well-structured questionnaire to respondents. The total number of sampled responds consisted of 2254. The study concludes that a significant number of commuter face a number of physical and psychological problems generated combinely by exhaustive travel as well as their working conditions.

**KEYWORDS:** Commuters, Physical health, Psychological health, Behaviours, Moradabad City

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### **INTRODUCTION**

The act of commuting is just not confined to the hours in which commuter circulate between the two locations i.e. home and work rather it is an activity influencing profoundly the socio-economic lives of commuters. Having mentioned this perspective of commuting, a countless study have been generated considering the consequences of commuting on numerous aspects. In this respect, the study focuses explicitly on exploring the impacts of commuting on the various domains of commuters which are vividly but efficiently get affected by daily commuting. The repercussions of commuting on physical, subjective, well-being as well on behaviours of commuters have been described

The very immense but adverse implications of commuting are observed on health of commuters. A travel to work place and then returning back to place of home within a day takes a heavy toll on commuters' health particularly when the distance is longer to cover

between these locations. A travel at an individual level, studies have shown that the prolonged effects of commuting stress on the individual include cardiovascular problems such as increased heart rate, increased blood pressure, and also problems with the back (e.g., Evans and Carrere, 1991; Pietri et al., 1992). There is even a link between commuting to certain types of cancer (Robinson, 1991). Commuters' stress increases when the distance to be covered is long and it will take long time and when the road is congested (Gray and Lucas; 2001). Besides, Long-standing in traffic jam causes exposures to CO, CO<sub>2</sub>, noise and scorching heat, dust, noise, volatile hydrocarbon, smoke, and infection (Shepherd M. 1975; Mittmeyer HT et al., 1984; Fiedler N. et al., 2000; Adams HS et al., 2001, Blanken PD, Dillon J, Wismann G., 2001). Continued effects of all these factors may cause respiratory problem, permanent hearing loss, loss of appetite and sleep, short-term-memory-loss and even sunstroke (Sharma, 2006).

The effects of commuting on the health of commuters have also been explored differently with focus on gender aspect which substantially shown that degree of commuting effects differs across male and females. Some of studies revealed that the women are likely more to be adversely affected by commuting than their counterpart male commuters. In this respect Novaco et al., (1991) also found that stress perceived as due to commuting also differs across gender. Women report higher stress levels due to commuting than men. This, in turn, could result in stronger negative health effects of commuting for women than for men. Roberts et al., (2011) provided another possible mechanism for heterogeneous commuting effects across gender. They provided evidence that the negative relation between commuting time and well-being holds for women and is not due to a shorter work week or occupational segregation but, rather, due to greater responsibility for housework and childcare compared to them. The impacts of commuting are largely determined by the modes the commuters select to commute.

The impacts of commuting on psychological well-being of commuters consequently lead to the changes in behaviour of commuters. The dissatisfaction of jobs, long commuting distance and time cumulatively resulted in tiredness, stress, and irritation among them. The commuters spending the long hours in traveling along with long working hours result in reduction of access to healthy diet and motivation for the exercise. The long journey also increased stress and likelihood for smoking and alcohol consumption (Palmer, A. 2005). These daily hazards on road reduce performance at work and tolerance levels, and increase the frequency of negative mood at home and less domestic place (Gray and Lucas, 2001).

The effects of commuting on commuters' psychological well-being are no less fatal. The commuting over long distance and thus having a long time in travel affects the commuters' psychological behavior adversely particularly among those who started the commuting recently as they slowly become habitual to the daily journey. The more obvious effects on the individual are tiredness, mood swings, and loss of concentration (e.g., Gulian, et al., 1990; Hennessy, Wiesenthal, and Kohn, 2000). The effects of commuting problems on the work organization include lateness, absenteeism, increased turnover, lower employee performance, and increased costs due to employees absent from work (Kowsowsky, 2000). However, the level of stress, anxiety and depression may vary among the commuters depending on various factors i.e. commuting distance, commuting modes, commuting time, transport infrastructure, job satisfaction and

working hours. People travelling by bus, and those working from home were more likely to be depressed than people travelling by train or driving a car.

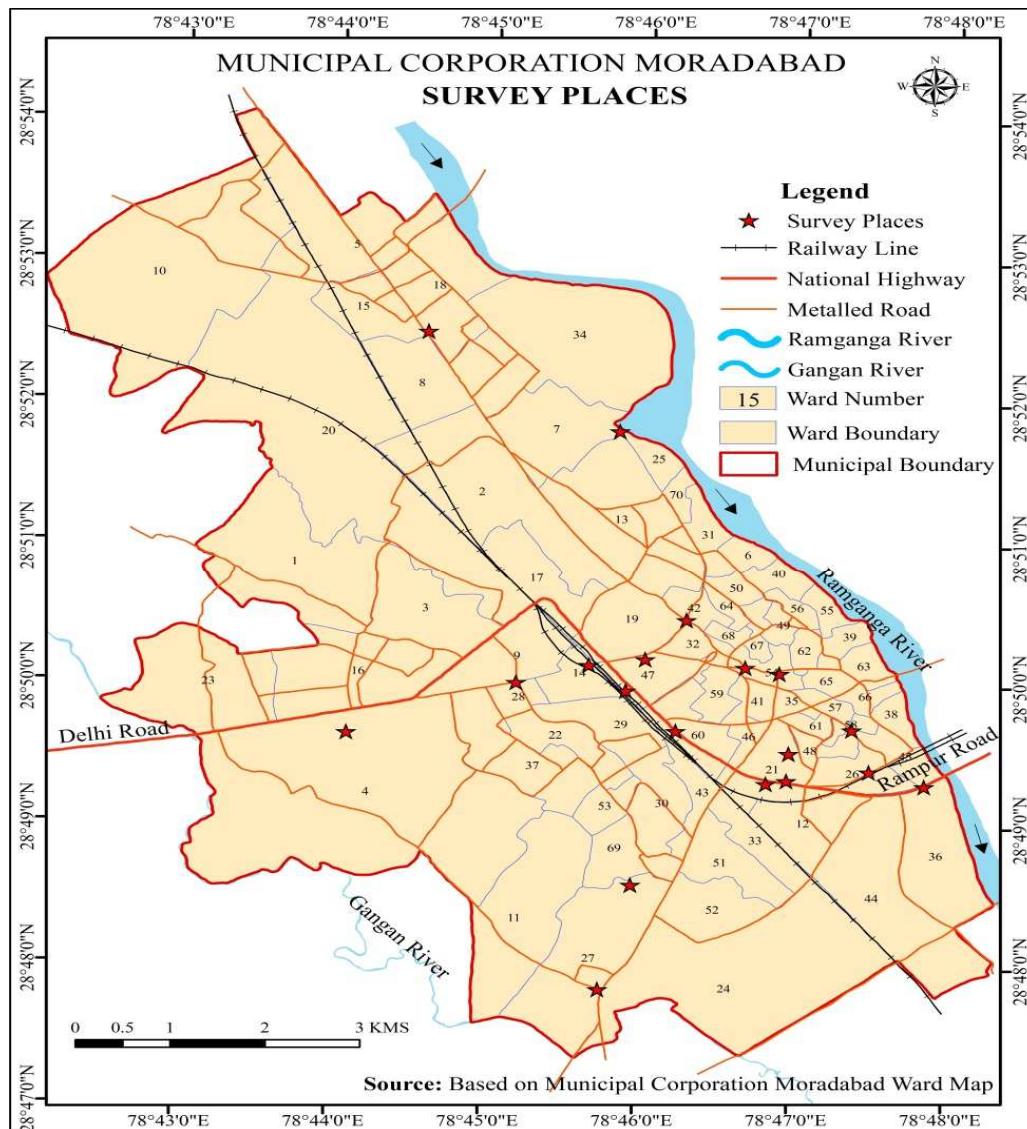
### Aims & Objectives

- To assess the impacts of commuting on commuters physical health
- To investigate the impacts of commuting on commuters' mental health status
- To inspect the changes in commuters' behaviours after having involved in commuting

### Data base & Methodology

The present research work is mainly based on primary sources of data that has been generated through the comprehensive field survey by using a well-structured questionnaire to the respondents pertaining the demographic and socio-economic aspects of commuters. The field survey has been conducted in Moradabad city during 2017. Since, some commuters are very difficult to be identified due to lack of fixed work place and hidden in nature; in the city, the working and transit palaces were visited before drawing the actual sample of commuters and the sample of 5% individual commuters was randomly selected for the survey from the working and transit points, connecting roads and labor markets. The survey is consisted of total 2294 respondents in the Moradabad city whereas the total number of sampled commuter households was 2256 in which the sampled male commuter households consisted of 2093 and sampled female commuter household included 163. The total number of selected rural and urban commuters in the survey were comprised of 1672 and 622 respectively.

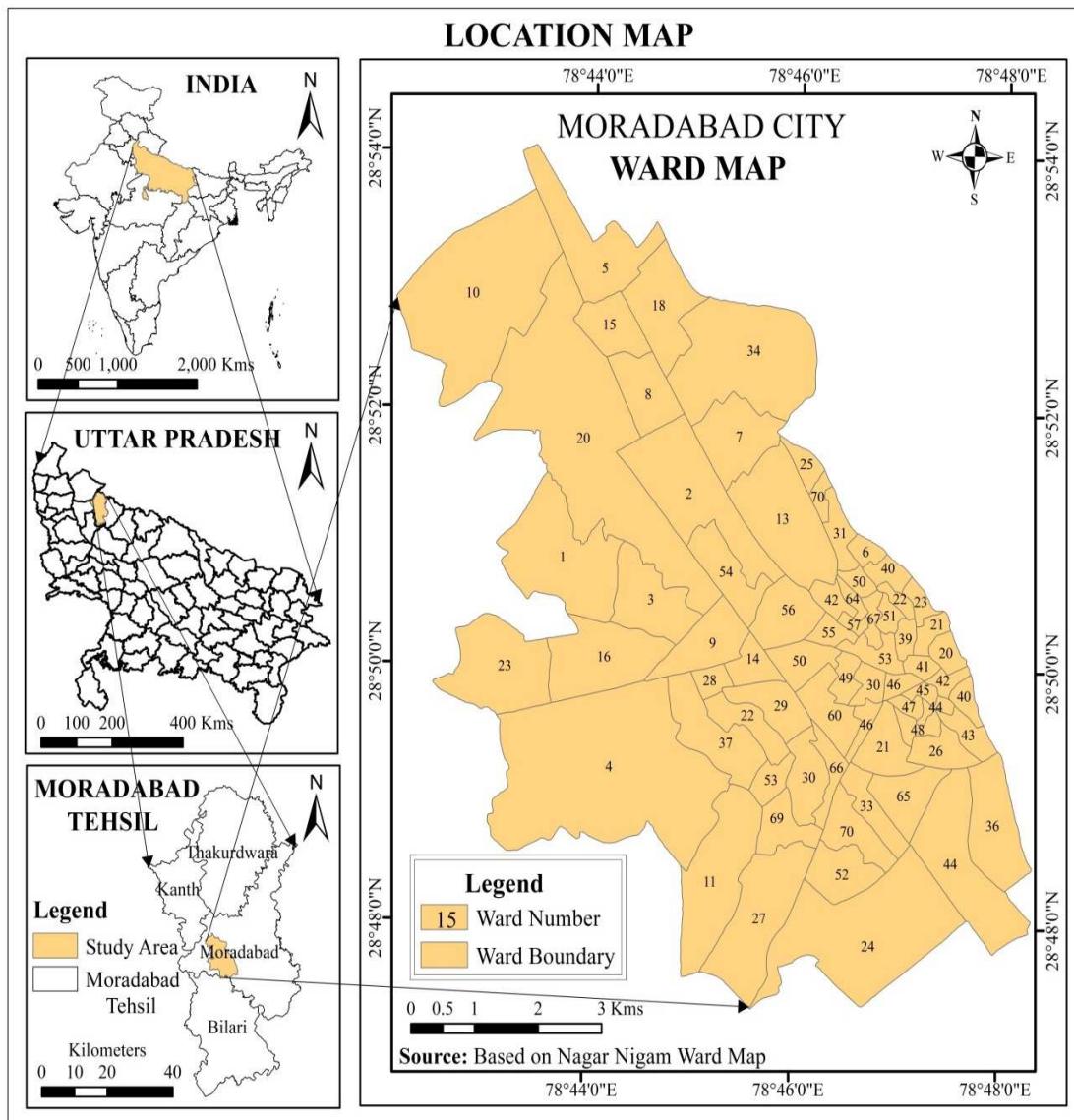
For the collection of data, only those have been taken into consideration who were identified visiting to Moradabad city by crossing the administrative boundary of Moradabad city either from nearby village, town, city, block, tehsil or across the other districts particularly for the purpose of work, and all those who have been travelling to city for recreation, excursion, shopping, health or other individual purposes have been excluded from the survey. For the collection of primary data, the administrative boundary of Municipal Corporation of Moradabad city has been taken as the unit of study and the individual commuter as the unit of enquiry.



## Study Area

Moradabad city has been selected for the present study which lies in the western part of Uttar Pradesh. Moradabad has been servicing as an industrial, commerce, educational and administrative city since a long period for employment attraction as well as for the movement for various purposes. Above of all, it has immense popularity because of the locations of brass manufacturing industries all over the world and consequently widely known as Brass city or Peetal Nagari. The geographical location of city lies between the parallel of  $28^{\circ} 16'$  to  $28^{\circ} 21'$  north latitude and meridians of  $78^{\circ} 46'$  to  $79^{\circ}$  east longitude. It is situated at a distance of 167 km from the national capital New Delhi on the banks of the Rāmgangā river, a tributary of Ganga river passing to the north-east of the city. The city occupies an area of 75 sq. km. Administratively, Moradabad City has been given the status of class first town by clearing all the criteria. With respect of its

demographic characteristic, Moradabad city has a population of 887871 inhabitants in which male and female constitute 464580 and 423290 respectively. The total literacy rate is 68.75% whereas the male and female literacy is 72.22 percent and 64.95 percent respectively.



**Fig. 2**

The study area, as mentioned in above discussion enjoys the distinction of having various activities as culture, education, commerce, industry and above all it provides facilities for the movement of people. Besides this, being an industrial city of western Uttar Pradesh, it provides the significant opportunities of employment and thus helping in better economic status for poor rural people. Consequently, the city has attracted the heavy influx of people from its nearby surrounding areas be it rural or urban for various purposes such as business, Services, work, recreation, education, shopping, begging, etc. Moreover, its

well-developed road and railways connectivity and accessibility of modes of transportation have enabled the people living in its surrounding towns and villages to move to the city for various purposes and return back to home on daily basis. All these factors cumulatively motivated to the circular movements to or from the city and this type of movement known as commuting is emerging rapidly in the city on account these factors leaving a number of issues to be studied by researchers, demographers, policy makers, development schemes planer. Besides, Moradabad city has been included in list of smart city in 2015. As per policies and programmes built for making various progress work encompassing the building of hospitals, colleges, fly over, roads etc. are under progress in city. Therefore, Moradabad city has been rightly selected to analyse the socio-economic status of commuters. In this research work an attempt to examine the physical and psychological effects of commuting on commuters' health well-being in Moradabad city has been made.

## **Result and Discussion**

### **Physical Impacts of Commuting**

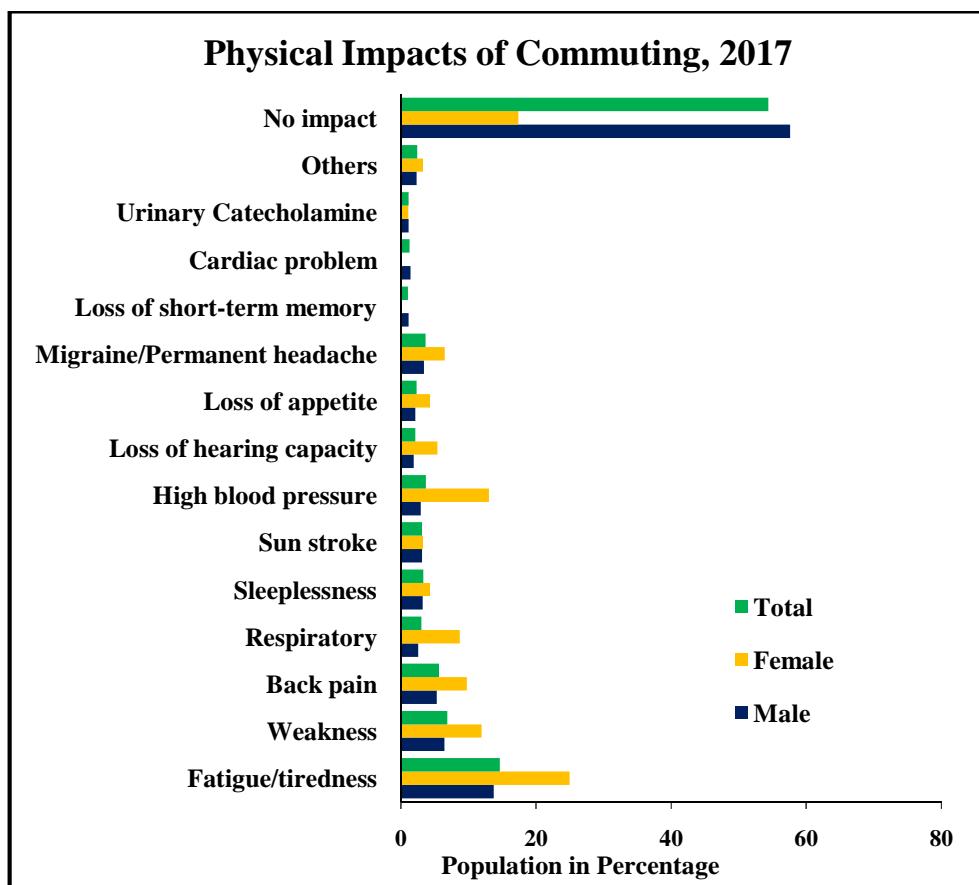
Although, commuting has been experienced having the positive impacts on socio-economic and cultural development of the commuters but its negative impacts on the physical, as well as psychological well-being are not negligible.

**Table: 1**  
**Percentage Distribution of Commuters facing the Physical Health Problems caused by Commuting differentiated on the basis of Gender, 2017**

<b>Physical impacts of commuting</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Fatigue/tiredness	13.74	25.00	14.65
Weakness	6.45	11.96	6.89
Back pain	5.31	9.78	5.67
Respiratory	2.56	8.70	3.05
Sleeplessness	3.22	4.35	3.31
Sun stroke	3.13	3.26	3.14
High blood pressure	2.94	13.04	3.75
Loss of hearing capacity	1.90	5.43	2.18
Loss of appetite	2.18	4.35	2.35
Migraine/Permanent headache	3.41	6.52	3.66
Loss of short-term memory	1.14	-	1.05
Cardiac problem	1.42	-	1.31
Urinary catecholamine	1.14	1.09	1.13
Others	2.37	3.26	2.44
No impact	57.63	17.39	54.40

Source:Calculation is based on primary survey by author.

The percentage distribution of commuters facing the physical health problems caused by commuting has been detailed in table-1. An examination of the data contained in the table surprisingly show that little less than fifty percent commuters have been suffered by the negative impacts of commuting on their physical heath. The problems of health caused by commuting are much higher among the females than the males. The most common problem among the commuters caused by commuting was the tiredness which was found among nearly 15 percent of commuters. The second most problem faced by commuters was the weakness which constituted about 7 percent. The problem of weakness was followed by back pain sharing 5.67 percent of the commuters. Moreover, high blood pressure (3.75 percent), migraine/permanent headache (3.66 percent), and sleeplessness (3.31 percent), sun stroke (3.14 percent), respiratory (3.05 percent), and loss of appetite (2.35 percent), loss of hearing capacity (2.18 percent)are other physical problems of commuters caused by commuting.



**Fig. 3**

A gender-wise analysis regarding the impacts of commuting on physical health of commuters unfolds the fact that Commuting affects the physical as well as psychological health of both the male and female differently. As, the incidence of the physical health problems caused by commuting like exhaustion, high blood pressure, weakness, back pain, respiratory, migraine, loss of hearing capacity, sleeplessness, and loss of appetite

were comparatively larger among female commuters than their counterpart male commuters and they respectively constituted 25 percent, 13.04 percent, 11.96 percent, 9.78 percent, 8.70 percent, 6.52 percent, 4.35 percent, 5.43 percent and 4.35 percent whereas the corresponding shares of these diseases among the males were 13.74 percent, 2.94 percent, 6.45 percent, 5.31 percent, 2.56 percent, 3.44 percent, 1.90 percent, 3.22 percent and 2.18 percent. Contrary to it, the males suffering from the physical problems like loss of short-term memory, cardiac problem and urine catecholamine exceeded the females and their respective percentages are 1.14, 1.42 and 1.14.

### **Psychological Impacts of Commuting**

Commuting not only deters the physical health of commuters but also affects their psychological well-being adversely. The table-2 contains the data about the psychological problems of commuters caused by commuting. An assessment of data clearly shows that less than fifty percent of commuters were suffering from various psychological problems caused by commuting. Among these problems the ratio of commuters getting bored by commuting is the highest followed by stress, irritation, fear, loss of domestic peace, anxiety, tension, and feeling of insecurity. Lack of comfortability/inconvenience, nervousness, depression, absenteeism, and frustration are another major problem.

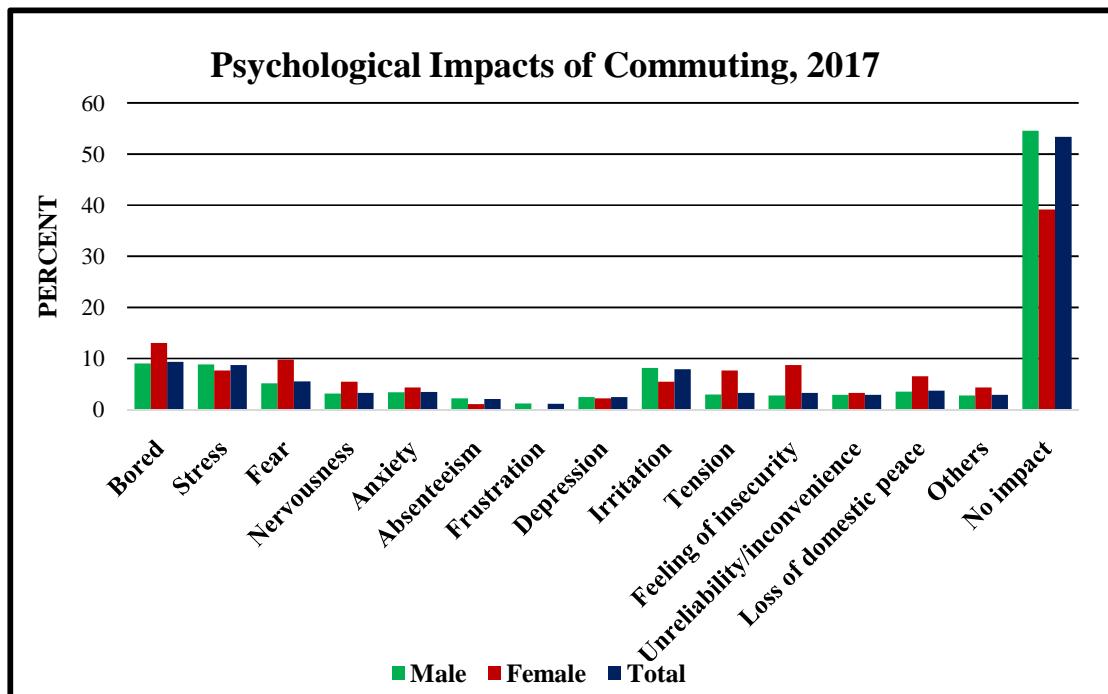
**Table: 2**  
**Percentage Distribution of Commuters suffering from Psychological Health Problems caused by Commuting differentiated on the basis of Gender, 2017**

<b>Psychological Impacts of Commuting</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Bored	9.00	13.04	9.33
Stress	8.82	7.61	8.72
Fear	5.12	9.78	5.49
Nervousness	3.13	5.43	3.31
Anxiety	3.41	4.35	3.49
Absenteeism	2.18	1.09	2.09
Frustration	1.23	-	1.13
Depression	2.46	2.17	2.44
Irritation	8.15	5.43	7.93
Tension	2.94	7.61	3.31
Feeling of insecurity	2.75	8.70	3.23
Unreliability/inconvenience	2.84	3.26	2.88
Loss of domestic peace	3.51	6.52	3.75
Others	2.75	4.35	2.88
No impact	54.60	39.13	53.36

Source: Calculation is based on primary survey by author.

An in-depth analysis of the data given in the table exposes that largest proportion of commuters were reported to get bored by commuting (9.33 percent). Those who engaged in commuting for a longer period loss the excitement when they travel by same modes of transportation and with same fellow travelers, passing through the same routes,

watching the same scenes through the windows, and consequently this joyful journey becomes gradually unpleasant to them. Nearly 9 percent have reported to be victims of stressed caused either by long exhaustive travel or by work related pressure.



**Fig. 4**

With regard of sex-wise assessment of the data, describes that the mentally affected males were observed in greater proportion than mentally affected females. The anxiety and stress were the most common among the mental diseases suffered by commuters which constituted 3.41 percent and 8.82 percent respectively among the males, while 4.35 percent and 7.61 percent respectively among the females. However, the problem of absenteeism and irritation faced by females were proportionally registered smaller than the males and the corresponding percentage of these diseases for the females were 1.09 percent and 5.43 percent, while for the males the respective figures were 2.18 percent and 8.15 percent. The impact of commuting such as lack of motivation, frustration, and depression was experienced more among the males and smaller among the females. The combined percentage share of males suffering from theses mental diseases was 3.69 percent whereas ratio of the females was 2.17 percent. The other remaining problems such as nervousness, tension, inconvenience has been observed more existing sufficiently more among the females than that of males.

### Behavioural Impacts of Commuting

The physical and psychological trauma faced by commuters during their travel to work consequently alters their real-life behavior. The commuters having prolonged bad experience in travel loss the motivations/aspiration and good vision for the future. The long commuting hours coupled with long working hours made them unable to spare the times in involvement of social, cultural, and religious activities, even they sometime feel disable to spend the times with their children and spouses thus it leads them to social

isolation. Moreover, the feeling of isolation begins to prevail among them. This is clearly indicated from the table-3. The data regarding impacts of commuting on commuters' behaviors exposes that about two-third of commuters have experienced the adverse impacts of commuting on their behaviours whereas nearly one-third of them have felt no change in their behaviour after being engaged in commuting. Most of commuters suffering from the adverse behavioural implications of commuting have been reported as the victims of social withdrawal (11.86 percent), followed by impacts on children's well-being (10.99 percent), isolation (9.42 percent), and lack of motivations (8.28 percent). Productivity of the workers has also been assessed affecting by commuting. Those suffering from constant exhaustion by long travel, spending larger time and stress of work are found experiencing the decline in their work-related productivity. The respondents suffering from low productivity account for 6.80 percent in which males and females constitute 6.82 Percent and 6.52 percent respectively.

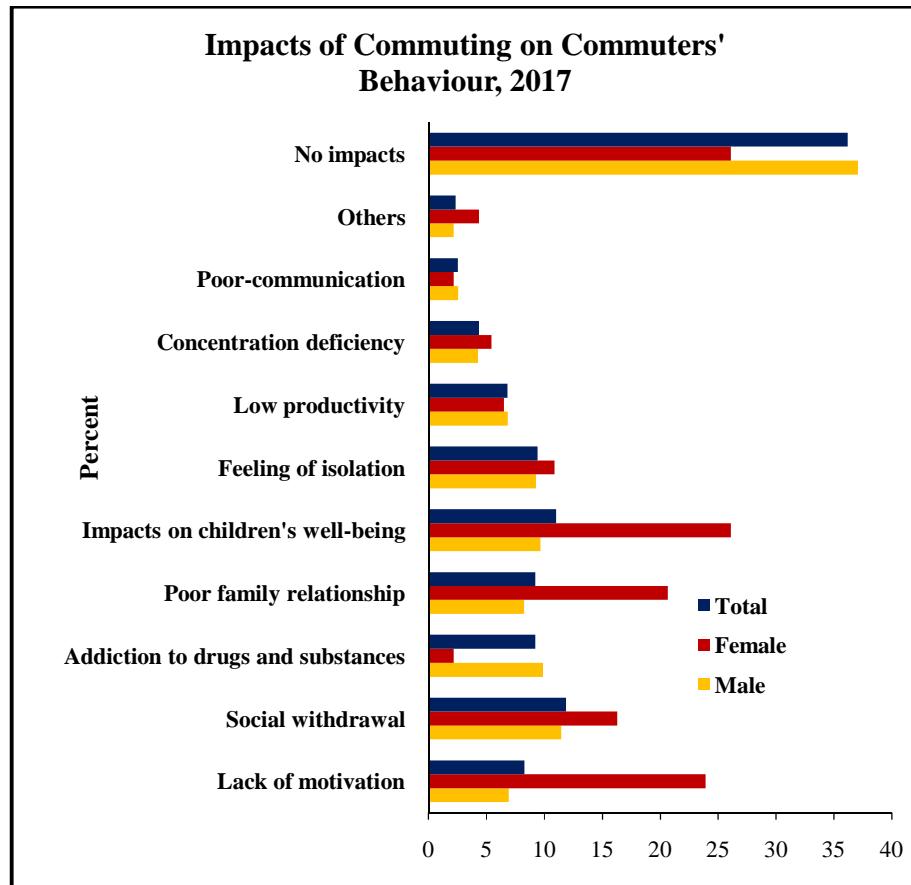
In order to avoid the stress of commuting combined with work related pressure make them addicted of drugs and other substances and such types of commuters accounted for 9.24 percent, though the males are more addicted of smoking, and drugs than the females and their corresponding figures are 9.86 percent and 2.17 percent respectively. The withdrawal of commuters from social activities leaves them unable to develop a good communication; such types of commuter were observed comprising of 2.53 percent.

The other types of commuting behavioural impacts constitute 2.35 percent. The other effects include lack of sexual desires, commuting has also been observed affecting the sexual relationship of commuters as the exhaustion caused by commuting declines their sexual desires and this problem is mostly found among the females than those of males and their respective figures are 4.35 percent and 2.18 percent.

**Table: 3**  
**Percentage Distribution of Behavioural Impacts of Commuting in Moradabad City, 2017**

Effects	Male	Female	Total
Lack of motivation	6.92	23.91	8.28
Social withdrawal	11.47	16.30	11.86
Addiction to drugs and substances	9.86	2.17	9.24
Poor family relationship	8.25	20.65	9.24
Impacts on children's well-being	9.67	26.09	10.99
Feeling of isolation	9.29	10.87	9.42
Low productivity	6.82	6.52	6.80
Concentration deficiency	4.27	5.43	4.36
Poor-communication	2.56	2.17	2.53
Others	2.18	4.35	2.35
No impacts	37.06	26.09	36.18

Source: Calculation is based on sample survey by researcher.



**Fig. 5**

**Box 8.5: The problems of Commuters suffering on account of Daily Commuting**

- “Subha 5 baje chale deveghar se or raatku 10 bajewapaspahunche. Gharpahunche to balaksote hue mile unhe kabhi hanstahuanadekhpaaave” (I have to leave home at early 5 am and return back at about 10 pm. I always find my kids sleeping. It have been a long since I saw my children laughing and talking with me). (Gyan Singh, 38, Kotdwar).
- “The drivers of public vehicle I hire from the transit points of my nearby bus stop residence give them frequently stoppage which makes me irritated and increases the anxiety and stress because of fear of reaching to work place timely” (Vijay, 23, Mirzapur, Dilari)
- “I and my husband both are teachers in an inter college located in Moradabad city. We both commute together to City daily. We have two kids; one son and one daughter of 3 and 6 years old respectively. It is very difficult to maintain both the work and the childcare. Though my mother-in-law is very supportive and helps us by caring them in our absence. But, still, they are not receiving the required parental care”.(Preeti, 32,Kudarki)
- “The long working hours as well as the large time spent on commuting do not allow me to enjoy the social activities like marriages of relatives, interactions with

friends, visiting to children' school to encourage them and so on. I have been totally withdrawn from society”

5. “The continuous confronts with traffic noise and noise created by machinery at place of work has damaged my hearing capacity” (Madan Singh, 28, Bhojpur)
6. “The pressure of work along with inconvenient journey to work has caused me permanent headache” (BhanuPratap, 46, Mustallipur).

Source: Based on primary survey by author.

### Conclusions

The overall study can be concluded with the pertinent findings as follows:

- About 45 percent of commuters have been suffered by the negative impacts of commuting on their physical heath. The problems of health caused by commuting are higher among the females than the males. The most prevailing problem among the regular workers caused by commuting was fatigue or tiredness followed by weakness, back pain, high blood pressure, permanent headache, sleeplessness, sun stroke, respiratory, etc.
- Little less than fifty percent of commuters have been victims of various psychological problems caused by commuting. Among these problems the ratio of commuters getting bored with commuting was the highest followed by stress, irritation, fear, loss of domestic peace, anxiety, tension, and feeling of insecurity. Lack of comfortability or inconvenience, nervousness, depression, absenteeism, and frustration were other major psychological problems.
- With regard of behavioural effects of commuting, most of commuters have been reported as the victims of social withdrawal (11.86 percent), followed by impacts on children's well-being (10.99 percent), isolation (9.42 percent), and lack of motivations (8.28 percent).

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