

# Crowded Travel Effects on Commuters –A Study of Indian Sub-Urban Railways

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## Abstract:

Everyone in the world ought to do some journey for the work. The purpose of this paper is exploration of the factors effecting commute well being and provide some solution for positive behavioral change in commuting employees. This research paper is an attempt to define commuting as everyday travel between home and work independent of mode, distance and time. Literature is used to establish expert consensus on commute well being requirements and strategies were rated over literature outcome to generate positive mental health and well-being in the workplace commute. Commuting is the regular trip between home and work. Travelers utilize different means of move such as lashing personal car, general buses and rail transportation. Analyses depict that time taken for travel to office and back home has significant impact on employee behavior. The cost of commute may understand in the form of travel stress experience and distance of daily commute. The final outcome of this research work derived as job dissatisfaction of employee. All the analyses, findings and suggestions have been enumerated in the conclusion. Future prospects and commute related factors have a significant effect on commuter job satisfaction.

**Keywords:** Travel, crowded, Railways

## 1. Introduction

### 1.1 Workplace Commute

Research Community emphasizes commute is the integral part of a job which means time taken from home to workplace and from workplace to home is an important component to assess the bang of commuting on Employee satisfaction. Different studies have addressed and suggested a link between above behavioral variables and performance measures. According to Gallup Survey (Grabtree, 2010), In America, Employees feel their work performance and job satisfactions is deteriorated due to one big reason, i.e., work commute. Recently Reuters noted that the well being index of an employee is highly affected by an increased commute problems and work efficiency. People who commute for long distance often encounter issues identified with everyday life and wellbeing such as, stress, mood swings, negative

work related attitudes, tiredness, etc. which causes dissatisfaction. Basically, for the customers of Public transportation, such issues fundamentally emerge from unreliable services and deferrals. Commuting ought to be assessed in a few measurements, for example, Mode of transportation, distance and speed. As noted by Costa, Pickup, and Martino, (1988), while money is assumed to be a noteworthy part in selecting the best commuting method, public transportation and geographical area of sub-urban cities are additionally important components are psychosocial aspects of crowd, concerned ambient environment and density of population.

### 1.2 Job Satisfaction

According to Locke and Latham, 1990, Job satisfaction is all the more barely characterized as a pleasant or positive, enthusiastic state which results because of the evaluation of one's employment or

job experiences encounters. Likewise Fisher et al. (2004) also state that Job satisfaction can lead to enhanced work performance if the rewards are associated with the job and the employees will also have the positive attitude towards the work. In the words of Jemigan et al. (2002), Job/Work satisfaction is the sense of one's satisfaction level with the organization where the work is done, not only with the work only. Currie (2001) viewed satisfactorily as the measure of the satisfaction level of the individuals with the rules, regulations, terms, conditions of the job and also the factors which are related to the work environment.

Various studies which focus on stress and commuting habits of employees, have also found that Job satisfaction is widely influenced by commuting factors, as stated by Novaco, Stokols, & Milanesi, 1990. According to the study (*Road Wage Survey*, 2011), held in the US concluded that about 38% of the employees found their job unsatisfactory as a result of commuting, while 22% employees consider commuting also as a major factor while grabbing any new job opportunity. Additionally, 17% of the respondents in the study found that they are comfortable performing their work from home itself. 13% of the employees were found uncomfortable with their commuting experience and decided to change their job which require shorter commute

## 2. Literature Review

Today, Employee Commuting has been transformed as an necessary element of the working routine; it can also be iterated as a link of personal-life and work-life. Commuting practices and its various type's results into forceful effect on employee commute, Wellbeing is considered as the state of being happy, comfortable and physically and mentally healthy. Research conducted by Lewis in 2004 suggested that the average commute time is 45-60 minute. As per the World Health Organization (WHO), an analysis has been released regarding non-communicable diseases that commuting is anticipated to have a negative impact

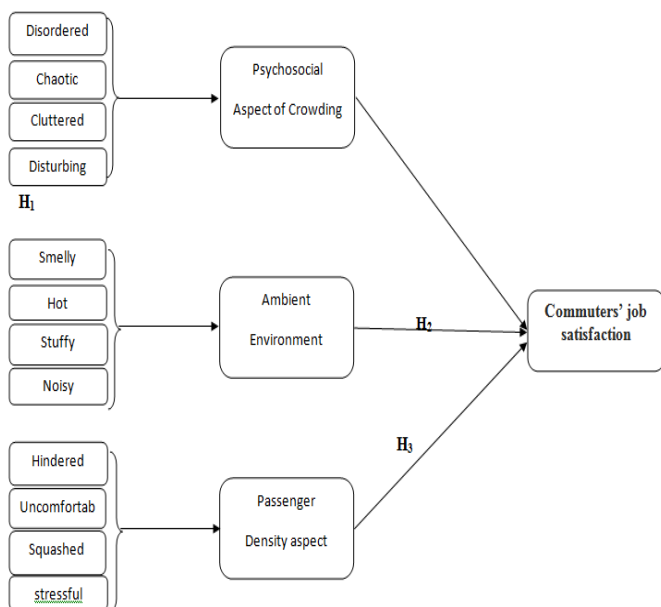
on commuters. In this regard, the WHO has recognized the work environment should take as one of the most priority settings for employee well being promoted in the 21st Century.

However, despite long-standing backing for widespread work environment programs, the requirements are being more pragmatic confirmation that linking different strategies for development of employee health issue for productivity (Terry et al., 2008), owing to the large expansion of sub-urban work behavior and fast escalating population in developing country report work environment shoe lace settings to encourage and carry the health-promotional activities; passing barriers such as a lack of time and providing access to a huge juncture of society (Maliket al., 2014) and further more reflection to the types of interface that improve the behavior which responsible for change and maintenance (Hunter et al., 2016). Workforce well being is critical for economic success of any nation (Cancelliere et al., 2011). For example, workplace health and satisfaction programs have shown to many benefits by improving employees' productivity levels (Boshtam et al., 2010; Jung et al., 2012; Jarman et al., 2015; Enget al., 2016), (Loeppke et al., 2008; Goetzel et al., 2009), and improving employee presence at workplace (Cancelliere et al., 2011). According to Cooper and Robertson, 2001, the concept of employee wellbeing at work elevates advantages to organizations of having a sound workforce. Some business analysts, sociologists and psychologists have attempted a research to understand individuals' feeling of wellbeing (Cox et al., 2005; Chartered Institute of Personnel Development (CIPD), 2007; Kersley et al., 2006; Peccei, 2004; Warr, 2002).

Every organization or businesses want to be in a healthy and profitable state. Employees are one of the major elements of any organization. According to Economic and Social Research Council, 2006; MacDonald, 2005, If the employees of any organization are not physically and mentally

healthy, they will be least interested in the successful performance. Despite of such scenario of employee's wellbeing, till now there are very less number of researches done to clarify the relationship between various employees commute related issues, wellbeing of employees and their performance. The results derived by the Gallup-Health ways Well-Being Index also focus on the relation between wellbeing and commuting. According to it, those Employees who take approximately one and half of hour or more reaching their workplace from home, 40% of them are worried and stressed about their work and the previous days of commuting. On the contrary, the employees who are involved in the lengthy commutes experienced no such excitement for work and satisfaction in comparisons to most of the previous days.

### 3. Conceptual framework and Hypothesis



**H<sub>1</sub>:** Psychosocial Aspect of Crowding has a significant impact on Commuters' job satisfaction

**H<sub>2</sub>:** Ambient Environment has a significant impact on Commuters' job satisfaction

**H<sub>3</sub>:** Passenger Density aspects have a significant impact on Commuters' job satisfaction

### 4. Sample and Data collection

In this study, the researchers collected the data from 540 respondents. Data collection method used in this study is a random sampling and the universe for the study was commuters of Indian sub-urban railway in area of western U.P.-NCR. For this study, a questionnaire was constructed on the basis of the objectives of the study and available literature. First, the questionnaire was developed in English and after that, for the convenience of the respondents, the questionnaire was translated into Hindi. It was then given to regular mover in Indian railway. The questions were related to the demographic characteristics such as age, gender, education, etc. The questionnaire contained items related to job satisfaction.

### 5. Research Methodology

This research paper is experimental in nature and has applied quantitative techniques for investigation. The present study seeks the attention of public transport authority and organizations where commuters are working. It examines the various aspects of crowding towards well being of regular movers of Indian railways. Secondary data have been collected from available literature; this was used in defining the problem and conceptualization of the study. Primary data were used for validating the model. On the basis of analysis, findings and suggestions have been made.

#### 5.1 Measurement

Measurement instrument was constructed for this study based on review of the literature and objectives of the research. Initially for checking the instruments' validity, pilot testing was conducted by the researcher on the sample size of 30 (Cavana, Delahaye, & Sekaran, 2001). Face validity of the questionnaire was checked by the experienced in the field. The questionnaire was filled by commuters only. Based on the output of reliability analysis, the questionnaire was declared reliable as the value of Cronbach alpha was more than (0.7)

Table-1. The questionnaire was modified according to the comments of the experts. For data collection, the researchers personally contacted the respondents, got the questionnaire filled by them and referrals were sought from respondents for more commute participants.

## 5.2 Reliability Analysis

Initially, after checking the validity of the questionnaire, reliability of the questions was tested by using Cronbach's alpha on the sample size of 30. Thescale was reliable and after collecting the data of 540 commuters, further construct wise reliability was tested for analyzing the value of **Cronbach's alpha**.

**Table 1: Constructs and its reliabilities**

Construct	No. Of Items	Reliability
Psychosocial Aspect of crowding(PCA)	4	.807
Ambient Environment(AE)	4	.705
Passenger DensityAspect (PDA)	4	.871
Job Satisfaction(JS)	15	.842

Scale:- 1 = strongly agree ~ 5 = strongly disagree.

## 5.3 Statistical procedure

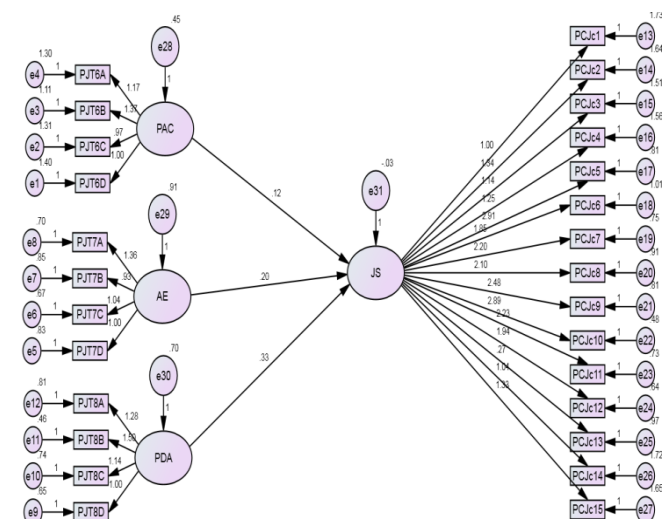
For this study, the questionnaire method of primary data collection was employed. Data was collected from commuter who had MST (Monthly session ticket). The questionnaire contains 27 items related to four constructs –Psychosocial Aspect of crowding (PCA), Ambient Environment(AE), Passenger density aspect (PDA) and Job satisfaction of Employees; it was coded by researchers. The data was recorded in the SPSS version 20. For checking the coding accuracy, a random sample of five percent data was used. Descriptive analyses of the data, such as frequency, standard deviation, mean and percent were implemented using SPSS. For testing the

hypotheses, **Structural Equation Modeling (SEM)** using **AMOS** was employed.

## 5.4 Structural Equation Modeling (SEM)

SEM is a mix of factor analysis and multiple regressions. SEM is a reasonable and testable statistical analysis, which gives full control and potential comprehension of the analysis to the investigator. SEM is utilized for analyzing the relationship between the variables. Structural Equation Modeling is also important since it has additional advantages to deal with multi-co linearity among the different techniques and methods for considering the inconsistency of response data. It is a graphical interface programming which gives different tests of individual parameter estimation and model fit tests. Additionally, SEM includes regression coefficient, variances and means even across multiples between subject groups Latent variable path analysis was used by Amy A. SEM provides numerous linear model fit indices. It is powerful software and can be used in behavioral and psychosocial studies.

**Figure 1: Model with its loading**



## 6. Data Analysis and Interpretation

### Regression weights & Covariance

As per model run Regression weights for all the paths in the model are significant and all the



variables in the data set have significant covariance between them and all estimates are positive

**Table2: Regression Weights: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
JS	<---	PAC	.120	.024	4.913	***	par_24
JS	<---	AE	.197	.029	6.689	***	par_25
JS	<---	PDA	.334	.046	7.214	***	par_26
PJT6D	<---	PAC	1.000				
PJT6C	<---	PAC	.972	.114	8.537	***	par_1
PJT6B	<---	PAC	1.374	.144	9.538	***	par_2
PJT6A	<---	PAC	1.172	.131	8.966	***	par_3
PJT7D	<---	AE	1.000				
PJT7C	<---	AE	1.041	.058	18.011	***	par_4
PJT7B	<---	AE	.930	.057	16.388	***	par_5
PJT7A	<---	AE	1.364	.070	19.615	***	par_6
PJT8D	<---	PDA	1.000				
PJT8C	<---	PDA	1.143	.064	17.930	***	par_7
PJT8B	<---	PDA	1.496	.071	20.938	***	par_8
PJT8A	<---	PDA	1.282	.069	18.446	***	par_9
PCJc1	<---	JS	1.000				
PCJc2	<---	JS	1.337	.217	6.173	***	par_10
PCJc3	<---	JS	1.141	.187	6.085	***	par_11
PCJc4	<---	JS	1.249	.199	6.265	***	par_12
PCJc5	<---	JS	2.910	.399	7.300	***	par_13
PCJc6	<---	JS	1.851	.265	6.981	***	par_14
PCJc7	<---	JS	2.197	.306	7.191	***	par_15
PCJc8	<---	JS	2.096	.296	7.088	***	par_16
PCJc9	<---	JS	2.485	.346	7.172	***	par_17
PCJc10	<---	JS	2.887	.395	7.308	***	par_18
PCJc11	<---	JS	2.232	.312	7.146	***	par_19
PCJc12	<---	JS	1.943	.272	7.144	***	par_20
PCJc13	<---	JS	.270	.093	2.909	.004	par_21
PCJc14	<---	JS	1.035	.189	5.481	***	par_22
PCJc15	<---	JS	1.325	.216	6.138	***	par_23

**Table3: Variances: (Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
e28	.447	.083	5.398	***	par_27
e29	.909	.095	9.605	***	par_28
e30	.699	.072	9.741	***	par_29
e31	-.029	.008	-3.706	***	par_30
e1	1.404	.094	14.995	***	par_31

	Estimate	S.E.	C.R.	P	Label
e2	1.313	.087	15.067	***	par_32
e3	1.112	.086	12.896	***	par_33
e4	1.303	.091	14.297	***	par_34
e5	.834	.053	15.633	***	par_35
e6	.671	.044	15.289	***	par_36
e7	.853	.054	15.862	***	par_37
e8	.702	.051	13.756	***	par_38
e9	.645	.039	16.474	***	par_39
e10	.736	.046	16.127	***	par_40
e11	.462	.033	13.828	***	par_41
e12	.811	.050	16.309	***	par_42
e13	1.734	.106	16.356	***	par_43
e14	1.636	.101	16.132	***	par_44
e15	1.507	.091	16.531	***	par_45
e16	1.563	.094	16.581	***	par_46
e17	.811	.053	15.354	***	par_47
e18	1.010	.061	16.536	***	par_48
e19	.752	.046	16.282	***	par_49
e20	.910	.055	16.616	***	par_50
e21	.812	.050	16.090	***	par_51
e22	.482	.034	14.099	***	par_52
e23	.730	.044	16.532	***	par_53
e24	.636	.038	16.633	***	par_54
e25	.966	.059	16.471	***	par_55
e26	1.725	.105	16.357	***	par_56
e27	1.654	.103	16.128	***	par_57

**Table4: Result of hypotheses:**

Hypothesis	Accepted or Rejected	P-value	explanation
PAC → JS	Accepted	***	<b>H<sub>1</sub>:</b> There is significant impact of Psychosocial aspect of Crowding on Commuters' job satisfaction
AE → JS	Accepted	***	<b>H<sub>2</sub>:</b> There is significant impact of Ambient Environment on Commuters' job

			satisfaction
PDA →	Accepted	***	<b>H<sub>3</sub>:</b> There is significant impact of Passenger density aspect on Commuters' job satisfaction

## 7. Discussion and conclusion

Commuters who commute through Indian railway and their job satisfaction level are depending on some above considerable variables tested for the study. Here the output of the analyses may depict in following sense. Most of the considered employee have experienced behavior creates general phenomena of accepted hypothesis (p-value). Working populations which commutes through Indian rail services place considerable impact on employee behavior pattern. Analyses also depict significant impact on employee behavior. The cost of commute may understand in the form of travel stress experience and distance of daily commute. The final outcome of this research work derived as job dissatisfaction of employee as per table-2. The variables are showing the significance statistical indication that the more commute problems precedes more burdens for commuting employee (Figure-1). In summary, researchers focuses an exploratory reports examining relationship among different factors of employee commute and its consequences on employee job satisfaction. The findings will have a significant contribution and provide an enhanced understanding of the impact on commuting factors related to the commuters, who are being an employee working in different industry of NCR-Delhi region. The authors also want to suggest public transport systems to consider these results while formulating the commute services. The attributes identified by this analysis may support the government organization towards

creating understanding over the development of transport services and its application.

## 8. Managerial Implication

The implications of the research's results for theory, measurement, practice, and policy are discussed. Some theoretical and methodological issues arising from this research are also acknowledged and elaborated. Simultaneously the results of the research paper also identify different factors which can contribute to conduct further research in this area which leads the research initiative related to other transport settings. Knowing above factors will be essential for identifying specific types of plan and procedure that could increase commute well-being. The research output of this study will equally contribute in the policy making Government Officials, Indian Railway; the organizations where the commuters are working and overall help to the general passenger and commuters in large aspect.

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