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Factor Analysis Of Moving Human Resource As Rail Commuters – Study Of Indian Railway

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ABSTRACT:*The rapid growth of railway commuter's population has put enormous strains on primarily Rail trans-port systems in India. This research work aims to evaluate how the train environment become an important contributory factor to commuters well being. After LPG in 1991, as whole Indian railway sector of transport is also reporting structural changes to create an atmospheric up gradation to conventional transport mode. Even though the basic motive has been to increase railway facilities for commute workforce but the current situations are not looking positive specifically in northern central railway NCR region.*
This study provides readers to understand vital insights of commute demand as commuter's workforce market from a managerial perspective for IR. This research work will be very helpful to foster better services for its all zones to the daily moving labor market through (IR) Indian railway. Concurrently, this research attempt tries to address environmental factors effecting commuters well being and to envisage its operations for common man (AAM Adami) in the form of labor workforce as regular traveler of (IR) Indian railway. The current task brings clarity and makes more concrete the evidence of above primary procedure and mental process involved in the experience of mobbing and its linked outcome in the context of India.
KEYWORDS*- Labor market, Crowding experience, Commute risk and well-being*

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I. INTRODUCTION

Everyone in the world ought to do some journey for the work. Commuting is the regular trip between home and work. This research paper is an attempt to define commuting as everyday travel between home and work independent of mode, distance and time. Computers utilize different means of move such as lashing personal car, general buses and rail transportation. Based on the medium used for transportation anyone can categorize the whole haulage system into three parts 1 ground transport, water transport and 3 air transport; the land transport uses road transport and Railways in case of India. Rail transport dominates the road transport which is also treated as lifeline of the country thus for a developing economy the problem of transportation Increasing day by day. Government of India taking major steps to resolve the problem of Indian rail passengers and commuters. The management of Transportation system necessarily requires the infrastructure building, operating mechanism and maintenance of required out field, Technology and manpower which must be incline to achieve economic goals and growth of the country. Overcrowded and undependable services become congested which slow down the operating system that is often hindered, chaotic and sometimes uncontrollable. This is very helpful to foster better services for its all zones to the daily movement of (IR) Indian railway.

Railway Zones and their Headquarters

Zonal Railways	*Headquarters*	*Zonal Railways*	*Headquarters*
Central	Mumbai CST	Northern	New Delhi
East Central	Hajipur	South Central	Secunderabad
East Coast	Bhubaneshwar	South East Central	Bilaspur
Eastern	Kolkata	South Eastern	Kolkata
North Central	Allahabad	South Western	Hubli
North Eastern	Gorakhpur	Southern	Chennai
North Western	Jaipur	West Central	Jabalpur
Northeast Frontier	Maligaon (Guwahati)	Western	Church Gate, Mumbai

India's regular traveler transport system for the short medium and long distance is essentially rail oriented. Indian Railway generates higher economic contribution to the big budget of Indian economy. India is a vast country with an area of 32.76 lakh square kilometer and about 80% of population leaving in 600000 villages which are now become semi urban. Indian Railway enjoys a far-flung age over other Modes of transport because of their suppleness and user-friendliness to a big part of the society. It is noticeable that most of the Metropolitan cities like Mumbai Kolkata Delhi Chennai Hyderabad Bangalore Experiencing heavy load of population growth and movement. Today, as a whole Indian railway sector of transport is reporting structural changes to create an atmospheric up gradation to conventional transport mode. Concurrently, this research attempt tries to address environmental factors affecting commuters well being and to envisage its operations for employees as a regular traveler of (IR) Indian railway

II. LITERATURE REVIEW

In the literature Crowding has demonstrated to be one of the challenging concept due to its different meanings. Also it has been defined unpredictably. In the general writing, taking up Stokol's contention, most analysts like Cox et al., 2006; Baum and Paulus, 1987 have now made a reasonable difference between crowding and density. Though the latter is characterized as a subjective, mental state in which one's desire of space surpasses the accessible supply, (Stokols, 1972). In any case, researchers, for example, Stokols (1972), contend that defining crowding construct exclusively in light of density is fairly wrong since crowding has subjective components to it also. Considering in terms of density, it is ordinarily alluded to as the proportion of individuals to space (Freedman, 1975; Fischer, Baldassare, and Ofshe, 1975. The actual and conceptual meaning of crowding is still debatable in the available literature of commuting. Both the business and the experts, in the available literatures reveal conflicting use of terminologies and measurements in terms of crowding. As yet, the previous research demonstrates that rail crowding is characterized frequently as a quantitative and unquestionable experience, which might be founded on estimations/measurements of traveler density and the capacity of the train. According to Dodgson, Kelso, Van der Veer, Skene, & Paredes, 2002 seating and standing capacity can be treated as some of examples of these measurements, traveler loading in light of service level according to Lam, Cheung, & Lam, 1999; Lam, Cheung, & Poon, 1999, or different percentages of train capacity such as degree of crowding (e.g. Lam, Cheung, & Lam, 1999; Lam, Cheung, & Poon, 1999), passengers in excess of capacity (e.g. UK Department for Transport, 2009), etc. Previous endeavors at evaluating crowding background on trains have likewise been fundamentally centered around the estimation/measurement of passenger density.

In spite of the fact that density appears to have been the standard technique for characterizing and estimating crowding in the rail business, a few scientists contend that this definition is to some degree constrained in that it doesn't consider the factors, for example, a person's subjective impression of crowdedness, which may represent variations in results among rail customers (Cox et al., 2006; Turner et al., 2004). Moreover, regarding crowding and density as compatible terms may possibly confuse us in the meaning of the two constructs and difficulty in their estimations. Turner et al. (2004) thusly infer that the meaning of crowding in rail settings should envelop two dimensions, concentrating on (1) density and the accessible space, and (2) view of both the accessible space in the physical condition and the quantity of individuals present, which portray the subjective components. An exhaustive measure in light of both subjective and target components of crowding is consequently called from this view point. Crowding has demonstrated to be one of the challenging concept due to its different meanings. Also it has been defined unpredictably. In the general writing, taking up Stokol's contention, most analysts like Cox et al., 2006; Baum and Paulus, 1987 have now made a reasonable difference between crowding and density. Though the latter is characterized as a subjective, mental state in which one's desire of space surpasses the accessible supply, (Stokols, 1972). In any case, researchers, for example, Stokols (1972), contend that defining crowding construct exclusively in light of density is fairly wrong since crowding has subjective components to it also. Considering in terms of density, it is ordinarily alluded to as the proportion of individuals to space (Freedman, 1975; Fischer, Baldassare, and Ofshe, 1975). The actual and conceptual meaning of crowding is still debatable in the available literature of commuting. Both the business and the experts, in the available literatures reveal conflicting use of terminologies and measurements in terms of crowding. As yet, the previous research demonstrates that rail crowding is characterized frequently as a quantitative and unquestionable experience, which might be founded on estimations/measurements of traveler density and the capacity of the train. Previous endeavors at evaluating crowding background on trains have likewise been fundamentally centered on the estimation/measurement of passenger density.

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III. STATEMENT OF THE PROBLEM

The present study is an investigation of commuters well being as moving labor market in India as the Indian railway transport system under the operational circumstances which leads serious problems to the commuter as stress and feeling of exertion which reflect in the form of job satisfaction.

Research framework

Sampling - the study is based on Sample Survey which conducted specifically in Northern Central Railway NCR region. A sample size of 540 respondents were considered and interviewed for the present study.

Data collection-the collection of data has been performed by a structured questionnaire for the study through adoption and expert opinion in the particular field, initially the questionnaire was framed in English language but further it is converted into the Hindi language, to make more convenient and responsive. The available information for the study work elected both from primary and secondary sources. Secondary source of information is drawn from Ministry of Railway and Transport, Government of India, various journals annual, published reports of different rail Jones.

Considered factors- Among the various factors following twelve 12 (Disordered, Chaotic, Cluttered, Disturbing, Smelly, Hot, Stuffy, Noisy, Hindered, Uncomfortable, Squashed, stressful) factors considered, it is observed that by using factor analysis, the variables that are substantially important to change in behavior of commuters and their satisfaction level.

Reliability

```
/VARIABLES=PJT6A PJT6B PJT6C PJT6D PJT7A PJT7B PJT7C PJT7D PJT8A PJT8B PJT8C PJT8D pcjc1
pcjc2 pcjc3 pcjc4 pcjc5 pcjc6 pcjc7 pcjc8 pcjc9 pcjc10 pcjc11 pcjc12 pcjc13 pcjc14 pcjc15
 /SCALE('ALL VARIABLES') ALL
 /MODEL=ALPHA.
```

Table-1

Case Processing Summary

		N	%
Cases	Valid	540	100.0
	a	0	.0
	Total	540	100.0

Listwise deletion based on all variables in the procedure.

Table-2

Reliability Statistics

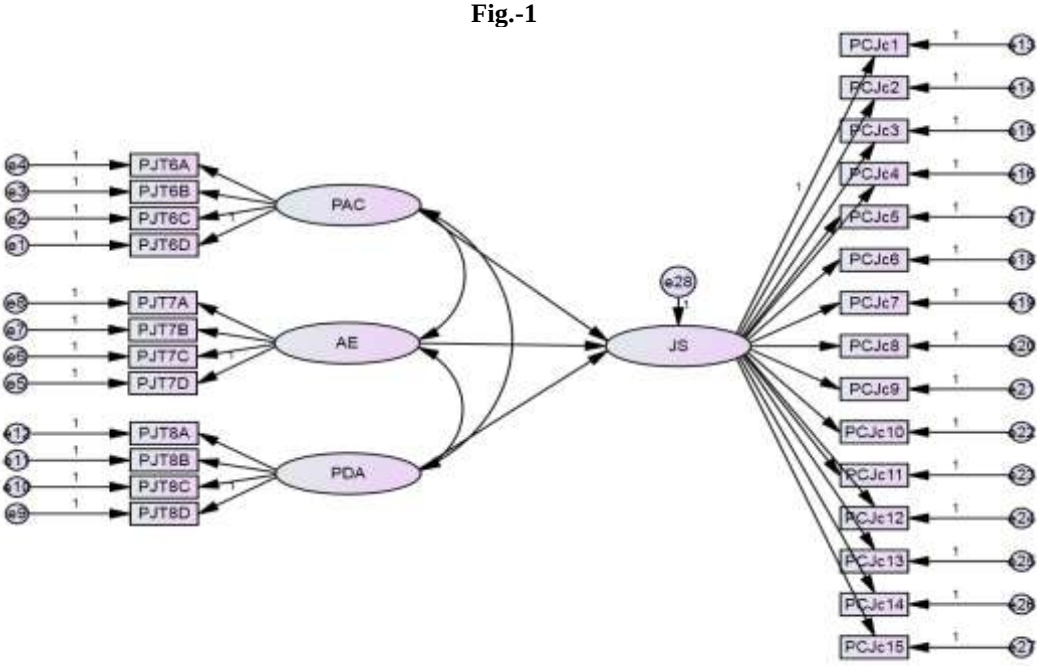
Cronbach's Alpha	N of Items
.944	27

IV. ANALYSIS OF THE STUDY

The collected data were analyzed using SPSS. The variables like working conditions, monetary benefits, safety and security, timing of work, relationship with colleagues and union, grievance handling and working environment entered the regression model as independent variables and stress entered the model as a dependent variable. The questions asked in the questionnaire spread into following…….

```
GET FILE='C:\Users\gla\Desktop\test.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.FACTOR /VARIABLES PJT6A PJT6B PJT6C PJT6D
PJT7A PJT7B PJT7C PJT7D PJT8A PJT8B PJT8C PJT8D PCJc1 PCJc2 PCJc3 PCJc4 PCJc5 PCJc6 PCJc7
PCJc8 PCJc9 PCJc10 PCJc11 PCJc12 PCJc13 PCJc14 PCJc15
```

Fig.-1



Psychosocial aspect of Crowding-Pjt6A, Pjt6B, Pjt6C, Pjt6D
Ambient Environment- Pjt7A, Pjt7B, Pjt7C, Pjt7D
Passenger Density aspect- Pjt8A, Pjt8B, Pjt8C, Pjt8D
Commute job satisfaction- PCJc1 PCJc2 PCJc3 PCJc4 PCJc5 PCJc6 PCJc7 PCJc8 PCJc9 PCJc10 PCJc11 PCJc12 PCJc13 PCJc14 PCJc15

Table-3

Total Variance Explained

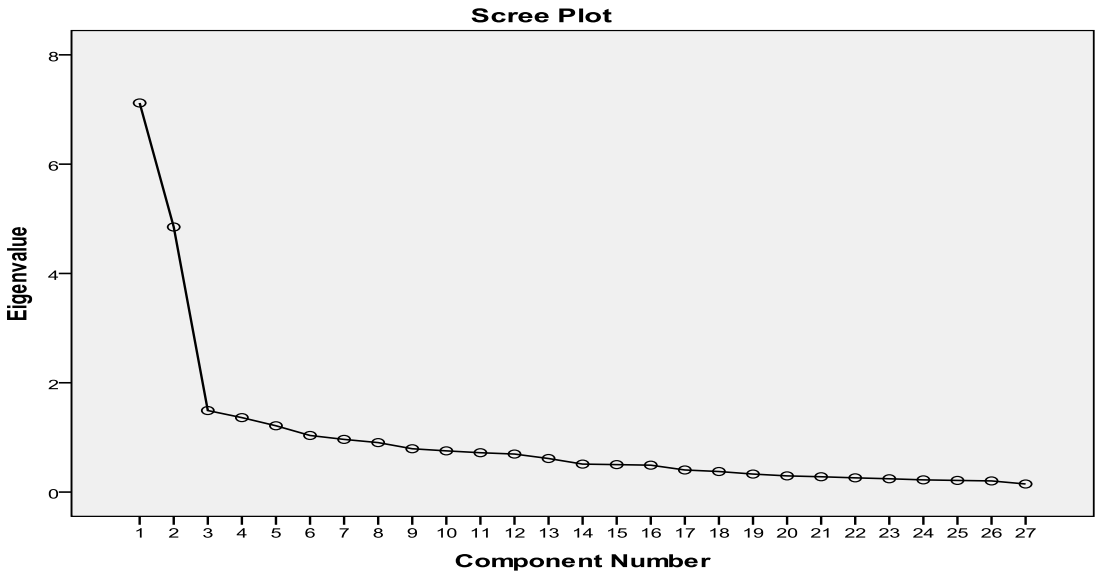
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.119	26.368	26.368	7.119	26.368	26.368
2	4.850	17.963	44.331	4.850	17.963	44.331
3	1.492	5.524	49.855	1.492	5.524	49.855
4	1.362	5.045	54.900	1.362	5.045	54.900
5	1.213	4.493	59.393	1.213	4.493	59.393
6	1.036	3.835	63.228	1.036	3.835	63.228
7	.964	3.569	66.797			
8	.905	3.352	70.149			
9	.793	2.936	73.085			
10	.754	2.792	75.877			
11	.720	2.666	78.543			
12	.696	2.576	81.119			
13	.614	2.274	83.393			
14	.512	1.895	85.289			
15	.502	1.861	87.149			
16	.492	1.822	88.972			
17	.404	1.497	90.469			
18	.376	1.393	91.862			
19	.330	1.220	93.082			
20	.296	1.097	94.179			
21	.280	1.038	95.217			
22	.260	.964	96.181			
23	.243	.901	97.082			
24	.223	.827	97.909			
25	.213	.789	98.698			
26	.204	.755	99.453			
27	.148	.547	100.000			

Extraction Method: Principal Component Analysis.

Total Variance Explained using principle component analysis depicts that six above factors explained 63.228% of the Variance. These six factors have Eigen values more than 1 which is acceptable in the case of extraction of variables. The resulted value explains the linear transformations of the data which is very easy to general clarity of the variable. The ratio of Eigen values is explanatory most importance for the factors loading and relating to the variables. In case of low Eigen value some factor shows, that to be presumed and it is helping output to explanation of variance supporting with the contribution with explanation of variances.

.

Fig.-2



The result of the analysis can best explain through above scatter diagram of factors responses. The medium of best fit of different factors express the variance which is attached to the responses with asked statements. This way of representation gives support to get value of deviation of factors.(Fig.-2) shows the graph which represent the factor spread, the six factors contributing to 63.23% variance which has Eigen Value more than 1 and the variance related to each statement under the study are fully explained by Scree plot

V. CONCLUSION-

This research work contributes to the body of knowledge as Well being of largest section of the society which Tends to mobile population of the country. Previous literature suggests more sophisticated behavioral models and this is study and evidences to this line of enquiry by testing different influencing factors on commuters well-being.

The contribution of this research will expand the existing theory by adding useful insight that how commute well-being can be analyzed and modeled; the accessibility of commute distance and commute time become important for commute well-being; the choices of selecting individual mode of transportation will be affected by the results of the study. The attitude of the movers towards commute leads their satisfaction level and the relationship between commuting and overall well-being. 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 is study will equally contribute in the policy making Government Officials Indian Railway; the organizations where the computers are working and overall help to the general passenger and commuters in large aspect.

Limitations of the study

- The area of study was very limited like the commuters of Indian Railway only in NCR region
- Most respondents were asked to response current journey information.
- The factors taken for the study are limited in nature as per area crowd to the significant variables in the pilot study.
- The mover's satisfaction level was conducted during a limited period of time. So the resulted findings may not be useful in other scenario settings and other states in India.

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