

# Exploring the Impact of Occupational Stress on Organizational Commitment: An Empirical Analysis of Delhi Metro Rail Corporation

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## Abstract:

**Background/Aims:** The objective for this research investigation is to identify the empirical impact of determinants of occupational stress on organizational commitment and their upshot on employees' satisfaction in Delhi Metro Rail Corporation (DMRC).

**Methods:** On the behalf of convenience sampling method, data was collected from 850 employees' working in DMRC with the help of self-adapted questionnaire using five point Likert scale. This study used descriptive cum inferential statistical technique with the help of structural equation model to examine the implication of projected model.

**Findings:** The results highlighted that environmental factor is one of the paramount attribute for employees' satisfaction, followed by job-demand factor, structure of organization and family-work construct. They identified analogous associations for employees' satisfaction and, it pointed out the pre eminent impact on the organizational commitment. However, structure of organization accentuate exceedingly on organizational commitment variable and the least on employees' satisfaction in terms of all the four considerable parameters of occupational stress prevalent among employees of DMRC.

**Practical Implications:** This study will extremely facilitate for DMRC establishment and their employees' in the development of an effective system to put together for the fondness of employees' satisfaction so that a valuable and preferred organizational commitment can be predicted for a better-quality of commutation understanding.

**Originality/Value:** It is acting like a forefront in the modern period of service era where employee satisfaction had reasonably been less inspected in the Indian Delhi Metro Rail Corporation environment and it is performing like a rapid development of competency that promote regular substance of commitment and satisfaction concern for the employees.

**Keywords:** Organizational Commitment, Occupational Stress, Employees' Satisfaction, Delhi Metro Rail Corporation.

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## I. Introduction cum Theoretical Conceptualization

In the modern era of service development, it is seen that stress is the psychological and physical expression that results when the advantages of the individual are not satisfactorily adjusted to beat the necessities of the organizational prospects and both of these parameters can impact an individual and

organizational relationship altogether <sup>[27, 32]</sup>. At the individual level, low level of work satisfaction and raised degree of occupational stress are the hazard to mental and physical prosperity, individual fulfillment, target achievement, and organizational commitment progression <sup>[23, 26]</sup>. Despite the fact that, the organizational steer growth leads to extended non-appearance, struggle and turnover, and diminished quality and measure of work <sup>[15, 19]</sup>.

Occupational pressure is an apparent issue in service commutation industry and their employees' are seen as an explicit threat of stress and stress-related psychosocial issues <sup>[20, 21]</sup>. In this light, metro industry of India like Delhi Metro Rail Corporation has a more elevated level of psychological inauspiciousness, imprudent enchants, and poor controls in the equivalent of service delivery of different operations <sup>[8, 11]</sup>. It is uncovered that different segment of senior and junior staff encounters raised degree of weight and similar level of anxiety and that lead to disturbance in their professional and personal life <sup>[13, 14]</sup>. Correspondingly, Delhi Metro Rail Corporation employees' satisfaction impacts the nature of professional thought's that he/she provides for the fulfillment of commuters' and their adherence to metro commutation lessens authority's turnover and that relies upon their commitment to organizations <sup>[2, 12]</sup>.

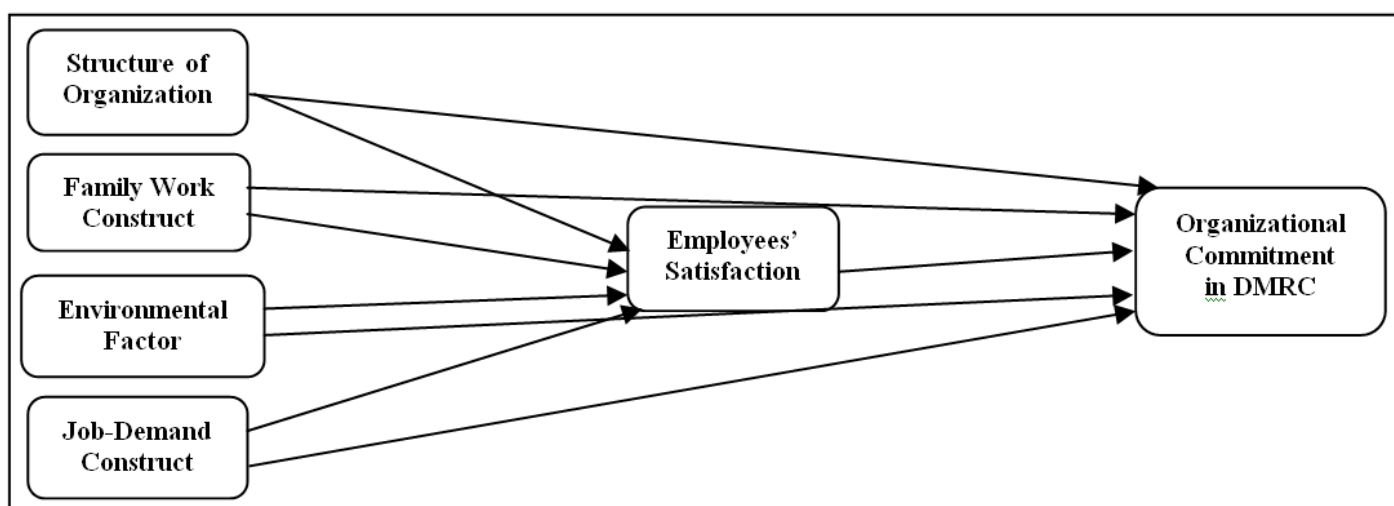
In this way, metro operations employees are dependent upon occupational worry because of physical, mental, and social perils at work and it is conceptualized from the interactionist model that considers the regular association of the person as the subject for the trimming down <sup>[27, 28]</sup>. It is also described as any lift transmitting from the external or internal condition that outperforms the modification wellsprings of an individual or social structure <sup>[35, 29]</sup>. Among the components setting off the technique of mental precariousness among DMRC employees, the most huge are those related to work, for instance, over-trouble, dubious cases and working conditions, pressure for meeting destinations, and non-appearance of self-administration <sup>[23, 32]</sup>. Of course, in this regard their commitment make them associated with high assessments of inspiration, thriving, and true bliss for what he performs expertly <sup>[2, 27]</sup>. It includes a mental state, dispositional, and significant relationship with work movement, being a marker of pros' prosperity, made out of three estimations that are vitality, responsibility, and assimilation <sup>[1, 5]</sup>. Furthermore, organizational force is an

indispensable part depicted by raised degrees of essentialness and mental continuation at work, capacity to contribute with effort and vigor, in any event, despite inconveniences; the commitment, related to a segment of enthusiastic attraction, depicted by strong incorporation in the work and experimentation of a sentiment of importance, energy, inspiration, pride and challenge; and osmosis related to an emotional section, portrayed by full obsession at work, task-focused thought, mental clarity, and joy in the presentation of their work, similarly as a general score assesses the positive state of mind towards delivery of metro operation in the field of metro culture in India <sup>[5, 8]</sup>. Employee must have a committed duty for a continuous, positive and extraordinary express, even more unequivocally related to the way in which they play out their work than to definitive destinations, or the sorts of relationships in which they are installed to deliver their services and that lead them to work effectively not only for the individual and organizational perspective and that is called the real need of hour <sup>[12, 21]</sup>.

As far as Delhi Metro Rail Corporation perspective, progression and sustenance of commitment among the metro professionals' are endorsed to execute occupational practices in an immense manner that will realize positive working associations, better occupation execution, and progressively noticeable service delivery satisfaction <sup>[25, 27]</sup>. Consequently, the commitment factor gives focal points to the metro service experts' by offering a high ground to the affiliations where they are installed <sup>[1, 29]</sup>. Other than the individual resources that help commitment are self-reasonability, certainty, feelings and adjusting strategies, similarly has an association with unequivocal characteristics of the workplace, for instance, quality and measure of delivered metro services, coordinated effort, self-administration at work, the substance of work activity, and relationship with commuters, analysis, and execution appraisal <sup>[32, 35]</sup>. Therefore, in the light of metro culture rapid growth, occupational stress is an apparent issue in service delivery execution and

specialists' have a more elevated level of mental horridness, reckless enchants, and poor controls in the equivalent of social class of metro commutation and commitment for a longer scale in the developing country like India <sup>[2, 8]</sup>. It is conceptualized from the different perspectives of conducted studies that the normal association of the employees' are at risk for the commitment purpose of organizational needs and expectations, whereas ignoring of these constructs may lead to non-adoption of this massive metro culture not only on the short but also for long-term level of commitment <sup>[1, 19]</sup>. Among the components setting off the strategy of mental delicacy among DMRC employees, the most huge are those related to work, for example, over-trouble, working conditions, pressure for meeting commutation purpose, and nonappearance of self-governance <sup>[13, 20]</sup>. Commitment makes employee associated with their work with high opinions of inspiration, success, and real euphoria for what they are relied upon to perform expertly <sup>[2, 5]</sup>. By virtue of DMRC

progression and sustenance of commitment among the employees' it is recommended to execute this examination to perceive the association between variables of occupational stress and metro employees fulfillment with respect to commitment in Delhi Metro Rail Corporation <sup>[11, 19]</sup>. In this research examination, four determinants of occupational stress that is structure of organization, family-work construct, environmental factor and job-demand construct are identified and empirically validated to survey the association between the notion of metro employees' towards these estimations in Delhi Metro Rail Corporation <sup>[12, 23]</sup>. After a brief plotting of occupational stress associated determinants, metro employees' satisfaction, and organizational commitment towards DMRC, the exploration theory is proposed with a conceptually proposed model of the assessment and exhibited with certain inferential research and a path diagram so that both employees' and Delhi metro organization can develop in a productive manner to deliver proficient form of commutation services to the commuters <sup>[1, 5, 6]</sup>.



**Source:** Prepared by the researcher

In the light of consideration of different assessments provided by various authors, following hypotheses have been framed to investigate the empirical form of research examination:-

H1: There is a momentous impact of structure of organization on the employees' satisfaction of Delhi Metro Rail Corporation.

H2: There is a momentous impact of family work construct on the employees' satisfaction of Delhi Metro Rail Corporation.

H3: There is a momentous impact of environmental factor on the employees' satisfaction of Delhi Metro Rail Corporation.

H4: There is a momentous impact of job-demand construct on the employees' satisfaction of Delhi Metro Rail Corporation.

H5: There is a momentous impact of employees' satisfaction on the organizational commitment of Delhi Metro Rail Corporation.

H6: There is a momentous impact of structure of organization on the organizational commitment of Delhi Metro Rail Corporation.

H7: There is a momentous impact of family work construct on the organizational commitment of Delhi Metro Rail Corporation.

H8: There is a momentous impact of environmental factor on the organizational commitment of Delhi Metro Rail Corporation.

H9: There is a momentous impact of job-demand construct on the organizational commitment of Delhi Metro Rail Corporation.

## II. Materials and Method

### 2.1 Research Design

This empirical study is based on a conclusive research, where, the dependent variable is organizational commitment (OC) and independent variables are attributes of occupational stress (OS). Employees' Satisfaction (ES) plays a mediating function between organizational commitment and parameters of occupational stress in Delhi Metro Rail Corporation <sup>[1, 2, 23]</sup>. The items of 'structure of organization' were resultant from the studies of William, S., & Cooper, C. L. (1998); Vagg & Spielberger (1998); Szilagyi & Holland (1980), whereas, 'family-work construct' were consequent from the studies of Beehr, Jex, Stacy & Murray (2000); Thian, J.H.M., Kannusamy, P., Gu H. H., & Yobas, P.K. (2015); Smither (1998) <sup>[33, 32, 29, 2, 31, 27]</sup>. The studies executed by Akpulat, A. N., Polat, Ü. T., & Karacan, E. (2016); Pettergrew, L. S., Thomas, R. C., Ford, J., & Raney, D. C. (1981) and Ivancevich, Matteson, Freedman, and Phillips (1990) have

recognized in terms of 'environmental factor' and for the evaluative function of 'job-demand construct', studies of Khatibi, A., Asadi, H., & Hamidi, M. (2009); Hu, Y., Wang, D., Xu, G., & Xu, P. (2014) and Netemeyer, Maxham, & Pullig (2005) were accredited in the aspects of occupational stress <sup>[1, 26, 21, 23, 20, 25]</sup>. While, the studies of Efeoğlu, İ. E., & Özgen, H. (2007); Hunter, L. W., & Thatcher, S. M. B. (2007); Demirtaş, H. (2010); Sullivan, S. E., & Bhagat, R. S. (1992); and Gül, H., Oktay, E., & Gökçe, H. (2008) have acknowledged for 'employees' satisfaction' <sup>[13, 19, 11, 28, 15]</sup>. Moreover, for the rationale of 'organizational commitment', few studies carried out by Zincirkıran, M., Çelik, G. M., Ceylan, A. K., & Emhan, A. (2015); De Cotiis, T. A., & Summers, T. P. (1987); Erdilek, K. M. (2014); and Caught, K., & Shadur, M. A. (2000) have espoused to decide on the comparative items which will serve as a credible purpose for the individual and organizational growth of metro industry <sup>[35, 8, 14, 5]</sup>.

### 2.2 Sample Design and Procedure

This study used self-adapted questionnaire on the basis of convenience sampling method focussing on a five-point Likert scale <sup>[6, 30]</sup>. The preliminary part involved demographic outlines (gender, age, education level, professional identification, and work experience) of the Delhi Metro Rail Corporation employees', while; the succeeding section administered the independent constructs, mediate variable and the dependent factor. The data was collected in two stages from October 2019 to December 2019. In the foremost phase, information was generated from 80 employees with the prime objective of pilot testing <sup>[22, 6]</sup>. In the later stage, data was collected from larger sample of 850 respondents. The populace in this empirical investigation is the employees' who work on regular profile of Delhi Metro Rail Corporation <sup>[9, 10]</sup>. In the light of yearly reports published by Delhi Metro section, there is a different allotment of work division as it is a purely servo-technical

commutation industry where services are provided on the basis of metro operation to its commuters' and the population is around 8607 employees and as per Yamane formula, we adopted reliable sort of data which seems to be of practical and obvious one and it was suggested 543 respondents but larger the sample size, greater the possibility of correct opinion [12, 34]. Therefore taking this into consideration, authors had distributed 1000 questionnaires as previous researches had also observed a level of parallel rejoinder [6, 22]. Out of 1000, just 850 respondents returned the questionnaires and as per rule of thumb technique, the sample size of 850 metro employees' is amassed [22, 24]. In this regard, it displayed 85 percent of rejoinder rate which is higher than the usual reaction rates mentioned in different sort of studies [6, 22]. Moreover, this study also had all-purpose reliability scale that is .892 which is observed as adequate one [6, 7].

**Table I: Reliability Value of the Scale**

Variables	No. of Items	Cronbach's Alpha ( $\alpha$ )
Structure of Organization	6	.817
Family Work Construct	7	.785
Environmental Factor	6	.861
Job-Demand Construct	5	.792
Employees' Satisfaction	7	.849
Organizational Commitment	7	.798

**Source:** Survey data and prepared by the researcher

In the light of descriptive insights, factor analysis, regression analysis, investigation of assorted and at last structural path were made to propel the closeness of the expressed model using SPSS 20.0 and AMOS 20.0 [4, 17, 18, 24]. The consequent table explains the evaluations of the variable and its criticalness for the structural path examination

through confirmatory factor analysis with fundamental components of 38 items [3, 5, 6, 22].

**Table II: Estimates of constructs of study**

Constructs	Items	Estimates
Structure of Organization	SOO1	.692
	SOO2	.774
	SOO3	.787
	SOO4	.732
	SOO5	.698
	SOO6	.644
Family-Work Construct	FWC1	.752
	FWC2	.791
	FWC3	.771
	FWC4	.749
	FWC5	.654
	FWC6	.738
	FWC7	.795
Environmental Factor	EF1	.586
	EF2	.669
	EF3	.681
	EF4	.782
	EF5	.693
	EF6	.761
Job-Demand Construct	JDC1	.582
	JDC2	.812
	JDC3	.790
	JDC4	.643
	JDC5	.782
Employees' Satisfaction	ES1	.694
	ES2	.754
	ES3	.679
	ES4	.792
	ES5	.783
	ES6	.727
	ES7	.642
Organizational Commitment	OC1	.741
	OC2	.864
	OC3	.726
	OC4	.719
	OC5	.767
	OC6	.748
	OC7	.732

### III. Data Analysis and Results

#### 3.1 Descriptive Analysis of Demographic Factors

According to the metro employees' information dependent on gender orientation, 680 were males and 170 were females. While 43 percent were of 19 to 34 years, 32 percent were of 45 years or more and 25 percent were of 35 to 44 years that implies the vast majority of the metro employees' are sufficiently developed to comprehend the closeness of organizational commitment and measurements of

occupational stress <sup>[6, 8]</sup>. As far as employees' expansion of professional identification, the larger part of the employees' had a place with the technical division (72 percent), and non-technical division class had 28 percent employees', on the other hand, to the extent of educational profile, 78 percent were graduate and remaining 22 percent were postgraduate. It implies maximum employees' realize the imperative way to deal with their occupation judiciously. Most definitely, 27 percent employees' were of over ten years, 14 percent were of 5 to 10 years span, 28 percent were of 2 to 5 years, and 31 percent were of under 2 years period which means yet employees' are proficiently developed to comprehend the worldview approach of their occupational stress related to organizational commitment in the metro service culture of Delhi Metro Rail Corporation <sup>[19, 21]</sup>.

### 3.2 Analysis of Model and Findings

To the extent of speculations testing, the results exhibited a strongly colossal effect of the stated attributes on occupational stress, for instance, environmental factor on employees' satisfaction ( $p=0.018$ ), however, it ( $\beta=.65$ ) shows 65 percent EF estimation impact towards occupational stress, while the basic proportion ( $CR=6.782$ ) raises it as a huge determinant of employees' fulfillment, so this hypothesis got accepted <sup>[23, 25]</sup>. Various estimations like job demand construct ( $p=0.427$ ;  $\beta=.64$ ), the structure of organization ( $p=0.355$ ;  $\beta=.62$ ), and family-work construct ( $p=0.479$ ;  $\beta=.58$ ) earnestly not affected metro employees' fulfillment towards occupational stress generated in DMRC, so these hypotheses got rejected <sup>[13, 15]</sup>. While, metro employees' satisfaction ( $p=0.023$ ;  $\beta=.78$ ) is unequivocally affected towards their organizational commitment to provide DMRC benefits constantly, so this hypothesis is accepted <sup>[5, 8]</sup>. It furthermore communicated that the metro workforce is progressively stressed over occupational issues to create and hold partiality with them <sup>[2, 11]</sup>. In order to test the association between estimations of occupational stress and metro professionals'

commitment, all determinants were found having superfluously blow on commitment with the exception of structure of organization ( $p=0.029$ ;  $\beta=.68$ ) which had an immense impact on commitment in DMRC service delivery operations, so this hypothesis got accepted <sup>[18, 19]</sup>. Consequently, the examination further communicated that family-work factor ( $p=0.352$ ;  $\beta=.61$ ), environmental factor ( $p=0.173$ ;  $\beta=.59$ ), and job-demand construct ( $p=0.163$ ;  $\beta=.57$ ), were hardly influencing, so these hypotheses got rejected <sup>[1, 13, 15]</sup>.

**Table III: Regression paths of research model, estimates, critical ratio and P-value**

Hypotheses	Effects	Estimate	S.E.	C.R.	P	Inference
H1	ES <--- SOO	.659	.068	6.571	0.355	Not Supported
H2	ES <--- FWC	.692	.072	5.796	0.479	Not Supported
H3	ES <--- EF	.582	.076	6.782	0.018	Supported
H4	ES <--- JDC	.573	.071	6.232	0.427	Not Supported
H5	OC <--- ES	.685	.068	5.591	0.023	Supported
H6	OC <--- SOO	.696	.063	6.728	0.029	Supported
H7	OC <--- FWC	.586	.057	6.972	0.352	Not Supported
H8	OC <--- EF	.671	.061	7.582	0.173	Not Supported
H9	OC <--- JDC	.593	.069	5.924	0.163	Not Supported

Moreover, while separating the entire model, environmental factor ( $\beta=.65$ ) is one of the most focal determinants for employees' satisfaction, while job-demand construct ( $\beta=.64$ ), structure of organization ( $\beta=.62$ ) and family-work construct ( $\beta=.58$ ) making a straight endeavor to have a comparative association and impact between metro employees' fulfillment and determinants of occupational stress <sup>[23, 25]</sup>. In other way, metro employees' satisfaction recognized the best effect on organizational commitment variable ( $\beta=.78$ ) so that positive closeness of association between this two factors and their empirical impact is also evaluated

accordingly <sup>[2, 26]</sup>. The ensuing part of commitment are also affected by these parameters viz., structure of organization ( $\beta = .68$ ), family-work construct ( $\beta = .61$ ), environmental factor ( $\beta = .59$ ) and job-demand construct ( $\beta = .57$ ) <sup>[27, 29]</sup>. Therefore, it empirically proved that the structure of organization has been the most affecting element for organizational commitment whereas, environmental factor for metro employees' satisfaction towards occupational stress prevalent in Delhi Metro Rail Corporation <sup>[30, 32]</sup>.

**Table IV: Estimated Model's Test Statistics**

Fit Index	Recommended Values*	Observed Values
CMIN/DX	<0.30	2.581
GFI	0.90	0.853
AGFI	0.80	0.859
NFI	0.90	0.892
CFI	0.90	0.952
RMSEA	<0.70	0.071

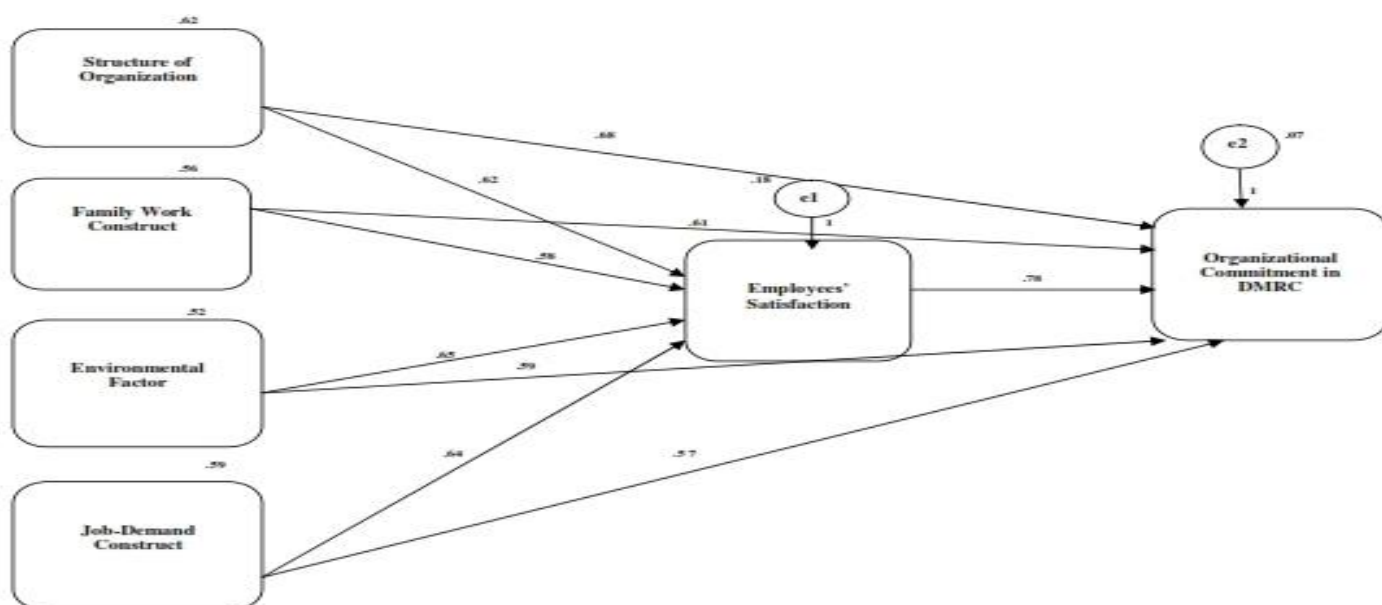
**Notes:** CMIN/D.F – Chi-square value/degrees of freedom, GFI – Goodness of Fit Index, CFI – Comparative Fit Index, NFI – Normed Fit Index, AGFI – Adjusted Goodness of Fit Index, RMSEA – Root Mean Square Error of Approximation.

\* Sourced from <sup>[16, 17, 20, 22, 24]</sup>.

**Source:** Survey data and prepared by the researcher

On the other hand, RMSEA scores underneath 0.10 are ordinarily viewed as of good sign fit, and the value 0.07 is a strong counterpart for the model <sup>[3, 4, 6]</sup>. Mulling over this, it is exhibited that all hypotheses are basically affecting the association between determinants of occupational stress and employees' satisfaction and that improve their credibility towards DMRC through their commitment to the metro service industry for a better and productive services to the dynamic commuters' <sup>[22, 24, 31]</sup>.

**Figure I: Empirically Validated Model for Occupational Stress and Engagement among Medical Practitioners' of JNMC**



**Source:** Survey data

#### IV. Discussion and Implications

This investigation recognized the association between the attributes of occupational stress on employees' satisfaction and assessed the impact of these estimations on organizational commitment of DMRC including a sample of 850 employees' to whom the self-adapted questionnaire was directed. The results indicated that the environmental factor is seen as the most chief factor among all the estimations for employees' satisfaction in DMRC [19, 20]. Besides, employees' fulfillment applies the best impact on commitment with due comprehension of conduct of specialists' so the occupational stress segment may not hamper their fulfillment and commitment towards Delhi Metro Rail Corporation [13, 15]. To the extent of commitment, structure of organization winds up being the most raised applying factor among all the measurements to build up effective characteristics in the psyches of employees' so that they may not misconceive with their metro style of operations, on the other hand, employees' satisfaction, the family-work factor is apparently the least decision factor among the entirety of the measurements in DMRC [32, 33, 35]. These disclosures could fill in as suggestions for DMRC specialists to survey their relationship and its outcomes for employees' so it can increase the propensity of commutation industry with respective to employees' performance on a gradual basis [2, 8, 13]. Additionally, metro employees' fulfillment applies the best impact on the commitment which suggests that employee parameters are aptly realized with due comprehension of conduct of specialists' so that occupational stress segment may not hamper their fulfillment and commitment towards DMRC [1, 15, 33]. Moreover in the extent of commitment, structure of organization considered the most raised applying factor among all the determinants that suggest the status and proficient form of effective qualities in the mind of metro employees' may not misconstrue with their work culture, while, to the degree of metro employees' satisfaction, the family-work factor is apparently the least decision factor

among the entirety of the measurements in DMRC [14, 30]. These disclosures could fill in as proposals for DMRC specialists to survey their relationship and its outcomes for metro service experts' so it can give practical respect to the metro industry.

#### V. Limitations and future research directions

This exploration was limited to investigate the impact of estimations of occupational stress on metro employees' satisfaction in Delhi Metro Rail Corporation. Further studies in various sorts of associations may give assorted information into the disclosures of this examination. As showed by the essentials of the different businesses, these estimations could be added or changed to fit the affiliation unequivocal characteristics and extra assessment is proposed to be done longitudinally in order to assess the relationship with respect to time, nature, and region. The sample contained restorative employees' working in the Delhi metro commutation industry and it may be moreover coordinated among straight out of various experts'.

**Conflict of Interest-** Nil

**Source of Funding-** Self

**Ethical Clearance-** Not required as per study.

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