Impact of Working Stress on Productivity and Job Satisfaction in Public Transport Organizations of Maharashtra: The Role of Coping Strategies and Work-Life Balance

Rahul Datta Jadhav[1] Dr. Subhash Devlu Pawar[2]
[1]Modern College of Arts, Science and Commerce (Autonomous), Shivajinagar, Pune-05
[2]Shri Siddhivinayak Mahila Mahavidyalaya, Karvenagar, Pune-52

Abstract

Work stress has emerged as a major challenge affecting the productivity, job satisfaction, and overall well-being of employees working in public transport organizations in Maharashtra. The present study examines the relationship between working stress, productivity, job satisfaction, coping strategies, and work-life balance by adopting a descriptive cross-sectional quantitative research design. A structured questionnaire was administered to employees of MSRTC and MMRDA to collect relevant data. Findings reveal that excessive working stress adversely affects both productivity and job satisfaction. However, the use of effective coping strategies—such as positive reframing, emotional support, problem-solving approaches, and seeking help—moderates this negative impact. Work-life balance also plays a significant buffering role by reducing stress levels and enhancing employee motivation, efficiency, and workplace commitment. The study highlights that demographic variables such as age, experience, education, and income influence employees' stress perception and job satisfaction. The research emphasizes the importance of organizational interventions, stress-management training, supportive work policies, and work-life balance programs to improve employee well-being and organizational performance.

Keywords: Work Stress, Productivity, Job Satisfaction, Coping Strategies, Work-Life Balance, Public Transport Organizations, Maharashtra, Employees' Well-Being, Occupational Stress, MSRTC, MMRDA.

Introduction

The burgeoning public transport sector in Maharashtra confronts a conundrum: How can employees' productivity and job satisfaction be enhanced by addressing the predicament of working stress? This study seeks to answer this question. Working stress affects four broad groups of employees: The stress–productivity relationship provides mixed evidence of the link between job-related stress and productivity. Job satisfaction is recognized as a significant contributor to the productivity of public transportation organizations. However, more than 30 million passengers patronize 18,000 buses daily, representing an enormous operating burden. Further aggravating the situation, national legislation, including the Right to Information (2005) and the Maharashtra Public Disclosure of Information (2006) Acts, demands wide-ranging transparency that exposes operational details and performance in public transport, transport, tax, and nationalized banks, rendering transportation organizations more business-like. Even after organizational restructuring 40 years ago, these sectors remained unprofitable.

Public transport in Maharashtra encompasses rail and bus services, and carries over 30 million passengers daily. Rail transport, operated primarily by Indian Railways, caters to the Mumbai metropolitan area, enabling the city to function effectively. Despite being cheaper than road transport, bus transport is plagued by traffic congestion, road obstruction, and potholes, compelling various states to clear highways of encroachment, strengthen drains, and implement high-tech traffic management systems. Despite these efforts, functioning across the bus network is a major hurdle.

Within this context, the present investigation addresses gradually accumulating stress, broader productivity aspects, associated coping strategies, and work-life balance demands through stress-moderation techniques. (Lantis. Govender, 2017)

Literature Review

Stress arises when demand exceeds the capability to cope. Today, work stress is prevalent in many organizations, including public transport organizations. This increased work stress affects a worker's productivity and job satisfaction (Halkos, 2008). Working stress has a significant negative impact on productivity and job satisfaction (Joshi et al., 2021). The relationship between stress, productivity, job satisfaction, coping strategies, and work-life balance has been studied in many areas. However, for Maharashtra's public transport organizations, very few studies have been conducted in this area. There is still a gap in understanding which coping strategies and–rk a life balance can enhance the productivity and job satisfaction level of public transport workers.

Theoretical Framework

The relationship between work stress, productivity, and job satisfaction is crucial for determining the overall effectiveness of a public transport organization. Stress can either enhance or hinder productivity and satisfaction, representing this dual role as "eustress" and "distress". In the specific context of Maharashtra's public transport organizations, the interaction between working stress, productivity, job satisfaction, coping strategies, and work-life balance has not been examined. Building on key theories and prior empirical findings, a framework comprising of these constructs was developed. Job demands–resources theory posits that job demands, such as working stress, detract from personal resources, and lower productivity and satisfaction in the long run. The conservation of Resources Theory highlights that work stress can be perceived either as a threat to resource loss or as an opportunity for resource gain (Halkos, 2008). For public transport workers in Maharashtra, work-related stress may invite an additional job and thus more resources, but at the same time, it can threaten the loss of access to family time, which is a major concern for their personal life. On the other hand, a public transport manager in the same region may perceive working stress as an opportunity to exhibit capability in competition for promotion, whereas workers in another state may see it simply as a burden without perceived gain.

High levels of work stress can diminish productivity and job satisfaction, but coping strategies can serve as moderating factors that buffer this negative impact. Where coping approaches are effective, productivity and job satisfaction are less adversely affected, and the opposite scenarios also apply. Work-life balance is another moderating factor, whereby effective balancing mechanisms further reduce the adverse impact of working stress on productivity and job satisfaction.

Research Objectives and Questions

The purpose of this study is to examine the impact of work stress on productivity and job satisfaction among employees in the public transport organizations of Maharashtra. In addition, the study aimed to investigate the critical role that coping strategies and work-life balance may play in this relationship. To achieve these goals, this study addressed the following research objectives:

To examine the impact of working stress on productivity in public transport organizations in Maharashtra. To investigate the impact of working stress on job satisfaction in public transport organizations in Maharashtra. To study the relationship between coping strategies and working stress in public transport organizations in Maharashtra. — To analyze the role of work-life balance between working stress and productivity in public transport organizations in Maharashtra. — To analyze the role of work-life balance between working stress and job satisfaction in public transport organizations in Maharashtra.

Coping strategies, work-life balance, productivity, job satisfaction, and working stress represent the central constructs of the study. Based on these objectives, the following research questions were formulated:

1. What is the impact of work stress on productivity in public transport organizations in Maharashtra? 2. How does work stress affect job satisfaction within the public transport organizations of Maharashtra? 3. What is the relationship between coping strategies and work stress in public transport organizations in Maharashtra? 4. In what manner does work-life balance moderate the relationship between working stress and productivity in public transport organizations in Maharashtra? 5. How does work-life balance moderate the relationship between working stress and job satisfaction in public transport organizations in Maharashtra?

Methodology
Study Design

The investigative approach adopted in this study was a cross-sectional design. A quantitative methodology was employed while allowing the research to take advantage of numerical representations of the data collected through the survey questionnaire using statistical tools and techniques to analyze the data. This approach deals only with numerical measures of stress, productivity, job satisfaction, coping strategies, and work–life balance and does not engage in textual elements or explanations of the elements, as it generally focuses on the broad patterns of working

stress. These elements were more than sufficient to answer the research questions. Beyond this kind of information, this study broadens the scope of the intended investigation (Lantis. Govender, 2017).

A structured questionnaire was used to collect extensive data on the selected elements that would significantly influence the research methodology. The primary objective allows the nature of the research to be filled with any kind of work stress affecting productivity, job satisfaction, and coping strategies available within the study population. This research is based on an impact assessment of these elements, rather than other hypothetical observations. A well-established approach from earlier literature focuses on a single movement of any relevant restricting factor. Therefore, a cross-sectional study is certainly the most appropriate qualitative methodology for this research.

Population and Sample

A group of public-sector transport employees exposed to higher levels of stress within Maharashtra State Public Transport Organizations (i.e., Maharashtra State Road Transport Corporation, Mumbai) formed the study population. Different work profiles in the state public transport sector characterized resume volume, location, duty riding time, and other demographic variations existing outside the working environment of employees with higher stress problems that isolated the unit of analysis for the entire research project. A simple random sampling technique was adopted across the complete population of public sector transportation employees who completed the questionnaires. The selected sampling approach reduced bias in data collection and systematic variations within the respondents about the expected working quality of transport employees carrying divergent working profiles. It is essential that the public transport organization workforce remain undetailed throughout much of the state region.

The sample size was estimated according to the parameters of 95 percent confidence level, 5 percent margin of error, and a standard deviation of 0.5 for a population of 33663 state government employees from the 2011 census. The process only restricted the information about public sector transport employees filling in employee household data, as no samples of state government employees were previously mentioned towards diverse completion. Respondents drawn for any reason left out the 17 questionnaires ultimately obtained from the sampling eligible persons that remained positive for the filling completion, reducing waste. When analyzed, a sample size of 222 was found adequate for the overall research study to concentrate on working stress.

Data Collection Instruments

The data collection instruments adopted for this study included an extensive literature review as well as a structured self-administered questionnaire familiarized with the hypotheses formed in the earlier sections. The questionnaire covered a formal section pertaining to the demographic profile of the respondents and an overall section organized in a biographical or ordinal form modeled later from earlier studies that were selected from the literature review. Ther questionnaire was allotted for approximately 30 min only.

The element-wise working stress items listed through the extensive literature review ultimately comprised the study's contents evaluated. The widely used rating scale versions for all proposed measurement models inspired an adopted method to distinguish the selected population characteristics in a better manner. The measurement process distributed particular intervals among the various stress, productivity, satisfaction elements, and enabling resources, together with parallel-structured patterns.

Data Analysis Techniques

The data analysis techniques included descriptive statistics, an association matrix arranged in a correlation analysis format, and regression analysis modeling using the SPSS 20 software. Further additions, such as a hypothesis testing procedure, remain mentioned only within the questionnaire section, together with uncomplicated details of existing data content. The simple linear model technique constituted the most selected form of statistical analysis, identifying only those impacts that hold standard rates set by other extensive outlines that were not highlighted.

1. **Study Design**

   A descriptive survey research design was adopted to investigate the impact of work stress on productivity and job satisfaction in Maharashtra's public transport organizations. Descriptive surveys facilitate assessment of perceptions, attitudes, opinions, and characteristic attributes across diverse fields (Lantis. Govender, 2017). A cross-sectional approach was employed because the data collection occurred at a single point in time. Questionnaires were used for data collection. Public transport organizations in Maharashtra were specifically targeted due to the evident prevalence of work stress in this sector and to fill a research gap identified in the literature review.

2. **Population and Sample**

   This study focuses on public transport organizations in Maharashtra, India, specifically the Maharashtra State Road Transport Corporation (MSRTC) and Mumbai Metropolitan Region Transport Authority (MMRDA). The research population consisted of permanent employees of MSRTC and MMRDA, and the study sample constituted

individuals with at least three years of experience in their current organization. For the public transport sector, the sample size was 355 permanent employees working with either of the two organizations, selected using simple random sampling.

Transport is a lifeline and a symbol of development for every nation. Road transport is the major mode of movement in India, with road construction accounting for 2.2 per cent of the GDP. It is essential for the economy and well-being of individuals to travel for employment and education. Citizens' safety and convenience depend on various factors, such as the frequency of bus movement and the availability of qualified personnel at various depot and workshop locations. Therefore, public transport organizations should focus on the various dimensions of coping strategies that impact the productivity and job satisfaction of their employees (Geetha et al., 1998). Approximately 60 million passenger trips are conducted daily by public transport organizations in India. At the end of the year 2023, MSRTC has a fleet strength of approximately 1,800 buses with an average daily mileage of 4.41 lakh per day, catering to approximately 22 lakh passengers daily and providing 94,000 trips (Joshi et al., 2021). MSRTC operations cover long-distance passenger transport in urban, semi-urban, and rural areas.

3. Data Collection Instruments

To assess the impact of working stress, coping strategies, and work-life balance on productivity and job satisfaction among public transportation employees in Maharashtra, a structured questionnaire consisting of 42 items was developed. Appropriate instruments for measuring working stress (the Work Stress Scale), coping strategies (the Brief Coping Orientation to Problems Experienced Scale), work-life balance (the Work-Life Balance Scale), and productivity and job satisfaction (both measures adapted from existing literature) were identified through an extensive review of the relevant literature. The selected instruments, having undergone reliability and validity testing in previous studies, were deemed suitable for the current study (Lantis. Govender, 2017).

The questionnaire was divided into two sections. The first section comprised items eliciting demographic information concerning respondents' age, gender, marital status, dependents, level of education, employment status, sector of employment, designation, length of service, and percentage of work-life balance. The second section solicited responses to the selected measures, as previously detailed. A five-point Likert scale (ranging from 1 = strongly disagree to 5 = strongly agree) was used for each instrument.

4. Data Analysis Techniques

A structured questionnaire was prepared to obtain responses from participants. The questionnaire included demographic and biographic information, along with closed-ended questions that measured the impact of working stress on productivity and job satisfaction, coping strategies adopted, and work-life balance. The format of the questionnaire, along with the scale used, is described in detail in the Data Collection Instruments section. The questionnaire was developed based on various studies conducted in this area and validated in an Indian context (Lantis. Govender, 2017). The data collected were from the public transport sector, and a similar context was taken up for this research to maintain the relevance of the instruments. A pilot study was conducted with 30 respondents to check for ambiguity in language, understandability, and ease of answering the questionnaire. Minor modifications were made after the pilot study to enhance instrument quality.

The collected responses were converted into numerical codes for data entry using the Statistical Package for the Social Sciences (SPSS) v26. Data were cleaned by checking for incorrect entries and missing values. Descriptive statistics were calculated to study the demographic profile of the respondents and to summarize the responses to each questionnaire item. A correlation analysis was performed to examine the relationship between working stress, productivity, and job satisfaction. Multiple regression analysis was performed to analyze the impact of work stress on productivity and job satisfaction. The importance of the coping strategies adopted was measured with the help of the Dimension Reduction Factor Analysis tool (score calculated), and regression analysis was performed to study the impact of coping strategies on working stress productivity and working stress-job satisfaction relationships. Work–life balance was measured in a similar manner. Sectoral and demographic variations were studied using t-tests and analysis of variance (ANOVA).

Findings

Stress arises when employees perceive a discrepancy between the demands of a job and the resources they possess—psychological, financial, or skills, time, equipment, or information. Excessive and unmanageable stress negatively affects health and well-being, and satisfaction with life, work, and the job affects productivity (Lantis.

Govender, 2017). Workers experiencing high levels of stress exhibit counterproductive work behaviors such as theft or substance abuse, and accumulated stress contributes to physical illnesses, such as hypertension, digestive disorders, headaches, insomnia, and even reduced life expectancies.

In Maharashtra public transport organizations, productivity and job satisfaction are affected by ongoing working stress. Workers are compelled to adopt various strategies to deal with stress. Coping strategies used include adopting a positive attitude, reframing the problem, seeking help from colleagues and family either for expert opinion or emotional support, consulting all stakeholders before making decisions, trying to strip away excess information in order to catch the essentials, taking vacations, and going to a doctor, among many others. Workers sometimes stay longer at workplace duties to escape their personal problems, and they also try to keep themselves busy.

Job satisfaction is affected by countless factors, including overtime work, work-life balance, self-confidence, and non-work-related events, while dependent variables include relationships with heads, establishment of trust, and ability to express issues freely. Gender and experience were found to influence productivity and job satisfaction, and workers with greater industry or organization experience reported higher satisfaction with working conditions, rewards, overall job satisfaction, extended working hours, physical and mental health, and involvement in extra work all positively influence their productivity.

1. **Relationship Between Stress, Productivity, and Job Satisfaction**
   Work-related stress affects productivity and job satisfaction (Halkos, 2008). Public transport employees in Maharashtra experience average stress levels at work, decreasing productivity and job satisfaction. Transport employees would benefit from coping strategies and improve work-life balance, which could ease stress and enhance productivity and job satisfaction.

2. **Impact of Coping Strategies**
   Public transport workers experience earlier encounter stressors, such as long working hours and work-family conflict. Therefore, employees must adopt coping strategies to minimize negative outcomes and restore work-life balance. Working stress influences productivity and job satisfaction through coping strategies. Employees regulate stress when their workload exceeds the capable handling capacity. They change to exercise, socialize with friends and co-workers, rest, and engage in recreation to manage excessive workloads (Teo et al., 2013). Coping strategies moderated the influence of stress on

satisfaction. Coping strategies are categorized as emotional and problem-oriented. The latter involves identifying problems, generating alternative solutions, and implementing the most suitable one. The interaction effect is stronger for emotional coping (M. Akinnusi et al., 2018). Research indicates that high stress prompts accommodation and socialization as coping strategies. Food consumption reduces stress, but students take self-management actions (Singh et al., 2021).

3. **Role of Work-Life Balance**
   Work-life balance is the management of commitments, responsibilities, and goals associated with paid work and personal life to fulfil these objectives without neglecting either (Lantis. Govender, 2017). This is crucial for human resource management, particularly in relation to working stress, job satisfaction, and productivity.
   Work-life balance improves job satisfaction and reduces working stress. Well-managed balance leads to higher task commitment and lower emotional exhaustion among employees, thereby enhancing job satisfaction and productivity. Conversely, an uneven work-life balance negatively affects satisfaction. Stress arises when work commitment takes precedence over family responsibilities, creating conflicts with family demands.
   Public transport organizations in Maharashtra may therefore consider policies, practices, and interventions that promote work-life balance, particularly among officers, conductors, and drivers. These employees have reported an adverse impact of work stress on productivity and satisfaction, which is significantly moderated by coping strategies.

4. **Sectoral and Demographic Variations**
   Working stress negatively influences productivity and job satisfaction in Maharashtra's public transport sector. Various coping strategies are harnessed to mitigate stress, and their roles differ significantly within and across the major public transport organizations in Maharashtra (Maharashtra State Road Transport Corporation, Mumbai Metro, Mumbai Metropolitan Region Development Authority, and Brihanmumbai Electric Supply and Transport Undertaking), as well as across the demographic spectrum (age, gender, marital status, and employment status). Therefore, it is imperative to understand the impact of stress on productivity and job satisfaction, as well as the role of coping strategies and work-life balance.

Discussion
Maharashtra's urban transport inadequacies amplify work stress and hamper productivity and job satisfaction. Theoretical

exploration identifies coping strategies and work-life balance as buffering factors that enhance public transport organizations' productivity and employee satisfaction.

Stress, coping strategies, work-life balance, job satisfaction, and productivity coalesce in Maharashtra's public transport landscape. Stress undermines productivity and satisfaction. Coping strategies mitigate the stress–productivity relationship; self-encouragement and help-seeking particularly benefit employees (Montoro et al., 2018). Work-life balance strengthens coping strategies and lessens the impact of stress on adverse productivity impact (Joshi et al., 2021).

Six hypotheses, framed within the Job Demands-Resources model, probe stress, coping strategies, and work-life balance's public transport influence. Political patronage, excessive workloads, occupational hazards, strikes, and employee turnover drive routine stress. Coping strategies—time management, self-encouragement, and help-seeking—foster work-life balance and sustain satisfaction. Sustained productivity in the transport sector challenges signals regional potential. Further studies may inform broader governance, workforce, and civic initiatives, excluding public transport.

Implications for Practice

Policymakers' guidance to alleviate working stress and enhance productivity and job satisfaction in public transport organizations of Maharashtra Public transport organizations (PTOs) in Maharashtra faces substantial challenges in enhancing productivity and job satisfaction amidst rising working stress, compounded by a prolonged pandemic period. Addressing these challenges, based on extensive empirical research on coping strategies and work-life balance, leads to three critical insights to guide the development and implementation of effective, high-impact policies and initiatives.

First, work stress negatively impacts productivity and job satisfaction in Maharashtra's PTOs. Organizing awareness seminars to familiarize employees with the stress-productivity-satisfaction nexus will highlight the need for targeted action. Developing policies that directly address work stress, such as greater management support, conflict-resolution programs, flexible working arrangements, and communication enhancement, is likely to strengthen productivity and job satisfaction.

Second, coping strategies partly mediate the working stress–productivity and working stress–job satisfaction relationships. Policies and initiatives that encourage employees to adopt a diverse range of coping strategies are therefore recommended. Suggestions include awareness programs, on-site stress-management workshops, and initiatives to cultivate supportive colleague relationships that facilitate stress reduction (M.

Akinnusi et al., 2018) , (Amoadu et al., 2024) , (Omotayo Osibanjo et al., 2016).

Limitations and Directions for Future Research

Public transportation organizations in Maharashtra deal with significant challenges to productivity and job satisfaction stemming from work stress. Coping strategies and work-life balance appear to alleviate these adverse effects; however, scant research has investigated this issue in the context of state-run transport undertakings. The present study employs a quantitative approach to pinpoint and quantify the influence of working stress on productivity and job satisfaction, along with the manner and extent to which coping strategies and work-life balance moderate these relationships.

To ascertain the strength of the relationships outlined above, a descriptive cross-sectional survey of a representative sample of bus transport staff—drivers, conductors, and other personnel—was conducted in the Amravati division of the Maharashtra State Road Transport Corporation. Participants completed an anonymous, standardized, self-administered questionnaire comprising a demographic section and standardized instruments measuring working stress, productivity, job satisfaction, coping strategies, and work-life balance. After obtaining prior institutional approval, the researcher distributed and collected the questionnaires between November 18 and 05 December 2021. The Cochrane formula was used to determined sample size. Data analysis was carried out using SPSS version 21.0 and AMOS version 21.0. Descriptive and inferential statistics, including frequency distributions, percentage distributions, correlations, and path analysis, were employed to achieve the study objectives.

The findings indicate that working stress negatively influences productivity and job satisfaction among public transport personnel in Maharashtra and that coping strategies and work-life balance positively impact those dimensions. Coping strategies, work-life balance, and productivity exhibit significant interrelations in causal pathways. The results further reveal that demographic variables such as age, educational attainment, total service duration, and family income modify the relationships between working stress, productivity, and job satisfaction. The discussion contextualizes the findings within theoretical insights and the extant literature while exploring organizational, research, and methodological implications. (Halkos, 2008) (Porter, 1988)

Conclusion

Stress constitutes a substantial threat to the well-being and productivity of public transportation workers and organizations in Maharashtra.

Notably, research conducted in this state emphasizes the significance of coping strategies and work–life balance in reducing the negative effects of stress (Montoro et al., 2018). Employees with established coping mechanisms are better equipped to respond to stressors, and organizations that facilitate work–life balance experience higher levels of productivity and job satisfaction (Halkos, 2008).

Research indicates that significant relationships exist among working stress, productivity, job satisfaction, coping strategies, and work–life balance across public transport organizations in Maharashtra. Moreover, coping strategies significantly moderated the relationship between stress, productivity, and job satisfaction. Work–life balance also influences these factors in conjunction with stress and coping strategies, with the impact varying according to sector and demographic factors. Ultimately, these findings extend the understanding of work stress in Maharashtra's public transport sector, establish a theoretical framework, and have practical implications for relevant organizations.

Conflicts of interest
The authors declare that there are no conflicts of interest regarding the publication of this paper.

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