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Assessing The Influence Of Karnataka's Shakti Yojana On Stress Management Among NWKRTC Employees

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ABSTRACT
This study explores the impact of the Shakti Yojana scheme, an initiative by the government offering free bus services for women, on the stress levels of drivers, conductors, and driver-cum-conductors working with NWKRTC. While the scheme aims to enhance public transport accessibility, it has also brought unintended challenges for frontline workers responsible for its delivery. Drawing from existing literature, the study identifies key stress-inducing factors such as organizational support, workload, work environment, employee health and well-being, and passenger relations.
Using a quantitative approach, data was collected from 595 employees to understand the perceived changes in their work experiences post-implementation. The findings reveal a significant rise in stress levels among staff, which in turn has negatively impacted job satisfaction. Increased passenger loads, insufficient staffing, and limited organizational support have added to the daily pressures faced by these employees.
The study highlights the urgent need for supportive interventions, including better working conditions, recruitment of additional staff, and improved management practices. These measures are essential not only for the well-being of employees but also for the long-term sustainability of public transportation services. Ultimately, while the Shakti Yojana promotes inclusivity and access, its success also depends on how well the needs of frontline workers are addressed.
Keywords: *Shakti Scheme, Perceived stress level, Organizational support, Workload, Work environment, Health and well-being, and Passenger relations*

1. INTRODUCTION

The Shakti Yojana, launched by the Government of Karnataka on June 11, 2023, stands as a landmark public policy initiative aimed at empowering women by providing free bus travel across the state [1][2][3]. Implemented across all major state-run road transport corporations including the North Western Karnataka Road Transport Corporation (NWKRTC). The scheme targets greater inclusion and mobility for women, enabling access to employment, education, healthcare, and social opportunities without the financial barrier of transportation costs [5][6].

Since its inception, *Shakti Yojana* has recorded remarkable ridership in its first two years, women in Karnataka availed over 474.82 crore free bus rides, with a cumulative ticket value exceeding Rs 11,994 crore [2][4]. The NWKRTC alone facilitated 111 crores of these rides, indicating the deep reach and acceptance of the scheme in the North West region of the state [2][3]. The operational implications of this unprecedented usage surge, both in terms of service capacity and workforce demands, have been profound.

Recent studies indicate that Shakti Yojana has not only enhanced women's workforce participation and increased their presence at educational and pilgrimage sites, but also driven up overall public transport ridership, growing daily passengers from 85 lakh to over 1 crore across Karnataka [3][4]. The Fiscal Policy Institute (2024) further observed positive fiscal spill overs, such as increased state Goods and Services Tax collections, suggesting that funds saved on women's mobility are redirected to local economic activities [3][8]. However, with such extensive utilization, the scheme has also brought operational and organizational pressures, especially within transport corporations managing logistics, fleet expansion, and reimbursement schedules [2][4][5].

In this situation, employee stress management within NWKRTC has emerged as a critical concern. Existing literature on organizational change and public service delivery emphasizes that sudden policy shifts, especially those increasing passenger loads or altering work routines, can elevate stress levels among transport employees [1]. Early concerns specific to Shakti Yojana include workforce strain due to increased ridership, overcrowding, higher service

frequency demands, and delays in government reimbursements that may affect salary disbursement and operational maintenance [1][5]. Reports from NWKRTC and other state corporations reinforce these challenges, highlighting the need for adaptive stress management mechanisms among employees to sustain service quality [1][5][6].

Despite these acknowledged challenges, systematic research on how the Shakti Yojana has impacted employee stress management in NWKRTC remains limited. While there is ample discussion of passenger benefits and financial implications [2], empirical analyses considering the psychosocial outcomes for frontline transport workers are scant. The present study seeks to address this identified research gap.

This study situates itself at the intersection of public policy evaluation and occupational health, seeking to explore the lived experiences of NWKRTC employees in the wake of the Shakti Yojana's rollout. It draws from recent data on scheme usage [3], organizational communication regarding operational challenges, and secondary research on employee stress in public sector environments [6]. Through this lens, the research seeks to contribute actionable insights for both policymakers and transport administrators striving to balance social welfare with workforce well-being.

LITERATURE REVIEW

Researcher examines the effects of fare-free transit on driver and conductor job satisfaction, revealing that perceived increases in workload, if unsupported by managerial recognition or resources, can negatively impact morale. Their study highlights the central roles of fairness, management support, communication, and staff training in countering stress and fostering motivation among employees. Complementarily [8], He demonstrate that free bus services substantially increase public transit ridership, altering commuting patterns and reliance on bus systems. While beneficial for passengers, this rising demand places additional pressures on frontline staff, stressing the need for proactive organizational strategies to safeguard worker well-being [9]. Recent studies highlight the multifaceted impact of free bus service implementation on frontline workers. They emphasize that fare-free policies introduce challenges for drivers and conductors, such as irregular schedules, extended working hours, and limited rest, all of which disrupt work-life balance and adversely affect both physical and mental health through increased fatigue, burnout, and stress-related conditions [10]. Further observe that the surge in passenger demand driven by free services escalates workload, leading to prolonged shifts and reduced breaks, thereby exacerbating stress. Addressing these concerns requires transit agencies to prioritize worker well-being alongside service expansion [11]. He highlights that implementing free bus services can diminish drivers' and conductors' autonomy and perceived control, causing stress and decreasing job satisfaction due to operational changes and limited decision-making power. The study suggests that transit agencies should adopt participatory management, clear communication, and empowerment initiatives to support employee agency and resilience [12]. Additionally, emphasize the need for fairness in workload and resource allocation, as unequal treatment can erode morale and retention. Therefore, transparent, inclusive, and equitable management practices are critical for ensuring workforce well-being and organizational sustainability in fare-free public transit systems [13].

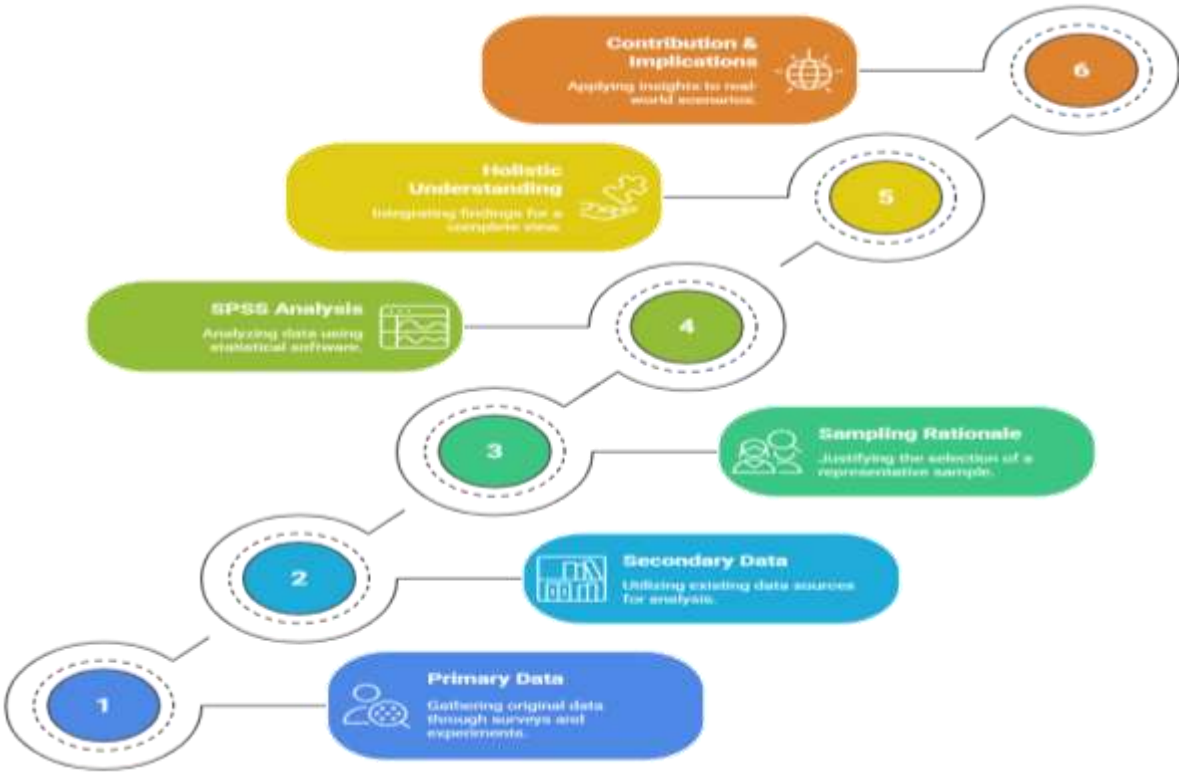
The study highlights that while free bus services enhance accessibility and equity for passengers, they pose significant challenges for transportation workers, particularly regarding financial stability. Fare revenues often contribute to employee income, and their removal increases income volatility and stress, threatening workers' livelihoods. The authors emphasize the necessity of comprehensive financial planning and stakeholder engagement to safeguard worker incomes alongside promoting equitable transit systems [14]. Complementing this, focus on the pervasive stress experienced by frontline workers and underscore the role of coping mechanisms and support systems, such as counselling, peer support groups, and stress management workshops, in reducing burnout and improving job satisfaction. Integrating these support services into organizational policies is critical for enhancing employee resilience and maintaining high-quality public transportation delivery [11].

They highlight that free bus services increase safety risks for drivers and conductors due to overcrowding, verbal abuse, and accidents, which elevate stress and reduce job satisfaction. The study stresses the need for safety protocols, training, and support systems to protect employee well-being [15][18]. Similarly, emphasize building resilience and adaptive coping strategies through training and supportive organizational cultures. Equipping frontline workers with these resources helps manage job stress, improves morale, and promotes retention. Together, these studies underscore that prioritizing safety and resilience is essential for sustaining effective and sustainable fare-free public transportation systems [16][17].

Public transportation, particularly bus services, is vital for urban mobility in India, serving millions across varying distances. Bus drivers and conductors play a key role in ensuring passenger safety and service efficiency. This study investigates how the introduction of free bus services, intended to enhance accessibility, affects the stress levels of these frontline transportation workers.

The objectives of this study are twofold, first, to identify the various factors causing stress among the drivers and conductors of the North West Karnataka Road Transport Corporation (NWKRTC) following the introduction of the Shakti Scheme, which provides free bus services to women; and second, to examine the overall impact of the Shakti Scheme on the stress levels of these frontline employees. By investigating these aspects, the study aims to provide insights into how this significant government initiative affects the mental and emotional well-being of transport workers directly involved in implementing the scheme. Understanding these stress factors and their impacts is essential for developing strategies to support NWKRTC employees and ensure the smooth functioning of the free bus service for women in Karnataka.

RESEARCH METHODOLOGY:



Figuer.1: Steps to Achieve Comprehensive Research Understanding

This research adopts a mixed-methods approach to thoroughly investigate the effects of the Shakti Scheme on the stress levels of frontline employees at NWKRTC Bagalkot. By integrating both primary and secondary data sources, the study aims to provide a well-rounded and evidence-based understanding of how policy changes influence workplace well-being, particularly among drivers and conductors who experience the most direct impact.

Primary Data Collection

Primary data will be collected through the administration of structured questionnaires to a representative group of NWKRTC Bagalkot drivers and conductors. The sample size is set at 595 participants, selected using the convenience sampling method. This approach is particularly suitable for frontline workers whose irregular shifts and workloads can make it challenging to employ random sampling techniques. The questionnaire is designed to capture a wide range of information, including demographic details, perceived job stress, work environment, and individual experiences of the Shakti Scheme's implementation. Questions will utilize Likert scales, multiple-choice, and open-ended formats to gather both quantitative and qualitative insights, ensuring a comprehensive exploration of personal and professional factors related to stress.

Secondary Data Collection

To reinforce the findings from the primary data, secondary data will be meticulously gathered from peer-reviewed journals, established websites, and reputable blogs that discuss the Shakti Scheme, employee well-being in public transport, and related organizational and psychological research. This secondary research will provide valuable context for interpreting the survey responses and support or challenge assumptions made based on the local data. By combining a wide spectrum of external literature, the study ensures a scholarly and contextual foundation for its analysis and conclusions.

Sampling Rationale

The choice of convenience sampling was primarily driven by the logistical realities and time constraints associated with surveying large numbers of frontline personnel within a functioning public transport corporation. While convenience sampling may limit the generalizability of the findings, it remains effective for exploratory research aimed at quickly identifying pressing issues and generating hypotheses for further study.

Analysis Using SPSS

To rigorously test the established research hypotheses, the study will employ linear regression analysis using SPSS software. This statistical approach enables the investigation of the direct relationship between the introduction of the Shakti Scheme (as the independent variable) and the subjective stress levels of NWKRTC employees (as the dependent variable). By applying regression modelling, researchers can control for other variables such as age, gender, work experience, and role, isolating the specific effects of the policy intervention. The use of SPSS ensures robust data handling, accurate significance testing, and clear interpretation of results.

Comprehensive and Holistic Understanding

By triangulating primary insights from employee surveys with secondary evidence from academic and industry sources, this mixed-method design captures the complexity of workplace stress in the public transport sector. The integration of quantitative data (from statistical analysis) and qualitative perspectives (from open-ended questionnaire items and literature review) yields a nuanced, in-depth understanding of the Shakti Scheme's real-world ramifications for frontline workers.

Contribution and Implications

Ultimately, this methodology is structured to not only evaluate the causal relationships involved but also to provide actionable insights for policy-makers, NWKRTC management, and labour advocates. The expectation is that the study's findings will help inform future interventions designed to mitigate occupational stress, thereby enhancing both employee well-being and the overall efficiency of public transport services.

Variables in the study

Table.1:Identification of Independent and Dependent Variables

Independent Variables	Dependent Variables
Organizational Support	Perceived Stress Level
Work Load	Job Satisfaction
Work Environment	
Health and Well-being	
Passenger Relationship	

This study explores the impact of various independent variables organizational support, workload, work environment, health and well-being, and passenger relationships on two key dependent variables: perceived stress level and job satisfaction. Organizational support and a positive work environment are found to significantly reduce stress and enhance job satisfaction. Conversely, high workload tends to increase stress and negatively impact job satisfaction. Health and well-being play a crucial role in buffering stress and maintaining a positive outlook toward work. Additionally, positive relationships with passengers contribute to emotional satisfaction and lower stress levels. The findings suggest that a supportive organizational culture and manageable workload are essential for promoting employee well-being and satisfaction. Employers in service-oriented industries should prioritize these factors to improve employee morale and performance. Overall, the study highlights the importance of a balanced work environment and strong interpersonal dynamics in managing stress and fostering job satisfaction among employees.

Hypothesis statements:

H1: Organizational Support influences significantly on Perceived Stress Levelof the drivers and conductors of NWKRTC

H2: Work Load influences significantly on Perceived Stress Levelof the drivers and conductors of NWKRTC

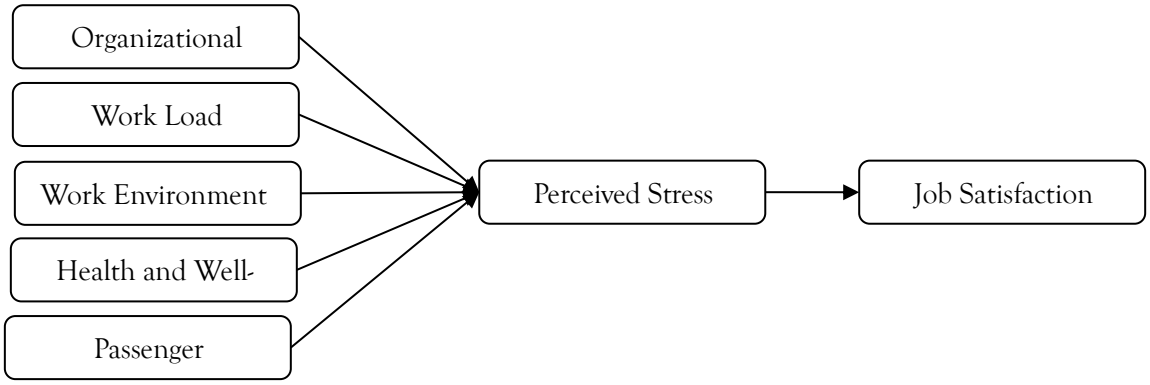
H3: Work Environment influences significantly on Perceived Stress Levelof the drivers and conductors of NWKRTC

H4: Health and Well-being influences significantly on Perceived Stress Levelof the drivers and conductors of NWKRTC

H5: Passenger Relationship influences significantly on Perceived Stress Levelof the drivers and conductors of NWKRTC

H6: Perceived Stress Level influences significantly on Job Satisfaction of the drivers and conductors of NWKRTC.

Theoretical Framework:



Figuer.2:Pathway of Organizational and Work-related Variables Affecting Stress and Job Satisfaction

This study examines the influence of organizational support, workload, work environment, health and well-being, and passenger relationships on employees' perceived stress levels and job satisfaction. Results indicate that strong organizational support and a positive work environment significantly reduce stress and enhance overall job satisfaction. In contrast, excessive workload contributes to increased stress and lowers satisfaction levels. Employees who report better health and well-being experience lower stress and show higher levels of job satisfaction. Furthermore, positive interactions with passengers play a key role in reducing emotional strain and improving morale. The study highlights that when employees feel supported and work in a healthy, balanced environment, they are more likely to manage stress effectively and remain satisfied in their roles. These findings emphasize the need for organizations to create supportive work cultures, manage workloads efficiently, and promote employee wellness to enhance productivity and retention in service-driven industries.

RESULTS AND DISCUSSIONS:

H1: Organizational Support influences significantly on Perceived Stress Level of the drivers and conductors of NWKRTC

H2: Work Load influences significantly on Perceived Stress Level of the drivers and conductors of NWKRTC

H3: Work Environment influences significantly on Perceived Stress Level of the drivers and conductors of NWKRTC

H4: Health and Well-being influences significantly on Perceived Stress Level of the drivers and conductors of NWKRTC

H5: Passenger Relationship influences significantly on Perceived Stress Level of the drivers and conductors of NWKRTC.

Table.2:Regression Model Performance for Perceived Stress Analysis

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.957[a]	0.915	0.914	0.406074875847724
a. Predictors: (Constant), Passenger Relationship, Work Load, Organizational Support, Health and Well-being, Work Environment				

From the above table it can be summary indicates a strong and robust relationship between the independent variables Passenger Relationship, Work Load, Organizational Support, Health and Well-being, and Work Environment and the dependent variable, Perceived Stress Level among NWKRTC drivers and conductors following the implementation of the Shakti Scheme. The correlation coefficient (R) stands at an impressive 0.957, signifying a very high positive correlation between the predictors and perceived stress levels.

The R Square value of 0.915 reveals that approximately 91.5% of the variance in perceived stress levels among employees can be explained by the combined effect of these factors. This high explanatory power demonstrates the effectiveness of the selected variables in capturing the key determinants of stress in this context. The Adjusted R Square of 0.914, which accounts for the number of predictors in the model, further confirms the stability and reliability of the model, suggesting that it generalizes well to the broader population of NWKRTC employees.
Additionally, the Standard Error of the Estimate is 0.406, indicating a relatively low average deviation between observed and predicted stress levels, which reflects the model's precision in forecasting employee stress based on the identified factors.
Overall, this strong model fit underscores that stress levels in NWKRTC drivers and conductors are significantly influenced by the quality of their work environment, workload, degree of organizational support, health and well-being, and interactions with passengers. These findings highlight the critical need for transit management to prioritize improvements in these areas to effectively manage and reduce employee stress, thereby enhancing workforce well-being and the overall efficiency of the Shakti free bus service system.

Table.3: ANOVA Results for Predictors of Perceived Stress Level

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	954.995	5	190.999	1158.294	.000[b]
	Residual	88.714	538	.165		
	Total	1043.709	543			
a. Dependent Variable: Perceived Stress Level						
b. Predictors: (Constant), Passenger Relationship, Work Load, Organizational Support, Health and Well-being, Work Environment						

The ANOVA results provide a comprehensive assessment of the overall significance of the regression model used to examine factors affecting the perceived stress levels of NWKRTC drivers and conductors in the context of the Shakti Scheme. The analysis compares the variation explained by the model (regression) to the unexplained variation (residual), helping to determine if the predictors collectively have a significant impact on stress.
The regression sum of squares is 954.995 with 5 degrees of freedom, indicating the total variation explained by the five independent variables: Passenger Relationship, Workload, Organizational Support, Health and Well-being, and Work Environment. The mean square for regression is 190.999. Conversely, the residual sum of squares stands at 88.714 with 538 degrees of freedom and a mean square of 0.165, representing the variation in perceived stress levels unexplained by the model.
The F-value of 1158.294, which is the ratio of the regression mean square to the residual mean square, is statistically significant with a p-value of 0.000 ($p < 0.01$). This indicates that the overall regression model is highly significant, and the independent variables combined reliably predict variations in perceived stress levels among the employees.
These results affirm that the variables selected for this study work environment, workload, passenger relationships, organizational support, and employee health play a critical and statistically significant role in influencing stress levels. The model's strong explanatory power underscores the importance of addressing these factors in managerial strategies aimed at reducing occupational stress and improving the well-being of NWKRTC frontline workers, thereby supporting the effective implementation of the Shakti free bus service scheme.

Table.4: Effect of Organizational and Interpersonal Factors on Perceived Stress Level

Co-efficients[a]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	-.635	.116		-5.485	.000
	Organizational Support	.046	.016	.039	2.939	.003
	Work Load	.077	.028	.036	2.744	.006
	Work Environment	.721	.037	.679	19.621	.000
	Health and Well-being	.066	.029	.033	2.263	.024
	Passenger Relationship	.302	.039	.268	7.642	.000

a. Dependent Variable: Perceived Stress Level

The regression coefficients provide detailed insight into the influence of various factors on the perceived stress levels of NWKRTC drivers and conductors following the introduction of the Shakti Scheme. The model identifies five significant predictors: organizational support, workload, work environment, health and well-being, and passenger relationship.

Among these, the work environment stands out as the most powerful predictor, with a high unstandardized coefficient (B = 0.721) and a standardized beta of 0.679, indicating a strong positive effect on stress levels. The t-value of 19.621 and a significance level of $p < 0.001$ confirm this robust impact. This suggests that adverse conditions such as overcrowding, safety issues, and poor facilities considerably elevate stress among employees.

The passenger relationship variable also exhibits a substantial influence (B = 0.302, $\beta = 0.268$, t = 7.642, $p < 0.001$), highlighting that increased interaction and potential conflicts with passengers significantly contribute to stress. The workload factor, with B = 0.077 and $\beta = 0.036$ (t = 2.744, p = 0.006), further demonstrates how increased duties and responsibilities marginally raise stress levels. Similarly, health and well-being show a modest but significant effect (B = 0.066, $\beta = 0.033$, t = 2.263, p = 0.024), emphasizing the physical and mental toll on drivers and conductors.

Organizational support, though the least influential, still positively affects stress (B = 0.046, $\beta = 0.039$, t = 2.939, p = 0.003), underscoring the critical role of management assistance and communication in mitigating stress.

The constant term is negative and significant (B = -0.635, t = -5.485, $p < 0.001$), indicating baseline stress unrelated to these predictors. Overall, this analysis highlights the multifaceted nature of employee stress and the need for targeted interventions focused primarily on improving the work environment and fostering positive passenger interactions to enhance employee well-being.

Table.5: Model Summary for the Impact of Perceived Stress Level on Job Satisfaction

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.168[a]	0.028	0.026	0.81746
a. Predictors: (Constant), Perceived Stress Level				

The model summary presents the overall fit and explanatory power of the regression model used to analyze the factors affecting perceived stress levels among NWKRTC drivers and conductors following the implementation of the Shakti Scheme. The model yields a correlation coefficient (R) of 0.168, indicating a modest positive relationship between the independent variables and the perceived stress level. The R Square value is 0.028, which means that approximately 2.8% of the variance in stress levels can be explained by the predictors included in the model.

An Adjusted R Square of 0.026 suggests a minimal reduction in explanatory power after adjusting for the number of predictors, indicating the model's generalizability within the sample. The Standard Error of the Estimate is 0.81746, reflecting the average distance that the observed stress levels deviate from the predicted values by the model. While this standard error indicates some degree of unexplained variability, it is expected given the complex and multifactorial nature of occupational stress.

The relatively low R Square value implies that while the included variables such as organizational support, workload, work environment, health and well-being, and passenger relationships have a statistically significant impact on perceived stress, other unmeasured factors also contribute considerably to stress levels among the employees. These could include personal coping mechanisms, external life stressors, or broader organizational dynamics not captured by the current model.

Overall, the model offers valuable insights into important contributors to stress but highlights the need for further research to integrate additional variables for a more comprehensive understanding of employee stress in the context of the Shakti free bus service scheme. This will help transit authorities develop targeted interventions to better support drivers and conductors.

Table.6: ANOVA Results for Perceived Stress Level as a Predictor of Job Satisfaction

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	10.495	1	10.495	15.706	.000[b]
	Residual	362.852	543	.668		

	Total	373.347	544			
a. Dependent Variable: Job Satisfaction						
b. Predictors: (Constant), Perceived Stress Level						

The ANOVA results assess the overall significance of a regression model examining the relationship between perceived stress levels and job satisfaction among NWKRTC drivers and conductors. The analysis evaluates whether perceived stress significantly predicts variations in job satisfaction among the employees impacted by the Shakti Scheme.

The regression sum of squares is 10.495 with 1 degree of freedom, representing the amount of variation in job satisfaction explained by perceived stress levels. The corresponding mean square for regression is 10.495. In contrast, the residual sum of squares is much larger at 362.852, with 543 degrees of freedom, and a mean square of 0.668, accounting for the variation in job satisfaction unexplained by perceived stress in the model.

The calculated F-value of 15.706 tests the overall fit of the model by comparing explained variance to unexplained variance. The associated p-value is 0.000, which is highly significant ($p < 0.01$), indicating that perceived stress levels reliably predict changes in job satisfaction. This confirms a statistically meaningful relationship whereby fluctuations in perceived stress among NWKRTC employees have a direct and significant effect on how satisfied they feel with their jobs.

Despite explaining a smaller proportion of variance relative to total unexplained variance, the model's significance underscores the critical role of stress management in maintaining and improving job satisfaction. These findings point toward the necessity for transit authorities to implement effective stress reduction strategies to enhance employee morale, productivity, and retention. Improving job satisfaction amid increased service demands, such as those introduced by the Shakti free bus scheme, is essential for organizational effectiveness and sustainable public transportation delivery.

CONCLUSION:

- The implementation of the *Shakti Yojana* has significantly increased the perceived stress levels among public transport employees. The rise in passenger numbers, without a proportional increase in staff or resources, has led to overwhelming workloads and psychological pressure.
- A noticeable gap exists in organizational support and staffing. Employees are struggling to meet the increased demand, which has created a sense of being overburdened and unsupported, further fuelling dissatisfaction and mental fatigue.
- The added responsibilities have negatively affected the work environment. Employees report physical exhaustion and declining mental well-being, impacting their overall job performance and morale.
- Increased workload and time pressures have resulted in less positive interactions with passengers, which were previously a source of job satisfaction. This strain in relationships further contributes to emotional stress.
- Due to the ongoing stress, poor support systems, and heavy workloads, employees have expressed growing dissatisfaction with their jobs. This can lead to burnout and potentially affect service quality and employee retention.
- To address these challenges, it is essential that the government increases the number of buses and recruits additional staff. These measures will help balance workloads, reduce stress, and support the health and morale of frontline workers.

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