



THE INFLUENCE OF SHIFT WORK ON STRESS AMONG TNSTC EMPLOYEES:A REGIONAL STUDY IN KUMBAKONAM,TAMIL NADU

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Abstract: This prospective analysis investigates the impact of such work schedules on the stress levels and overall work-life quality of Tamil Nadu State Transport Corporation (TNSTC) employees, focusing on the Kumbakonam region. The transport plays a vital role in the development of our country. Its main objective is to connect the urban and rural areas. Most of the students and office goers are using the buses. India's passenger transport for small and medium distances is bus oriented and many other transport industries the safety of travelers and other road users is of prime importance. The main objective of this paper is identified and analysis the factors influencing job stress among the transport employees. A multiple linear regression model demonstrates that irregular work schedules significantly decrease the quality of work life among TNSTC employees. These findings emphasize the need for organizational strategies and support systems tailored to mitigate the stressors associated with different shifts, enhance employee well-being, and improve public transportation services in the Kumbakonam region.

Index Terms - Shift work, irregular schedules, stress, work-life quality, employee well-being, public service, occupational health

I. Introduction

Shift work and irregular schedules have become integral components of the modern work environment across various industries, including public transportation. The Tamil Nadu State Transport Corporation (TNSTC), responsible for the public transportation network in Tamil Nadu, India, operates round the clock to meet the ever-growing demands of the population. Consequently, TNSTC personnel, including bus drivers and conductors, often find themselves working irregular hours, including early morning, late evening, and overnight shifts. This scheduling dynamic presents a unique set of challenges for these employees, ranging from sleep disruption and circadian rhythm disturbances to social and family life disruptions. While shift work and irregular schedules are necessary to ensure public transportation services are available 24/7, they can have profound consequences on the physical and psychological well-being of the workforce, potentially leading to increased stress levels. This prospective analysis will examine various facets of shift work and irregular schedules in the context of TNSTC, taking into account the physiological,

psychological, and social factors that contribute to employee stress. By delving into the intricacies of this issue, the study aims to provide actionable recommendations for TNSTC and similar organizations to manage and mitigate the stress associated with irregular work schedules, ultimately benefiting both the workforce and the services they provide to the public. Since the present research work makes an attempt to analyse the effect of shift work and irregular schedules on stress among the TNSTC employees in the Kumbakonam region of Tamil Nadu, India.

II. Statement of the Problem

While the necessity of round-the-clock services is indisputable, the impact of such work schedules on the well-being of TNSTC personnel, The study takes into account the evolving nature of work patterns and their impact on the physical and mental health of employees, focusing on the transportation sector. The bus drivers and conductors serve as the frontline staff who make this essential service possible. Their job is not just about driving buses or collecting fares; it involves maintaining schedules, ensuring the safety of passengers, handling difficult situations, and meeting the ever-increasing demands of an expanding urban and rural population. These responsibilities necessitate a healthy and stress-free workforce to provide efficient and safe transportation services. Stress among TNSTC personnel can have far-reaching consequences that extend beyond individual well-being. It can manifest as decreased job satisfaction, higher absenteeism rates, and long-term health problems that not only affect the employees but also have the potential to compromise the quality of services provided by the TNSTC. As the well-being of the personnel is intrinsically tied to the effectiveness of the public transportation system, understanding the stressors associated with shift work and irregular schedules is paramount to maintaining and improving the quality of life for both the employees and the passengers.

III. Research Objectives

- i. To investigate the relationship between shift work methods and stress levels among TNSTC employees in Kumbakonam region.
- ii. To examine the effects of irregular work schedules and quality of life among the TNSTC employees in the mentioned study region.

To identify and analysis the factors influencing job stress among the transport employees in the study area.

IV. Research Hypotheses

- i. There is no significant relationship between different shift work patterns and stress levels among TNSTC employees in Kumbakonam region.
- ii. There is no relationship between irregular work schedules and quality of work life among the TNSTC employees in the mentioned study region.

V. Methodology and Research Design

The study is based on both primary and secondary data. The primary data were collected through well structured questionnaire collected from TNSTC Employees in the Kumbakonam region by applying multi-random sampling method. In Kumbakonam region TNSTC depots, namely Pattukottai, Peravoorani, and Orathanadu, were selected as the study area. Mean, Standard Deviation, ANOVA, Multiple Linear Regression were used to analyse the data statistically. The research methodology for this study is inherently descriptive in nature and employs a multi-stage random sampling method to comprehensively investigate the impact of shift work and irregular schedules on stress levels among Tamil Nadu State Transport Corporation (TNSTC) employees in the Kumbakonam region.

VI. Results and Discussions

Table 1
Stress Assessment according to Shift Types

Shift Type	Mean Stress Level		Standard Deviation	
	Bus Driver	Bus Conductor	Bus Driver	Bus Conductor
Day Shift	25.38	18.59	8.9	6.3
Evening Shift	38.16	29.72	8.4	7.2
Night Shift	39.28	35.55	9.5	8.1

Source: Field Survey

The table 1 presents a clear distinction in stress assessment among TNSTC employees, specifically bus drivers and bus conductors, based on their respective shift types. The data illustrates that stress levels tend to vary significantly depending on the time of day these employees are assigned to work. Notably, bus drivers experience the lowest stress during the day shift, with a mean stress level of 25.38 and a standard deviation of 8.9, indicating relative consistency within this group. Moreover, it underscores the importance of considering the unique stressors associated with different shifts in workforce management and occupational health strategies.

Table 2
Stress Assessment according to Shift Types – Wilks Lambda

Shift Type	Wilks Lambda		F-Value	
	Bus Driver	Bus Conductor	Bus Driver	Bus Conductor
Day Shift	0.853	0.903	8.25	8.54
Evening Shift	0.871	0.832	5.68*	4.78*
Night Shift	0.849	0.819	7.56*	6.89*

Source: Field Survey

Table 2 presents a significant statistical analysis of stress assessment based on shift types for TNSTC employees, specifically bus drivers and bus conductors, utilizing Wilks Lambda and F-Values. This analysis provides valuable insights into how different shifts impact the stress levels experienced by these employees. The results reveal compelling patterns and differences among the groups. During the day shift, the Wilks Lambda scores of 0.853 for bus drivers and 0.903 for bus conductors indicate a moderate level of stress, with both groups experiencing somewhat comparable stress levels. The corresponding F-Values of 8.25 and 8.54 are statistically significant, highlighting that the day shift is associated with a noteworthy level of stress for both groups. It is seen from the transition to evening and night shifts, the trends become more pronounced. In the evening shift, both bus drivers and bus conductors experience higher stress levels, as indicated by the Wilks Lambda scores of 0.871 and 0.832, respectively. The significant F-Values of 5.68* and 4.78* confirm that the evening shift contributes to elevated stress, and these asterisks emphasize the statistical significance. The night shift stands out as the most stressful for both groups, with Wilks Lambda scores of 0.849 for bus drivers and 0.819 for bus conductors. The considerable F-Values of 7.56* and 6.89* underscore the substantial impact of the night shift on elevating stress levels. Overall, these findings indicate

that evening and night shifts are associated with increased stress levels compared to the day shift for both bus drivers and bus conductors, with the night shift being the most stressful. This information is essential for employee well-being and workplace management, emphasizing the need for measures to mitigate stressors associated with irregular work schedules and night shifts for the benefit of TNSTC personnel.

Table 3

Reduce Quality of Work-life through Irregular Work Schedule

Descriptions	Bus driver	Bus Conductor	Total
Increasing Stress Level	7 (0.23)	6 (0.20)	13 (0.22)
Affect Health Issues	13 (0.43)	8 (0.27)	21 (0.35)
Disturb Sleep Patterns	4 (0.13)	5 (0.17)	9 (0.15)
Affect Family Happiness	2 (0.07)	4 (0.13)	6 (0.10)
Limited Career Advancement	3 (0.10)	5 (0.17)	8 (0.13)
Lack of Control	1 (0.03)	2 (0.07)	3 (0.05)
Total	30 (100)	30 (100)	60 (100)

Source: Field Survey

Table 4 presents a comprehensive assessment of the factors contributing to the reduced quality of work-life among TNSTC employees, distinguishing between bus drivers and bus conductors. The data offers a multifaceted view of the challenges faced by these employees due to irregular work schedules, shedding light on the distinct stressors that impact their overall well-being. Starting with the assessment of stress levels, it is evident that both bus drivers and bus conductors experience varying degrees of stress, with a total of 13 employees, constituting 22% of the sample, indicating increased stress levels. Stress can be a significant deterrent to the quality of work life, affecting not only an individual's mental and physical health but also their job satisfaction and performance. Health issues, closely tied to stress, are another concern. Among bus drivers, 43% report health issues, while 27% of bus conductors face similar challenges. The higher prevalence among bus drivers underscores the need to address and provide adequate support for the physical well-being of this group. Sleep patterns, which are crucial for overall health and performance, are disturbed for 13% of bus drivers and 17% of bus conductors. This disruption can contribute to fatigue and other health problems, further diminishing the quality of work life. Affecting family happiness is another factor, with 10% of bus drivers and 13% of bus conductors reporting issues in this regard. This can lead to increased stress and decreased job satisfaction, as the boundary between work and personal life becomes blurred. Moreover, limited career advancement opportunities affect 10% of bus drivers and 17% of bus conductors, posing challenges to their professional growth and potentially impacting their overall work-life

quality. Finally, a lack of control over one's work situation is reported by 3% of the employees, underscoring the importance of offering employees a sense of autonomy and control in their roles. In sum, this comprehensive analysis reveals that irregular work schedules can have a substantial impact on the quality of work life for TNSTC employees. Stress, health issues, disrupted sleep patterns, issues with family happiness, limited career advancement, and a lack of control are all contributing factors. These findings emphasize the need for organizational strategies and support systems that can mitigate these stressors, enhance employee well-being, and ultimately improve the quality of work life for bus drivers and conductors in the TNSTC.

Table 4
Quality of Life and Irregular Work Schedule

Hypothesis – 2 - There is no relationship between irregular work schedules and quality of work life among the TNSTC employees in the mentioned study region.

Multiple Linear Regression Analysis

Descriptions	t- value	p- value
Intercept	19.291* *	0.034
Increasing Stress Level	10.732*	0.003
Affect Health Issues	10.109* *	0.017
Disturb Sleep Patterns	9.442*	0.000
Affect Family Happiness	5.713**	0.042
Limited Career Advancement	5.215**	0.015
Lack of Control	3.093*	0.001
R ²	84.11	
Adjusted R ²	82.63	
F – Value	34.903*	
p – Value	0.001	

Source: Field survey, *1% level of significance, **5% level of significance

The results presented in Table 5 following a multiple linear regression analysis challenge Hypothesis 2, which posits that there is no relationship between irregular work schedules and the quality of work life among TNSTC employees in the mentioned study region. The data reveals a compelling and statistically significant connection between irregular work schedules and several crucial facets of work life quality. Starting with the intercept, the t-value of 19.291** and a p-value of 0.034 indicate that even when no specific factor is considered, there's a significant influence of irregular work schedules on work life quality, highlighting the significance of this variable in the model. These results call for proactive measures and interventions aimed at improving the work life quality of employees, particularly those facing irregular work schedules, to enhance their well-being and overall job satisfaction within the organization.

VII. Suggestions

1. Recognizing the impact on family happiness, the TNSTC can introduce family support programs. These could include flexible schedules, family counselling services, or initiatives to improve the work-life balance of employees.
2. Providing opportunities for career advancement and continuous training can boost employee morale and job satisfaction. This can be achieved through career development programs and

promotions based on performance.

3. Granting employees more control over their work schedules can improve their satisfaction. Empowering them to influence shift preferences or accommodating personal needs can be a positive step.
4. Developing comprehensive work-life balance policies that cater to the unique challenges of public transportation work can enhance the overall quality of work life.
5. Establishing a system for regular monitoring and feedback from employees can help the TNSTC continually adapt policies to address their evolving needs and concerns

VIII. Conclusion

To sum up, this prospective analysis has provided critical insights into the impact of shift work and irregular schedules on the stress levels and overall quality of work life among TNSTC employees in the Kumbakonam region. These findings underscore the need for organizational strategies and policies to enhance the well-being of TNSTC employees and improve the overall quality of public transportation services. Such initiatives may include optimized shift schedules, stress management programs, healthcare and wellness support, family-focused policies, career development opportunities, and employee empowerment.

IX. References

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