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AI Integration in Coimbatore's Healthcare Sector: Changing Roles of Support Staff and Technicians

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Abstract: ***This study examines how the integration of Artificial Intelligence (AI) in Coimbatore's healthcare sector is transforming the roles of support staff and technicians. Through a quantitative survey of 100 healthcare workers, the study explores AI training prevalence, role changes, and their correlation with job satisfaction. Statistical techniques including percentage analysis, correlation, and regression reveal that 63% of respondents received AI training and 57% reported a change in their job roles. However, AI tool usage showed a weak negative correlation with job satisfaction. The findings indicate a growing need for structured training programs and career support systems for non-physician healthcare staff in the AI era.***

Keywords: Artificial Intelligence, Healthcare, Support Staff, Technicians, Role Change, Coimbatore, Job Satisfaction

Jel Code: I18, O33, J24, J81

1. Introduction

Artificial Intelligence (AI) is transforming healthcare delivery across the globe, including in rapidly growing Indian cities like Coimbatore. Known for its advanced medical infrastructure and strong network of private hospitals, Coimbatore is witnessing an increasing adoption of AI tools in diagnostics, patient monitoring, administrative processes, and data management. While much attention is given to physicians and high-level decision-makers, the roles of support staff and technicians are also undergoing significant transformation due to AI integration. As machines take over routine tasks and automate workflows, non-clinical personnel must adapt to new responsibilities, learn emerging technologies, and often face role redefinition. However, there is limited research on how these changes are affecting job roles, satisfaction levels, and skill requirements of support staff in tier-2 cities like Coimbatore. This study aims to fill that gap by analyzing the extent of AI training, role changes, and the relationship between AI usage and job satisfaction among healthcare support workers.

2. Review of Literature

Kumar & Sharma (2021) emphasized that Artificial Intelligence is significantly reshaping healthcare job roles, particularly in the areas of diagnostics, imaging, and health data management. They noted that AI-enabled diagnostic tools have reduced the manual workload for technicians while increasing the need for digital literacy and analytical skills. Their study found that traditional support roles are evolving into tech-assisted functions, requiring continuous learning and collaboration with automated systems. They argue that AI implementation is not merely technical but deeply workforce-centric, necessitating human-AI coordination models in healthcare settings.

World Health Organization (2022) highlighted global concerns about job displacement due to AI and automation, especially among low-skilled and semi-skilled healthcare workers. Their policy brief stressed the need for proactive reskilling and upskilling strategies to mitigate unemployment risks. WHO recommends that national and regional health systems develop inclusive training frameworks to prepare support staff for roles that demand digital competence, adaptability, and ethical awareness when interacting with AI systems. The report further emphasized that failing to integrate workforce considerations into AI strategies may deepen inequalities in healthcare access and quality.

Rani & Mahesh (2023) conducted a region-specific study in Tamil Nadu, finding that AI adoption in private and government hospitals was directly correlated with a higher demand for tech-savvy technicians, especially in radiology, pathology, and hospital IT support. Their findings showed that hospitals investing in AI tools were also restructuring job profiles, hiring multi-skilled personnel, and offering internal training programs to bridge skill gaps. They concluded that this technological shift is reshaping healthcare human resources, with technicians and support staff at the forefront of operational transformation.

3. Statement of the Problem

While the adoption of Artificial Intelligence (AI) in healthcare is gaining momentum, particularly in technologically progressive regions like Coimbatore, the specific implications for support staff and technicians remain largely underexamined. These professionals comprising lab technicians, radiology assistants, IT support, and administrative personnel play a crucial role in the operational backbone of healthcare systems. However, the integration of AI tools in diagnostics, patient monitoring, and record management is reshaping traditional job responsibilities, requiring new skills, digital competencies, and adaptability. Despite this shift, limited empirical research exists that explores how these changes are affecting the day-to-day roles, required competencies, job satisfaction, and career trajectories of these workers. Without such insight, healthcare institutions risk overlooking critical workforce planning,

training, and retention strategies. Thus, there is a pressing need to investigate how AI integration is transforming the work environment and professional experiences of healthcare support staff and technicians in Coimbatore.

4. Objectives of the Study

1) To assess the extent of AI training among support staff and technicians
2) To determine whether AI training is associated with role changes
3) To evaluate the relationship between AI tool usage and job satisfaction

5. Hypotheses

H_o1: There is no significant relationship between AI tool usage and job satisfaction.
H_o2: AI training does not significantly influence role change among support staff.

6. Research Methodology

- **Type:** Descriptive and Analytical
- **Sample Size:** 100 healthcare support staff and technicians
- **Sampling Technique:** Stratified random sampling (public/private hospitals)
- **Tool:** Structured questionnaire
- **Techniques Used:** Percentage analysis, Correlation, Simple Linear Regression

7. Scope of the Paper

This study is limited to healthcare institutions in Coimbatore district and focuses specifically on non-clinical staff, such as radiology technicians, lab assistants, administrative personnel, and IT support staff. It examines the impact of AI integration on their job roles, skill requirements, training exposure, and job satisfaction, excluding clinical staff like doctors and nurses. The study centers on the operational and support functions affected by AI, offering insights into workforce adaptation at the institutional level.

8. Results and Discussion

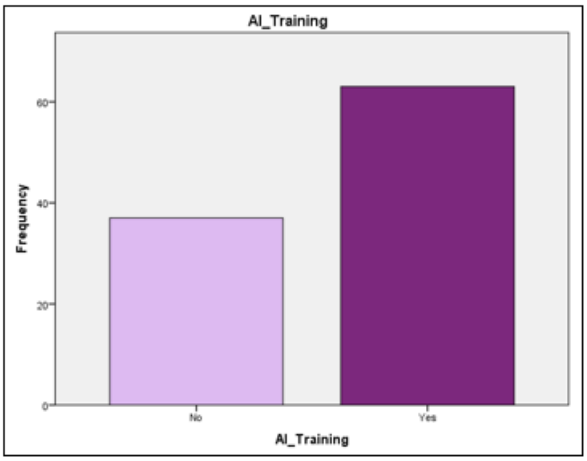
1) To assess the extent of AI training among support staff and technicians

Table 1: Percentage Analysis

AI Training	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	63	63.00%	63.00%	63.00%
No	37	37.00%	37.00%	100.00%
Total	**100**	**100.00%**	**100.00%**	**100.00%**

Source: Calculated

The analysis shows that 63% of healthcare support staff and technicians in Coimbatore have received AI training. This suggests a majority are being equipped to handle AI-integrated systems. However, 37% remain untrained, highlighting a gap in workforce preparedness that could hinder effective AI adoption across the sector.



2) To determine whether AI training is associated with role changes

H_o1: There is no significant association between AI training and role change.

Cross-tabulation & Chi-Square Test: AI Training vs Role Change

Table 2: Cross-tabulation Table

AI Training	Role Changed: Yes	Role Changed: No	Total
Yes	39	24	63
No	18	19	37
Total	**57**	**43**	**100**

Source: Calculated

Table 3: Chi-Square Test Output

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	**3.128**	1	**0.077**

Source: Calculated

The chi-square test indicates a weak but not statistically significant association between AI training and role change ($p = 0.077$). While more trained staff reported role changes, the result suggests that other factors, beyond training, may influence role shifts in Coimbatore's AI-integrated healthcare environments. Since the p-value exceeds 0.05, fail to reject the null hypothesis (H_o1). This suggests that AI training alone does not significantly influence role changes among healthcare staff in Coimbatore.
3. To evaluate the relationship between AI tool usage and job satisfaction

H_o1: There is no significant correlation between AI tool usage and job satisfaction.

Table 4: Pearson Correlation Matrix

	AI Tools Used	Job Satisfaction
AI Tools Used	1	-0.084
Job Satisfaction	-0.084	1

Source: Calculated

The Pearson correlation between AI tools used and job satisfaction is -0.084, indicating a very weak negative relationship. This means that as AI tool usage increases, job satisfaction slightly decreases. However, since the result is not statistically significant ($p = 0.41$), fail to reject the null

hypothesis ($H_0 1$), suggesting no meaningful association between the two variables.

Simple Linear Regression

$H_0 1$: There is no significant impact between AI tool usage and job satisfaction.

Table 5: Model Summary

R	R^2	Adjusted R^2	Std. Error
0.084	0.0071	-0.003	1.36

Source: Calculated

Table 6: Coefficients Table

Predictor	B (Unstd. Coeff.)	Std. Error	t	Sig.
(Constant)	**3.256**	0.28	11.6	0
AI Tools Used	**-0.075**	0.09	-0.86	0.391

Source: Calculated

The linear regression model shows a negative slope (-0.075), suggesting a minimal decline in job satisfaction with increased AI tool usage. However, the model explains less than 1% of the variance ($R^2 = 0.0071$), and the relationship is not statistically significant ($p = 0.391$). Therefore, failed to reject the null hypothesis ($H_0 1$), indicating that AI tool usage has no significant impact on job satisfaction.

9. Findings and Suggestions

Findings:

- 63% of respondents received AI training.
- 57% experienced a role change post-AI adoption.
- Weak correlation between AI tool usage and job satisfaction.
- Job satisfaction slightly declined with increased AI tool usage.

Suggestions:

- Institutions should design role-specific AI training programs.
- Regular feedback and counseling should be offered during transitions.
- Develop hybrid roles combining human oversight with AI tasks.

10. Limitations

- Limited to Coimbatore district
- Focused only on support staff and not doctors or nurses
- Used a relatively small sample size (n=100)

11. Conclusion

AI is reshaping job roles in Coimbatore's healthcare sector, particularly among support staff and technicians. Routine administrative and diagnostic tasks are increasingly automated, leading to shifts in responsibilities and required competencies. While many healthcare institutions have initiated AI-related training programs, their effectiveness in truly enhancing job satisfaction, adaptability, and long-term retention remains limited. Several staff members report uncertainty and stress due to inadequate clarity on changing roles. This highlights a gap between technology deployment and workforce preparedness. To bridge this divide, more inclusive, hands-on, and skill-focused strategies are needed ones that not only train workers but also involve them in the transition process. Ensuring continuous learning, emotional support, and clear role communication will be essential to help the healthcare workforce in Coimbatore confidently navigate this AI-driven transformation.

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