A STUDY ON THE PERCEPTION OF HEALTHCARE WORKFORCE ABOUT CARBON FOOTPRINT IN A PEDIATRIC HOSPITAL IN CHENNAI



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ABSTRACT

Climate change poses a serious threat to child health, while hospitals significantly contribute to greenhouse gas emissions through high energy use, waste generation, and water consumption. This study explored healthcare workers' perceptions of carbon footprint in a pediatric hospital in Chennai. Conducted between March–May 2025, data were collected from 150 staff using a structured questionnaire and analyzed with percentage analysis, weighted averages, chi-square tests, and Pareto charts. Results showed that 70.7% were familiar with the term 'carbon footprint,' though depth of understanding varied. Hazardous waste disposal (32.7%) and poor segregation (24%) emerged as the most critical contributors to emissions. Workload and lack of awareness were key barriers to sustainable practices. The study concludes that integrating sustainability into pediatric hospital operations through structured training, waste management improvements, renewable energy adoption, and alignment with NABH Climate Action Standards is essential for ensuring safe care for every newborn and child.

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INTRODUCTION

Climate change poses a growing threat to child health, increasing the risk of vector-borne diseases, heat stress, respiratory illnesses, and poor developmental outcomes linked to air pollution. At the same time, hospitals are among the largest resource-intensive institutions, contributing 4–5% of global greenhouse gas emissions through high energy use, water consumption, and waste generation.

Pediatric hospitals carry a dual responsibility of delivering safe, high-quality care while safeguarding the environment for future generations. Integrating sustainability into patient safety is therefore essential to ensure truly safe care for every newborn and child. This study was undertaken to assess healthcare workers' awareness of their hospital's carbon footprint and to explore the challenges they encounter in adopting sustainable practices in pediatric care. Understanding staff perceptions provides critical insights for shaping interventions, improving waste and energy management, and embedding climate-smart strategies into everyday hospital operations.

METHODS AND MATERIALS

- **Design:** Descriptive, cross-sectional study (March–May 2025).
- **Setting:** Pediatric Corporate hospital, Little Mount, Chennai. [Dissertation]
- **Sample:** 150 healthcare workers (nurses, allied health professionals, admin staff) using stratified random sampling.
- **Tools:** Structured questionnaire; data analyzed with Percentage Analysis, Weighted Averages, Chi-Square, Pareto, Cause-and-Effect

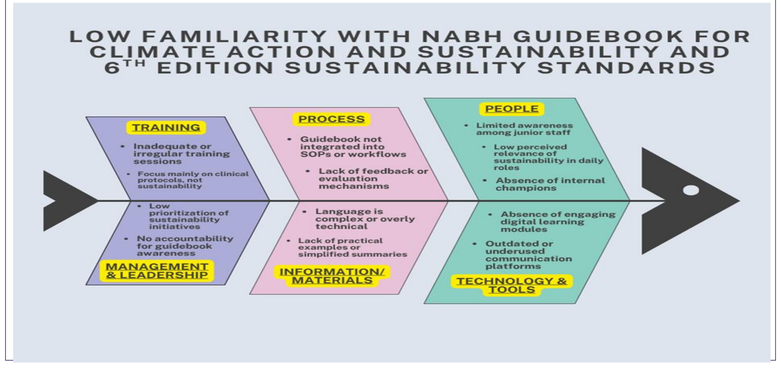


RESULTS

The study, conducted among 150 healthcare workers in a pediatric hospital in Chennai, revealed a growing awareness of environmental responsibility but also highlighted important gaps. While 70.7% of staff reported familiarity with the term "carbon footprint," the depth of understanding varied, with many rating their knowledge as only fair or poor. Nearly half of the respondents (44.7%) recognized hospitals as major contributors to emissions, showing a sense of accountability. However, significant barriers emerged, with workload pressures and lack of awareness or training ranking as the most critical obstacles to sustainable practices.

Improper hazardous waste disposal (32.7%) and poor segregation (24%) were identified as the leading contributors to emissions, together accounting for over half of waste-related issues. In terms of resource use, HVAC systems (40.7%) and patient care activities (31.3%) were perceived as the largest consumers of water. Importantly, 46% of respondents strongly agreed that hospitals hold an ethical responsibility to safeguard the environment, and many expressed willingness to engage in eco-friendly initiatives if provided with structured training, leadership support, and clear guidelines aligned with NABH Climate Action guidebook

GRAPHS AND TABLES



DISCUSSION

Pediatric hospitals today face the dual responsibility of delivering clinical excellence while also upholding environmental stewardship, as the health of children is uniquely vulnerable to the impacts of climate change. The findings of this study show that while staff acknowledge the hospital's role in contributing to carbon emissions and express a sense of ethical responsibility, their ability to act is hindered by workload pressures, limited awareness, and lack of formal training. To bridge this gap, stronger emphasis must be placed on disseminating and implementing the NABH Guidebook for Climate Action and Sustainability, ensuring that sustainability principles are embedded into everyday clinical and administrative practices.

Meaningful staff engagement through education, leadership support, and the creation of "green champions" can foster ownership and drive change at the ground level. Simple but impactful climate-smart interventions such as improving biomedical waste segregation, adopting renewable energy solutions like solar power, and integrating resource efficiency into patient care processes can not only reduce the hospital's carbon footprint but also directly enhance the safety and quality of care for every newborn and child.

CONCLUSIONS

- **Safe pediatric care must include environmental safety.**
- **Urgent need for structured training, leadership commitment, and integration of sustainability in hospital policies.**
- **Aligning pediatric care with climate action supports India's net-zero commitment and safeguards future generations.**

REFERENCES

1. **Tomson C. Reducing the carbon footprint of hospital-based care. *Future Hosp J*. 2015.**
2. **NABH Guidebook for Climate Action & Sustainability, 2024.**