Indoor Environmental Quality, Climate Change, and Life Quality

Rohollah Fallah Madvari

Department of Occupational Health, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran• Corresponding authors: Roholah Fallah Madvari, Email: fallah134@gmail.com

he Indoor Environmental Quality (IEQ) affects physical-mental health and well-being of people. Lighting, air quality, thermal comfort, and acoustic comfort are the most crucial factors in IEQ, directly influencing the quality of life (1).

The significance of IEQ has gained public attention in recent years, primarily due to the impact of global climate change and the emergence of green building designs (2). The adverse effects of climate change have adversely affected the habitability of public spaces, thereby necessitating the adoption of design and technical measures to improve the well-being and health of low-income communities (3).

Most studies have focused on exploring the connection between physical and occasionally psychological environmental factors. As per the WHO definition of "Health", it is recommended to analyses the interplay between a range of physical, social, and psychological factors, and how their interactions contribute to the perception of mutual comfort (4).

It is suggested that discussions should include climate change, along with the impact on the quality of life of the people studied. Control measures should be implemented based on the obtained results.

Overall human comfort is impacted by various environmental factors simultaneously, however, technical standards and design guidelines often focus on specific factors exclusively (5).

Contemporary high-performance structures aim to reduce their environmental carbon footprint while ensuring a healthy and comfortable indoor environment that promotes human well-being. However, the current methods for evaluating IEQ are often expensive, fragmented, and limited in their scope to only a few parameters. Moreover, access to these procedures is primarily restricted to professionals (6).

IEQ plays a crucial role in the architectural planning of energy-efficient structures, as it directly influences the health and overall welfare of individuals residing within them. Presently, the primary objective is to effectively tackle the concept of Zero Energy Buildings (ZEBs) by adopting a holistic approach that ensures exceptional levels of IEQ and energy efficiency are attained (7).

Thermal, lighting, and acoustic comforts, as well as indoor air quality, play a vital role in establishing the overall environmental conditions within indoor spaces. Nevertheless, there is currently a lack of a

Citation: Fallah Madvari R. Indoor Environmental Quality, Climate Change, and Life Quality. Archives of Occupational Health. 2023; 7(1): 1373-4. Article History: Received: 26 January 2022; Revised: 25 April 2022; Accepted: 27 April 2022

Copyright: ©2023 The Author(s); Published by Shahid Sadoughi University of Medical Sciences. This is an open-access article distributed under the terms of the Creative Commons Attribution License (https://creativecommons.org/ licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

standardized approach to assess the comprehensive IEQ level of a building by effectively monitoring and integrating all the individual elements of comfort (7).

This review presents an overview of the research obstacles that need to be addressed in order to enhance our comprehension, modeling, and optimization of the intricate relationship between various environmental factors and the overall well-being of individuals. To conduct more precise and effective investigations, it becomes imperative to implement measures that guarantee human comfort and health. Although challenging, this can potentially be achieved in the foreseeable future with the aid of "Artificial Intelligence".

Reference

1. Cubukcuoglu C, Cilasun Kunduraci A, Asadollahi Asl Zarkhah S. Indoor Environmental Quality Optimisation Model for Institutional

- Care Rooms of Elderly People. Buildings. 2023;13(10):2625.
- 2. Zhong L, Yuan J, Fleck B. Indoor environmental quality evaluation of lecture classrooms in an institutional building in a cold climate. Sustainability. 2019;11(23):6591.
- 3. Du X, Zhang Y, Zhao S. Research on interaction effect of thermal, light and acoustic environment on human comfort in waiting hall of high-speed railway station. Building and environment. 2022;207:108494.
- Bourikas L, Gauthier S, Khor Song En N, Xiong P. Effect of thermal, acoustic and air quality perception interactions on the comfort and satisfaction of people in office buildings. Energies. 2021;14(2);333.
- Wu H, Wu Y, Sun X, Liu J. Combined effects of acoustic, thermal, and illumination on human perception and performance: A review. Building and Environment. 2020;169:106593.
- Mujan I, Licina D, Kljajić M, Čulić A, Anđelković AS. Development of indoor environmental quality index using a low-cost monitoring platform. Journal of Cleaner Production. 2021;312:127846.
- 7. Danza L, Barozzi B, Bellazzi A, Belussi L, Devitofrancesco A, Ghellere M, et al. A weighting procedure to analyse the Indoor Environmental Quality of a Zero-Energy Building. Building and Environment. 2020;183:107155.