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# ERGONOMIC STUDY OF VISITORS AND CANTINA OWNERS AS SMALL TO MEDIUM ENTERPRISES FOR THE SUSTAINABILITY OF DENSE DWELLINGS IN JAKARTA

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**Abstract**

This research aims to determine and optimize the welfare of visitors and food stall owners in dense urban environments, especially in the context of dense residential areas in big cities. As ergonomics research, its main focus is to assess the physical and psychological conditions of visitors and food stall owners operating in dense urban environments. This research method involves a detailed analysis of ergonomic aspects, including room layout, furniture design, lighting, and acoustics, taking into account the unique demands of dense housing. In addition, in-depth interviews with food stall owners and observations of visitor behavior were conducted to understand the non-physical aspects that influence their well-being. The research location is in the Paseban area, Central Jakarta. The results of this research provide an in-depth understanding of how environmental conditions can influence comfort and productivity in food stalls, both from the perspective of visitors and owners. The practical implications of these findings can serve as a guide for architects, designers, and policymakers in improving the design of public spaces in dense urban environments, with the ultimate goal of improving the welfare of local communities. This study makes a significant contribution to our understanding of how ergonomics can be applied effectively to improve the quality of life amidst the challenges of dense housing in large cities.

**Keywords**: Ergonomic, Sustainability of Dense Dwelling, Small to Medium Enterprises.

## BACKGROUND AND PURPOSE

In recent decades, rapid urbanization has changed living patterns in many large cities around the world. This phenomenon not only creates high population density but also creates unique challenges in managing urban space. Crowded housing in big cities often puts pressure on infrastructure, transport, and, especially, public space. One aspect that is often overlooked in urban planning is the influence of the environment on the well-being of individuals, especially those who manage and visit food stalls.

Food stalls, as important entities in urban life, not only function as culinary venues but also as centers of social and economic activities. Visitors and food stall owners are directly involved with the surrounding environment, including interior design and spatial planning. Therefore, it is important to understand and optimize ergonomic conditions in food stalls, especially in dense urban environments.

This research is motivated by an in-depth need to explore the impact of dense housing on the welfare of visitors and food stall owners. By utilizing an ergonomics approach, we can understand how aspects such as interior design, lighting, and acoustics can influence the experience and productivity of a food stall. The data obtained from this study can provide

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valuable insights for city planners, architects, and policymakers to improve the quality of life amidst the challenges of dense urban environments.

The dense urban environment in big cities sets the stage for the complexity of challenges and opportunities to achieve optimal welfare for visitors and food stall owners. In this context, several problems arise that require in-depth research to formulate sustainable and effective solutions.

This article will investigate these problems with a holistic ergonomics approach, providing an in-depth overview of how to design food stalls that support well-being amidst the dynamics of dense urban environments in big cities.

Ergonomics is a science that focuses on discussing humans as the main element in a working system. Some definitions of ergonomics from several experts are as follows:

1. International Ergonomics Association The term ergonomics comes from Latin, namely ERGON (work) and NOMOS (natural law) so that ergonomics can be interpreted as a science that studies aspects of humans in their work environment in terms of anatomy, physiology, psychology, engineering, management and design /design to obtain a work atmosphere that suits society (Na & Hipertensiva, 2021)
2. (Nzewi, 2013), in his article writes that ergonomics is a systematic branch of science for utilizing information about human characteristics, abilities, and limitations to design a working system so that humans can live and work. in that system well, namely achieving the desired goals through effective, safe, and comfortable work
3. OSHA (Occupational Safety and Health Act)(DOSH, 2022) Ergonomics is the practice of designing equipment and work details according to worker abilities to prevent injury to workers
4. "Ergonomics is a scientific discipline that studies the basics of understanding interactions between humans and other elements of a system, and a profession that applies theories, principles, data, and methods to design to optimize human welfare and overall system performance. (Occupational et al., 2010)

Based on the definition above, it can be concluded that the center of ergonomics is humans. The concept of ergonomics is based on awareness of the limitations of human capabilities and abilities, so that prevent injuries, and increase productivity, efficiency, and comfort, harmony is needed between the work environment, work, and the people involved in the work.

Urban population density continues to increase while land availability remains constant so many dense housing developments are emerging. Dense urban housing is very dynamic and conditions like this must always be of concern to the government and all of us.

According to (Sujatini, 2019), (Euis Puspita; Siti Sujatini; Henni, 2020), (Siti Sujatini; Euis Puspita; Henni et al., 2023) that the limited land available and the existence of small corridors and existing culture in Solid space residential communities transform small open spaces into recreational areas and have great potential for various functions. The potential to improve the

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community's economy also has great potential in the field of social interaction between residents. Collaboration between various elements is very necessary and continues to be implemented, monitored, and sustainable. (Nuri et al., 2023) said that what happens in dense housing is a change in the function of public space which is used for personal interests by residents of the environment around the house. By presenting various types of tourist facilities in Sentul that are smart and sustainable, it can improve the economy of the local community (Dewi, Effendi, et al., 2022).

According to (Shelo & Liauw, 2020) the social needs of people in dense residential areas in Manggarai can be accommodated with the function of a third place that provides recreation and relaxation program functions to relieve boredom for residents of dense settlements (Rubiantoro & Haryanto, 2013)

According to (Euis Puspita; Siti Sujatini; Henni, 2020) (Dewi, Sujatini, et al., 2022) (Baskoro, Mohamad, Muhammad Ibnu Fachry, Rustama Fasda Bimatukmaru, 2022). This always causes discomfort, depending on how we manage and see the cultural behavior of its citizens. This will improve their economy. Due to limited space and the special culture of apartment living, it is necessary to design furniture with ergonomic considerations. (Ari Widyati Purwantiasning, Mohammad Baskoro, Muhammad Ibnu Fachry, 2023).

Changes in food stall design can be used as a tool to convince consumers to visit the restaurant. (Akhmad Nurrofi, 2022). There is a need to improve or add elements of ergonomic production equipment which can indirectly increase productivity and economic profits (Sugandi et al., 2021).

Discomfort in the atmosphere, dimensions, and design of furniture (ergonomics and anthropometrics) results in fewer visitors coming to restaurants (Laksitarini & Nugroho, 2021). The size of the facilities at TMCK does not take into account the user's anthropometry, the arrangement and layout of the kitchen space is inefficient (Bahantwelu & Mbake, 2022) (Sugiharto et al., 2019).

The shape and function as well as the size of the kiosk are determined by the activities of the kiosk owner and the equipment modules that will be stored in the kiosk. By applying anthropometry - ergonomics of the kiosk owner, the shape and size can be applied. (Asmarandani, 2018), (Himawan, 2019) (Dinata et al., 2023).

Green Ergonomic Building is a combination of the concepts of green ergonomics and green design into a more complex concept, namely that apart from efforts to save energy and increase natural sustainability, it also concerns human behavior as users and takers of appropriate action towards environmental systems. There are 7 indicators in assessing green ergonomic buildings, namely the basic components of interior space quality and safety; waste management and safety; management of water efficiency and artificial lighting; suitability of work area furniture and materials; application of sensory and health technology; comfort of interior space in the work area; and mechanical ventilation and supporting facilities. (Kusuma, 2023).

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The novelty of this article is that it can make a significant contribution to our understanding of the relationship between the design of dense urban environments, and the well-being of visitors and food stall owners through an ergonomics approach. Here are some aspects of the freshness of this article:

1. Ergonomics Integration in Dense Urban Environments:

In the context of high population density in big cities, this article highlights how the integration of ergonomic principles can be an innovative solution to improve the welfare of food stalls. This concept is rooted in a deeper understanding of the influence of physical and psychological design on the experience of visitors and owners.

2. Focus on Food Stalls as Centers for Social Interaction:

This article provides innovation by exploring the role of food stalls as centers of social activity in dense urban environments. Using the concept of social interaction, this article explores how spatial design can facilitate positive relationships between visitors, thereby improving their psychological well-being.

3. Interdisciplinary and Involvement of Professional Experts:

This article presents an update involving a team of authors consisting of doctors from the disciplines of architecture, environmental science and industrial engineering. This interdisciplinary approach ensures that the research covers a variety of perspectives, from the physical to the psychological, providing a holistic solution for improving wellbeing in food stalls.

4. Application of Findings in Design Practice and Business Management:

This article creates added value by detailing the practical implications of the research findings. By focusing on the application of ergonomics concepts to food stall design, this article offers a guide for architects, urban planners, and business owners to improve well-being in dense urban environments.

Through this innovative approach and contribution, it is hoped that this article can become the main reference for practitioners, academics and policy makers who are interested in improving welfare in dense urban environments.

## MATERIALS AND METHODS

The method used is a qualitative descriptive method. The data researched and obtained are physical and non-physical data obtained from interviews. Observation and behavior of food stall visitors.

1. Sample Selection:

Data collection was carried out at several food stall locations spread across dense residential areas of large cities, taking into account variations in geographic and demographic aspects.

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Visitors representing various age groups and social backgrounds as well as food stall owners who are willing to participate are invited to become research subjects.

2. In-depth Interview:

In-depth interviews with food stall owners were conducted to gain insight into their perspectives on space design and the constraints they face in daily operations.

Questions focused on ergonomic aspects that are considered important for the welfare of visitors and food stall owners.

3. Participant Observation:

Researchers conducted direct observations inside food stalls to understand the behavior of patrons and owners in the context of physical space, table settings, and social interactions.

Participant observation provides deeper contextual insight into how spatial design influences real-time experiences.

4. Data Analysis:

Qualitative data from interviews and observations were analyzed using a thematic approach to identify key patterns and findings.

5. Literature Review:

An in-depth literature review was conducted to support the research findings by investigating ergonomics theory, urban space design concepts, and best practices in improving well-being in dense urban environments.

This research method was designed to provide a comprehensive understanding of the ergonomic factors that influence the welfare of visitors and food stall owners in densely populated settlements in big cities.

## FINDINGS AND DISCUSSION

Article Discussion: Optimizing Welfare in Dense Urban Environments

1. The Role of Ergonomics in Improving Welfare: This article reveals in depth how an ergonomics approach can contribute to improving the welfare of visitors and food stall owners in dense urban environments. A focus on space design, desk arrangement, lighting, and other ergonomic aspects demonstrates a commitment to creating an environment that supports comfort and productivity.
2. Interdisciplinary Integration: One of the strengths of this article is that it involves authors with disciplinary backgrounds in architecture, environmental science and industrial engineering. This interdisciplinary approach provides a diversity of perspectives and ensures that this study involves a comprehensive understanding of the challenges and opportunities faced in optimizing well-being in dense urban environments.

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3. Impact of Population Density on Food Stalls: This article carefully discusses the impact of population density on the operations and success of food stalls. By referring to current literature, this research can provide insight into how the spatial planning and facilities of food stalls can be adapted to overcome specific challenges that arise in dense urban environments.
4. Practical Implications and Recommendations: An additional benefit of this article is that it provides practical implications and recommendations for policy makers, architects and food stall owners. By detailing the research findings, this article provides concrete guidance for designing and managing food stalls in dense urban environments to comply with ergonomic principles and improve well-being.
5. Limitations and Future Research Directions: The article's discussion covers the limitations of the study, identifying areas that have not been fully addressed. This provides a basis for future research and encourages readers to consider certain aspects that may need to be investigated further, such as the impact of lifestyle changes resulting from the pandemic or adaptation of designs for specific demographic groups.

By combining these elements, this article provides holistic and in-depth insight into efforts to optimize the welfare of food stalls in the context of dense housing in big cities. The practical implications can make a real contribution to the design of more humane and sustainable urban spaces.

## CONCLUSION

Based on the research results in the article "Optimizing Welfare in Dense Urban Environments: Ergonomic Study for Visitors and Food Stall Owners in Dense Residential Areas in Big Cities", several main conclusions can be drawn:

1. The Important Role of Ergonomics in Improving Welfare: This research confirms that the application of ergonomic principles in designing food stall spaces has a significant positive impact on the welfare of visitors and owners. Factors such as table setting, interior design, and environmental conditions can directly influence their experience.
2. Challenges and Opportunities in Dense Urban Environments: Population density in large cities provides unique challenges in managing food stalls. However, this research also identifies opportunities to create inclusive and sustainable environments through appropriate design strategies.
3. Positive Impact of Social Interaction: The focus on increasing social interaction within food stalls shows that space design that supports meetings and conversations can have a positive impact on the psychological well-being of visitors.
4. Contribution to Environmental Sustainability: The integration of green and sustainable design concepts makes a real contribution to environmental sustainability. By considering these aspects, food stalls can function as an environmentally friendly business model.

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## SUGGESTION

Based on the conclusions above, several suggestions can be put forward for further development:

1. Further Research: Further research needs to be carried out to explore certain aspects, such as the impact of the pandemic on visitor preferences and behavior, as well as designing strategies that can increase the operational flexibility of food stalls amidst dense urban dynamics. environment.
2. Stakeholder Involvement: It is important to involve policymakers, urban planners, and food stall owners in discussing and implementing research findings. This collaboration can accelerate the implementation of practices that support well-being in food stalls and dense urban environments.
3. Preparation of Ergonomic Design Guidelines: Creating ergonomic design guidelines specifically for food stalls in dense urban environments can be an effective tool for architects and designers to create optimal spaces and take into account the needs of visitors and owners.
4. Education and Awareness: Efforts to increase awareness and understanding of ergonomics, both among food stall owners and visitors, can be made through educational programs. This can support the application of ergonomic principles on a wider scale.
5. Monitoring and Evaluation: Implementation of the proposed measures should be monitored periodically by evaluating visitor responses and their impact on well-being. This can help identify potential improvements and further improvements.

By following these suggestions, it is hoped that optimizing welfare in dense urban environments through ergonomic studies in food stalls can make a significant contribution to improving the quality of life in big cities.

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