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COMPLEX PROJECTS
Bodies and Building Milan
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Research Plan

Bodies and Building Milan
Staff-centric Hospital Design

Aleksandra Michalik

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INTRODUCTION

01

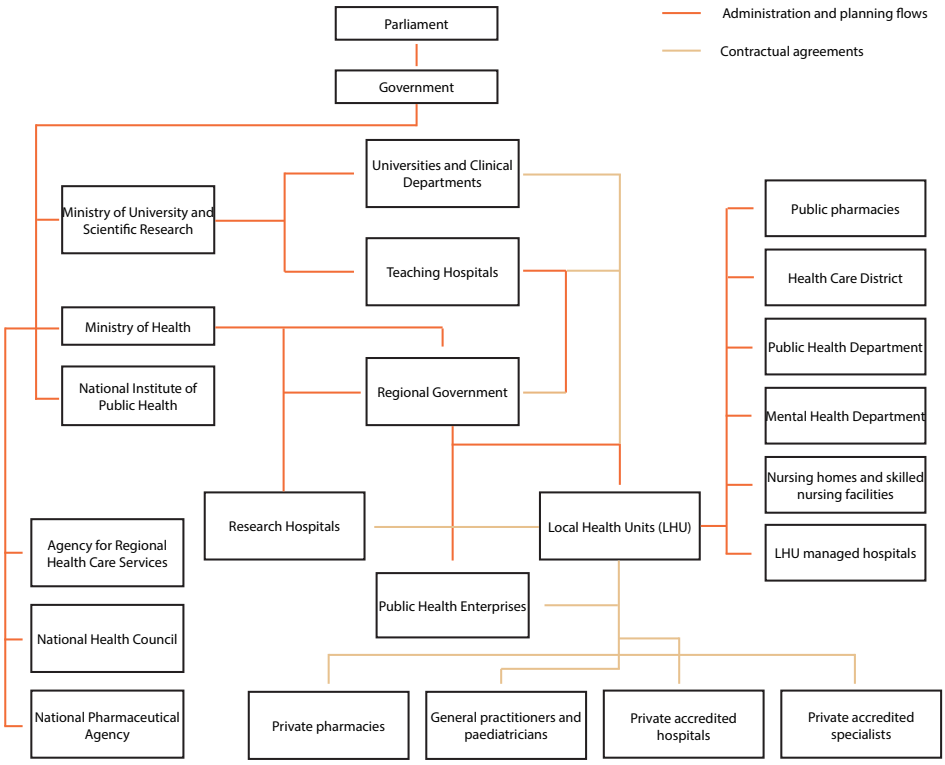

Fig. 1 Healthcare system in Italy

Thesis Topic

Research question: How can hospital design positively influence staff well-being?

The research explores architectural ways, that can be implemented, in which hospital design can support staff well-being through strategic design choices. Specifically, it examines which elements have the greatest impact (for example the presence of natural light and ergonomic layouts) in supporting healthy work environments for healthcare professionals. While hospital architecture has been known to emphasize patient-centered design, healthcare staff, who spend extended hours in those settings, often face limitations in areas meant for rest and mental reset. By focusing on architectural initiatives to prioritize staff well-being, this research will highlight how redefined hospital design could improve the general quality of healthcare.

Problem Statement

The design of healthcare facilities has advanced with the primary focus being enhancing patient care and their recovery. With that priority being relevant and equally as important, it led to overshadowing the needs of healthcare staff. The system aims to reduce the amount of time patients spend in treatment facilities as much as possible and, as a result, the disproportion of hours spent in hospitals by medical staff compared to patients becomes even greater. In addition to that, this approach often fails to address the physical, mental, and social needs of healthcare staff who experience heightened stress, physical strain, and burnout within these same environments. The fast-paced and demanding nature of healthcare requires employees to remain attentive and resilient, yet they are often provided limited support spaces for recuperation during shifts. (De Berardis, 2022) Nurses must walk huge distances in the facilities while caring for patients. All these aspects negatively affect the medical team's well-being and contribute to healthcare quality. We must ask ourselves - who should we design the medical facilities for?

Research Significance

Addressing this gap in the healthcare design by basing it on staff's needs and implementing architectural strategies to do so will shed light on the broader movement toward well-being-centered spaces. This research aims to present an adaptable design framework that can serve as a model for future hospitals worldwide, ultimately contributing to the overall improvement of the healthcare industry and patient outcomes.

RESEARCH FRAMEWORK

02

Theoredical framework

The framework research draws on theories of ergonomic design and principles of human-centered architecture. The idea that the building environment affects mental and physical well-being is foundational to architectural practice. The concept of "Quality of Life" (in short QoL), has been defined by scholars as something to capture the well-being of an individual as well as the population's. This includes all aspects of personal health – mental, physical, and spiritual as well as some that are less obvious – amongst others, social status, freedom, autonomy, and, the main focus of this research – work environment. (Teoli & Bhardwaj, 2023)

Theoretical Argumentation

Studies that have been conducted on that topic identified, that spaces that foster social support, natural light, and mobility positively influence overall satisfaction in healthcare settings. (di Bella et al., 2022) Saying that, the focus of previous studies has mostly been patient-related, so the research will apply for previous design standards and translate them to the medical staff's well-being.

Research has been conducted at Politecnico di Milano regarding the design of a future hospital. The study conducted by Stefano Capolongo led to the making of a design brief, that is now being promoted by the World Health Organization. It states, that in line with universal and functional design, creating a healthy work environment should be a priority. (World Health Organization, 2023)

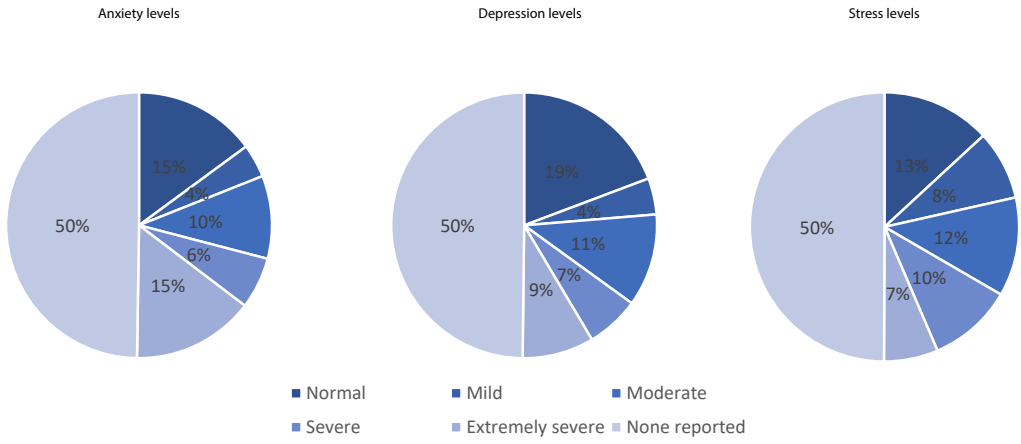

Fig. 2 Health struggles of Italian nurses

Review of key literature

Existing literature on hospital design has largely prioritized patient-centric architecture. For example, studies on healing environments focus on how natural light and quiet spaces reduce patient stress and improve recovery times. However, these findings are also highly relevant to staff, suggesting a potential dual benefit of supportive design (di Bella et al., 2022). In Capolongo's work at Politecnico di Milano, the concept of "universal and functional design" highlights the need for hospitals to cater to staff needs alongside patient care. Capolongo argues that healthcare facilities should foster well-being universally, a perspective supported by the World Health Organization's (WHO) call for "Hospitals of the Future" that prioritize both staff and patients (WHO, 2023).

Global, Architectural, and Studio Relevance of the topic

Across the whole world the healthcare sector faces grave challenges related to staff burnout and their shortage, which leads to high patient turnover and compromised care quality. The phenomenon of burnout has been classified as an occupational hazard by the World Health Organization in the International Classification of Diseases (ICD-11). It particularly affects people working in the healthcare sector due to the long work hours, prolonged stress, and overwhelming workloads. WHO and many academic studies report that healthcare professionals experience greater rates of mental health challenges in comparison to other work sectors, which has only worsened due to the recent global health crises and staff shortages, as documented in both WHO mental health reports and studies from the International Labour Organization (ILO) on healthcare working conditions. Addressing these issues is crucial and can be done through design, as well-adjusted physical environments greatly influence one's general well-being. (Forstag & Cuff, 2018). Improving and refining the healthcare facility design has the potential to improve staff morale, decrease burnout rates, and ultimately patient care quality. Said perspective aligns with the broader "well-being" principles, which include comfort, physical and mental health, and social interaction within healthcare environments, both for workers and patients. Emerging architectural approaches put an emphasis on balancing medical orderliness with wellness deliberations, suggesting that the design that prioritizes both staff and patient needs could, or even should become a cornerstone for the future of healthcare architecture.

All of this comes to a bigger conclusion. The design of everything in today's society comes down to monetary issues. By improving the overall quality of workplaces for medical staff, we would reduce the incidence of mistakes made by tired doctors. By doing so, we would be able to reduce the costs associated with compensation and other potential complications that occur in such cases.

In addition to the significance of the research in terms of broader, global relevance, we can observe a shift in the dynamics of how architectural work-related designs are conceptualised. In the 20th century, the design philosophies were largely client-centric, focusing on always meeting the user needs and sometimes even neglecting the needs of workers(Capolongo et al., 2016). Nowadays, modern convictions have evolved to reflect new philosophies – the fact that happy workers contribute to better client outcomes, across all industries.(Forstag & Cuff, 2018).

Architecturally, the research contributes to emerging sets of ideas that balance clinical efficiency with the well-being of healthcare workers, with the potential to set it as one of the core ideas for the future of hospital design. Within the studio, the research allies with the bodies and building theme, underscoring that design focused on staff comfort and well-being could create sustainable healthcare environments that address both physical and emotional needs. (Forstag & Cuff, 2018)

RESEARCH METHODS

03

Fig. 3 - Clinica La Madonnina site

Program

Case studies of the building existing on the chosen site (Clinica "La Madonnina") will be conducted to understand spatial layouts, wellness facilities provided for staff, and support spaces. The main focus of the analysis will be mapping out the floors of chosen actors (inpatients, outpatients, nurses, surgeons, support staff, and visitors) to understand the connections in the building and find potential points of congestion.

Existing staff facilities will be mapped and analyzed for their effectiveness in supporting mental, physical, and emotional well-being.

A questionnaire regarding the functionality and layout of medical facilities will be sent out, to get a better understanding of what could be improved from the perspective of the health workers, trying to capture elements that could be overlooked without having interviewed them. Questions such as "Where in the facility do you spend the most time?" will be asked.

An in-person interview with hospital workers will be conducted to better understand crucial elements of the medical facility and help map out potential problems and spatial shortages of Clinica La Madonnina.

Client

To better understand the client's identity, a short explanation of the Italian healthcare system is needed. Italy's National Health Service covers all citizens and legal foreigners. Its funding comes from an additive to the overall tax value revenue and is collected by the central government to be then distributed to local governments. All residents have the right to mostly free primary care, health screenings, and inpatient care. Other fixed benefits consist of maternity, home, specialty, and hospice care, as well as preventive medicine, and pharmaceuticals. The citizens also have an option of using private health care for an additional payment. (Tikkanen et al., 2024)

The analyzed hospital, Clinica La Madonnina belongs to a private healthcare company, called Gruppo San Donato. Their net of hospital facilities has over 40 medical points, across the north of Italy, of various sizes and extent of offered health services.(Gruppo San Donato, n.d.)

To understand and study the client, the research will mainly be conducted through the internet. They offer an overview of all of their facilities, as well as their locations. To study the patient's contentment or the lack of it, sites like Google reviews should be inspected.

Site

The site's study will be conducted using maps and materials found on the Internet. It will blend analyzing local resources and on-site observations to understand the place's connectivity with the rest of the city, its spatial dynamics, and the role it plays in supporting staff well-being. The internet-based resources will supply a wide perspective on the site's geographical positioning concerning the city and its connections with crucial amenities, transportation links, and public zones. By examining the connections, the research will recognize adjacent amenities that could supply the staff with rest and decompression spots, such as parks, cafes, and places alike.

On-site visits connected with fieldwork will strengthen this analysis by encapturing the site's distinct dynamics and visibility, including aspects like noise level, and proximity to public areas, which lead to the overall environmental comfort. Observing and comprehending the relationship between the site and neighbouring buildings will be crucial for grasping its integration with the urban landscape and pinpointing any potential restraints or enhancements of the healthcare environment. This approach goes hand in hand with the research on the role of the environment in healthcare, which shows that adjoined amenities and spatial layout can have a great impact on mental health and well-being. (Forstag & Cuff, 2018)

By combining the two approaches, the online research, and the field observation, this research will construct a comprehensive understanding of the site's physical attributes and social context, allowing the design interventions to be properly aligned with the original theoretical assumptions and design caring environments that integrate harmoniously with the encompassing city.

CONCLUSION

04

Fig. 4 - Design brief for "the hospital of the future" by Stefano Capolongo, PoliMi

Design brief

The design assignment will involve creating a set of design guideilnes to cater staff well-being by, for example, integrating spaces that cater to their physical, mental, and social needs. The design tool will be a result of the research based on the studied materials and an experimentation approach. Some of the vocal focus points of the project will be:

- Designing elements that incorporate natural light, biophilic principles, and greenery within staff spaces only.
- Implementing comfortable quiet areas, resting spaces, and areas alike, alongside strategically designed break rooms to foster decompression and social interaction.
- Architectural elements that enhance flexibility, enabling the spaces to adapt to staff's needs, work rhythms, and emergency response requirements.

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Figures

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- Fig. 2 Health struggles of Italian nurses - Source: A. Donatini, Emilia - https://pmc.ncbi.nlm.nih.gov/articles/PMC9397050/
- Fig. 3 - Clinica La Madonnina site
- Fig. 4 - Design brief for "the hospital of the future" by Stefano Capolongo, PoliMi - Stefano Capolongo -'Hospital Design and Urban Health', Politecnico di Milano, 2023