

Impact of Restorative Spaces on the Wellbeing of Emergency Unit General Practitioners in Indonesian National Referral Hospital

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Abstract: Existing literature emphasises the need to provide healthcare workers with restorative spaces to promote wellbeing and resilience to external stressors. However, there is a lack of research on the effectiveness of different design factors of restorative spaces from the perspective of General Practitioners working in emergency care. This study examines three topics in existing restorative spaces: the form, the most significant architectural element, and its relationship with the wellbeing of Emergency Room General Practitioners in three large case study national hospitals in Indonesia. The study included a literature review and semi-structured interviews with General Practitioners in the case study hospitals. It was found that privacy, proximity to workspace, contact with nature, a sense of belonging and easy access were key restorative space design factors for wellbeing. The preliminary findings of this study can help inform design guidance for restorative space design in Indonesian national hospitals.

Keywords: restorative space, hospital, general practitioners, wellbeing, emergency unit

1. Introduction

1.1 Background

In the last two years, Indonesia has experienced the highest loss of General Practitioners (GPs) in the emergency unit and the third highest Asia-wide mortality toll among healthcare workers due to Covid-19 (BBC News Indonesia, 2021). Despite facing unprecedented challenges, GPs are expected to have sound problem-solving skills and empathy for various emergencies while dealing with loss and additional responsibilities caused by limited staff resources (Ni'matuzahroh et al., 2021). There is currently increased awareness about the importance of the mental health of healthcare workers, including its impact on patients' outcomes as poor mental health may result in medical errors and poor performance (Nejati et al., 2016). It is hypothesised that restorative environments for healthcare workers may improve mental health and help them handle challenging circumstances.

Previous studies (Berto, 2005; Nejati et al., 2016; Nejati, Shepley and Rodiek, 2016; Fumagalli et al., 2020; Gregory, Stichler and Zborowsky, 2022; Zhu and Shepley, 2022) argued that built environment might help healthcare workers to restore their concentration from external pressures and mental exhaustion. The concept is further supported by Attention Restorative Theory (ART) (Kaplan, 1995). Studies on restorative spaces for healthcare workers are now being conducted in China, the US, and Europe (Nejati, Shepley, and Rodiek, 2016; Zhu and Shepley, 2022), demonstrating the need to provide a restorative environment for the healthcare workers working in hospitals. Nature, proximity, privacy, and a sense of belonging are four essential aspects of restorative environments that have been studied (Ulrich, 2008;

Oi-Zhen, Weng-Wai and Yu-Tian, 2015; Nejati et al., 2016; Zhu and Shepley, 2022). However, given the unique working culture of emergency unit GPs, it will be critical to explore whether other architectural aspects might emerge as significant factors for wellbeing. Notably, further research is required to determine the relative importance of these restorative space characteristics in countries such as Indonesia.

1.2 Research questions

To address the knowledge gaps identified above, this study set out to investigate the three following research questions:

- a. How does an existing restorative space for emergency unit GPs take form in Indonesian hospitals?
- b. How does the Indonesian emergency unit GPs perceive the relationship between the existing restorative space in Indonesian hospitals with their wellbeing?
- c. What is the most significant architectural element in the existing restorative space in Indonesian hospitals as perceived by the Indonesian emergency unit GPs?

2. Hospital restorative space architectural elements for emergency unit GPs

A sense of resilience arguably plays a pivotal role in healthcare workers' wellbeing (Handoyo et al., 2020). This notion extends the concept of wellbeing as a subjective standard on how people optimise their experience and ability to function and cope with a situation, resulting in psychological resilience and restoration (Hanc, 2019; Rohde, 2020) to work productively and contribute to society (WHO, 2022). Existing literature notes that proximity (Zhu and Shepley, 2022) is a significant factor in providing a restorative environment for emergency unit GPs among other features such as biophilia, privacy and a sense of belonging (Hanlon, 2001; Dixon and Durrheim, 2004; Salonen et al., 2013; Oi-Zhen, Weng-Wai and Yu-Tian, 2015; Nejati et al., 2016; Totaforti, 2018; Abdelaal and Soebarto, 2019; Zhu and Shepley, 2022).

To assess how far a restorative environment could impact the GPs' wellbeing, the Restorative Healthcare Environmental Design (RHED) framework introduced three stages of restoration: comprehensibility (knowing the stressors), manageability (knowing how to cope), and meaningfulness (motivated to cope). Although it heavily relies on biophilic elements as nature was argued to have a more effective restorative ability than inanimate elements (Kaplan, 1995; Berto, 2005), other elements, such as familiar feelings from the interaction between the natural and built environment (Hanlon, 2001; Dixon and Durrheim, 2004), were also essential in providing the sense of control and security over the place the GPs' frequent.

3. Methodology

3.1 Literature search

A search of journal papers was carried out using the Web of Science (WoS) and PubMed was carried out with the keywords: 'restorative environment', 'restorative space', 'healthcare workers', 'wellbeing', 'hospital', 'healthcare facility', and 'Indonesia'. Theories such as Attention Restorative Theory (ART) (Kaplan, 1995) and RHED (Abdelaal and Soebarto, 2019) were used to understand the restorative definitions and framework in hospital settings.

3.2 Online interviews

Online semi-structured interviews were carried out to evaluate the existing restorative spaces in three Indonesian National Referral Hospitals. These hospitals were selected as they represent the national qualified standards for hospitals in Indonesia and are divided into

different disease classifications: RSUPN Dr. Cipto Mangunkusumo (RSCM) as the National Referral General Hospital, RS Jiwa H. Marzuki Mahdi (RSMM) as the National Referral Non-communicable Disease Hospital, and RS Penyakit Infeksi Sulianti Saroso (RSPI SS) as the National Referral Communicable Disease Hospital. A total of six participants were chosen through snowball sampling, and the interview questions were developed through the literature review to understand the emergency GPs' basic demographic characteristics, workloads, the preferred place to take breaks, and architectural elements that may evoke their choices. The transcripts were input into NVivo version 12.0 (QSR International, United States) to analyse the answers and visualise the data.

4. Results and Discussion

Interview results show that emergency GPs prefer to spend their break time in doctor's rooms or the mosque. All the participants noted that due to the unpredictability and frequency of emergency cases, they are hesitant to take more than 15 minutes of breaks and opt to take these breaks during prayer times. Table 1 sets the interview findings in the context of existing literature. It is worth highlighting the difference in the preferred location of the restorative space between this research and existing studies: Whereas a previous study (Zhu and Shepley, 2022) argued that a place away from the working station is more appreciated, the participants of this study all indicated otherwise, with all interview participants stating that they would feel anxious if they were far away from the emergency room due to limited staff resources.

An open garden would be appreciated by the GPs in RSMM for its colder weather due to the hospital's geographic location. However, GPs in RSCM and RSPI SS were more hesitant to have direct contact with nature due to the hot weather and possible bacteria transmittance. The concept of having indirect contact with nature through openings that provide a sense of association with the outdoor environment may be beneficial and is in line with prior studies on the role of biophilic components in promoting restoration (Salonen et al., 2013b; Oi-Zhen, Weng-Wai and Yu-Tian, 2015; Nejati et al., 2016; Totaforti, 2018; Abdelaal and Soebarto, 2019; Zhu and Shepley, 2022).

Another difference with past studies was found in relation to achieving a sense of belonging. Investing a long time within a place would be a struggle for emergency GPs due to the unpredictable nature of their work hours. Hence, instead of taking an hour's break to spend time in a place, it makes sense for them to make 15-minute visits more frequently. Frequenting a place may evoke a familiar feeling with the interior of a place (Hanlon, 2001; Dixon and Durrheim, 2004) and intrigue the willingness to cope with a stressful situation.

Table 1. Comparison between literature review and interview findings

Architectural Elements	Tools	Emergency Unit GPs' perspectives	Restoration Stage	Possible Outcome	References
Proximity	Hallways length; Away from working stations	Close to working stations	Comprehensibility; Manageability	Control; Contribution; Active participation; Security; Independence	Zhu and Shepley, 2022

Biophilia	Views/Vistas; Water; Landscape (Open green space); Light pools (Daylights, lights); Symmetric/regular patterns	Unperturbed views; Fresh air; Ample daylight; Water presence	Manageability	Security; Independence	Salonen et al., 2013; Oi-Zhen, Weng-Wai and Yu-Tian, 2015; Nejati et al., 2016; Totaforti, 2018; Abdelaal and Soebarto, 2019; Zhu and Shepley, 2022
Privacy	Personal space; Small social space; Room layout	Personal space; Social activities; Transparent dividers	Comprehensibility; Manageability; Meaningfulness	Control; Contribution; Active participation; Security; Independence; Sense of belonging; Hope	Oi-Zhen, Weng-Wai and Yu-Tian, 2015; Nejati et al., 2016; Totaforti, 2018
Sense of belonging	Home-like interiority; Time spent within the place	Frequency of visits	Manageability; Meaningfulness	Security; Independence; Sense of belonging; Hope	Hanlon, 2001; Dixon and Durrheim, 2004

The second research question explores the perceptions of GPs frequenting a restorative space during their shift to take breaks, and potential impacts on wellbeing. As wellbeing in the workplace for GPs is defined as the ability to cope and function to reach resilience (Dodge et al., 2012; Hanc, McAndrew and Ucci, 2019; Handoyo et al., 2020; Rohde et al., 2020), the participants collectively agreed that having a place to resort in times of fatigue would affect them positively despite different preferences in the place's location and physical characteristics.

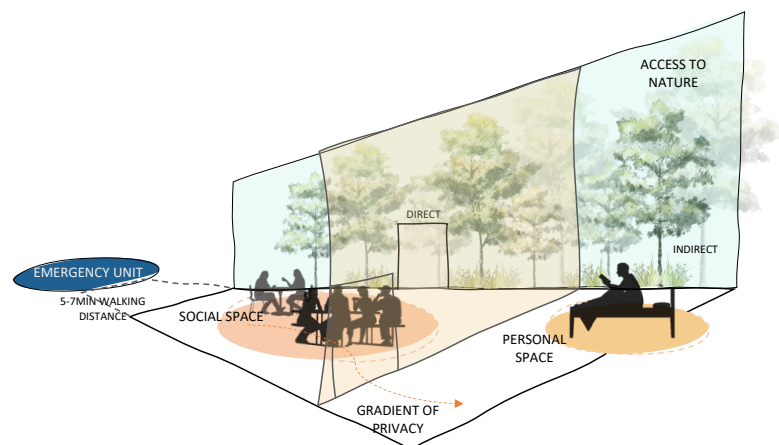


Figure 1. Illustration of findings and recommendations for Indonesian emergency GPs' restorative space

With regard to the third research question, it was shown that privacy elements, such as blurred glass doors, open plan layouts, gendered designated rooms, and choices of social activities within the enclosed breakroom were preferred by the GPs. Table 1 illustrates how privacy manifests across all the restoration stages by providing the GPs with the opportunity to process their experiences, assess the resources nearby and identify the optimum way to cope with mental fatigue. Interviewees also reported pleasant feelings as a result of experiencing outdoor views and sounds; this may potentially suggest that privacy gradation instead of total seclusion is preferred. Figure 1 offers an illustrative example of this concept.

5. Conclusion, Limitations and Recommendations

This paper aims to explore how restorative spaces take form in Indonesian hospitals, their most significant architectural elements and their relationship with the GPs' levels of wellbeing. The interview participants stated their preference for the doctor's break room as their first go-to restorative space, with privacy as the most significant architectural element that has a positive impact on the emergency unit GPs' wellbeing in the three case study hospitals. Other characteristics, such as easy access, biophilia and a sense of belonging, were mentioned by the interviewees. However, it is worth highlighting the frequency of visits as a proxy for a sense of belonging instead of the length of time spent in the place. Another important finding suggests that a place in close proximity to their working station is preferred despite existing literature indicating otherwise. The differences might come from a variety of geographic locations, weather, and medical staff divisions. A major limitation of this study is the small number of interviewees and case study hospital buildings. Future research could build on this preliminary study to investigate a wider range of hospital buildings and focus on other individual participant characteristics, such as gender. A more in-depth study on the relationship between proximity and a sense of belonging would also be worthwhile. This study suggested that providing privacy gradation, proximity, and view of the outdoors are important factors for the effectiveness of restorative space in hospitals. These findings may be of interest to architects, researchers, hospital managers and government officials aiming to promote mental wellbeing among healthcare workers.

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