

PERCEIVED PSYCHOLOGICAL WELL-BEING THROUGH VIEWING VISTAS AMONG HEALTHCARE PROFESSIONALS

A STUDY IN SELECTED GOVERNMENT HOSPITALS IN THE HILL COUNTRY, SRI LANKA

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Abstract: This research explores the impact of natural vistas on the psychological well-being of healthcare professionals, in Sri Lankan government hospitals around the hill country region. Given the demanding and stressful nature of their roles, understanding the preferences of medical staff for scenic views and the effect of these views on their well-being is crucial. The study is rooted in the Attention Restoration Theory by Kaplan & Kaplan and the Stress Reduction Theory by Ulrich, with a focus on specific parameters: **Observer Landscape Distance (OLD), connection to the outside, visual content, and visual privacy**. Data Collection was done in two stages: primary and secondary data collection. A mixed method approach was used in the research. The study was carried out in two hospitals in the Haputhale and Bandarawela districts. Literature suggests that the nursing staff spend most of the time in movement due to their duties; therefore, the nursing staff was selected to gather data. The research explores the relationship between exposure to natural vistas and the well-being of these professionals, considering factors such as accessibility and placement of nature views, selection of suitable vegetation and the integration of restorative elements within hospital environments. The findings reveal that borrowed natural landscape views have a restorative effect on the mind, enhancing psychological well-being among medical staff. This highlights the significance of landscape architecture in hospital design, especially in hill country regions. Emphasizing surrounding vistas and elevations, rather than solely focusing on physical infrastructure, could substantially improve the quality of life for medical service providers. Emphasizing the integration of natural vistas into healthcare infrastructure as a sustainable approach to enhancing psychological well-being. By utilizing the natural environment surrounding hospitals in Sri Lanka's hill country, the study underscores the importance of restorative landscape design in creating **resilient and resource-efficient healthcare systems**.

Keywords: *Viewing Landscape; Vistas; Psychological Well-being; Nursing staff; Hill Country*

1. Introduction

Studies in environmental psychology, including the Attention Restoration Theory (ART), suggests that human concentration improves through meaningful engagement with natural settings. Interacting with nature supports emotional recovery and psychological restoration, while the Stress Reduction Theory (SRT) indicates that exposure to natural environments can reduce both physiological and psychological stress (Kaplan & Kaplan, 1995; Ulrich et al., 2004). In hilly regions hospital environments can unintentionally contribute to stress or emotional discomfort for patients, families, and staff. Thoughtful attention to landscape aesthetics and scenic views can play a critical role in nurturing the emotional and psychological well-being of everyone in the hospital.

Understanding how individuals experience and emotionally connect with space is central to appreciating the restorative potential of vistas and green areas (Pallasmaa, 2012). Studies using spatial analysis methods tools like Depth Map demonstrates that visual connections and landscape design influence human perception, comfort, and movement patterns (Pearson & Craig, 2014). However, there is a lack of research examining how hospital landscapes affect staff well-being in Sri Lanka. This study aims to fill that gap by exploring how thoughtfully designed natural environments, and scenic vistas, can support mental recovery, reduce stress, and enhance the psychological well-being of government hospital staff in the hill country. Hill-country hospitals were selected due to their **elevated terrain and scenic openness**, which offer unique opportunities to study the psychological influence of natural vistas compared to dense urban environments.

1.1. RESEARCH NEED

Hospital staff in government hospitals often face heavy workloads, long hours, and high-pressure responsibilities, which can lead to stress and burnout. While patient care remains the main focus, the role of hospital landscapes in supporting staff well-being is frequently overlooked. Research suggests that access to natural views and green spaces can help reduce stress, improve mood, and support mental health. Understanding how hospital landscapes influence staff can provide practical guidance for creating supportive and restorative work environments.

In Sri Lanka, there are very few studies examining how hospital landscapes affect the psychological well-being of healthcare workers. Evidence based research is needed to inform design and policy decisions that promote healthier workspaces. By exploring this topic, the study aims to offer insights for designing hospital landscapes that provide mental relief and enhance staff performance, contributing to more humane and effective healthcare settings.

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How do the vistas of the hospital's environment impact on the psychological well-being of staff?

It mainly focuses on,

1. How do hospital staff experience and interpret the landscape views within their work environment?
2. How do specific features and qualities of landscape views contribute to the psychological well-being of hospital staff?
3. What is the significance of promoting psychological well-being among the hospital staff?

1.2. RESEARCH OBJECTIVES

This research explores how the aesthetics and visual appeal of hospital and surrounding landscapes influence the psychological well-being of staff in government hospitals in Sri Lanka's hill country, using the WHO-5 Well-being Index the research aims,

- To assess how hospital staff perceive landscape views in their environment.
- To evaluate the relationship between window view quality and the psychological well-being of nursing staff using the WHO-5 Well-being Index.
- To investigate the significance of promoting psychological well-being among healthcare professionals through enhanced landscape views, including window views and direct views.
- To determine the role of various landscape elements, including natural and built environments, in supporting staff well-being

1.3. LIMITATIONS AND SCOPE OF THE STUDY

This study received ethical approval from the Ethics Review Committee of the University of Moratuwa (Reference No: ERN/2023/011), approved on 22 September 2023. The approval covered all relevant documents, including the English, Sinhala, and Tamil versions of the research proposal, information sheets, consent forms, and data collection forms. All participants were informed about the study's purpose and voluntarily provided written consent prior to participation. The process of obtaining ethical clearance was detailed and time-consuming, ensuring that the study met institutional standards for ethical research and protected the rights and confidentiality of participants.

2. The Impact of Viewing Vistas on Psychological Well-Being

2.1 RELATIONSHIP BETWEEN EXPOSURE TO NATURAL SCENERY AND PSYCHOLOGICAL WELL-BEING

The connection between natural environments and psychological well-being has been well established in environmental psychology and healthcare design. Studies indicate that visual contact with natural elements such as vegetation, sky views, and open landscapes reduces stress, enhances attention, and supports recovery in demanding work settings. Kaplan and Kaplan's (1995) Attention Restoration Theory proposes that natural scenes restore directed attention through soft fascination, while Ulrich's Stress Reduction Theory (1999) describes emotional and physiological recovery through exposure to natural views. In hospital contexts, these theories have been shown to support both patient recovery and staff well-being.

Ulrich (1984) found that patients with window views of trees recovered faster than those facing blank walls. Subsequent research confirmed that access to daylight, greenery, and exterior vistas reduces anxiety and fatigue among healthcare workers. The quality of these visual connections strongly influences emotional states and cognitive performance. International findings suggest that the content, depth, and type of view shape comfort and relaxation levels (Lee & Maheswaran, 2011; Joye, 2007). However, most evidence originates from Western contexts, leaving a research gap in tropical and hill-country regions like Sri Lanka, where spatial conditions and visual experiences differ.

2.1.1 Viewing Vistas

In this study, the term 'viewing vistas' refers to the perception of outdoor scenery visible from interior or semi-open spaces within hospitals. It includes framed window views and open transitional spaces with natural or built visual content

The quality of a window view plays an important role in shaping how individuals perceive and experience their work environment. Within healthcare settings, such views offer not only visual relief but also subtle psychological restoration that supports emotional balance. Satisfaction with views can be understood through three perceptual dimensions: connection to the outside, visual privacy, and visual content.

- **Connection to the outside**

Refers to the visual linkage between indoor and outdoor environments. This includes the perception of sky conditions, weather changes, daylight variation, and the presence of natural movement. Maintaining this visual continuity helps staff feel connected to the environment beyond the workplace, reducing monotony and fatigue.

- **Visual privacy**

It describes the degree of comfort that comes from not feeling observed by others. When privacy is insufficient, individuals may modify their surroundings—by closing blinds or shifting position to regain control and concentration.

- **Visual content**

This relates to the elements that compose the view, whether near or distant. Natural scenes, including trees, vegetation, and horizons, are typically associated with more positive emotional responses than built or obstructed views, contributing to calmness and recovery (Kent, Schiavon & Stefano, 2020).

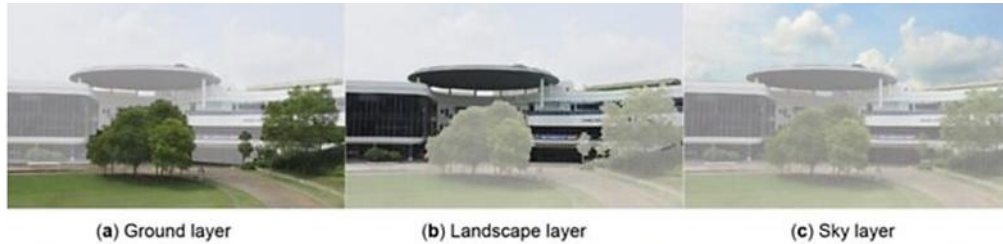


Figure 1, Horizontal stratification

Source; <https://www.researchgate.net/publication/343625639>

2.2. NURSING STAFF AND WORK STRESS OF HOSPITAL ENVIRONMENT

In this study, **vistas refer to outdoor scenes visible from interior or semi-open working areas within hospital premises. A vista is defined by its visual depth, composition, and natural content. Window views represent framed outdoor scenes through architectural openings**, while semi-open views describe partially enclosed transitional areas such as verandas, rest zones, or corridors. The Observer Landscape Distance (OLD) framework was used to classify view types according to perceived depth: short, medium, or long distance. Classifications were established through field observations and photographic analysis.

The human experience of space extends beyond measurable design features to the level of perception and emotion. Phenomenological interpretations of architecture highlight how sensory qualities—light, depth, texture, and openness—shape emotional responses. Pallasmaa (2012) noted that architecture influences the mind through multi-sensory engagement, affecting how spaces are seen, felt, and remembered. Within hospital environments, confined or monotonous spaces may heighten tension, while open views toward natural surroundings can promote calmness and reflection

Research indicates that longer visual distances and greater visibility of natural elements increase restorative potential (Joye, 2007; Lee & Maheswaran, 2011). Spatial analysis tools such as Depth Map and visibility graph analysis have been used to measure visual connectivity and openness (Hillier, 1996). Although this study employs direct field assessment rather than computational modeling, it maintains focus on understanding how view quality relates to perceived well-being among hospital staff

2.3. NURSING STAFF AND WORK STRESS OF HOSPITAL ENVIRONMENT

Nurses are the "backbone" of every healthcare system, playing a crucial role. Because of their vital contributions, nurses are frequently referred to as such. Their work is broad and extraordinarily complex, though, and one of the major difficulties they encounter is their heavy workload. This high workload represents a significant source of work-related stress for nurses, with the potential to trigger feelings of anxiety and emotional exhaustion. It's also significant that it might directly affect patient safety and treatment.



Figure 2, Case study selection criteria

Source- compiled by the author

2.4 THE SIGNIFICANCE OF PSYCHOLOGICAL WELL-BEING

Multiple researchers have examined theories regarding psychological well-being and highlighted the importance of landscape characteristics in improving mental and physical health. Elements like vegetation, water, stones, and lighting within landscapes play a significant role in influencing psychological well-being. Notably, hospitals have been identified as environments that can enhance psychological health through various means, including reducing stress, boosting mood, restoring attention, evoking positive emotions, and increasing satisfaction with healthcare services (Petros & Georgi, 2011). This study, which is based on the vistas of the hospital environment and the psychological well-being of Nursing staff can be substituted for the Attention Restoration Theory Stress Reduction Theory, and visual aspects.

The measurement of psychological factors is categorized under the qualitative study; thus, it requires parameters for easy measurement. So, the conversion of the qualities into a measurable parameter is as below. Here the definition is taken as mentioned in (Abraham et al., 2010) since the study of Abraham accommodates the Landscape and the Wellbeing which is quite similar study. The qualities mentioned in the study of (Abraham et al., 2010) regarding psychological well-being are as follows.

- Attention restoration
- Stress reduction
- Evoking positive emotions

These qualities were converted into measurable parameters accommodating the meaning and the other literature on perceptions.

- Attention restoration - Feeling calm.
- Stress reduction - Feeling free, stress released.
- Evoking positive emotions - Feeling pleased

3. Theoretical background and theoretical framework

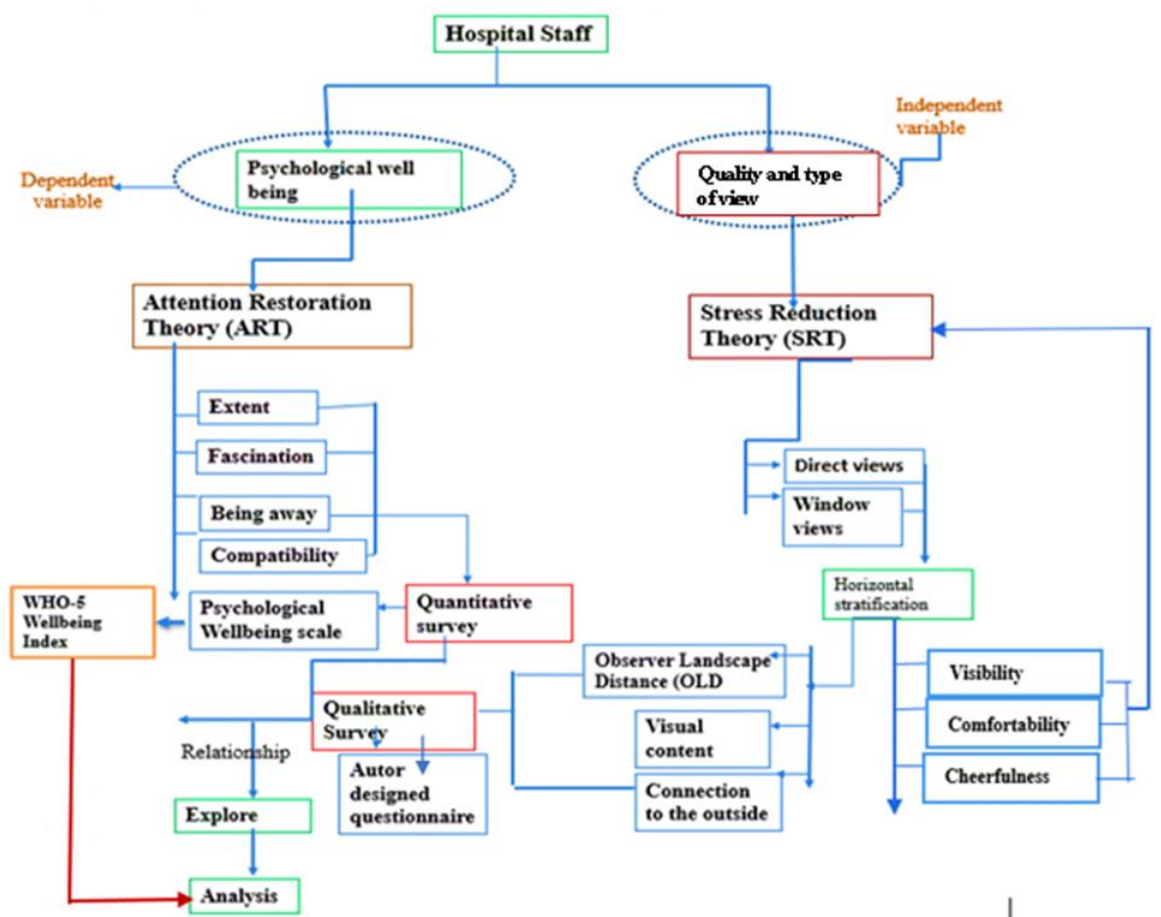


Figure 3, The theoretical framework of the study
Source- compiled by the author

This study is grounded in Attention Restoration Theory (ART) and Stress Reduction Theory (SRT) to explore how natural views influence hospital staff well-being. ART (Kaplan & Kaplan, 1995) proposes that restorative environments—through

being away, extent, fascination, and compatibility—help recover cognitive resources depleted by mental fatigue and stress. SRT (Ulrich, 1981) emphasizes that observing natural scenes can reduce stress, improve mood, and support physiological and psychological health. Both theories suggest that visual access to nature, even passively through window views, can foster mental restoration, reduce stress, and enhance overall well-being. In this study, the independent variable is the presence and quality of window views, while the dependent variable is staff psychological well-being, measured using the WHO-5 Well-being Index.

3.1. DATA VARIABLES AND DEFINITIONS

This study investigates the relationship between visual connection to nature and hospital staff well-being, integrating both subjective and objective approaches.

Independent Variable

The independent variable is the **Quality and type of view** available to hospital staff. This includes:

- **Presence of a window view:** Whether staff can visually access outdoor or semi-open spaces.
- **Direct view vs. indirect view:** Direct line-of-sight to outdoor nature (gardens, hills, trees) versus partial or obstructed views.
- **Vista characteristics:** Defined as visual composition of the view, including natural elements, openness, and visual depth.

Dependent Variable

The dependent variable is the psychological well-being of hospital staff, measured using the **WHO-5 Well-being Index**. This encompasses staff mood, energy, and overall mental health, reflecting the impact of visual access to nature.

4. Research Methodology

This study employed a mixed-method approach to investigate the relationship between hospital staff psychological well-being and the surrounding landscape views. The research aimed to examine the role of landscape vistas, including both borrowed views and hospital-owned landscape views, in enhancing well-being.

The study surveyed **40 nursing staff (20 from each hospital)**. The WHO-5 Well-being Index was used to measure perceived well-being. Observer Landscape Distance (OLD) was classified through photographic analysis and field observation

Data were collected through a two-stage process,

1. Literature Survey – to establish the theoretical background and identify key variables and qualitative attributes of landscape views.
2. Case Study – to empirically assess staff perceptions and well-being in relation to the visual quality of hospital environments.

4.1 CASE STUDY SELECTION

Case study locations were chosen based on two main criteria, ensuring that the research findings would be meaningful and generalizable.

1. Hilly Landscapes in Terrain Cities: Hospitals in hill towns were selected because the topography and presence of natural terrain are known to influence visual perception and psychological responses. These settings allow an assessment of how natural vistas interact with hospital layouts to affect staff well-being.
2. Comparison of Natural vs. Built Environment Views: Locations were chosen to allow comparison between areas with high natural content (trees, gardens, hills) and predominantly built environments (buildings, corridors). This distinction ensures the study can evaluate the specific impact of natural vistas on psychological well-being rather than general spatial exposure.

4.2. FIELD STUDY DATA COLLECTION

Data were collected in **two stages: primary and secondary** data.

1. Primary Data:

- **Field observations** and **photographic analysis** of hospital landscapes and vistas were conducted.
- Visual documentation included **maps, photographs, layouts, and spatial measurements**, which were analyzed to quantify the **quality and characteristics of views**.

2. Secondary Data:

- A **structured questionnaire (Questionnaire-A)** was administered to assess staff perceptions and preferences regarding landscape views.
- The **WHO-5 Well-being Index** was used to measure psychological well-being. This **self-rating, non-invasive scale** provided standardized well-being scores for analysis.
- The survey was conducted **during staff break times**, offering the option of **paper-based responses** to minimize disruption

Table 1: Data collecting methods

1. Field Observations	Photographs taken and maps prepared were used to analyze the findings from the observations and interviews. Layouts, maps, photographs, graphs (bar and pie), and flow charts were used for presenting the collected data and the findings from the primary data.
1. Structured Questionnaire	The questionnaire survey was conducted among the nursing staff. Along with their preference to answer the questionnaire online or physically without disturbing the staff activities, visitors, and patients, the questionnaire survey was conducted during their break time.
2. Wellbeing Scale questionnaire	WHO-5 Wellbeing Index The psychological well-being of health workers was measured using the WHO-5 Wellbeing Index which is a brief, disease-unspecific, and non-invasive self-rating scale. This questionnaire was also conducted in the same way as mentioned above.

4.3 CASE STUDY SAMPLE SELECTION

Nursing staff were chosen as the study sample because they spend approximately **29% of their working time moving within the hospital**, providing more frequent exposure to landscape vistas compared to other healthcare staff. Purposive sampling ensured that participants were regularly interacting with the hospital environment, making them ideal respondents for assessing the psychological impact of visual access to nature.

5. Case Studies, Data Analysis, and Presentation

5.1 CASE STUDIES

Hilly landscapes in terrain cities or hill towns can have various psychological impacts on people in hospital settings. The effectiveness of health service coverage depends on the presence, reachability, and competency of healthcare professionals to provide high quality care that prioritizes the needs of individuals. This research was carried out at two government district hospitals,

Haputhale and Bandarawela District Hospitals.

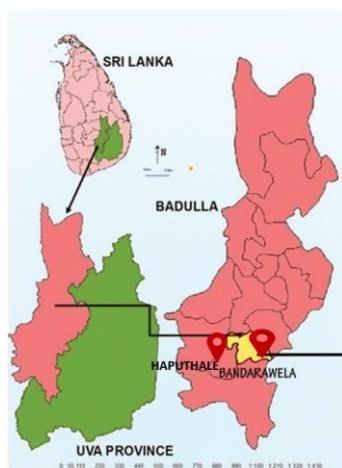


Table 2: Elevation of two Hospitals

Location: Sri Lanka > Uva Province > Badulla >	
Elevation of Bandarawela	Elevation of Haputhale
Longitude: 80.9981576	Longitude: 80.9525655
Latitude: 6.825878	Latitude: 6.7654136
Elevation: 1273m / 4176feet	Elevation: 1414m / 4639feet

Figure 4, Location of Haputhale & Bandarawela in Sri Lanka

Source: https://elevation.maplogs.com/poi/haputale_sri_lanka.

5.2 CONTEXTUAL SETTING

Both hospitals serve as key healthcare facilities within the Badulla District but differ in their physical environment and landscape context. Haputale Hospital is positioned along a steep slope with broad visual access to the surrounding valleys,

tea estates, and forest cover. Its elevated position allows long-distance views toward natural landscapes. In contrast, Bandarawela Hospital occupies a relatively compact urban site surrounded by built structures and limited vegetation, where most interior spaces face neighbouring buildings or narrow service lanes.

The contrast between these two spatial contexts creates a natural variation in vista quality, making them suitable for comparative analysis. This differentiation also reflects the diversity of hospital siting in Sri Lanka's hill region where topography, density, and vegetation strongly influence visual experience.



Figure 5, Layouts of Haputhale & Bandarawela Hospitals

Source: compiled by the author

5.3. WINDOW VIEWS / DIRECT VIEWS WHICH PROVIDE.

In fig 5 shows the participants' opinions about the effectiveness of viewing long-distance views on their well-being. According to the collected data, a majority of participants state that they agreed with the statement about the effectiveness of viewing long-distance views in landscapes. Only very few participants liked the short-distance view. The majority of the participants said that there was no effectiveness of short-distance views on their mental well-being.

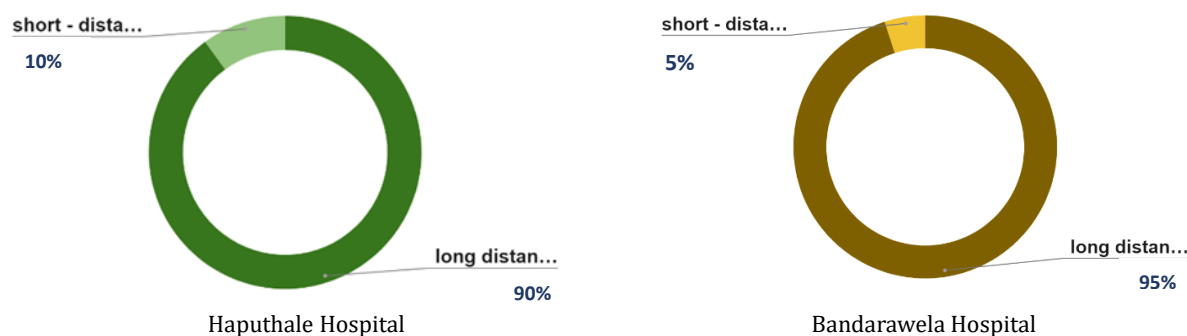


Figure 6, Preference between long-distance view vs short-distance view

Source: compiled by the author



Figure 7, The work stress is recovered when viewing or engaging with the natural environment within the hospital

Source: compiled by the author

5.4. DIRECT IMMERSION

The collected data shows a clear tendency among nursing staff at both Haputhale Hospital and Bandarawela Hospital regarding the potential therapeutic effect of natural environments in mitigating work-related stress. At Haputhale Hospital, a

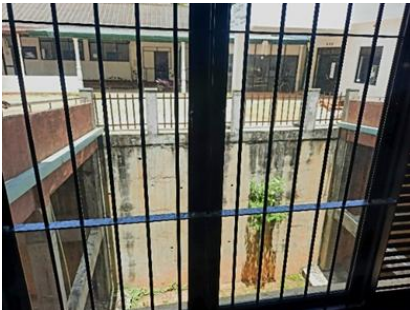
significant majority aligns with this belief, with a smaller yet noteworthy portion strongly endorsing it. Meanwhile, at Bandarawela Hospital, the majority of nursing staff strongly agree with this perspective, supported by a substantial portion in agreement. These findings collectively emphasize the widespread recognition among nursing staff of the positive influence of natural surroundings in alleviating the stress associated with their work, displaying the importance of incorporating such elements into the healthcare environment.

5.5. SATISFACTION LEVEL OF WINDOW VIEWS FROM THE WARD ENVIRONMENT

When selecting vistas in the hospital environment, the selection criteria are same for both hospitals, when selecting views, the similar characteristics and similar spaces in the hospitals were considered.

- 1) Entrance to the OPD
- 2) Window view from the OPD towards the hospital entrance
- 3) Window views from the selected ward environment
- 4) Direct views in the corridor towards OPD

Table 3: Views of two Hospitals

Space Type	Figure Name	Space Type	Average OLD (Distance)	Typical Visual Description
	Window Views from Ward Environment In Haputhale Hospital (Figure 8)	Indoor	Long (>50 m)	Tea estates, forest canopy, distant hills
	Outdoor corridor with distant content In Haputhale Hospital (Figure 9)	Semi-open	Medium	Tree cover, courtyard vegetation
	Window Views from Ward Environment In Bandarwela Hospital (Figure 10)	Indoor	Short (<20 m)	Adjacent building walls, limited sky
	Outdoor corridor with distant content In Bandarwela Hospital (Figure 11)	Semi-open	Medium	Sparse vegetation, surrounding roads

The satisfaction levels among nursing staff at Haputale Hospital with the window views from their ward environment appear to be mixed, with the majority expressing neutrality. A notable portion does indicate satisfaction, but the absence of percentages for "Dissatisfied" and "Very dissatisfied" prevents a comprehensive assessment of the distribution.

Conversely, at Bandarawela Hospital, the data paints a clearer picture, revealing that a significant majority of nursing staff are dissatisfied with the window views in their ward environment. This points to a prevailing concern or issue among the staff regarding the existing views, suggesting a pressing need for potential improvements or modifications to address their dissatisfaction effectively.

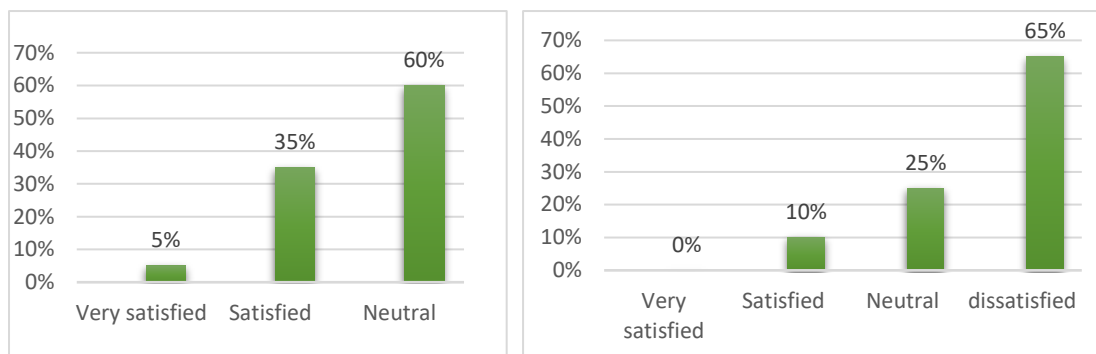


Figure 12, Satisfaction level of Window views from your ward environment
Source: compiled by the author

5.6. THE MOST PREFERRED ENVIRONMENT IS THROUGH WINDOWS WHEN YOU ARE WORKING (NATURAL ENVIRONMENT (MORE GREENERY, MOUNTAINS AREAS...) OR BUILT ENVIRONMENT (BUILDINGS, VEHICLES))

An overwhelming majority of the nursing staff at the two Hospitals prefer to see a natural environment with more greenery and mountainous areas through windows when they are working. A very small minority prefers to see a built environment consisting of buildings and vehicles. This insight suggests that a significant portion of the nursing staff values a connection to nature and finds it more appealing and conducive to their work environment.

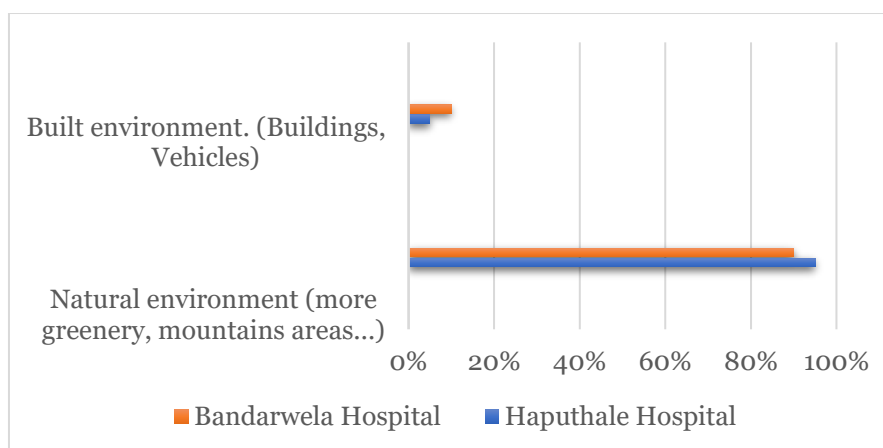
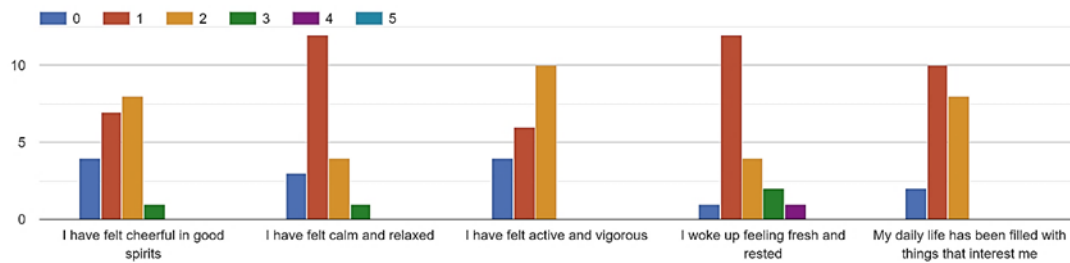


Figure 13: preferred environment through windows
Source: compiled by the author

5.7. IMPACT OF WELL-BEING ASSESSMENT - HAPUTHALE HOSPITAL





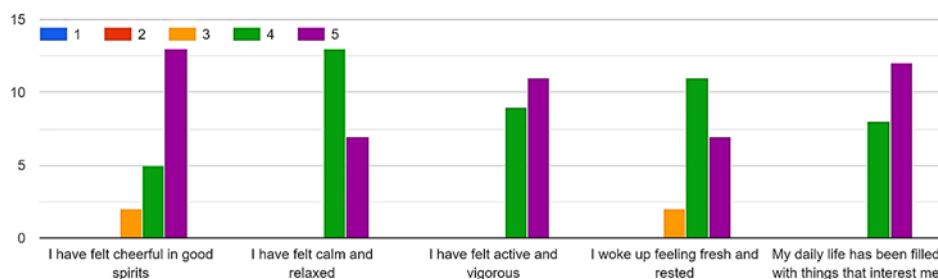
5.8.IMPACT OF WELL-BEING ASSESSMENT -BANDARWELA HOSPITAL



View 1

view 2

view 3



5.9 OVERALL SUMMARY OF WELL-BEING ASSESSMENT

- When we contemplate the impact of viewing natural vistas versus built views on the psychological well-being of staff members, an intriguing pattern emerges. The data reveals that nursing staff members at Haputhale Hospital, who are exposed to natural vistas, tend to experience a higher level of psychological well-being compared to the staff at Bandarawela Hospital.
- Natural vistas, with their lush greenery, picturesque mountains, and soothing elements of nature, appear to contribute positively to the psychological state of the Haputhale staff. The substantial preference for natural views over built views suggests that the connection to nature nurtures a sense of tranquillity, allowing their minds to rejuvenate and escape from the strains of their work.
- On the other hand, the staff at Bandarawela Hospital, who encounter built views, might not benefit from the same level of natural engagement. The clear difference in what each hospital prefers suggests that the surroundings might affect mental health. The lack of greenery and natural elements in built views could be contributing to a comparatively lower sense of psychological well-being among Bandarawela staff members.

5.10. FUTURE RESEARCH AVENUES

This study primarily focused on outdoor vistas and their relationship with the perceived psychological well-being of nursing staff in hill country hospitals. Future research could extend this investigation to include indoor landscape features, such as interior courtyards, potted plants, or nature-inspired design elements that may influence mental recovery. Comparative studies between hill country and urban hospitals would also be valuable in understanding how different geographic settings affect the restorative potential of hospital environments. Further, experimental research using visibility analysis software such as Depth Map or the use of virtual and augmented reality simulations could help quantify how various view distances and natural elements contribute to well-being. These approaches would deepen understanding of how visual connections to nature can be systematically integrated into healthcare design for both staff and patients.

6. Conclusion

Haputale Hospital, with its expansive natural views, demonstrates a clear preference for landscapes over urban elements and correlates with higher staff well-being. In comparison, Bandarawela Hospital, with limited views of built environments, shows lower well-being scores. Longer Observer Landscape Distances (OLDs) in natural settings contribute to visual engagement, stress reduction, and mental restoration. Well-being assessments indicate that staff regularly exposed to greenery-filled vistas report greater calmness, satisfaction, and emotional balance. These findings suggest that perceived psychological well-being among nursing staff is strongly influenced by the quality of hospital vistas. Natural landscapes serve as restorative stimuli, helping mitigate work-related stress and supporting emotional resilience.

Integrating surrounding scenery into hospital design—especially in hill-country regions—can enhance the mental well-being of healthcare professionals and foster a supportive, restorative atmosphere for patient care. Recognizing and prioritizing natural vistas in healthcare settings is therefore crucial for promoting staff satisfaction and overall hospital effectiveness.

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