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# Unveiling the Restorative Power of Employees in the Context of Biophilic Built Environment: A Well-being Perspective

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### ABSTRACT

Organizations are integrating nature and greenery into their architecture, recognizing the positive impact on employees' psychological and physiological well-being. Some of the earlier research has shown that interacting with such environments can significantly influence the psychological restoration of employees which is considered a measure of well-being, implying that repeated experience of restoration supports emotional well-being in the longer run. This study investigates the substantial impact of the biophilic index on the psychological restoration of employees. The study follows a correlational research design and data were collected from 70 employees from offices with biophilic designs following purposive sampling method. Correlation and regression analysis were used to analyze the collected data. Biophilia has shown a significant positive correlation and a strong predictive value for psychological restoration, especially, for fascination and being away dimensions. To conclude, environmental patterns and features in architecture benefit the inhabitants, in terms of better restorative capacity leading to better well-being. This study provides implications for designing organizational buildings by incorporating green or biophilic contents in them, hence contributing to organizational sustainability.

**Key words**: Biophilic Designs, Perceived Restoration, Nature, Architecture, Well-being, Built Environment, Organizational Sustainability

# **INTRODUCTION**

The well-being of employees is of utmost importance for organizations, considering that employees are their most valuable resource, often referred to as human capital. It directly influences various aspects such as productivity, decision-making, absenteeism, and overall organizational success (de Oliveira 2023, Iman et al. 2023, Shethna 2021).

The majority of employee well-being studies are only concerned with measuring employee job satisfaction (Capone et al. 2023, Xu et al. 2023). However, other elements significantly impact employees' well-being. Enhancing employee well-being requires restoring those psychological resources that have been worn down by stress, burnout, and exhaustion. When coping with the activities and pressures of daily life, physiological, psychological, and social resources get depleted. Psychological restoration is the collection of procedures that leads to the restoration of these resources (Hartig 2014).

Natural settings have been found to have greater restorative qualities by a majority of studies on restoration (Berto 2005, San Juan et al. 2017). Perhaps since most unpleasant urban landscapes were utilised to demonstrate the restorative effect, the restorative potential of built urban environments has received less attention (San Juan et al. 2017). But the ability of the built environment to provide restorative experiences on pace with those provided by natural settings remains to be shown (Pasanen et al. 2018). The repeated restoration hypothesis states that repeated exposure to restorative environments supports emotional well-being over the long term and that restorative experiences may be crucial for our daily coping (Markevych et al. 2017). This is conûrmed by studies which asserts that perceived restoration mediates the rise in positive affect brought on by exposure to natural rather than urban, virtual settings (McAllister et al. 2017, Korpela et al. 2014). This study is looking at how natural features fit into the built environment. Architectural psychology is a growing topic where different designs that are beneficial to occupants' well-being are taken into account. Biophilic

design, which promotes the use of natural systems and processes in the design of the built environment, is one of the current trends. To provide people with muchneeded exposure to nature, the concept behind it is to blend natural elements and processes into the built environment (Kellert 2008). The biophilia hypothesis, which states that humans have a natural affinity towards nature, provides the foundation for this design. This study examines the content of nature using the biophilic index (Salingaros 2006) to study the impact on employees' psychological restoration and its dimensions.

### **METHODS**

The sample consisted of 70 participants including employees from biophilic organizations. Purposive sampling was used to gather data from workers from corporate organisations located in the Indian states of Kerala and Karnataka. The following inclusion criteria were taken for the selection of the sample: (i) Only employees in the marketing, finance, operations, human resources, information technology, and engineering fields were taken into account for the sample and (ii) Employees within the age range 20 to 50, both male and female employees, and those with at least one year of work experience and with a minimum graduation degree were taken into account for the sample. The study used a correlational research design.

The samples were gathered following the study's biophilic index standards. Initially, the researcher consulted 25 organizations (8 biophilic organizations). After the rating, the researcher selected only those organizations who got 13+ scores (biophilic organizations) using the above-mentioned screening tool. In the third step subjects were taken from the selected organizations as per the inclusion criteria. We excluded those samples whose subjective rating of the biophilic index scale has a far deviation from the researcher's rating or his or her colleague's rating (outliers). Before gathering data from the participants, their informed consent was obtained, a suitable rapport was built, and ethical standards were upheld. After the final selection of samples, all the selected tools were administered as per the standard procedure given in the manual.

### **Study measures**

The information collected was sociodemographic and personal data consists of variables such as age, gender, marital status, educational level, place of residence, and

# years of experience.

Biophilic index B: This index was proposed by Salingaros (2006). This index measures the biophilic quality of a built environment, which ranges between 0  $\leq$  B  $\leq$  20. It is the combination of 10 qualities including light (presence of sunlight from different angles), gravity (balance and equilibrium about the vertical axis), details (minute details like rough and unfinished textured surfaces use of natural materials like wood, bamboo), curves (presence of structures like arches, vaults, domes), colour (earth tones, shades of overcast sky), water (fountains, constructed wetlands, ponds, water walls, aquaria), life (living plants, animals), representations of nature (geological features in paintings, photographs, videos), fractals (things occurring on nested scales) and organized complexity (arrangement of rich details and diversity in an orderly manner). The respondents were instructed to evaluate the quality of items with an estimate of none = 0, some = 1, and a large amount = 2. In this study, the researcher has only considered employees from organizations scoring 13 or above in the biophilic index. Perceived restorativeness scale: It was proposed by Korpela and Hartig (1996). This included 16 items intended to measure psychological restoration through the factors like being away (e.g. Spending time here gives me a good break from my day-to-day routine); fascination (e.g. My attention is drawn to many interesting things); coherence (e.g. There is a great deal of distraction); and compatibility (e.g. I have a sense that I belong here). Answers were graded on a 7-point scale based on how well the statement represented the respondent's experience in the context (0 = Not at all; 6 = completely).). The internal consistency shows Cronbach's alphas as > 0.75.

#### Statistical analysis

Pearson's correlation analysis was used to see the correlation among the variables, and regression analysis to see if the biophilic index could predict the psychological restoration and its dimensions of the present study. All the analyses were conducted using the Statistical Package for Social Sciences- version 25(SPSS).

## RESULTS

#### **Demographic details**

Among the samples, the majority of employees were males (72.9%) and 27.1 % were females. between the age of 20-30, 50% between the age of 31 to 40 and

	n	Μ	SD	1	2	3	4	5	6
1. IND B	70	13.6	1.26						
2. PR	70	64.6	17.29	.58**					
3. BA	70	4.11	1.21	.51**	.84**				
4. FA	70	4.05	1.03	.63**	.94**	.79**			
5. CO	70	3.81	1.31	.49**	.85**	.57**	.77**		
6. COM	70	4.16	1.26	.49**	.91**	.78**	.78**	.62**	

Table 1. Correlation between the biophilic index and perceived restoration (being away, fascination, Coherence and compatibility) among the samples

Note:: PRS= Psychological Restoration, BA= Being Away, FA= Fascination, CO=Coherence, COm= Compatibility, IND B=Biophilic Index

\*\*Correlation is significant at the 0.01 level (2-tailed), \*Correlation is significant at the 0.05 level (2-tailed)

Table 2. Regression Analysis summary using the biophilic index as predictor variables (IV) and psychological restoration and its dimensions as criterion variables (DV) among employees.

R	R <sup>2</sup>	R <sup>2</sup> change	Âeta	F change	Sig of F variable	Criterion change
.597	.357	.357	.597	37.70	0.001	PR
.502	.252	.252	.502	22.95	0.001	BA
.630	.397	.397	.630	44.73	0.001	FA
.495	.245	.245	.495	22.07	0.001	EX
.496	.246	.246	.496	22.41	0.001	СО

Note: PRS=Psychological Restoration, BA=Being Away, FA=Fascination, EX=Extinction, CO=Compatibility, IND B=Biophilic Index

7.1% between 41 to 50 years of age. 68.6% of the samples were married, 30% (70%) were from urban and 30% were from rural. Out of the total 70 samples, 65.8% have an experience of 1 to 3 years (reduce it, tell only the highest, educational also add)).

Table 1 shows the biophilic index has a significant positive correlation with psychological restoration (r =.597, p<=0.01) and all its dimensions being away (r =.502, p<0.01), fascination (r =.630, p<0.01), coherence (r=.495, p<0.01) and compatibility (r=.496, p<0.01).

The biophilic index was a significant predictor of perceived restoration with a maximum variance of 35.7 % explained by Index B (Table 2). All the dimensions of restoration are predicted by biophilic index, showing a maximum variance of 25.2% by being away, 39.7% by fascination, 24.5% by the extent and 24.6 % by compatibility.

# DISCUSSION

People have a strong evolutionary and aesthetic attachment to nature, and as a result, nature and its components are thought to have an impact on people's emotions and psychological well-being, including the replenishment of psychological resources. The present study revealed a substantial positive association between the biophilic index and psychological restoration and its dimensions. It suggests that workers enjoy greater psychological restoration when the biophilic index increases in their working environment which is in line with the findings of some earlier (Dobson et al. 2021). One of the possible explanations is that people's "love of nature" is linked to restorative responses (Kaplan 1992), and high person-environment compatibility enhances physical and psychological well-being and relieves stress (Kaplan 1989). The present study also shows that psychological restoration is not only associated with biophilia but also significantly predicts it and its dimensions. Studies by environmental psychologists have shown that people's work lives require more focused attention, which might interfere with their personal lives and lead to stress, anxiety, burnout etc (Trougakos et al. 2008). The Reasonable Person Model given by Kaplan and Kaplan (2011) explains that the perception of an environment's fascination facilitates more effective mental recovery, leading to better relaxation and improved wellbeing (Berto et al. 2015) among workers. This could lead to better well-being of people as studies have also shown a mediating relationship between subjective wellbeing and destination fascination (Wang et al. 2020). The Attention Restoration Theory (Kaplan and Kaplan 1989), which says that exposure to environments attracting effortless involuntary attention and requiring minimal active attention improves performance, mood, and well-being, lends support to all of the study's findings (fascination). In addition to witnessing natural elements in their native habitat, people may find some aspects of nature to be attractive and aesthetically pleasant when they see them reproduced in built environments (Berto et al. 2015).

# CONCLUSION

The findings of the study tell that the well-being of an employee could be improved by applying natural elements in the architectural settings to which they belong. Biophilic index and psychological restoration are found to be significantly correlated to each other and its dimension. This research may assist organizations in understanding the significance of the built environment and its effect on improved workplace and employee wellbeing qualities. Promoting green organizational buildings would help people in society get inspiration and awareness of the importance of nature for human survival considering the positive physiological and psychological aspects of nature in the present context where green HRM and green culture are highly promoted.

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**Ethical considerations:** This study was approved by the Research Ethics Committee of the Department of Psychological Sciences, CUSB, Gaya. During the whole process of the study, all the relevant and important APA ethical guidelines were considered.

Authors' contributions: The first author has formed the research idea, objective formation, data collection, data analysis and manuscript preparation. The co-authors (DKS and NK) has critically analysed and contributed for the finalizing the manuscript.

**Conflict of interest:** The authors declare that they do not have any conflict of interest.

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