

Examining the Impacts of Tall Buildings on the Urban Landscape from the Perspective of Experts

Pooria SaadatiVaghar^{a*} - Mehrdad KarimiMoshaver^b- Esmail Zarghami^c- Abdolhamid Ghanbaran^d

^a Assistant Professor of Architecture, Faculty of Civil Engineering and Architecture, Malayer University, Malayer, Iran (Corresponding Author).

^b Professor of Architecture, Faculty of Art and Architecture, Bu-Ali Sina University, Hamedan, Iran.

^c Professor of Architecture, Faculty of Architecture and Urban Planning, Shahid Rajaei Teacher Training University, Tehran, Iran.

^d Associate Professor of Architecture, Faculty of Architecture and Urban Planning, Shahid Rajaei Teacher Training University, Tehran, Iran.

Received 13 March 2025; Revised 16 September 2025; Accepted 20 September 2025; Available Online 04 December 2025

ABSTRACT

Tall buildings with diverse forms are an inseparable component of contemporary urban life and influence citizens' moods, psychology, and visual perception of urban landscapes in various ways. In recent decades, this issue has received less attention. In contemporary cities, we are witnessing the excessive issuance of permits for high-rise construction along low-capacity, constrained urban streets. The present study focuses on the psychological impacts of tall buildings on citizens who encounter them daily in urban settings and are involuntarily affected by them. In the study's evaluation, the Perceived Restorativeness Scale (PRS) was first localized, and this localized version was used in subsequent stages of the research. Next, using the expert-oriented Analytic Hierarchy Process (AHP) decision-making method and the goal of psychological restoration, the importance levels of architectural and vegetative variables that form the landscape of tall buildings were ranked. The present study found that the stepped-like form of tall buildings resulted in the highest level of psychological restoration, while the pyramidal form produced the lowest. Analysis of the effect of vegetation cover on psychological restoration indicated that horizontal vegetation cover was the most effective, whereas vertical vegetation cover was the least effective. In addition, vegetation distribution in the middle and upper parts of the building (compared to the lower part) had a more significant impact on psychological restoration; however, in the vertical distribution of vegetation, placement at the center resulted in greater restoration.

Keywords: Form, Vegetation Cover, Environmental Psychology, Psychological Restoration, Tall Building.

* E_mail: p.saadativaghar@malayeru.ac.ir

1. INTRODUCTION

In the present study, an attempt has been made to prioritize architectural variables (physical characteristics and form) and vegetative variables (types of distribution and distribution locations) of the landscape of tall buildings, with an emphasis on reducing the psychological impacts of these buildings on citizens. The parameters examined in this study, in previous works by the researchers of the present research related to psychological stress (Zarghami et al. 2019a; 2020a; 2020b) and related to psychological restoration (Zarghami et al. 2019b), had also been analyzed based on the variable of psychological stress imposed on citizens (and the psychological restoration of citizens under conditions of frontal view toward the building). However, in the present research, the focus is on non-frontal viewing conditions of the observer toward the building, based on the psychological variable of psychological restoration (and its sub-variables). Accordingly, the following research question was formulated:

- How can the role of the physical characteristics of tall buildings and vegetation cover in the landscape of tall-building settings be explained in terms of reducing psychological impacts on citizens?

2. RESEARCH BACKGROUND

In the present century, high-rise construction has intensified significantly (Al-Kodmany 2012; 2017; Al-Kodmany and Ali 2013; CTBUH 2016); however, the observance of urban planning and architectural standards has played a lesser role in this development (Al-Kodmany 2012; Van Kempen and Musterda 1991). A significant challenge that has received less attention in recent years' studies is the neglect of these large buildings and their undesirable impacts on the city and on citizens who are exposed to them daily in the urban landscape and are sometimes involuntarily affected by them. These gigantic buildings are inconsistent with human scale, lead to the loss of desirable places, and ultimately cause a decline in human-oriented qualities and a lack of proportionality between the environment and human beings (Al-

Kodmany 2011; 2012; 2013; Karimimoshaver and Winkemann 2018; Samavatekbatan et al. 2016; Short 2007). Studies on high-rise buildings have primarily focused on residents and their quality of life (Edwards et al. 1982; Evans et al. 2003; Fanning 1967; Gifford 2007; Gillis 1977; Husaini et al. 1991; Husaini et al. 1990; Ineichen and Hopper 1974; Lee et al. 2011; Yeh and Yuen 2011); however, the effects of these buildings on the urban landscape and their impact on the environment and on citizens who are exposed to their views daily (such as psychological stress and the violation of visual, environmental, and social factors) (Ali and Al-Kodmany 2012; Asgarzadeh et al. 2010) have not been deeply studied.

Therefore, the present study focuses on the psychological restoration experienced by citizens daily when encountering urban landscapes alongside high-rise development. Due to the presence and concentration in work environments, citizens experience attention fatigue (a psychological condition). Usually, after the end of working hours and when present in urban and natural landscapes, some of this fatigue and psychological state is restored. However, the question is: in urban passages that accommodate tall buildings and are daily visible to citizens, through which architectural and natural potentials can the psychological restoration of citizens be better achieved, and the psychological impacts of these buildings on them be reduced?

In recent years, studies on psychological restoration have primarily focused on low-rise and mid-rise urban landscapes and sometimes on comparisons between natural and urban fabrics. The present study focuses on the psychological restoration of individuals—particularly specialists in architecture, urban planning, and environmental psychology—when encountering architectural and vegetative potentials in the landscapes of these buildings. The effects of individuals' encounters with urban environments (sometimes accompanied by vegetation cover) on stress relief measures were analyzed in the research by Tyrväinen et al. (2014), and the results indicated the greater effectiveness of vegetative parameters (Tyrväinen et al. 2014) (Fig. 1).



Fig. 1. Evaluation of the Psychological Impacts of Urban Environments on Respondents (Right), and Evaluation of the Psychological Effects of natural Environments on Respondents (Left).

(Tyrväinen et al. 2014)

The doctoral dissertation of Lindal (2013) addressed restorative environmental design (RED) in urban (residential) environments with an emphasis on virtual environments (Lindal 2013). In the study by Lindal and Hartig (2013), the influence of architectural physical changes (height and entropy-related disorder) on restorativeness was examined (Figs 2 and 3), and the results indicated a positive effect of disorder and an adverse effect of height on restoration (Lindal and Hartig 2013). Another study by Lindal and Hartig (2015), focusing on the effects of vegetation cover and architecture, showed that the impacts of trees, flower planting, and architecture (with architecture having a weaker effect compared to vegetation cover) led to significant restoration, mediated through intervening variables (Lindal and Hartig 2015). Restorativeness influenced by the urban environment was emphasized by Staats et al. (2010). This study also addressed psychological restoration in urban environments and examined urban settings based on the Perceived Restorativeness Scale (PRS) and aesthetic components. The results of this study indicated that historical, cultural, and recreational places were more attractive to participants than residential and administrative spaces. In general, the research by Hidalgo et al. (2006) demonstrated that restorativeness attracts individuals to environments (Hidalgo et al. 2006). The significant role of interaction with nature in restoration and in improving attention fatigue, as well as eye-tracking focus on restorative

elements of the environment, was emphasized in the studies by Berto et al. (2005, 2008; 2018). The study by Sonntag-Öström et al. (2014) prioritized the healing of fatigue resulting from exposure to natural and urban environments. The effects of walking and spending time in a nature-based classroom and a conventional classroom on restoration (separate studies) were examined in Roe and Aspinall (2011a). The convergence of the original and short versions of cognitive restoration was emphasized in Negrin et al. (2017). Nord et al. (2009, 2012, 2014) have also examined the impact of natural components of urban parks on restoration and quantitative methods for assessing environmental restoration (such as focusing eye tracking on environmental restoration elements) (Nordh et al. 2009; 2012; 2013; Fig. 4). Felsten (2009 and 2014) have also emphasized the impact of natural environments on restoration. (2009; 2014) Valtchanov et al. (2010) considered virtual environments as important as real environments in the process of assessing recovery (Valtchanov et al. 2010). The positive effect of greenery in the classroom on recovery was the result of a study by Van den Berg et al. (2016) (Van den Berg et al. 2017). The effect of the view of the sky and the amount of vegetation cover seen from the window (in high windows), as well as the view of people and the earth in the sphere of people's view angle (in windows with a low height relative to the ground), on recovery was confirmed in a study by Masoudinejad and Hartig (2018).

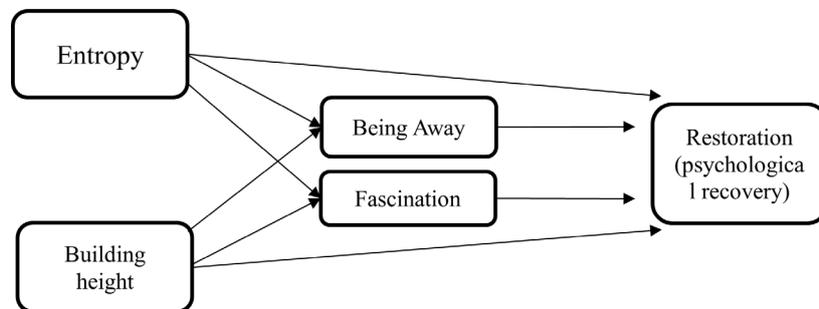


Fig. 2. Model for Evaluating the Effects of the Urban Landscape on the Psychological Restoration Of Citizens. (Lindal and Hartig 2013)



Fig. 3. Images used to Evaluate the Impact of the Urban Landscape on the Psychological Restoration of Citizens (Lindal and Hartig 2013)



Fig. 4. Methods for Quantitative Assessment of Restorative Elements in Parks
(Nordh 2012)

3. THEORETICAL FRAMEWORK

3.1. Psychological Restoration

The Attention Restoration Theory (ART) proposed by Kaplan and Kaplan (1989) is introduced below to clarify the relationship between psychological restoration and architecture.

- Attention Restoration Theory

In any prolonged cognitive–mental effort, individuals experience attention fatigue, which constitutes one of the theoretical foundations of the attention restoration theory (Korpela and Hartig 1996). Natural environments play an irreplaceable role in reducing stress and alleviating attention fatigue (Pazhouhanfar and Kamal M. S. 2014); however, the effects of the physical and architectural environment on restoration have been less frequently addressed in studies (Lindal and Hartig 2013). According to the theory of restoration of (mental) attention fatigue (Kaplan and Kaplan 1989; Kaplan et al. 1989), and as operationalized through the Perceived Restorativeness Scale (PRS), four dimensions—being away, fascination, compatibility, and extent— influence recovery from (mental) attention fatigue (Hartig et al. 1989). Later, with advances in this field (Hartig et al. 1997), the dimension of coherence replaced that of extent (Hipp and Ogunseitan 2011).

- Potentials of Restorative Environments

The potential of restorative environments is regarded as a mediating factor in the relationship between architecture and the physical environment, and

between restorativeness and the physical environment (Hartig et al. 1997; Lindal and Hartig 2013).

- Being away: This potential can be interpreted as the possibility of mentally distancing oneself from everyday environments that generate mental fatigue and stress (Herzog et al. 1997; Hipp and Ogunseitan 2011).

- Fascination: In this theory, the fascination potential refers to attractive landscapes that, by capturing individuals' attention, lead to interaction with the environment, alleviation of mental fatigue, distancing from stress, and the creation of desirable perceptual landscape qualities (Sharghi 2011, 55; Hipp and Ogunseitan 2011).

- Compatibility: This restorative environmental potential supports the fulfillment of individuals' needs and desires within the environment (Herzog et al. 1997; Hipp and Ogunseitan 2011).

- Extent: The extent potential in an environment considers environmental richness that can facilitate a better perception of place (Herzog et al. 1997; Hipp and Ogunseitan 2011).

4. RESEARCH METHOD AND TOOLS

In this research, the Analytic Hierarchy Process (AHP) method and Expert Choice software were used, relying on the opinions of 10 experts in architecture and urban planning, to achieve the research objective of ranking the effects of architectural changes and greenery in the landscape of tall buildings on

psychological restoration. According to the research background, based on the Attention Restoration Theory, psychological restoration is influenced by four factors: fascination, being away, extent, and compatibility. In the Perceived Restorativeness Scale (PRS), several question items (sub-criteria) have been defined for each of these potentials (Hartig et al. 1996; Kaplan et al. 1989). In the present study, the 16-item PRS (16 sub-criteria) (Hartig et al. 1997) was considered, which, after localization into Persian, was used in the research process.

4.1. Process of Operationalizing and Localizing the Perceived Restorativeness Scale (PRS)

Initially, after three stages of translation by three language experts (first person: translation of the English version into Persian; second person: back-translation of the obtained Persian version into English; third person: refinement of the previous translations and extraction of the refined Persian version), the initial Persian version of the questionnaire was produced.

In the first phase, this sophisticated version was distributed to 73 citizens of Hamedan (ages 18-60), and 67 valid responses were collected; Cronbach's alpha was then calculated. The items that reduced this parameter were removed (questions 8, 9, 10, 11, and 12). Subsequently, to ensure accuracy, the removed questions were reanalyzed; ultimately, questions 10 and 11 were removed because their inclusion raised Cronbach's alpha above 0.7. These items were then reintroduced in the final localized version (with a Cronbach's alpha value of 0.848), resulting in the final 13-item version (Fig.s 6, 8, 10, 12, and 14).

4.2. Assessing the Impact of Architectural (Form) Changes in Tall Buildings

In this section, the hierarchical diagram and the data on ranking architectural changes in tall buildings—rectangular, stepped-like, and pyramidal forms—based on psychological restoration and its potential were analyzed. Figures 5 and 6 illustrate these changes.



Fig. 5. Changes in Tall-Building Form in three Configurations: Rectangular, Stepped-Like, and Pyramidal (Note: the Base Area of the three Lower Forms is Identical, and the Form Changes at an Equal Level).

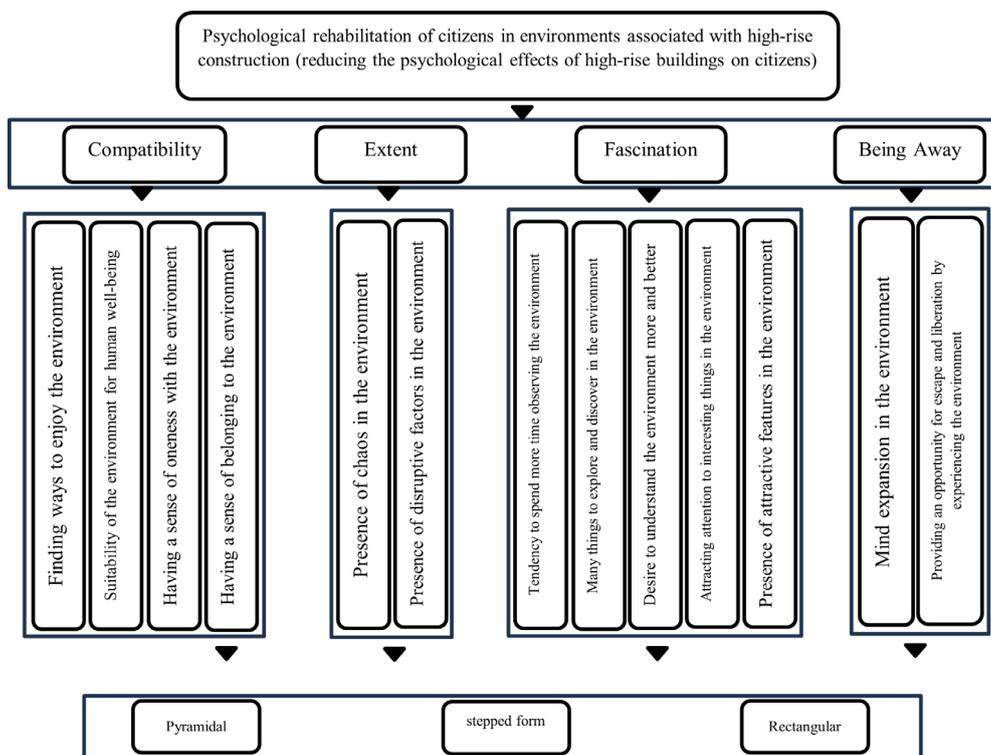


Fig. 6. Hierarchical Diagram for Prioritizing Tall-Building Form Changes based on Psychological Restoration, Its Criteria, and Sub-Criteria

4.3. Assessing the Impact of Greenery Changes in the Landscape of Tall Buildings

In this section, the hierarchical diagram and data on changes in the ranking of greenery in tall-building

landscapes—horizontal, vertical, concentrated, and random—based on psychological restoration and its potential are analyzed. Figures 7 and 8 illustrate these changes.



Fig. 7. Changes in the Type of Vegetation cover in the Landscape of Tall Buildings in Four Configurations: Horizontal, Vertical, Concentrated, and Random (Note: the Number of trees is Equal in all Four Cases).

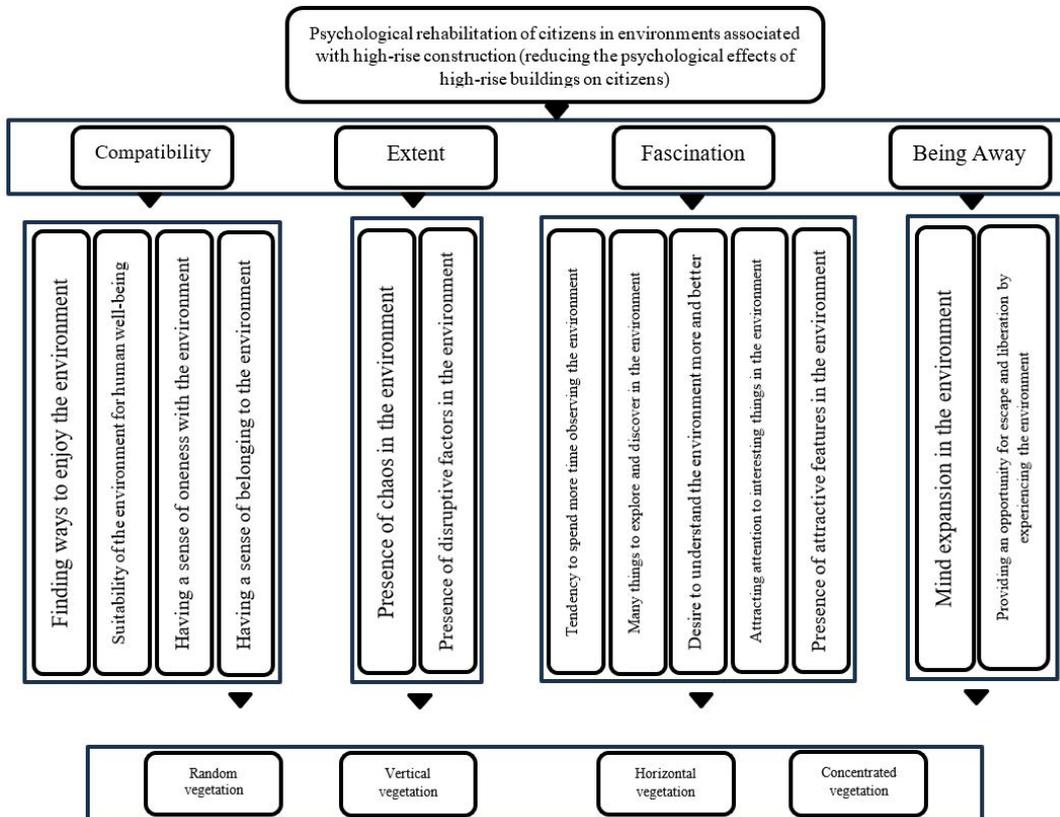


Fig. 8. Hierarchical Diagram for Prioritizing Changes in Vegetation Cover Type in the Landscape of Tall Buildings based on Psychological Restoration, Its Criteria, and Sub-Criteria

Assessing the Impact of Horizontal Greenery Changes in the Landscape of Tall Buildings Based on Psychological Restoration and Its Potentials

In this section, the hierarchical diagram and data on changes in the ranking of horizontal greenery in the

landscape of tall buildings—greenery at the lower, middle, and upper levels—based on psychological restoration and its potential are analyzed. Figures 9 and 10 illustrate these changes.



Fig. 9. Changes in the Location of Horizontal Vegetation Cover in the Landscape of Tall Buildings (Note: the Number of Trees is Equal In All three Cases).

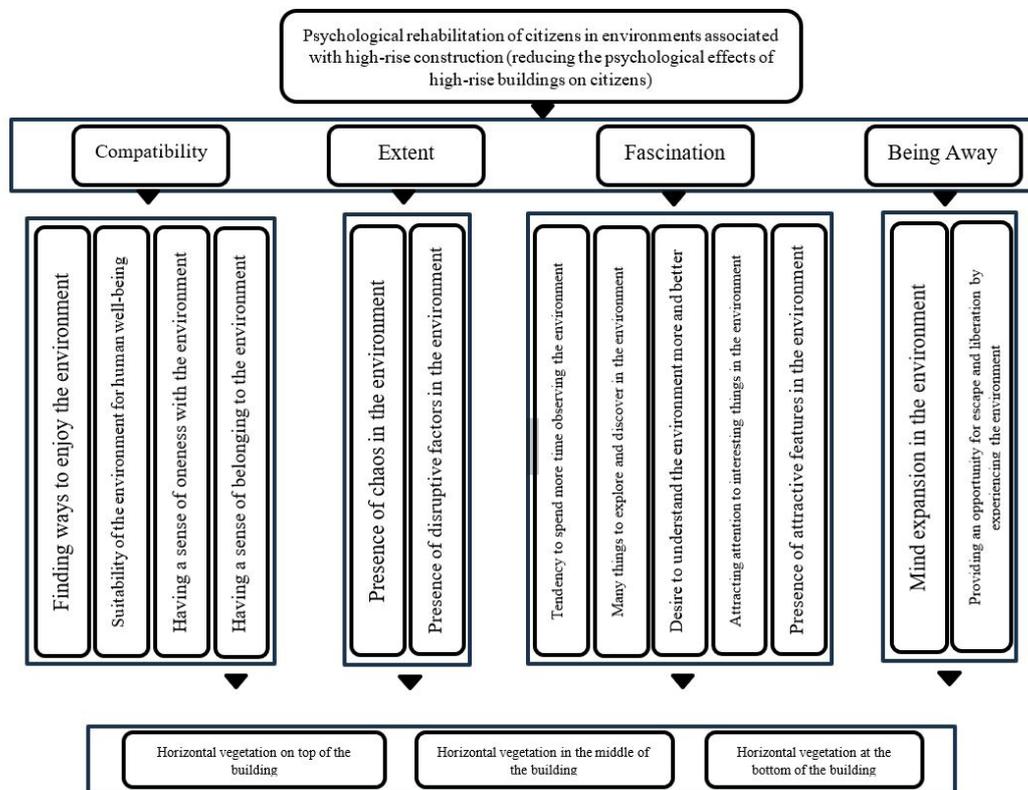


Fig. 10. Hierarchical Diagram for Prioritizing Changes in the Location of Horizontal Vegetation Cover in the Landscape of Tall Buildings based on Psychological Restoration, Its Criteria, and Sub-Criteria.

Assessing the Impact of Vertical Greenery Changes in the Landscape of Tall Buildings

In this section, the hierarchical diagram and data related to ranking changes in the location of vertical

greenery in the landscape of tall buildings—greenery positioned on the right, center, and left—based on psychological restoration and its potential are analyzed. Figures 11 and 12 illustrate these changes.



Fig. 11. Changes in the Location of Vertical Vegetation Cover in the Landscape of Tall Buildings (Note: the Number of Trees is Equal in All three Configurations).

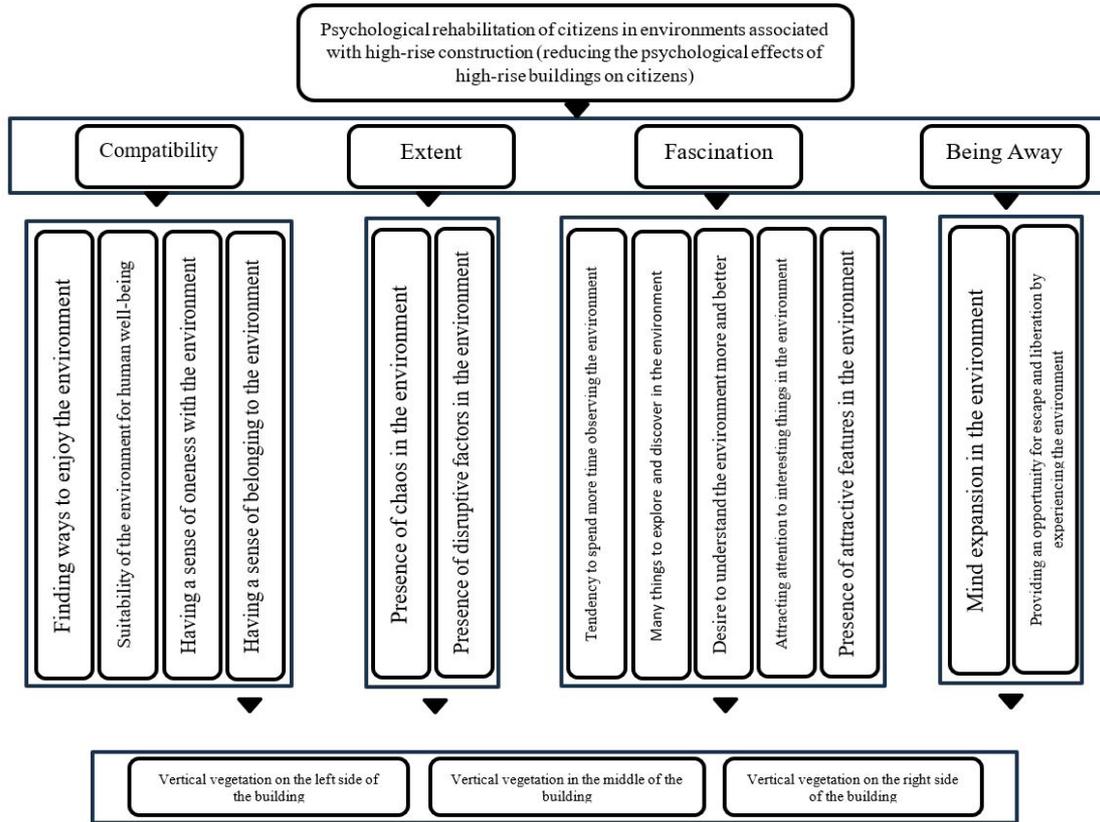


Fig. 12. Hierarchical Diagram for Prioritizing Changes in the Location of Vertical Vegetation Cover in the Landscape of Tall Buildings based on Psychological Restoration, Its Criteria, and Sub-Criteria.

Assessing the Impact of Concentrated Greenery Changes in the Landscape of Tall Buildings

In this section, the hierarchical diagram and data on changes in the ranking of the location of concentrated greenery in the landscape of tall buildings—greenery

located at the lower, middle, and upper parts of the buildings—based on psychological restoration and its potential are analyzed. Figures 13 and 14 illustrate these changes.



Fig. 13. Changes in the Location of Concentrated Vegetation Cover in the Landscape of Tall Buildings (Note: the Number of Trees is Equal in All three Configurations).

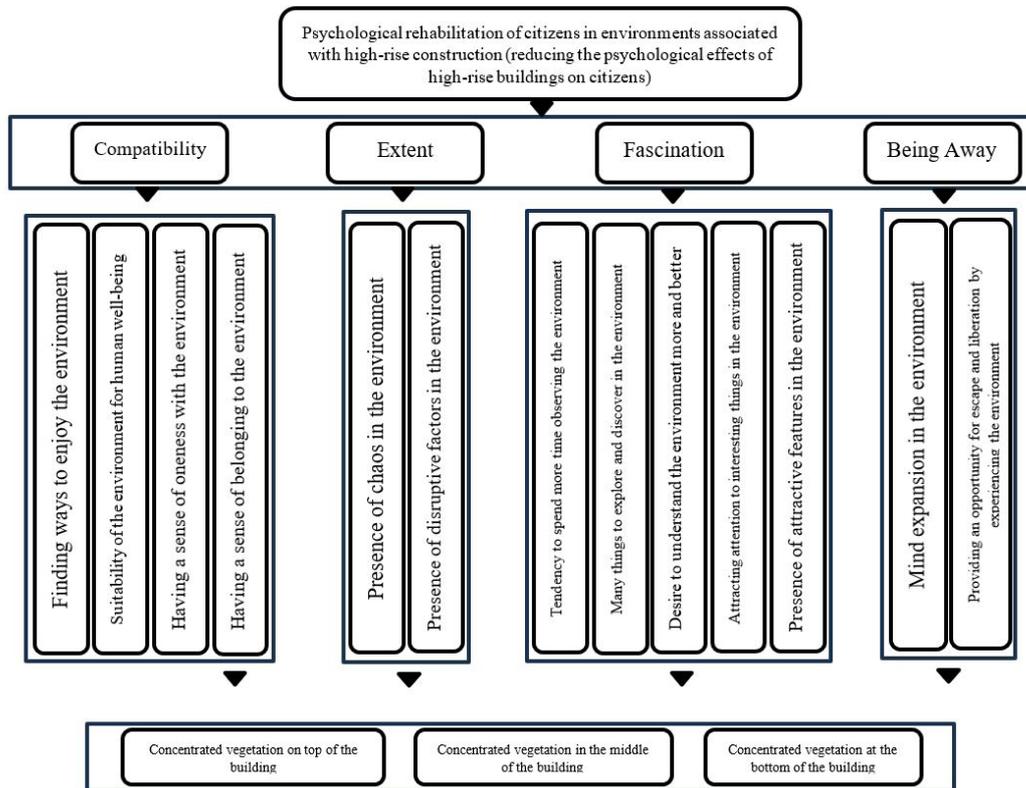


Fig. 14. Hierarchical Diagram for Prioritizing Changes in the Location of Concentrated Vegetation Cover in the Landscape of Tall Buildings based on Psychological Restoration, Its Criteria, and Sub-Criteria.

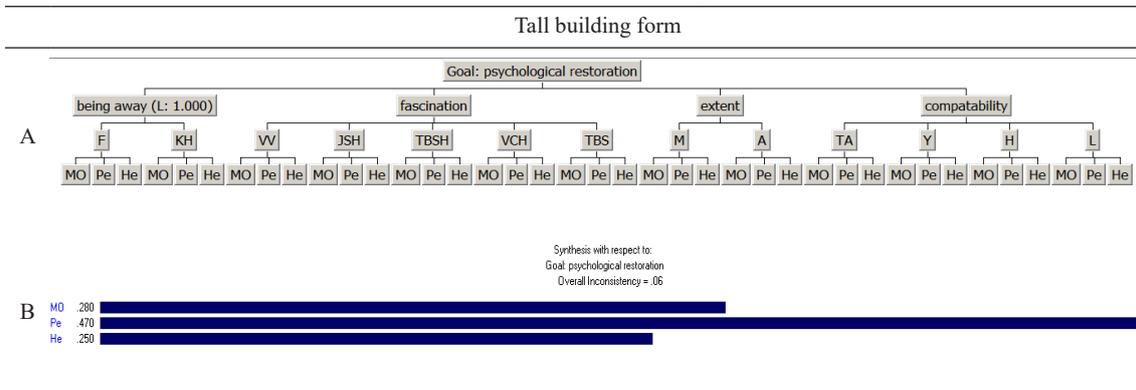
5. FINDINGS

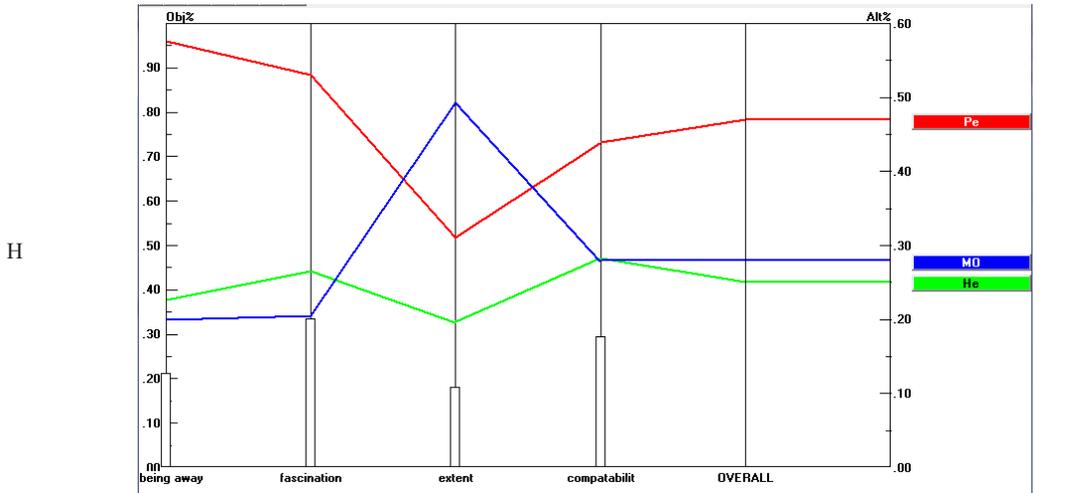
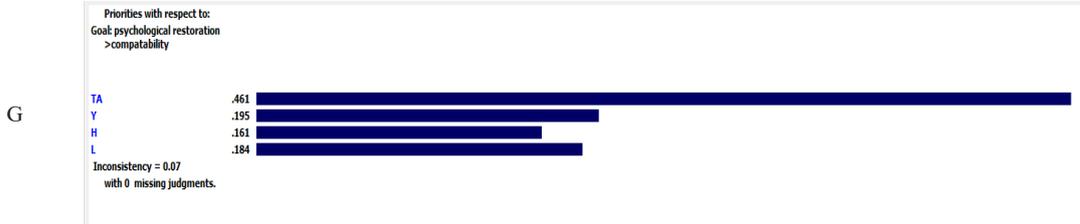
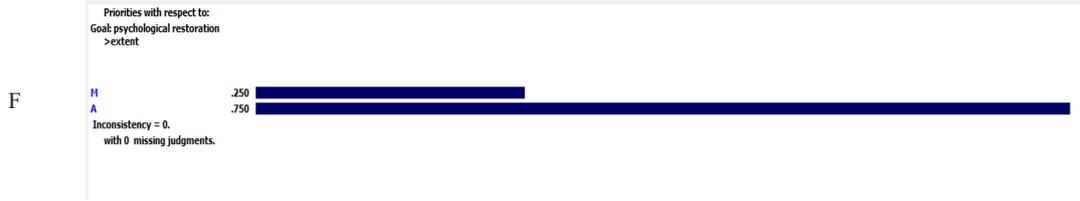
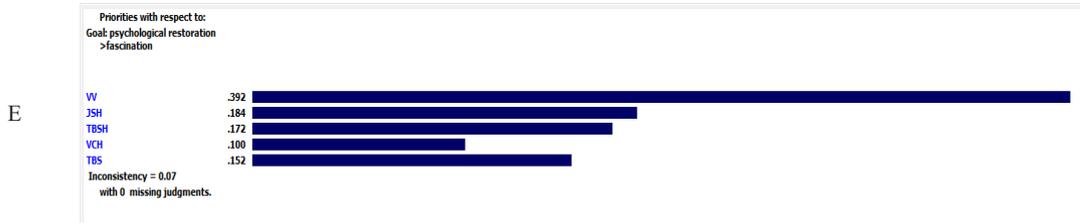
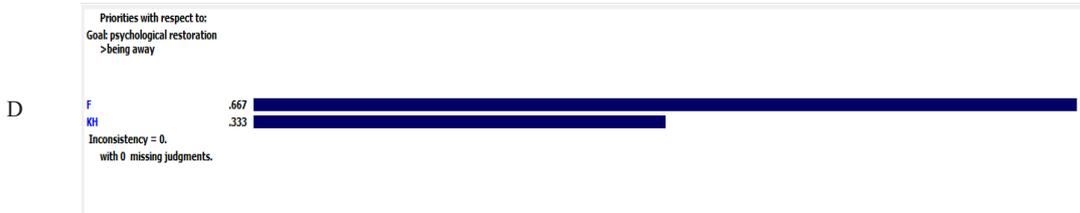
5.1. Ranking Architectural (Form) Changes of Tall Buildings

The results presented in Table 1 (Section b) showed that the stepped form of tall buildings was the most effective in enhancing psychological restoration. In contrast, the pyramidal form was the least effective. In Table 1 (Section p), the parameters of fascination, compatibility, being away, and extent (from highest to lowest) were identified as the main criteria influencing

psychological restoration. The effects of rectangular, stepped, and pyramidal forms, with emphasis on the four criteria of fascination, being away, extent, and compatibility, are also illustrated in Chart h, where the stepped form achieved a superior rank across all requirements (with the exception that, in the criterion of extent, the rectangular form was the more favorable option). More detailed information on the importance of each form for each psychological criterion and sub-criterion is presented in Table 1.

Table 1. Examination of the Relationship between Psychological Restoration, Its Criteria and Sub-Criteria, and the three Alternatives of Tall-Building Form





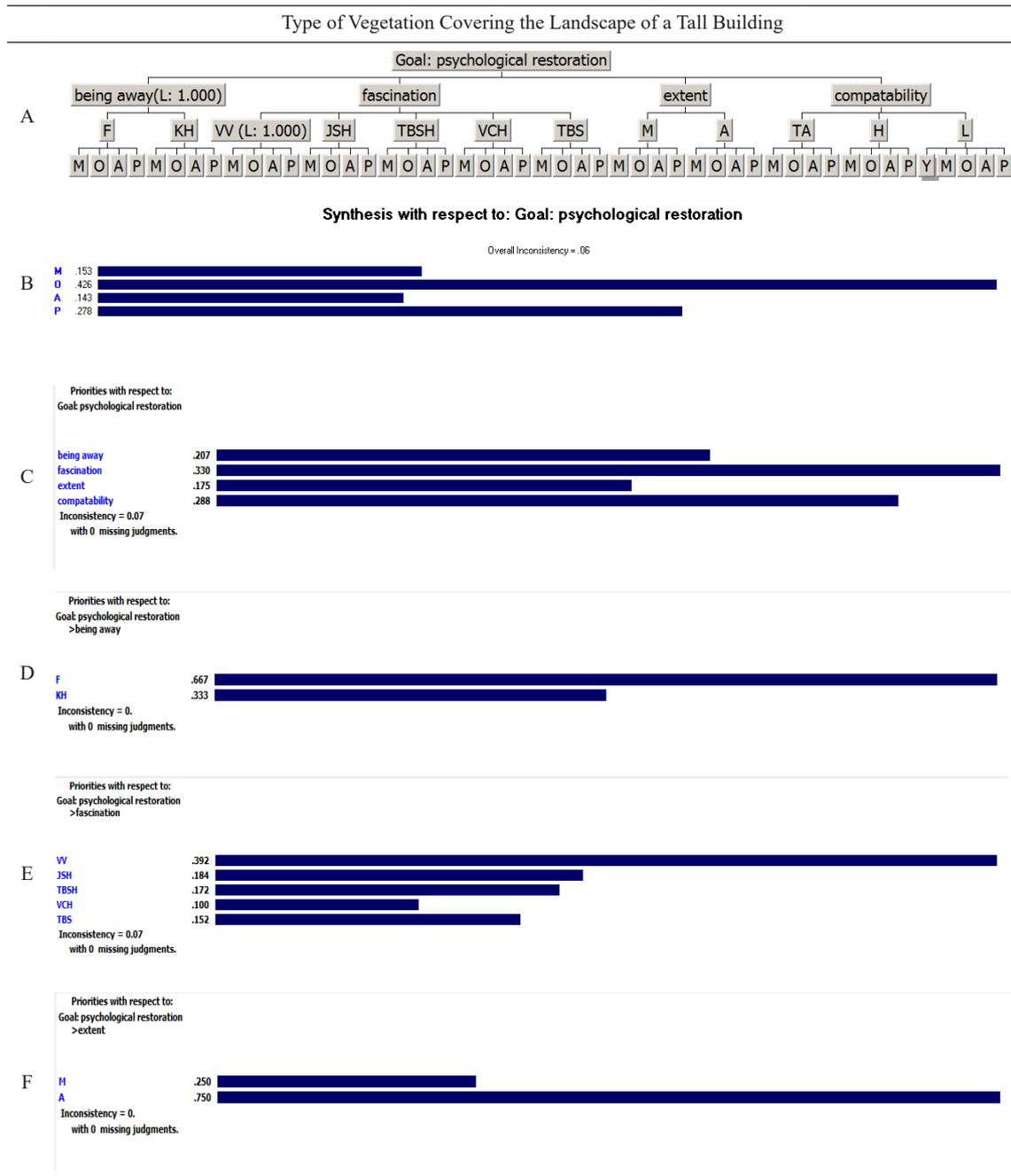
- Rectangular tall-building form (MO)
- Stepped tall-building form (PE)
- Pyramidal tall-building form (HE)
- Psychological restoration, being away, fascination, compatability, extent (vegetation coverage value)

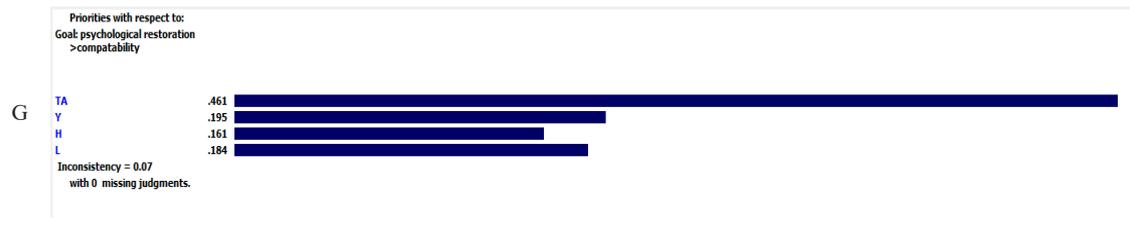
5.2. Ranking Changes in Vegetation Type in the Landscape of Tall Buildings

According to Table 2, horizontal vegetation was the most important, and vertical vegetation was the least important type of greenery influencing the level of psychological restoration (respectively, from highest

to lowest, restoration ranking belonged to horizontal, random, concentrated, and vertical vegetation) (Section b of Table 2). Details on the importance of each criterion indicate that fascination, compatibility, being away, and extent were ranked in decreasing order of importance.

Table 2. Examination of the Relationship between Psychological Restoration, Its Criteria and Sub-Criteria, and the four Alternatives of Vegetation Type in the Landscape of Tall Buildings





- Horizontal vegetation (O)
- Concentrated vegetation (M)
- Random vegetation (P)
- Vertical vegetation (A)
- Psychological restoration, being away, fascination, compatibility, extent (vegetation coverage value)

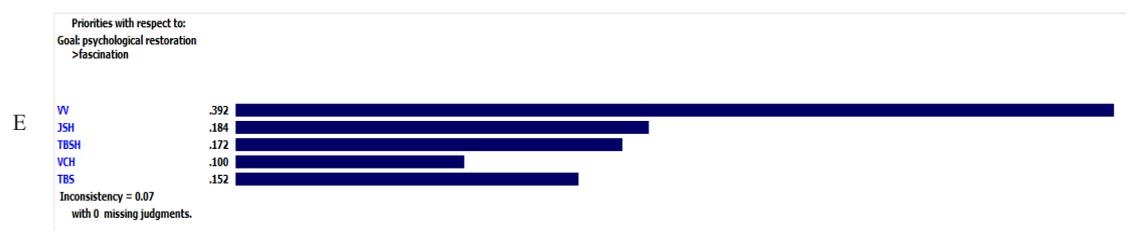
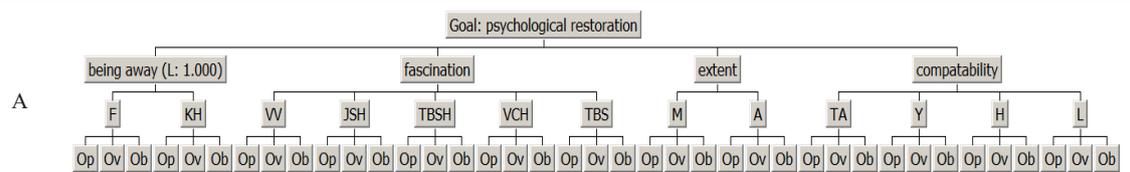
Changes in the Location of Horizontal Greenery in the Landscape of Tall Buildings

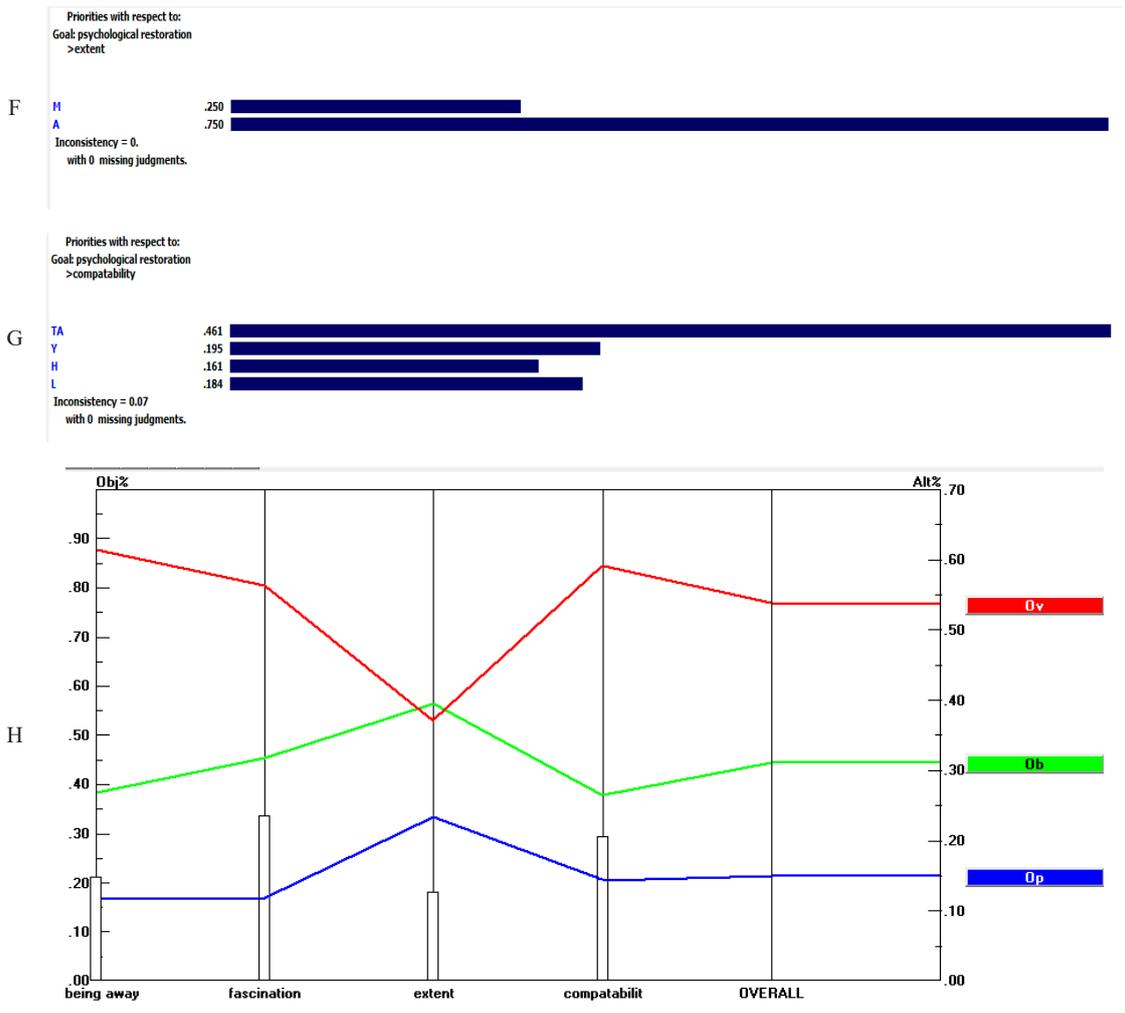
Based on Table 3, horizontal greenery located in the middle and upper parts of the building (compared

to the lower part) had a more significant effect on psychological restoration (Section b of Table 3). Further details in this regard are reviewed in Section h of Table 3.

Table 3. Examination of the Relationship between Psychological Restoration, Its Criteria and Sub-Criteria, and the three Alternatives of Horizontal Vegetation Location in the Landscape of Tall Buildings

Location of Horizontal Vegetation Cover in the Tall-Building Landscape





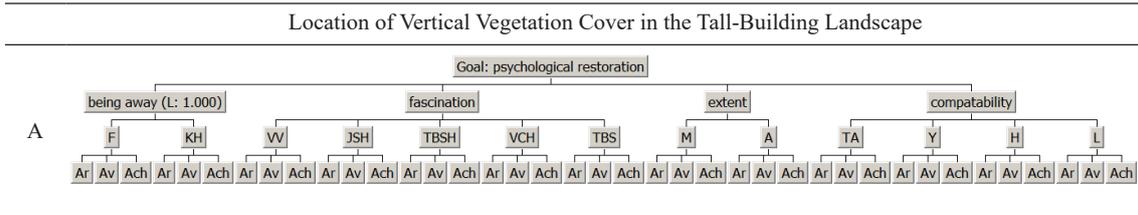
- Horizontal vegetation at the top of the building (OB)
- Horizontal vegetation at the middle of the building (OV)
- Horizontal vegetation at the bottom of the building (OP)
- Psychological restoration, being away, fascination, compatibility, extent (vegetation coverage value)

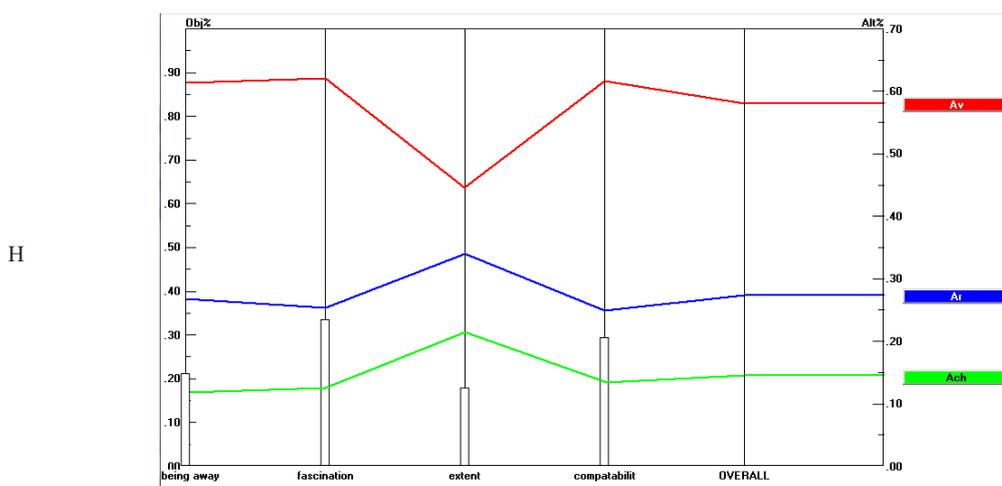
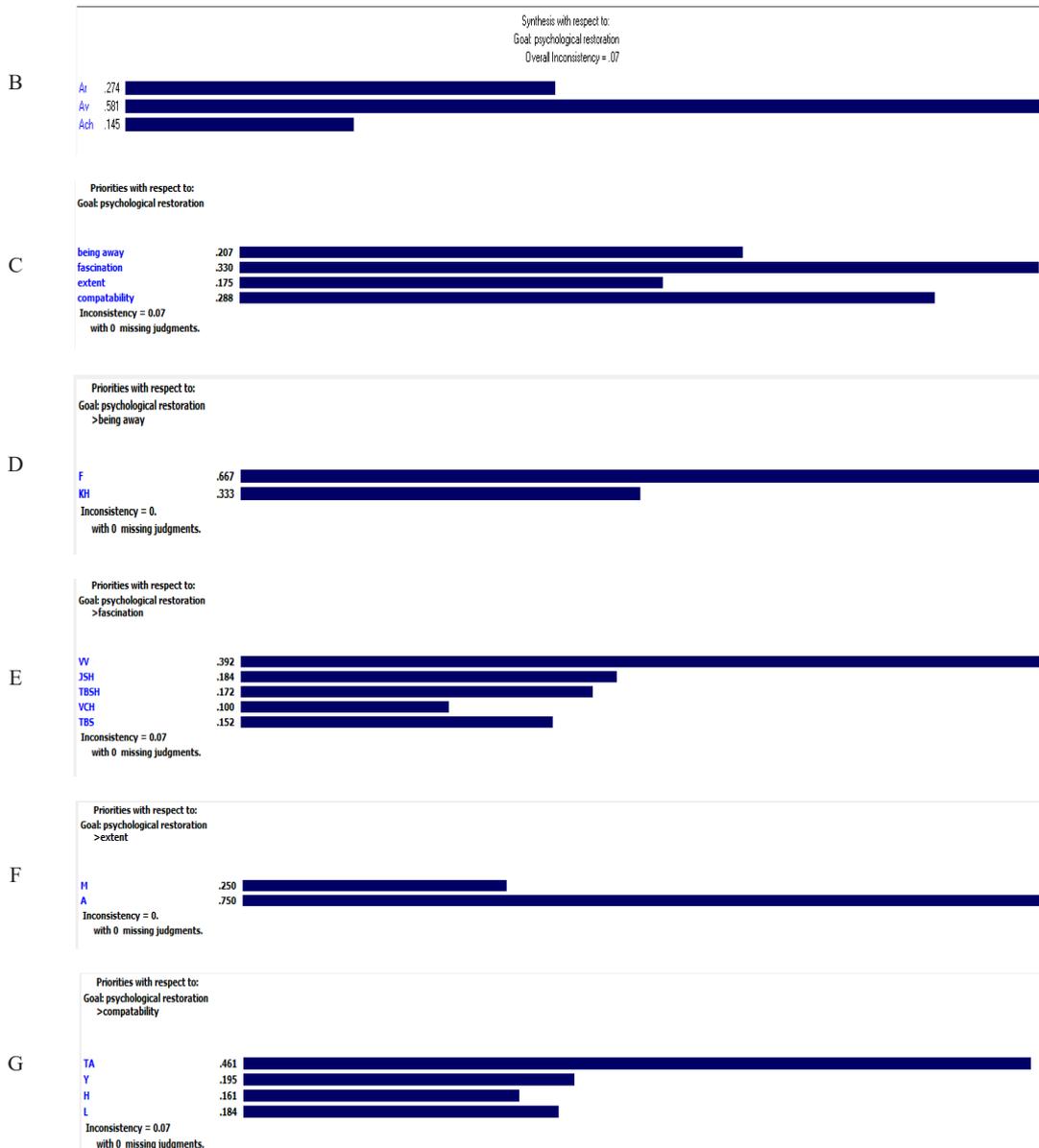
Ranking Changes in the Location of Vertical Greenery in the Landscape of Tall Buildings

Based on Table 4, vertical greenery located at the center of tall buildings (rather than the sides) had a more significant effect on psychological restoration (Section b of Table 4). Further details in this regard

are reviewed in Section h of Table 4. However, due to a probable error (likely related to imaging conditions), the effect of vertical greenery on the right side of the building appeared greater than that on the left side in terms of psychological restoration, a limitation of the present study.

Table 4. Examination of the Relationship between Psychological Restoration, Its Criteria and Sub-Criteria, and the three Alternatives of Vertical Vegetation Location in the Landscape of Tall Buildings





- Vertical vegetation on the right side of the building (AR)
- Vertical vegetation at the center of the building (AV)
- Vertical vegetation on the left side of the building (ACH)
- Psychological restoration, being away, fascination, compatibility, extent (vegetation coverage value)

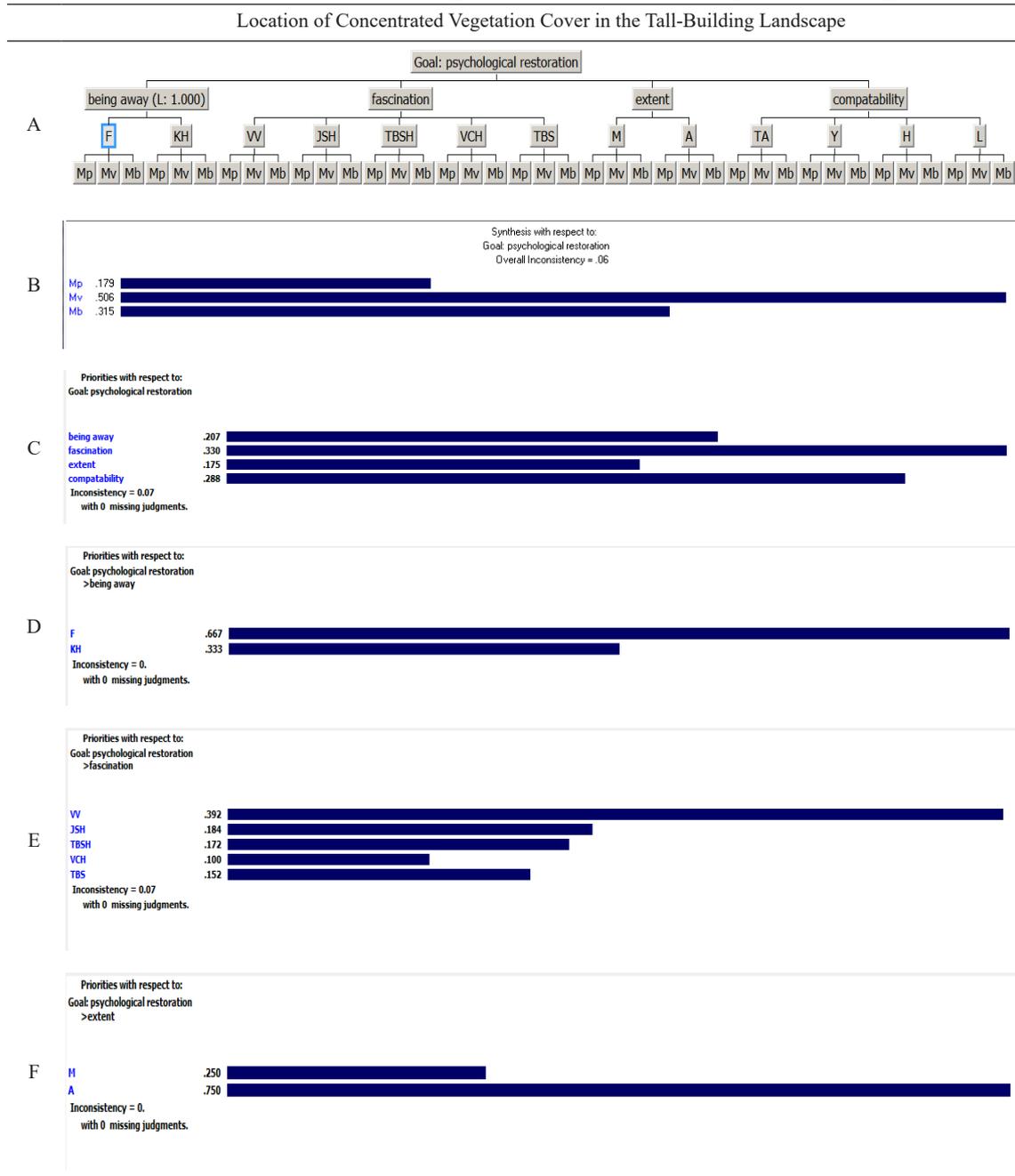
Ranking Changes in the Location of Concentrated Greenery in the Landscape of Tall Buildings

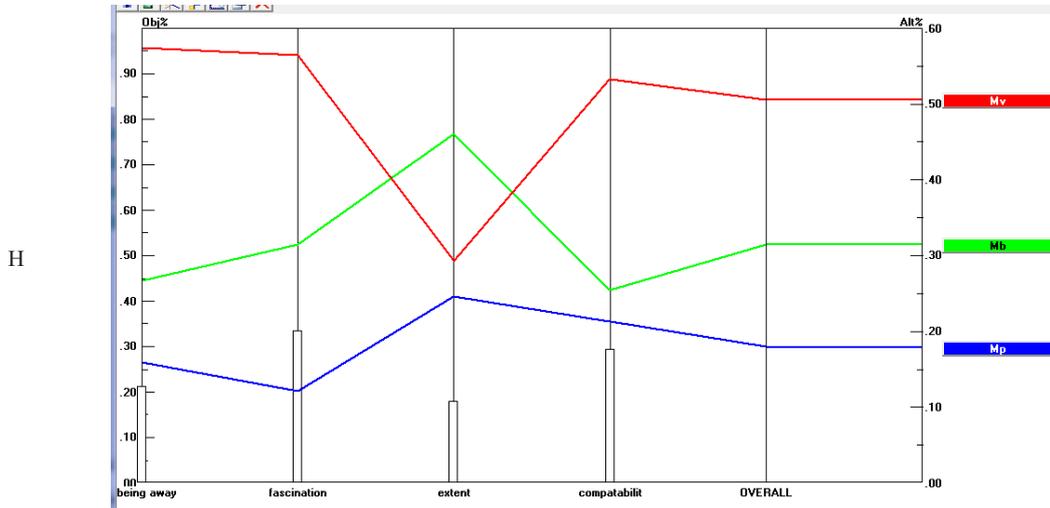
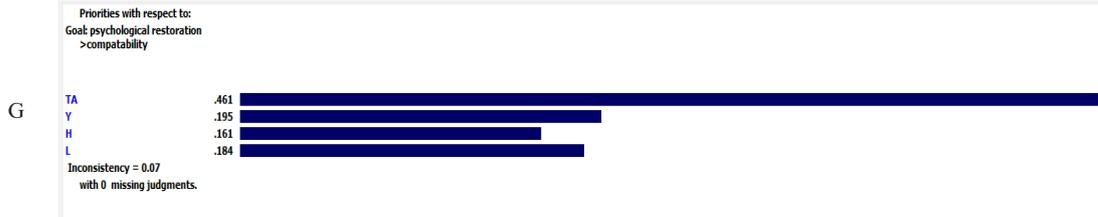
Based on Table 5, concentrated greenery located in the middle and upper parts of the building (compared to the lower part) had a more significant effect on psychological restoration (Section b of Table 5). Further details in this regard are reviewed in Section h of Table 5.

Based on Tables 3, 4, and 5 (Section C), similar to

Tables 1 and 2, fascination, compatibility, being away, and extent, respectively (from highest to lowest), were the most influential potentials shaping psychological restoration when examining building form, type of vegetation, and location of horizontal, vertical, and concentrated vegetation in the landscape of tall buildings.

Table 5. Examination of the Relationship between Psychological Restoration, Its Criteria and Sub-Criteria, and the three Alternatives of Concentrated Vegetation Location in the Landscape of Tall Buildings





- Concentrated vegetation at the top of the building (MB)
- Concentrated vegetation in the middle of the building (MV)
- Concentrated vegetation at the bottom of the building (MP)
- Psychological restoration, being away, fascination, compatibility, extent (vegetation coverage value)

6. CONCLUSION

The present study focused on the impact of architectural (form) changes and landscape greenery of tall buildings on psychological restoration, based on expert opinions. Analysis of architectural and greenery alternatives indicated that, in tall buildings, the stepped-like form was the most effective in enhancing psychological restoration. In contrast, the pyramidal form was the least effective. Analysis of different types of greenery implemented in the landscape of tall buildings with respect to psychological restoration also indicated that, from most to least influential, horizontal, random, concentrated, and vertical greenery were the most to least influential. Furthermore, the results showed that horizontal

and concentrated greenery located at the middle and subsequently at the upper part of the building (compared to the lower part of the building), as well as center-oriented vertical greenery, played a more effective role in psychological restoration (with respect to the location of horizontal, vertical, and concentrated greenery in the landscape of tall buildings). Based on the overall results of examining the impacts of architecture (form), type of vegetation, and location of horizontal, vertical, and concentrated vegetation in the landscape of tall buildings, the potentials of fascination, compatibility, being away, and extent, respectively (from highest to lowest), were of greater importance in enhancing psychological restoration.

ACKNOWLEDGMENTS

This article wasn't supported by any financial or spiritual sponsors.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

MORAL APPROVAL

The authors commit to observe all the ethical principles of the publication of the scientific work based on the ethical principles of COPE. In case of any violation of the ethical principles, even after the publication of the article, they give the journal the right to delete the article and follow up on the matter.

PARTICIPATION PERCENTAGE

The authors state that they have directly participated in the stages of conducting research and writing the article.

REFERENCES

- Ali, Mir M., and Kheir Al-Kodmany. 2012. "Tall Buildings and Urban Habitat of the 21st Century: A Global Perspective". *Buildings* 2(4): 384-423. <https://doi.org/10.3390/buildings2040384>
- Al-Kodmany, Kheir. 2011. Placemaking with tall buildings. *URBAN DESIGN International* 16(4): 252-269. DOI: [10.1057/udi.2011.13](https://doi.org/10.1057/udi.2011.13)
- Al-Kodmany, Kheir. 2012. Guidelines for Tall Buildings Development. *International Journal of High-Rise Buildings* 1(4): 255-269.
- Al-Kodmany, Kheir. 2013. Placemaking in the High-Rise City: Architectural and Urban Design Analyses. *International Journal of High-Rise Buildings* 2(2): 153-169.
- Al-Kodmany, Kheir. 2017. *Understanding Tall Buildings; A Theory of Placemaking*. Taylor & Francis.
- Al-Kodmany, Kheir, and M. Ali. 2013. *The future of the city*. Wit Press, Southampton
- Asgarzadeh, Morteza, Takaaki Koga, Nozomu Yoshizawa, Jun Munakata, and Kotaroh Hirate. 2010. Investigating green urbanism; building oppressiveness. *Journal of Asian Architecture and Building Engineering* 9(2): 555-562. https://www.jstage.jst.go.jp/article/jaabe/9/2/9_2_555/article
- Berto, Rita, Giuseppe Barbiero, Pietro Barbiero, and Giulio Senes. 2018. An individual's connection to nature can affect perceived restorativeness of natural environments. Some observations about biophilia. *Behavioral Sciences* 8(3): 34.
- Berto, Rita, Stefano Massaccesi, and Margherita Pasini. 2008. Do eye movements measured across high and low fascination photographs differ? Addressing Kaplan's fascination hypothesis. *Journal of Environmental Psychology* 28(2): 185-191.
- CTBUH (n.d.) Council on Tall Buildings and Urban Habitat. (Online). Available at: <http://www.ctbuh.org/> (accessed: March 15, 2016).
- Edwards, John N., Alan Booth, and Patricia Klobus Edwards. 1982. "Housing Type, Stress, and Family Relations." *Social Forces* 61(1): 241-57. <https://doi.org/10.2307/2578084>.
- Evans, Gary, M. Wells Nancy, and Moch Annie. 2003. Housing and mental health: a review of the evidence and a methodological and conceptual critique. *J. Soc Issues* 59(3): 475-500.
- Fanning, D. M. 1967. "Families in flats." *British Medical Journal* 18: 382-86.
- Felsten, Gary. 2009. Where to take a study break on the college campus: an attention restoration theory perspective. *J. Environ. Psychol.* 29: 160-167.
- Felsten, Gary. 2014. Personality predicts perceived potential for attention restoration of natural and urban scenes / La personalidad predice el potencial percibido de restauración atencional de los paisajes naturales y urbanos. *Psychology* 5(1): 37-57. <http://dx.doi.org/10.1080/21711976.2014.881663>
- Gifford, Robert. 2007. The Consequences of Living in High-Rise Buildings. *Architectural Science Review*. 50(1): 2-17.
- Gillis, A. R. 1977. High-Rise Housing and Psychological Strain. *Journal of Health and Social Behavior* 18(4): 418-431.
- Hartig, T., K. M. Korpela, G. W. Evans, and T. Gärling. 1996. Validation of a measure of perceived environmental restorativeness. (Go'teborg Psychological Reports, 26:7). Go'teborg: Go'teborg University, Department of Psychology.
- Hartig, T., K. Korpela, G. W. Evans, and T. Gärling. 1997. A measure of perceived environmental restorativeness. *Scandinavian Housing and Planning Research* 14: 175-194.
- Herzog, T. R., A. M. Black, K. A. Fountaine, and D. J Knotts. 1997. Reflection and attentional recovery as two distinctive benefits of restorative environments. *Journal of Environmental Psychology* 17: 165-170.
- Hipp, J. Aaron, and Oladele A. Ogunseitan. 2011. Effect of environmental conditions on perceived psychological restorativeness of coastal parks. *Journal of Environmental Psychology* 31: 421-429.
- Husaini, B. A., R. S. Caſtor, R. Whitten-Stovall, S. T. Moore, W. Nesor, JG. Linn, and D. Griffin. 1990. An evaluation of a therapeutic health program for the elderly. *Journal of Health and Social Policy* 2(2): 67-85.
- Husaini, B. A., S. T. Moore, and R. S. Caſtor. 1991. Social and psychological well-being of Black elderly living in high-rises for the elderly. *Journal of Gerontological Social Work* 16: 57-78.
- Ineichen, Bernard, and Douglas Hooper. 1974. Wives' mental health and children's behavior problems in contrasting residential areas. *Social Science and Medicine* 8: 369-374.
- Kaplan, Rachel, and Stephen Kaplan. 1989. *The experience of nature: A psychological perspective*. Cambridge: Cambridge University Press.
- Kaplan, Rachel, Stephen Kaplan, and Terry Brown. 1989. Environmental preference: A comparison of four domains of predictors. *Environment and Behavior* 21: 509-530.

- Karimimoshaver, Mehrdad, and Philipp Winkemann. 2018. A framework for assessing tall buildings' impact on the city skyline: Aesthetic, visibility, and meaning dimensions. *Environmental Impact Assessment Review* 73: 164-176.
- Korpela, Kalevi, and Terry Hartig. 1996. Restorative Qualities of Favorite places. *Journal of Environmental Psychology* 16(3): 221-233. <https://doi.org/10.1006/jevp.1996.0018>.
- Lee, Jaehyuk, Haeseong Je, and Jeongsoo Byun. 2011. Well-Being index of super tall residential buildings in Korea. *Building and Environment* 46(5): 1184-1194.
- Lindal, Pall J. and Terry Hartig. 2013. Architectural variation, building height, and the restorative quality of urban residential streetscapes. *Journal of Environmental Psychology* 33: 26-36.
- Lindal, Pall J., and Terry Hartig. 2015. Effects of urban street vegetation on judgments of restorationlikelihood. *Urban Forestry & Urban Greening* 14: 200-209.
- Lindal, Pall J. 2013. Restorative Environmental Design for Densifying Cities. A thesis submitted in fulfillment of the requirements for the degree of Doctor of Philosophy, Faculty of Architecture, Design & Planning, The university of Sydney.
- Masoudinejad, Sepideh, and Terry Hartig. 2018. Window view to the sky as a restorative resource for residents of a densely populated city. *Environment and Behavior*. <https://doi.org/10.1177/0013916518807274>.
- Nordh, Helena. 2012. Quantitative methods of measuring restorative components in urban public parks. *Journal of Landscape Architecture* 7(1): 46-53. DOI: [10.1080/18626033.2012.693780](https://doi.org/10.1080/18626033.2012.693780)
- Nordh, Helena, Caroline Madeleine Hagerhall, and Kenneth Holmqvist. 2013. Tracking restorative components: patterns in eye movements as a consequence of a restorative rating task. *Landscape research* 38(1): 101-116. <https://doi.org/10.1080/01426397.2012.691468>
- Nordh, H., T. Hartig, C. M. Hagerhall, and G. Fry. 2009. Components of small urban parks that predict the possibility for restoration. *Urban Forestry & Urban Greening* 8: 225-235.
- Pazhouhanfar, Mahdiah, and Kamal M. S. Mustafa. 2014. Effect of predictors of visual preference as characteristics of urban natural landscapes in increasing perceived restorative potential. *Urban Forestry & Urban Greening* 13: 145-151.
- Roe, Jenny, and Peter Aspinall. 2011a. The restorative benefits of walking in urban and rural settings in adults with good and poor mental health. *Health & place* 17(1): 103-113.
- Roe, Jenny, and Peter Aspinall. 2011b. The restorative outcomes of forest school and conventional school in young people with good and poor behaviour. *Urban Forestry & Urban Greening* 10(3): 205-212.
- Samavatekbatan, Amirhossein, Simin Gholami, and Mehrdad Karimimoshaver. 2016. Assessing the visual impact of physical features of tall buildings: Height, top, color. *Environmental Impact Assessment Review* 57: 53-62. <https://doi.org/10.1016/j.eiar.2015.11.008>.
- Sharghi, Ali. 2011. Effects of University Campus Landscapes on Learning Quality of Students. (e463). *The Monthly Scientific Journal of Bagh-e Nazar* 8(18): e463 [in Persian]
- Short, Michael. 2007. Assessing the impact of proposals for tall buildings on the built heritage: England's regional cities in the 21st century. *Prog. Plan.* 68: 97-199. <https://doi.org/10.1016/j.progress.2007.07.003>.
- Sonntag-Öström, Elisabet, Maria Nordin, Lundell Ylva, Ann Dolling, Wiklund Urban, Marcus Karlsson, Bo Carlberg, and Slunga Järholm Lisbeth. 2014. Restorative effects of visits to urban and forest environments in patients with exhaustion disorder. *Urban forestry & urban greening* 13(2): 344-354. <https://doi.org/10.1016/j.ufug.2013.12.007>
- Staats, Henk, Van Gernerden Erika, and Hartig Terry. 2010. Preference for restorative situations: Interactive effects of attentional state, activity-in-environment, and social context. *Leisure Sciences: An Interdisciplinary Journal* 32: 401-417.
- Tyrväinen, Liisa, Ojala Anna, Korpela Kalvey, Lanki Timo, Tsunetsugu Yuko, and Kagawa Takahide. 2014. The influence of urban green environments on stress relief measures: A field experiment. *Journal of Environmental Psychology* 38: 1-9.
- Valtchanov, Deltcho, Kevin R. Barton, and Colin Ellard. 2010. Restorative effects of virtual nature settings. *Cyberpsychology, Behavior, and Social Networking* 13(5): 503-512.
- Van Den Berg, Agnes E., Janke e. Wesseli, Jolanda Maas, and Karin Tanja-Dijkstra. 2017. Green walls for a restorative classroom environment: a controlled evaluation study. *Environment and Behavior* 49(7): 791-813.
- Van Kempen, E., and S. Musterd. 1991. High-rise housing reconsidered: Some research and policy-implications. *Housing Studies* 6(2): 83-95. DOI: [10.1080/02673039108720699](https://doi.org/10.1080/02673039108720699).
- Yeh, Anthony, and Belinda Yuen. 2011. Introduction: High-rise Living in Asian Cities. *High-rise Living in Asian Cities*. London: Springer.
- Zarghami, Esmaeil, Abdu Alhamid Ghanbaran, Mehrdad Karimi Moshaver, and Pooria Saadati Vaghar. 2020a.

Saadati Vaghar, P. et al.

Evaluation of the Impact of Components Related to Configuration, Vegetation and Position of the Complex Tall building (Surrounding the Passages) on Citizens' Mental Health. *Journal of Sustainable Architecture and Urban Design* 8(2): 130-95. doi: [10.22061/jsaud.2020.4427.1320](https://doi.org/10.22061/jsaud.2020.4427.1320). [in Persian]

- Zarghami, Esmail, Abdu alhamid Ghanbaran, Mehrdad Karimi Moshaver, and Pooria Saadati Vaghar. 2019b. Effect of Height and Color of Tall Buildings on The Perceived Psychological Restoration of Residents. *Journal of Architectural and Planning Research* 36(4): 321-343. [in Persian]
- Zarghami, Esmail, Mehrdad Karimi Moshaver, Abdu Alhamid Ghanbaran, and Pooria Saadati Vaghar. 2019a. Assessing the oppressive impact of the form of tall buildings on citizens: Height, width, and height-to-width ratio. *Environmental Impact Assessment Review* 79: 106287. <https://doi.org/10.1016/j.eiar.2019.106287>.
- Zarghami, Esmail, Abdu Alhamid Ghanbaran, Mehrdad Karimi Moshaver, and Pooria Saadati Vaghar. 2020b. Investigating the Visual-Psychological Pollution of Tall Buildings through Fish Eye Images and Citizen's Opinion; Case Study: Pastor and Jahannama Tower in Hamadan. *Armanshahr Architecture & Urban Development* 13(32): 143-159. doi: [10.22034/aaud.2019.147680.1675](https://doi.org/10.22034/aaud.2019.147680.1675). [in Persian]

HOW TO CITE THIS ARTICLE

Saadati Vaghar, Pooria, Mehrdad Karimi Moshaver, Esmail Zarghami, and Abdolhamid Ghanbaran. 2025. Examining the Impacts of Tall Buildings on the Urban Landscape from the Perspective of Experts. *Armanshahr Architecture & Urban Development Journal* 18(52): 51-70.

DOI: 10.22034/AAUD.2025.497296.2939

URL: https://www.armanshahrjournal.com/article_232556.html



COPYRIGHTS

Copyright for this article is retained by the author(s), with publication rights granted to the Armanshahr Architecture & Urban Development Journal. This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution License.

<http://creativecommons.org/licenses/by/4.0/>

