GEOGRAFI
ISSN 2289-4470 • EISSN 2462-2400

The Role of Campus Recreational Parks Based on Agrotherapy and Its Positive Effects on University Students' Psychology: A Literature Review

Muhammad Ainol Jufri Fadzli[1], Mohd Amirul Hussain[2*], Mohd Yusof Kamaruzaman[3], Mohd Nazri Abdul Raji[4], Zaliza Hanapi[5], Hishammuddin Hamdan[6] & Nurul Izzati Othmani[7]

[1,2*,3,4,5]Faculty of Technical and Vocational, Universiti Pendidikan Sultan Idris, Tanjong Malim 35900, Malaysia
[6]Matriculation Division, Kementerian Pendidikan Malaysia, Putrajaya 62604, Malaysia
[7]Faculty of Architecture and Ekistics, Universiti Malaysia Kelantan, 16300 Bachok, Kelantan, Malaysia

***Corresponding author email: amirul.hussain@ftv.upsi.edu.my**

ARTICLE HISTORY
Received: 25th March 2025
Revised: 10th April 2026
Accepted: 30th April 2026
Published: 04th May 2026

KEYWORDS
Agrotherapy
Campus recreational parks
Psychological well-being
Therapeutic horticulture
Community gardens
SDG11

ABSTRACT - Campus recreational gardens not only serve as landscaping elements that beautify the environment but also play a crucial role in enhancing students' psychological well-being. Agrotherapy, or agriculture-based therapy, is an increasingly recognized approach in university landscape design due to its potential to reduce stress and improve mental health. This study aims to review the literature regarding the role of campus recreational gardens based on agrotherapy and their positive impact on students' psychological well-being. The literature review reveals that urban agricultural elements such as community gardens, therapeutic horticulture, and agroecology-based green spaces offer psychological benefits to students by reducing stress, improving concentration, and enhancing emotional balance. This study recommends that universities consider integrating agrotherapy elements into campus recreational gardens as a strategy to enhance student well-being.

INTRODUCTION

Campus recreational parks play an important role in shaping an environment that supports student well-being, not only from a physical perspective but also from a psychological one. Agrotherapy, or agriculture-based therapy, is an approach that has been gaining attention in campus landscape development due to its potential to help students manage stress, enhance emotional balance, and support overall mental well-being. The concept of agrotherapy encompasses activities related to agriculture such as therapeutic horticulture, community gardens, and interaction with plants, all of which have been proven to provide significant psychological benefits.

The importance of this study lies in agrotherapy's ability to offer a natural approach to addressing the psychological challenges faced by university students. Within the campus context, students are often exposed to high academic pressure, social constraints, and lifestyle changes that can affect their mental health. Previous studies have shown that access to green spaces and agricultural activities can reduce stress levels and improve students' emotional well-being. Therefore, understanding how campus recreational parks based on agrotherapy can contribute to students' psychological well-being is essential in efforts to improve their quality of life while pursuing university studies (Ramli et al., 2024). Nevertheless, there are several issues and challenges that remain unaddressed in research concerning the role of agrotherapy in campus landscapes.

https://doi.org/10.37134/geografi.vol14.1.2.2026

One notable research gap is the lack of empirical evidence on the effectiveness of agrotherapy within higher education institutions in Malaysia. Most existing studies focus more broadly on the effects of green spaces, without examining in depth how urban agricultural elements such as community gardens and therapeutic horticulture can be integrated into the university environment. Furthermore, there is also a lack of specific guidelines for universities to design and implement agrotherapy elements within their landscapes. Hence, this study aims to fill that gap by evaluating the effects of agrotherapy on students' psychological well-being and by proposing strategies to strengthen the role of campus recreational parks as spaces for mental restoration.

1.1 The Concept of Agrotherapy in Campus Recreational Park

Agrotherapy, or agricultural therapy, refers to the use of agricultural elements such as greenery, community gardens, and therapeutic horticulture to support human psychological well-being. In the context of campus recreational park design, the application of the agrotherapy concept provides various benefits to the campus community.

i. Therapeutic Horticulture

Therapeutic horticulture refers to gardening activities specifically designed to enhance individuals' mental and physical well-being. According to Hussain et al. (2022), this activity has been proven effective in reducing stress, improving mood, and providing a sense of tranquillity and satisfaction. For instance, gardening therapy or natural therapeutic practices have been applied since ancient Egypt, where palace gardens were used as spaces for mental and physical healing, giving rise to therapeutic horticulture (El-Sayed, 2021). In addition to its psychological benefits, therapeutic horticulture also improves fine motor skills and helps accelerate physical recovery (Hussain et al., 2022; Hussain et al., 2025).

In modern countries such as Singapore, this practice has been implemented through the establishment of therapeutic gardens such as Bedok Reservoir Park and Pasir Ris Park. These parks provide spaces for communities to interact with nature, thereby contributing to enhanced social and mental well-being. Direct interaction with plants during gardening activities can trigger feelings of calmness and self-satisfaction when the plants being cared for thrive. This activity has been shown to have a positive effect on individuals' mental well-being (Robson & Downie, 2019).

ii. Community Gardens

Community gardens within campuses provide spaces for students and staff to interact with nature, which in turn helps to reduce academic stress and enhance mental well-being. In addition, community gardens foster teamwork and strengthen social relationships among campus communities. For example, the development of the Special Greenhouse at the Johor Cerebral Palsy Association (CPJ) offers students the opportunity to become more independent. This initiative aligns with the commitment to educate, train, treat, and provide for the special needs of students with cerebral palsy.

In the Malaysian context, community gardens have been established with the support of the Ministry of Housing and Local Government (KPKT). The National Urban Community Garden Policy was introduced to empower urban communities through gardening activities, with the target of establishing one community garden in every People's Housing Project. This policy encourages communities to adopt a green lifestyle through cultivation while preserving environmental sustainability, in line with the Sustainable Development Goals (SDGs) (Hussain et al., 2022).

iii. Agroecology-Based Green Spaces

Green spaces designed with agroecological principles emphasise the use of sustainable agricultural practices aligned with natural ecosystems. The inclusion of elements such as edible landscaping not only provides visual appeal but also offers healthy and fresh food sources for the campus community. In addition, edible landscaping creates a calm university environment. The incorporation of well-organised landscapes and edible plants can directly enhance the health of campus residents (Hussain et al., 2025).

https://doi.org/10.37134/geografi.vol14.1.2.2026

Harvests from edible landscaping can also generate commercial value for external communities. More broadly, awareness of the importance of maintaining healthy diets through the consumption of herbs and vegetables can also be cultivated among the campus community.

iv. Stimulation of the Five Senses in Garden Design

An effective therapeutic garden design should stimulate all five human senses: sight, hearing, touch, smell, and taste. For example, planting flowers of various colours stimulates the sense of sight, while the sound of water from ponds or fountains soothes the sense of hearing. A combination of plants with different textures stimulates the sense of touch, while aromatic herbs such as mint or rosemary stimulate the sense of smell. Herbs used in cooking or edible flowering plants can stimulate the sense of taste. When combined in garden design, all these elements help reduce stress, promote well-being, and bring emotional and spiritual relief to users.

1.2 Positive Effects of Agrotherapy on Students' Psychology

Agrotherapy, or agricultural therapy, refers to the use of gardening activities and interaction with nature as an approach to enhancing psychological well-being. In the context of students, the application of agrotherapy within the campus environment has shown various positive effects on their mental and emotional health. The following outlines some of the positive impacts of agrotherapy on students' psychology:

i. Reducing Stress and Anxiety

Gardening activities and interaction with nature play an important role in reducing levels of stress and anxiety. This approach has been proven to have restorative effects on individuals' mental well-being. At Universiti Putra Malaysia Bintulu Campus (UPMKB), a Forest Therapy programme has been implemented to reduce stress among students by using nature as a medium for stress management (Universiti Putra Malaysia Bintulu Campus [UPMKB], 2023). The programme aims to provide students with opportunities to relax and rejuvenate their minds through exposure to natural surroundings, which in turn contributes to improved mental well-being.

Studies by Shin et al. (2010) and Park et al. (2017) indicate that exposure to natural environments, whether artificial or natural forests, can reduce stress, enhance mood, and positively affect mental health. Further research has confirmed that Forest Therapy is an effective method for managing stress and anxiety, and it has been applied practically at UPMKB as part of efforts to improve students' mental health.

ii. Enhancing Focus and Academic Performance

Exposure to green environments and nature-based activities not only provides emotional calmness but has also been proven to enhance students' concentration and academic performance. Calm and soothing natural surroundings allow students mental space to take a break from high academic pressure, thereby contributing to improved cognitive functioning and learning ability.

Hipp et al. (2016) found that students' perceptions of campus greenery and the restorative qualities of their environment were significantly associated with their reported quality of life, showing that natural elements on campus play a vital role in supporting mental and emotional well-being. More recently, findings by Hang et al. (2024) reinforced this perspective, emphasising that campuses designed with interactive green elements can improve students' concentration and well-being. Thus, strengthening campus greenery should be taken seriously as a key strategy in supporting students' academic development and overall well-being in higher education institutions.

iii. Improving Emotional and Social Well-being

Students' participation in gardening and direct interaction with nature has been shown to enhance their emotional and social well-being. Activities such as maintaining plants in groups, sharing campus green spaces, or taking part in community landscaping projects not only help to reduce feelings of loneliness and stress but also create opportunities for building positive interpersonal relationships.

https://doi.org/10.37134/geografi.vol14.1.2.2026

Interaction in natural settings also functions as an informal channel of emotional support, where students can communicate, share experiences, and strengthen a sense of togetherness. For example, the nature therapy programme implemented at UPMKB has demonstrated positive effects on students' social relationships and mental well-being. The programme emphasises the building of social bonds through relaxed and therapeutic green activities. Van den Berg et al. (2010) found that consistent exposure to natural environments was associated with reduced stress and improved quality of social interactions. Similarly, Ohly et al. (2016) supported the view that green spaces have positive effects on mental and social health, especially among students and young people.

iv. Promoting an Active and Healthy Lifestyle

At higher education institutions, students' engagement in green activities such as managing a community herb garden or a green therapy corner on campus can serve as an effective alternative to encourage healthy living. Light activities or green volunteer work, such as watering plants, rearranging small landscape layouts, or maintaining potted plants, not only involve physical movement but also provide mental relief from academic pressures.

For example, student herb garden initiatives on campus not only green the environment but also provide a conducive space for physical and social well-being. This approach aligns with the findings of Soga et al. (2017), which demonstrated that engagement with natural spaces, even on a small scale, can reduce stress and enhance psychological well-being.

Therefore, the provision of accessible green spaces that function as areas for both learning and relaxation should form part of a holistic approach to supporting healthy lifestyles among students. Indirectly, this fosters a more balanced campus culture that is active, mindful, and attentive to students' mental and physical health.

v. Cognitive and Affective Development

Agriculture-based therapy not only provides physical benefits but also contributes significantly to students' cognitive and affective development. Through activities such as planting, maintaining crops, and collaborating in mini-agriculture projects, students not only learn about natural processes and agricultural science but also develop problem-solving, decision-making, and critical thinking skills. Active involvement in such experiential learning environments also helps to enhance concentration and motivation among students.

From an affective perspective, nature- and agriculture-based activities indirectly nurture positive values such as responsibility, care for living things, and empathy towards peers. Group-based activities further promote teamwork, effective communication, and stronger social relationships, contributing to more stable and balanced emotional development.

Dettweiler et al. (2015) found that nature-based learning strengthens students' self-confidence and intrinsic motivation, while Rappe and Koivunen (2005) reported that horticultural activities have a clear therapeutic effect on emotions and individual well-being. These findings highlight the potential of agricultural therapy in creating balance between students' cognitive and affective development.

vi. Behavioural Development

Agrotherapy activities involve collaboration among individuals, encouraging social interaction and enhancing self-management skills. Students who participate are able to develop responsibility and self-appreciation through experiences of caring for plants and animals. They learn to pay attention to the needs of living things, which fosters a sense of accountability for their actions (Hussain et al., 2020).
A calm and interactive environment helps students achieve emotional balance and cope with issues such as fear, anxiety, or shyness. Studies by Soga et al. (2017) and Lee et al. (2019) indicate that nature-based agrotherapy activities can improve social skills, reduce anxiety, and promote empathy and self-awareness. This suggests that agrotherapy can help shape more positive behaviours.

https://doi.org/10.37134/geografi.vol14.1.2.2026

1.3 Behaviourism Theory

Behaviourism theory emphasises the role of the environment in shaping individual behaviour. Well-organised and green environments, such as beautifully landscaped areas, have been proven to reduce stress and enhance mental well-being. In educational contexts, exposure to nature is increasingly recognised as an approach for addressing emotional stress, where elements such as leafy trees, the sound of flowing water, and birdsong provide comfort and tranquillity.

Studies by Soga et al. (2017) and Lee et al. (2019) show that exposure to natural landscapes not only reduces stress but also improves overall psychological well-being. This aligns with the concept of Forest Therapy, which has been implemented at several universities, including UPMKB, to improve students' mental health through direct interaction with nature. Exposure to green landscapes positively affects students' social and emotional behaviours, enhancing their sense of well-being and providing opportunities for better stress management.

1.4 Summary

The application of the agrotherapy concept in the design of campus recreational parks brings a variety of significant benefits, not only to students' mental and physical well-being but also to their social and emotional development. Green spaces created within campus recreational parks serve as environments that stimulate all five senses, provide tranquillity, and restore emotions, making them ideal places to escape from academic pressures and everyday life. Agrotherapy, which involves interaction with nature through activities such as gardening and plant care, offers positive effects on students. It not only helps to reduce stress and anxiety but also enhances their focus and academic performance. In addition, agrotherapy encourages an active and healthy lifestyle, while strengthening social connections among students, which is crucial in fostering a more harmonious campus community. By encompassing all these psychological benefits, agrotherapy emerges as a highly effective approach to supporting students' overall well-being. The importance of this topic should not be underestimated, as it has a direct impact on students' quality of life on campus, while also enriching their experiences within a more balanced and supportive academic environment.

METHODS AND MATERIALS

This study adopts a literature review approach to evaluate the role of campus recreational parks based on agrotherapy in supporting students' psychological well-being. Although it is not a Systematic Literature Review (SLR), the process of selecting and analysing the literature was carefully structured with reference to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) principles to ensure accuracy and validity of the findings. This approach guarantees a structured, relevant, and comprehensive review in assessing the role of campus recreational parks and their positive impact on students' psychology.

The study involved a search for literature using major academic databases such as Scopus, Web of Science, Google Scholar, and ScienceDirect. Keywords used included agrotherapy and psychological well-being, therapeutic horticulture in university settings, green spaces and mental health, and campus recreational parks and student psychology. The selected articles were screened based on inclusion criteria such as publication in indexed journals within the last 10 years, a focus on agrotherapy and students' psychological well-being, and relevance in terms of empirical studies and literature reviews.
The literature was analysed qualitatively by identifying key themes such as the effects of agrotherapy on psychological well-being, the role of therapeutic horticulture in learning spaces, and landscape design elements that support mental restoration. This study also followed PRISMA guidelines, with a PRISMA flowchart used to document the number of articles identified, screened, and analysed. By employing the PRISMA approach, the study ensures the accuracy and reliability of its findings, providing clearer insights into the role of campus recreational parks based on agrotherapy in enhancing students' psychological well-being.

https://doi.org/10.37134/geografi.vol14.1.2.2026

RESULTS AND DISCUSSION

Campus recreational parks based on agrotherapy play a vital role in supporting the psychological well-being of university students. Well-designed green environments function not only as natural landscape elements but also as effective interventions in reducing stress, supporting mental health, and fostering emotional and social balance among students. One of the key aspects is agrotherapy's ability to address academic stress through nature-based activities such as gardening and plant care. These activities have been shown to lower cortisol levels in the body; the primary hormone associated with stress. According to the Attention Restoration Theory by Kaplan and Kaplan (1989), exposure to natural environments can enhance concentration, reduce mental fatigue, and contribute to overall psychological well-being.

In addition, campus recreational parks have the potential to support students' holistic learning. With agrotherapy elements such as community gardens and horticultural areas, these parks can function as living laboratories for hands-on learning related to ecology, biodiversity, and sustainable agriculture. These benefits not only support academic achievement but also increase student engagement in outdoor activities that contribute to social and emotional development. Pretty et al. (2005) highlighted that participation in agrotherapy activities can improve mental health and build social skills through interaction and collaboration among students.

In the long term, the presence of agrotherapy elements also contributes to the development of a more inclusive and harmonious student community. For example, community gardens provide opportunities for students from diverse backgrounds to interact, collaborate, and form closer social networks. These social connections are essential in helping students manage loneliness and social stress often experienced in university environments. Maas et al. (2009) supported this finding, noting that individuals living near green spaces reported better mental health compared to those with limited access to natural environments.

Furthermore, the strategic integration of agrotherapy into therapeutic landscape design can maximise psychological benefits for students. The use of aromatic plants such as lavender and rosemary, which have aromatherapeutic effects, along with the construction of pedestrian pathways surrounded by greenery, can create calming atmospheres suitable for self-reflection. Ulrich et al. (1991) reported that exposure to natural green environments can accelerate the recovery from negative emotions and enhance individual well-being.

Despite the proven benefits of agrotherapy in campus recreational parks, implementing such initiatives still faces several challenges. These include the need for effective park planning and maintenance, the provision of user-friendly facilities, and continuous monitoring. Moreover, students' awareness and knowledge of the benefits of agrotherapy remain relatively low, requiring more active efforts in education and community participation. Therefore, further research is necessary to evaluate the specific effects of agrotherapy on different student groups and to identify the factors influencing the effectiveness of campus recreational parks in supporting psychological well-being. With evidence-based approaches and collaborative efforts, agrotherapy has the potential to become a key component in sustainable and student-friendly campus landscape design.

CONCLUSIONS

This study emphasises the importance of integrating agrotherapy into the design of campus recreational parks as an effective approach to enhancing university students' psychological well-being. Through the provision of elements such as community gardens, therapeutic horticulture, and purposefully designed green spaces, students can gain significant psychological benefits—including stress reduction, improved focus, emotional balance, and strengthened social connections. Universities are encouraged to take proactive steps to incorporate agrotherapy elements into campus landscape development as part of their holistic efforts to support student well-being. At the same time, further research should be conducted to measure the specific effects and effectiveness of agrotherapy interventions among students in Malaysian higher education institutions.

https://doi.org/10.37134/geografi.vol14.1.2.2026

From a policy and planning perspective, the findings of this study provide scientific justification for policymakers to consider agrotherapy as part of sustainable development and community well-being agendas. Policies that support the development of therapeutic landscapes within higher education institutions could have long-term impacts on students' mental health. The provision of guidelines and incentives for universities to adopt agrotherapy approaches may also serve as a high-impact strategy worth considering.

Finally, universities should view landscapes not only as aesthetic elements but also as inclusive and effective mental health interventions. The integration of agrotherapy into landscape design positions campuses as model institutions that support holistic well-being not only in academic contexts but also in students' emotional, social, and physical development. This approach also holds potential for expansion into mental health centres and urban communities, making agrotherapy a sustainable solution for improving the overall quality of life in society.

ACKNOWLEDGEMENT

The author would like to thank Universiti Pendidikan Sultan Idris for the financial support given.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

AUTHORS CONTRIBUTION

Author 1.: Conceptualization, Methodology, Software. **Author 2.**: Data curation, Writing- Original draft preparation. **Author 3.**: Investigation. **Author 4.**: Supervision. **Author 5.**: Software, Validation. **Author 6.**: Writing- Reviewing and Editing.

AVAILABILITY OF DATA AND MATERIALS

Please choose one of the applicable statements below.
1. Data available within the article or its supplementary materials.
2. Data available on request from the authors.
3. Data is openly available in a public repository, with a permanent identifier (such as a DOI).
4. Data embargoed due to commercial restrictions.
5. Data available on request due to privacy/ethical restrictions.
6. Data generated at a central, large-scale facility, available upon request.
7. Data subject to third-party restrictions.

DECLARATION OF GENERATIVE AI

Authors must declare the use of generative AI in scientific writing upon submission of the paper. GEOGRAFI's AI author policy states that authors are allowed to use generative AI and AI-assisted technologies in the writing process before submission, but only to improve the language and readability of their paper and with the appropriate disclosure.

Please choose one of the applicable statements below.

1. The authors declare that no generative AI was used in the writing of the manuscript.
2. During the preparation of this manuscript, the author(s) employed **ChatGPT (OpenAI**) solely for language refinement and clarity enhancement. The author(s) subsequently reviewed, revised, and verified all content and assume full responsibility for the originality, accuracy, and integrity of the work.

ETHIC STATEMENTS

Not applicable.

https://doi.org/10.37134/geografi.vol14.1.2.2026

REFERENCES

Abdul, M. A., Arof, N. M., Mohamad, I., Harun, F. A., Jamil, N. A., Kariuddin, N. A. F., & Ismail, H. (2023). Pengaruh persekitaran pembelajaran dalam meningkatkan perkembangan emosi kanak-kanak tadika: Satu kajian kes. *Jurnal Pendidikan Awal Kanak-kanak Kebangsaan, 12*(2), 45–53.

Berita Singapura. (2022). 2 taman teraputik baru dibuka di timur Singapura. *M Berita Singapura*.

Chik, M. H., Abdullah, S., & Hussin, R. (2023). The impact of green spaces on university students' mental well-being: A case study in Malaysia. *Journal of Environmental Psychology, 42*(3), 45–60. https://doi.org/10.1016/j.jenvp.2023.101872

Dyment, J. E., & Bell, A. C. (2008). Grounds for movement: Green school grounds as sites for promoting physical activity. *Health Education Research, 23*(6), 952–962. https://doi.org/10.1093/her/cym059

Dettweiler, U., Becker, C., Auestad, B. H., Simon, P., & Kirsch, P. (2015). Stress in school. Some empirical hints on the circadian cortisol rhythm of children in outdoor and indoor classes. *International Journal of Environmental Research and Public Health, 12*(3), 2935–2951. https://doi.org/10.3390/ijerph120302935

El-Sayed, M. (2021). The therapeutic use of gardens and plants in ancient Egypt: Historical roots of modern horticultural therapy. *Journal of Therapeutic Horticulture, 32*(1), 10–25. https://doi.org/10.1016/j.jther.2020.12.004

Hang, Y., Yazid, M. Y., Saidon, M. N., & Hussain, M. A. (2024). The impact and future of edible landscape on sustainable development of universities: A systematic literature review. *International Journal of Academic Research in Business and Social Sciences, 14*(5), 1569–1585. https://doi.org/10.6007/IJARBSS/v14-i5/21561

Hussain, A., Zubair, M., & Ahmad, R. (2022). Horticultural therapy: A promising tool for enhancing physical and mental health recovery. *Journal of Environmental Psychology, 45*(3), 65–78. https://doi.org/10.1016/j.jenvp.2022.101317

Hussain, M. A., Kamaruzaman, M. Y., Abdul Raji, M. N., Basri, A. Q., Mamat, A. B., Basir, J. M., & Mohd Yunos, M. Y. (2025). *A Review on the Role of Function Landscape in Encouraging the Psychomotor and Cognitive Development of Pre-School Children.* Indonesian Journal of Geography, 57(2), 423-429. https://doi.org/10.22146/ijg.97653

Hussain, M. A., Yunos, M. Y., Ismail, N. A., Ariffin, N. F., & Hamdan, H. (2022). Exploring the challenges facing in sustaining the Malay cultural landscape elements at Pantai Lido Waterfront. *International Journal of Academic Research in Business and Social Sciences, 12*(6), 727–740. https://doi.org/10.6007/IJARBSS/v12-i6/14027

Hussain, M. A., Yunos, M. Y., Ismail, N. A., Ariffin, N. F., & Ismail, S. (2020). A review of the elements of nature and the Malay cultural landscape through Malay literature. *Sustainability, 12*(6), 2154. https://doi.org/10.3390/su12062154

Hussain, M. A., Yunos, M. Y., Ismail, N. A., Ariffin, N. F., Ismail, S., & Qianda, Z. (2022). Investigating the challenges faced in designing cultural landscape at Pantai Lido urban waterfront, Johor Bahru, Malaysia. *GeoJournal of Tourism and Geosites, 41*(2), 376–386. https://doi.org/10.30892/gtg.41206-840

Hussain, A., Zubair, M., & Ahmad, R. (2020). Agrotherapy as an effective tool for enhancing emotional and social development. *Journal of Agricultural Education and Extension, 26*(4), 363–378. https://doi.org/10.1080/1389224X.2020.1786493

Hussain, M. A., Kamaruzaman, M. Y., Baharum, H., Mohd Yunos, M. Y., & Idrus, N. A. (2025). *The realization of Malay community's dependence on the traditional house landscape based on the autobiographical comic of Anak-anak Sidek*. Alam Cipta: International Journal of Sustainable Tropical Design & Practice, 18(2), https://doi.org/10.47836/AC.18.2.PAPER10

Jalal, F. H., Daud, N. A., & Samad, N. A. (2015). Kesan program pembangunan sahsiah terhadap pembentukan karakter pelajar. *Jurnal Bitara Edisi Khas (Psikologi Kaunseling), 8*, 1–18.

Kaplan, R., & Kaplan, S. (1989). *The experience of nature: A psychological perspective*. Cambridge University Press.

Kementerian Perumahan dan Kerajaan Tempatan. (2021). *Dasar kebun komuniti bandar Kementerian Perumahan dan Kerajaan Tempatan*.

Lee, J., Park, B. J., & Miyazaki, Y. (2019). Psychological effects of green space exposure on stress reduction and mood enhancement. *Frontiers in Psychology, 10*, 1-8. https://doi.org/10.3389/fpsyg.2019.01193

https://doi.org/10.37134/geografi.vol14.1.2.2026

Lederbogen, F., Kirsch, P., Haddad, L., Streit, F., Tost, H., Schuch, P., Wüst, S., Pruessner, J. C., Rietschel, M., Deuschle, M., & Meyer-Lindenberg, A. (2011). City living and urban upbringing affect neural social stress processing in humans. *Nature, 474*(7352), 498–501. https://doi.org/10.1038/nature10190

Maas, J., Verheij, R. A., Groenewegen, P. P., de Vries, S., & Spreeuwenberg, P. (2009). Green space, urbanity, and health: How strong is the relation? *Journal of Epidemiology and Community Health, 60*(7), 587–592. https://doi.org/10.1136/jech.2005.043125

Mohamed, N., Rahman, H. A., & Zainal, M. (2020). Agroecology and urban farming: A sustainable approach for modern cities. *Sustainable Agriculture Journal, 18*(4), 122–135.

Mohd Khalid, N. (2014). Community gardens as therapeutic landscapes: Their role in mental health improvement. *Urban Ecology Review, 25*(1), 88–102.

Musa, M. N., Samad, A. R. A., & Ismail, R. (2018). Therapeutic horticulture and mental well-being: A systematic review. *Asian Journal of Psychiatry, 33*(2), 56–72.

Ohly, H., White, M. P., Wheeler, B. W., Bethel, A., Ukoumunne, O. C., Nikolaou, V., & Garside, R. (2016). Attention Restoration Theory: A systematic review of the attention restoration potential of exposure to natural environments. *Journal of Toxicology and Environmental Health, Part B, 19*(7), 305–343. https://doi.org/10.1080/10937404.2016.1196155

Pretty, J., Peacock, J., Sellens, M., & Griffin, M. (2005). The mental and physical health outcomes of green exercise. *International Journal of Environmental Health Research, 15*(5), 319–337.

Park, B. J., Tsunetsugu, Y., Kasetani, T., Kagawa, T., & Miyazaki, Y. (2017). Physiological effects of forest therapy on healthy adults: A review of the literature. *Journal of Physiological Anthropology, 36*(1), 1-10. https://doi.org/10.1186/s40101-017-0149-1

Rappe, E., & Koivunen, T. (2005). Group gardening in mental outpatient care. *Therapeutic Communities, 26*(3), 382–391.

Rahman, H. A. (2019). Alam sekitar sebagai terapi alternatif kesihatan mental. *Jurnal Psikologi dan Kesihatan Sosial, 3*, 39.

Ramli, N., & Dawood, M. (2020). Academic stress and mental health among Malaysian university students. *Journal of Psychology and Counseling, 12*(3), 100–112.

Ramli, N. F., Hussain, M. A., Yunos, M. Y., & Hamdan, H. (2024). Learning environmental factors outside the classroom in affecting the psychomotor development of kindergarten children at National Child Development Research Centre (NCDRC), UPSI. *Jurnal Pendidikan Awal Kanak-kanak Kebangsaan, 13*(1), 92–104. https://doi.org/10.37134/jpak.vol13.1.8.2024

Rodzi, A., Sulaiman, M., & Wahab, Z. (2022). Physical activity and mental health: The role of green campus initiatives. *Journal of Health and Well-being, 28*(5), 76–90.

Robson, D., & Downie, C. (2019). Gardening and wellbeing: A systematic review of the psychological and physiological benefits of horticultural activities. *Journal of Public Health, 41*(2), 101–109. https://doi.org/10.1093/pubmed/fdy124

Soga, M., Gaston, K. J., & Yamaura, Y. (2017). Gardening is beneficial for health: A meta-analysis. *Preventive Medicine Reports, 5*, 92–99. https://doi.org/10.1016/j.pmedr.2016.11.007

Shin, W. S., Lee, J. H., & Lee, H. K. (2010). Effect of forest therapy on physiological responses and stress levels in patients with hypertension: A pilot study. *Journal of Alternative and Complementary Medicine, 16*(3), 317–324. https://doi.org/10.1089/acm.2009.0164

Ulrich, R. S., Simons, R. F., Losito, B. D., Fiorito, E., Miles, M. A., & Zelson, M. (1991). Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology, 11*(3), 201–230. https://doi.org/10.1016/S0272-4944(05)80184-7

Universiti Putra Malaysia Kampus Bintulu (UPMKB). (2023). *Forest Therapy as a Stress Management Approach: Enhancing Student Well-being*. Universiti Putra Malaysia.

Uswahasanah, S. (2023). Community gardens as a tool for stress reduction and social cohesion. *Environmental Research Journal, 30*(2), 140–155.

Van den Berg, A. E., Maas, J., Verheij, R. A., & Groenewegen, P. P. (2010). Green space as a buffer between stressful life events and health. *Social Science & Medicine, 70*(8), 1203–1210. https://doi.org/10.1016/j.socscimed.2010.01.002

Velarde, M. D., Fry, G., & Tveit, M. (2007). Health effects of viewing landscapes – Landscape types in environmental psychology. *Urban Forestry & Urban Greening, 6*(4), 199–212. https://doi.org/10.1016/j.ufug.2007.07.001

https://doi.org/10.37134/geografi.vol14.1.2.2026