



## LITERATURE REVIEW

URL of this article: <http://heanoti.com/index.php/hn/article/view/hn70506>

## Outdoor Cooling as an Adaptive Strategy to Minimize the Heat Wave-Induced Mental Health Outcomes

Abdul Qader<sup>1(CA)</sup><sup>1(CA)</sup>Department of Pharmaceutical Chemistry Government College University Faisalabad / Drugs Testing Laboratory Faisalabad, Pakistan; Pharmacistqader316@gmail.com (Corresponding Author)

Dear Editor,

In current era, a number of systematic and empirical studies have reported the adverse impact of heat waves on mental health. However, the range of heat waves induced adverse outcomes is still ambiguous. Various mitigation strategies are being employed to overcome the health outcomes of heat waves.<sup>(1)</sup> This short summary is also elaborating about its mitigation by considering outdoor cooling as an effective and adaptive strategy to reduce the crucial impact of heat wave on mental health. The thermal discomfort and health risk of societies are mainly experienced due to involvement in labor works, industries, and agricultural activities.<sup>(2)</sup> The outer environment can be prevented from heat wave outcomes by modification of pavement structure via albedo adjustment. The albedo adjustment can cause variations in solar energy reflection. A study has reported that heat waves induced temperature fluctuation up to 4°C can be stabilized by albedo constructions such as pavements and rooftops in urban areas.<sup>(3-5)</sup> In addition, the concept of blue-green spaces is also becoming popular in current era to reduce urban heat waves induced mental outcomes.<sup>(3)</sup> The trees with wide trunks and crowns should be grown to cancel out heat waves induced mental health outcomes.<sup>(6)</sup> A study conducted in China has also mentioned that shading from trees, umbrellas and buildings has cooling effect in sunny days.<sup>(7)</sup> Furthermore, a study from Italy Rome reported cooling effect of taller buildings in surrounding areas as compared to small buildings in streets.<sup>(8)</sup>

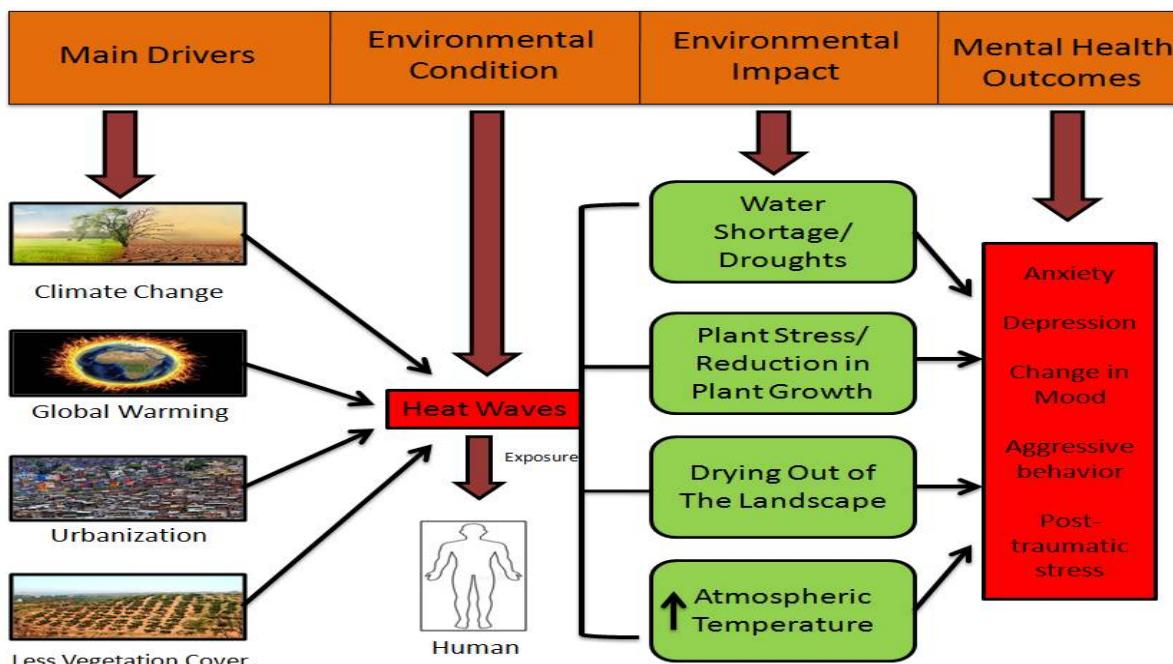


Figure 1. Elaborating the impact of heat waves on human mental health condition

**Funding source**

No funding source is available

**Conflict of interest**

The author declares no conflict of interest

**REFERENCES**

1. Arias P, Bellouin N, Coppola E, Jones R, Krinner G, Marotzke J, Naik V, Palmer M, Plattner GK, Rogelj J, Rojas M. Climate change 2021: the physical science basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Internet]. Technical Summary. 2021. Available from: <https://elib.dlr.de/137584>
2. Sharma A, Andhikaputra G, Wang YC. Heatwaves in South Asia: characterization, consequences on human health, and adaptation strategies. *Atmosphere*. 2022 May 4;13(5):734.
3. Karimi A, Sanaieian H, Farhadi H, Norouzian-Maleki S. Evaluation of the thermal indices and thermal comfort improvement by different vegetation species and materials in a medium-sized urban park. *Energy Reports*. 2020 Nov 1;6:1670-84.
4. Erell E, Pearlmutter D, Boneh D, Kutiel PB. Effect of high-albedo materials on pedestrian heat stress in urban street canyons. *Urban climate*. 2014 Dec 1;10:367-86.
5. Falasca S, Ciancio V, Salata F, Golasi I, Rosso F, Curci G. High albedo materials to counteract heat waves in cities: An assessment of meteorology, buildings energy needs and pedestrian thermal comfort. *Building and environment*. 2019 Oct 1;163:106242.
6. Sun S, Xu X, Lao Z, Liu W, Li Z, García EH, He L, Zhu J. Evaluating the impact of urban green space and landscape design parameters on thermal comfort in hot summer by numerical simulation. *Building and Environment*. 2017 Oct 1;123:277-88.
7. Lee I, Voogt JA, Gillespie TJ. Analysis and comparison of shading strategies to increase human thermal comfort in urban areas. *Atmosphere*. 2018 Mar 1;9(3):91.
8. Perini K, Magliocco A. Effects of vegetation, urban density, building height, and atmospheric conditions on local temperatures and thermal comfort. *Urban Forestry & Urban Greening*. 2014 Jan 1;13(3):495-506.