

## Sustainability | Individual communication

### IC - (20922) - ASSOCIATIONS OF OUTDOOR ARTIFICIAL LIGHT AT NIGHT WITH HUMAN HEALTH AND BEHAVIORS: EVIDENCE FROM QUESTIONNAIRE SURVEY IN TOKYO

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#### **Background and objectives**

Exposure to artificial light at night (ALAN) is known to harm health and behaviors among animals as it leads to circadian rhythm disruptions, depressive symptoms, and inactiveness. However, this has been little studied on humans particularly from diverse aspects including physiological, psychological, and behavioral impacts. The present study aimed to examine associations between ALAN, human health, and outdoor behaviors at night.

#### **Process and methods (for empirical research)**

An online questionnaire survey collected self-reported data of 2,000 adults residing in Tokyo ( $M_{age} = 49.5$  years old, male 50%) in December 2021 on evaluation (e.g., brightness, visibility) and perceptions (safety, convenience, amenity, discomfort, stress, distraction) of ALAN, mental health, sleep quality, and outdoor behaviors at night (e.g., exercise, meeting friends, grocery shopping).

#### **Main results (or main arguments in the case of critical reviews)**

Correlation and structural equation modeling results ( $ps < .05$ ) indicate that brightness and visibility are positively correlated with positive ALAN perceptions, which were then positively associated with general health and sleep quality. Brightness and visibility were negatively associated with negative ALAN perceptions, which were found negatively associated with general and mental health and sleep quality but positively with outdoor activities at night. Outdoor activities at night were of negative association to general and mental health and sleep quality.

#### **Implications for research and practice/policy | Importance and originality of the contribution**

The current results confirm associations of ALAN with human health and sleep, which is in line with previous findings. Negative perceptions about ALAN tend to make people go out at night for relieving the stress possibly caused by ALAN, deteriorating their health and sleep quality due to increased difficulties in keeping appropriate sleep-wake cycle. This study revealed the pros and cons of artificial light at night in relation to human health and behavior by covering diverse components and perceptions about ALAN based on the empirical metropolitan resident data.

**Palavras-chave : Artificial light at night, health, lifestyle, brightness, neighborhood environment**