

# Group A-3 | Urban Trees and Perceived Neighborhood Safety: Neighborhood Upkeep Matters.

**Background:** The perception of safety significantly influences individuals' decisions about participating in outdoor activities, impacting their quality of life and mental well-being. Although previous research emphasized the positive effect of tree canopies on lowering crime rates, the connection between urban trees and perceived safety remains inconsistent. This study attempts to unpack this inconsistency by examining whether urban trees in well-maintained, clean neighborhoods contribute more to perceived safety than they would in less clean neighborhoods.

**Purpose:** This study attempted to explore the relationship between urban trees and the perception of safety in Austin, Texas, USA. Specifically, we explored whether the neighborhood cleanliness moderates the association between urban trees and perceived safety.

**Methods:** The 2019 City of Austin Community Survey (n=2,049) was employed for this investigation. The survey collected participants' demographic information, neighborhood satisfaction levels, and safety perceptions using a 5-point Likert scale (from "very dissatisfied" to "very satisfied") through a combination of online and paper surveys. Ordered logistic regressions were employed to examine the impact of urban trees on perceived safety. For the measurement of urban trees, geocoded home addresses were leveraged to calculate the extent of urban tree canopy coverage within a 400-meter network buffer from the midpoint of each residential block. Furthermore, the analysis controlled for various socio-demographic factors such as age, gender, race/ethnicity, income, and homeownership, as well as neighborhood-specific variables including crime rates, built environment indicators (e.g., adequacy of street lighting, street condition, commercial rate, and park rate), and neighborhood socioeconomic status, as measured by the Area Deprivation Index.

**Results:** Overall, 28% expressed a high level of satisfaction with their perceived safety during nighttime in their neighborhood. After adjusting for control variables, our analysis revealed a positive association between urban tree canopy coverage and perceived safety (OR=4.58, 95% CI=1.54-13.59). More importantly, we found a significant interaction term between urban tree canopy and the cleanliness of neighborhoods, amplifying the likelihood of perceiving safety.

**Discussion:** This study sheds light on how urban green spaces, particularly urban tree canopy cover, can enhance perceived safety. Notably, the positive impact of urban tree canopy is more significant in well-maintained neighborhoods. This suggests that combining efforts to improve local living conditions with increased urban tree planting can be a highly effective strategy for promoting perceived safety. These findings can inform evidence-based urban planning and community development, fostering enhanced well-being and safety for all residents.



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