

PEDESTRIAN ROUTE TAKING BEHAVIOUR AT NIGHT AND STREET LIGHTING - A PILOT STUDY

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Abstract:

– **Introduction**

Pedestrian travel offers a wide range of benefits to both individuals and society. From a transportation standpoint, pedestrian travel results to less vehicle travel and thus less traffic, air pollution, and other environmental impacts. From a public health standpoint, pedestrian travel means increased physical activity and thus improved health and reduced healthcare costs. Planners and public health officials alike have been promoting policies that improve the quality of the built environment for pedestrians: mixed land uses, interconnected street networks, street lighting and other facilities. A growing number of empirical studies have provided evidence of a correlation between the built environment and pedestrian behaviour.

– **Theoretical background**

Lighting known to be one of the environmental factors affecting perception of security and reassurance between pedestrians and could be one of the factors encouraging pedestrian travel at night. Most studies on the relationship between street lighting and perception of reassurance have gone no further than investigating pedestrians thoughts/cognitions and feelings/emotions in controlled conditions. Whether and when these thoughts and emotions will result in behaviour change such as street avoidance at night has not been explored. For example whether the feeling of insecurity caused by lack or ineffective street lighting will result to pedestrians avoid using certain streets (or avoid using streets altogether) at night. In other words what criteria should be met by street lighting quality/quantity before street avoidance at night happens.

– **Methods**

This paper reports a pilot study exploring the changes in pedestrian use of streets at night compare to day and influential factors resulting this change. The pilot study explores the qualitative data from residents of two residential areas in Tehran, Iran. Semi-structured interviews were conducted and respondents were asked to indicate a walking route they usually take during the day on a map of the area. They were consequently asked whether they would take the same route at night for the same purpose as day time or an alternative route will be chosen and why. They had the choice to say they will use other means of transportations such as using their personal cars. The street survey of lighting conditions, land use and general characteristics of the routes used by participants has been conducted.

– **Results**

The results show that among other factors average illuminance on the pavement/street affects pedestrian route taking decisions. Pedestrians avoid routes with average illuminance of less than 5 lux and prefer routes with the average illuminance of 8 lux and above. It also affects the choice of transport means. 20% of the interviewed people tend to use their cars at night for the same destinations they walk during the day. This number rises to 50% among pedestrians age 50 and over. The results also show that risk taking behaviour in relation to possibility of fall and trip hazards is different in older adults compare to younger adults. The average illuminance on the routes older adults avoid at night are much higher than threshold level for obstacle detection considering the effect of aging on visual performance.

– **Conclusions**

This study shows street lighting affects pedestrian route taking patterns and transport choice beyond visual performance needs. This effect is more prominent particularly among older adults. The results will serve as a base for future studies on the impact of street lighting on pedestrian travel.

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