The arousal, alertness & anxiety triad

Research on street lighting for pedestrians has traditionally focused on minimal required illuminance for various visual performance tasks (e.g., obstacle detection and face recognition [1,2,3,4]). However, it is not only pedestrians’ visual performance that is important for safety, but also their general attentiveness to the environment. Despite this, the psychological concepts related to the individuals’ attention, such as alertness, arousal and anxiety, have not been considered in street lighting research to date.

“Mere ability to discern surface irregularities, vehicles, pedestrians or obstacles on the street or sidewalk does not insure safety unless the reaction to these stimuli is normal.” [5]

Pilot study: Alertness and perceived safety after sundown

We performed a one factor (4 street sections) within-subject quasi-experimental field study, a conceptual replication of the Burtt study [5], using modern day reaction time equipment and self-report measures for assessing alertness, arousal and perceived safety. Participants walked alone, after dark, along four streets with different lighting conditions.

Hypotheses:

1) Responses will be faster and more accurate on the streets with lower uniformity of illuminance than on the streets with high uniformity of illuminance.

2) The perceived safety will be lower on the streets with lower uniformity of illuminance than on the streets with high uniformity of illuminance.

References: