

Abstract

Due to heavily heterogeneous traffic condition in India, pedestrian road crossing is a major issue for traffic flow as well as for pedestrian safety. Most of the intersections in India are unsignalized. Analyzing whether the gap is safe to cross at unsignalized intersection is more difficult than at midblock crossing due to the added complexity. Motivation behind this research work is to understand the pedestrian gap acceptance behavior at unsignalized intersections. Field data were collected from seven sites in the city of Kanpur. Survey intersections were selected based on different land use characteristics. The data collection resulted in 2,401 pedestrian headway data points for vehicular temporal gaps including both accepted and rejected headways. Critical gap was estimated using *Wu's* macroscopic model and then compared as to how different variables (like waiting time, approaching vehicle in platoon or not etc) impact pedestrian critical gaps. The study showed that pedestrian and vehicular composition plays a significant role on gap acceptance behavior. With help of binary logit model pedestrian acceptance decision was modeled. Research concluded that pedestrian rolling gap plays an important role in pedestrian crossing behavior. This study can be helpful for the pedestrian safety and pedestrian facility designing at unsignalized intersection crossings with similar traffic characteristics.

Keywords: Pedestrian unsignalized crossing; Gap acceptance behavior; Temporal gap; Critical Gap; Logit model; *Wu's* model