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Background Little is known about the prevalence and factors influencing red light running in Malaysia and the relation to the growing number of intersection related crashes.

Objective To examine the prevalence and identify the factors associated with red light running at selected intersections in Malaysia.

Methods Four intersections with high rate of accidents were selected as observation sites. Observations were conducted during peak hour (7:00–21:00) and off-peak (14:00–16:00) on a randomly selected day of the week excluding the weekends. Traffic volumes, traffic light violations, type of vehicles, time of day and cycle length of the traffic light were recorded.

Results In total, out of 5090 vehicles observed, 12.04% ($n=613$) violated the red light. It was found that drivers facing short cycle length (less than 120 s) were more likely to run red lights. Intersections with fixed-timed traffic lights recorded 1.5 times more cases of red light running compared to intersections with vehicle-actuated traffic lights. Motorcyclists were 4.32 times more likely to run the red light compared to other drivers. No significant differences were observed in the number of red light running during peak hour and off-peak.

Conclusion It was found that red light running were significantly related to the cycle length ($p<0.05$), types of traffic light ($p<0.01$) and types of vehicle ($p<0.01$). This study suggests the implementation of suitable engineering countermeasures and automated enforcement to reduce the number of red light running in Malaysia.