

FAILURE OF A TRAFFIC CONTROL "FATALITY" SIGN TO AFFECT PEDESTRIANS' AND MOTORISTS' BEHAVIOR¹

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Summary.—The behavior of 643 pedestrians and 1749 motorists at two signal-controlled intersections was observed over a 2-mo. period of observation in March and November. One intersection had a coffin-shaped traffic sign with the wording "Fatality" erected during the first month of observation (March). The second intersection was identical in traffic and pedestrian volume but lacked a "Fatality" sign in either March or November. "Fatality" signs are erected and maintained by the City of Edmonton for 6 mo. whenever a pedestrian death has occurred, and they are intended to raise the awareness of both pedestrians and motorists concerning the risks at dangerous intersections. This sign had been removed for nearly 3 mo. when a follow-up observation was made in November. While female pedestrians and pedestrians over the age of 50 years showed greater caution at both intersections, the presence or absence of the "Fatality" sign had no statistically significant influence on safety. Similarly, the presence or absence of a sign did not significantly influence motorists' behavior. Of motorists 7.6% ran either amber or red traffic control lights at the two intersections. The "Fatality" sign did not affect the rates of these violations.

About 14% of all traffic deaths in North America involve pedestrians (Brainard, Slaughterbeck, Benjamin, Hagaman, & Higie, 1989; Vestrup & Reid, 1989). A field experiment in Canada reported that posting a "Stop Here for Pedestrians" sign reduced the percentage of motor vehicle-pedestrian conflicts in which a motorist did not stop to allow a pedestrian to cross (Van Houten & Malenfant, 1992). Another study, however, reported that accidents between pedestrians and vehicles actually increased during the daytime when a yield sign was replaced with a stop sign (Polus, 1985). For the most part, the literature suggests that road signs have small effects on accident rates and that motorists tend to pay little attention to many kinds of signs that involve pedestrians (Harrell, 1991, 1992; Johansson & Rumar, 1966; McKelvey, 1984).

The present study examined the impact of a prominently posted "Fatality" sign at a busy urban intersection on cautionary behaviors by both pedestrians and motorists.

METHOD

Sample

Subjects were 643 pedestrians observed crossing at two signal-con-

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trolled urban intersections during 80 hr. of observation during the months of March and November. In addition, the behavior of 1,749 motorists passing through these intersections was also observed.

Locations

Observations were conducted at two busy urban intersections one block apart. Pretest observations verified that the volume of traffic through these intersections was approximately the same. Phasing of traffic signals and the length of walk-don't walk signs for pedestrians were also equal. One intersection (with only southbound traffic) had a large 80-cm high by 67-cm wide coffin-shaped sign with the word "Fatality" written in black lettering on a white background. The sign was mounted on a light standard 3.7 m above the ground on the southeastern corner and facing southbound traffic and pedestrians. The sign was erected in February and remained in place until the end of July. It is the policy of the City of Edmonton to erect such signs on roadways for a period of 6 mo. following a fatal accident involving a pedestrian. In the present case, the sign was posted after a pedestrian had been hit and killed by a city bus. Other than the standard street signs on each corner of the intersections there were no other prominent signs which interfered with the view of the fatality sign. Four lanes of traffic in the southbound street featuring the Fatality sign passed through a four-lane arterial with east-west traffic. One block to the east was the control intersection. Four lanes of northbound traffic passed through the four-lane arterial with east-west traffic.

Measures

An index of pedestrian safety was constructed by recording whether a pedestrian moved the head to look one way or two ways before crossing, whether a pedestrian walked only when the "walk" sign was indicated, and the distance stood from the curb. Failure to look in either direction was scored 0. A one-way look was scored 1, and looking both ways was scored 2. A pedestrian who walked before the "walk" light was illuminated received a score of 0, while a score of 1 was given for waiting for the signal. Tape was placed on the pavement at premeasured distances from the curb. A score of 1 was given if the pedestrian stood closer than one foot from the curb; a 2 was given if the distance was between two and three feet, and a 3 was assigned if the pedestrian stood three or more feet from the curb. The composite safety index was ordinal in nature and ranged from 1 to a maximum of 6. The sex of each subject, as well as an estimate of subject's age, was recorded. For purposes of analysis, four age categories were created, representing subjects less than 20 years, 21-35 years, 36-50 years, and subjects over age 50 years. No effort was made to interview subjects to obtain their actual ages or other demographic data. Samples of motor vehicle traffic

were taken during this time frame and simultaneously with observations of pedestrians. A tally was made of motorists who ran an amber light, i.e., passing through the intersection if the signal light changed to yellow before the motorist entered the intersection, and runners of a red light.

Procedure

A single, trained observer sampled both pedestrians' and motorists' behaviors for a total of 80 hr. during March. Observations were made from 10:00 a.m. to 4:00 p.m. during weekdays. These observations occurred during the period of time the "Fatality" sign was displayed. An additional 80 hr. of observation was made in November after the sign had been removed. During these months the observed streets were comparable in terms of the quality of the roadway and weather conditions.

RESULTS

Fifty-one percent of the subjects were men ($n=327$) and 49% women ($n=316$). Two hundred and fifteen subjects were observed at the intersection with the fatality sign, 214 at this same intersection without the sign, and 214 at the control intersection. Those under 20 years were the largest age group at 42% of the sample ($n=270$). Thirty-three percent were 20–35 years ($n=213$). Fifteen percent were 36–50 years ($n=97$), and 10% were over 50 years ($n=63$). A total of 1,749 motorists were observed passing through the intersections. Six hundred and forty were observed at the intersection with the fatality sign (36.6%). Thirty-four percent were observed at this same intersection without the sign ($n=594$), and 29.5% ($n=515$) were observed at the control intersection.

TABLE 1
MEANS AND STANDARD DEVIATIONS FOR SAFETY SCORES

Variable	<i>M</i>	<i>SD</i>
Fatality Sign		
Present	4.6	0.8
Absent	4.8	1.1
Control Intersection	4.5	0.9
Pedestrian's Sex		
Men	4.6	1.0
Women	4.8	0.8
Pedestrian's Age, yr.		
<20	3.1	1.0
20–35	4.4	0.9
36–50	4.6	1.0
>50	5.0	0.6

The influence of the fatality sign on pedestrians' behavior was not significant ($F_{2,499}=2.3$, $p=.11$). The mean safety score for pedestrians at the intersection with the fatality sign in place was slightly higher than when the

fatality sign was absent from this intersection, but not significant. (See Table 1.) The mean safety score of 4.5 recorded at the control intersection was slightly lower than the safety score for the intersection with the fatality sign, but the difference also was not statistically significant. Safety scores were significantly higher for women than for men ($F_{1,499} = 19.4, p < .001$). In addition, scores were progressively higher with greater age ($F_{3,499} = 16.7, p < .001$).

In all of the intersections, a total of 7.6% of the motorists observed ran either amber or red lights. For the intersection with the fatality sign, 8.5% of the motorists ran amber or red lights. When the fatality sign was removed, 6.7% of the motorists ran the light. In the control intersection, 7.1% of the motorists ran amber or red lights. A chi-square analysis yielded no significant difference in distributions for the two intersections.

DISCUSSION

It was the intent of the City that these fatality signs would raise awareness of traffic risks, thereby increasing safe street crossing behaviors by pedestrians. It was also felt that the signs would evoke safer driving by motorists. Evidence from this study suggests that this is not the case. Pedestrians did not act more safely when fatality signs were present than when they were absent. Motorists were just as likely to run amber or red lights when the signs were present as when they were absent.

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