



Effects of roadside memorials on red light running intention in different age, gender and personality groups



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ABSTRACT

Despite their ongoing popularity in Australia and around the world, relatively little research has been conducted to understand the effects of roadside memorials on drivers' behaviors. Although a few studies have been conducted to examine the effects of roadside memorials on drivers' behaviors, none has examined how it works or which driver segments are more likely to be affected by their placements. This study examines the effect of roadside memorials on red light running intention of 949 drivers in the Australian State of Victoria and the Australian Capital Territory. Drivers' perceptions and reactions to visual depictions of roadside memorials are measured, together with their personalities. We find that it is effective in reducing red light running intentions among middle-aged females, older females and older males and among people who feel sad and sympathetic and/or feel worried and concerned. It is also more effective among people who have a high need for body resources and a high level of agreeableness, but a low need for material resources and/or low general self-efficacy. Therefore, roadside memorials can be used by policy makers as an effective safety communication tool to change the behaviors of these driver segments.

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1. Introduction

1.1. Background and rationale

Traffic collisions are a major cause of fatalities and injuries in many countries, with 1.25 million deaths annually (WHO, 2015). In the United States of America, for example, 33,561 road users were killed in 2012 (IIHS, 2015) while in Australia, 1310 road users were killed in 2012 (BITRE, 2013). Families of these road fatalities often place memorials by the roadside to mark the spots where the collisions occurred in order to have an earthly connection with the loved one killed (Clark & Cheshire, 2003). However, the placement of memorials has generated much public debate and the Australia State of Victoria has recently conducted a review of its roadside memorial policy and introduced several limits on the types of memorials and the locations that they can be installed (VicRoads, 2015). Despite their on-going popularity in North America, South America, Europe and Australia, relatively little research has been conducted on understanding the effects of roadside memorials on drivers' behavior (Tay, 2009; Tay, Churchill, & de Barros, 2011).

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1.2. Literature review

Many studies had been conducted to understand the motivations for erecting roadside memorials (Clark & Cheshire, 2003; Clark & Franzman, 2006; Collins & Rhine, 2003; Reid & Reid, 2001). Collins and Rhine (2003) performed a synthesis of published accounts in the news and the internet, and conducted 14 interviews with memorial builders in the United States. They found that most memorials were placed for the young whose deaths were considered unexpected, and they were more likely to be placed by those in their early thirties. The main reason for the placement of the memorial was their desire to return to the place where their loved ones departed, and a warning to fellow motorists was found to be an after-thought.

In addition to understanding the rationale for roadside memorial placement, a few studies have examined the responses of policy makers. For example, Churchill and Tay (2008) conducted a questionnaire survey of representatives from 82 municipal transport departments in Canada on their perceptions of roadside memorials and found that the main considerations in choosing a policy were driver distraction, safety hazard, maintenance, liability, encouragement to drive cautiously and visual blight (eyesore). Among these factors, driver distraction and visual blight were the most significant concerns.

Besides understanding the reasons for roadside memorial placement by families and policy response by municipalities, a few studies have been conducted to understand the effect of roadside memorials on drivers' behaviors. For example, in a survey conducted at a rest-stop along Highway 1 in the Australian state of New South Wales by Hartig and Dunn (1998), more than half of the 316 respondents reported driving more cautiously and one third of the males reported driving slower after seeing the memorials erected along the highway. Drivers under the age of 35 were found to be the most likely to slow down or drive more cautiously in response to seeing a memorial.

In another study, Churchill and Tay (2008) conducted a questionnaire survey of 361 young drivers in the City of Calgary because they were often over-represented in crashes and were often the ones who were memorialized. Respondents were shown photographs of memorials and asked about their perceptions and reactions when seeing such memorials along the roads. They found that drivers generally thought that roadside memorials provided safety warnings, encouraged drivers to drive more cautiously and may reduce collisions.

In one of the few studies on observed behavior on the road, Tay (2009) examined the effects of roadside memorials on red light running behavior in the City of Calgary. Mock memorials were placed at two of the four selected intersections with similar road and traffic characteristics and the red light violations at all four intersections were recorded. A before-after with comparison group study found that the roadside memorials reduced red light running by 28.7%.

In addition, Tay (2009) also conducted a public opinion survey. Respondents were shown photographs of roadside memorials and asked about their perceptions and reactions when seeing the memorials along the roads. The study found that 28.5% of the 810 respondents from the city of Calgary reported that roadside memorials would increase their inclination to stop when approaching a yellow traffic light. Coincidentally, the statistics for the self-reported behavior were the same as the observed behavior with respect to red light running. Besides red light running behavior, the study found that 24.6% of the respondents agreed with the statement that they were likely to slow down when they saw a roadside memorial.

However, in another study, Tay et al. (2011) examined the short term effects of roadside memorials on traffic speed and headways on a high speed intercity freeway as well as its long term effect on traffic speed on a high speed urban freeway. They found that the placement of roadside memorials did not have any significant effect on traffic speeds or headways, either in the short or long term. Therefore, although the self-reported impact on drivers' red light running behavior was consistent with the observed effect, the self-reported effect of roadside memorial on drivers' speeding behavior was not consistent with observed behavior.

1.3. Objectives of study and hypotheses

The objective of this paper is to understand how drivers perceive and react to roadside memorials. In particular, it will examine the effect of exposure to a roadside memorial near an intersection on red light running intention of drivers in the Australian State of Victoria and the Australian Capital Territory. More specifically, it will examine the influence of emotional arousal, personality trait, age and gender in changing drivers' self-reported intentions.

Although a few studies have been conducted to examine the effects of roadside memorials on drivers' behaviors, none has examined how it works or the driver segments that are more likely to be affected by their placements. Since emotional response appears to be a very significant influence in the support of roadside memorial placement by families and the community, we will test the hypothesis that it will also have a significant influence on any changes in drivers' intentions. Similarly, we will test the hypothesis that the age and gender of the respondents will also have a significant influence on drivers' red light running intentions. Finally, we will explore the personality traits that are more likely to be associated with adaptive responses to roadside memorials.

Since roadside memorials can be considered as a persuasive communication or a social marketing message and channel, the role of emotional arousal, personality trait, age and gender are expected to be significant in changing viewers' adaptive intentions because these influence have been found to be significant determinants in several studies on road safety messages and marketing campaigns (Caubergh, De Pelsmacker, Janssens, & Dens, 2009; Donovan & Henley, 1997; D'Souza & Tay, 2016; King & Reid, 1990; Lewis, Watson, & Tay, 2007; Lewis, Watson, & White, 2008, 2010; Lewis, Watson, White, & Tay,

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