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Original Research

Evaluation of a five-year Bloomberg Global Road Safety Program in Turkey[☆]



S. Gupta^{a,*}, C. Hoe^{a,f}, T. Özkan^{b,g}, T.J. Lajunen^{c,h}, F. Vursavas^{d,i},
S. Sener^{e,j}, A.A. Hyder^{a,k}

^a Johns Hopkins International Injury Research Unit, Department of International Health, Johns Hopkins Bloomberg School of Public Health, 615 N Wolfe Street, Baltimore MD, USA

^b Safety Research Unit, Department of Psychology, Middle East Technical University (METU), Ankara, Turkey

^c Department of Psychology, Faculty of Medicine, Dragvoll, Edvard Bulls veg 1, Bygg 12 * 12419, Finland

^d Police Superintendent Road Traffic Research Center, Turkish National Police, Ankara, Turkey

^e WHO Country Office, Birlik Mahallesi 415, Cadde No:11 06610, Çankaya, Ankara, Turkey

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ABSTRACT

Objective: Turkey was included in the Bloomberg Philanthropies funded Global Road Safety Program (2010–14) with Ankara and Afyonkarahisar (Afyon) selected for interventions to manage speed and encourage seat-belt use. The objectives of this study are to present the monitoring and evaluation findings of seat-belt use and speed in Afyon and Ankara over the five years and to assess overall impact of the program on road traffic injury, and death rates in Turkey.

Study design: Quasi-experimental before after without comparison.

Methods: In collaboration with the Middle East Technical University, roadside observations and interviews were coupled with secondary data to monitor changes in risk factors and outcomes at the two intervention sites.

Results: The percentage of seat-belt use among drivers and front-seat passengers in Afyon and Ankara increased significantly between 2010 and 2014 with increased self-reported use and preceded by an increase in tickets (fines) for not using seat belts. There were uneven improvements in speed reduction. In Afyon, the average speed increased significantly from 46.3 km/h in 2012 to about 52.7 km/h in 2014 on roads where the speed limits were 50 km/h. In Ankara, the average speed remained less than 55 km/h during the program period (range: 50–54 km/h; $P < 0.005$) for roads where the speed limits were 50 km/h; however, the

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* Corresponding author. Tel.: +1 443 287 8748.

E-mail addresses: sgupta23@jhu.edu (S. Gupta), choe1@jhu.edu (C. Hoe), ozturker@metu.edu.tr (T. Özkan), timo.lajunen@svt.ntnu.no (T.J. Lajunen), fvursavas@egm.gov.tr (F. Vursavas), seners@euro.who.int (S. Sener), ahyder1@jhu.edu (A.A. Hyder).

^f Tel.: +1 443 287 4758.

^g Tel.: +90 3122105118.

^h Tel.: +47 73550865.

ⁱ Tel.: +90 5052501788.

^j Tel.: +90 312 454 10 91.

^k Tel.: +1 410 955-1253.

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average speed on roads with speed limits of 70 km/h decreased significantly from 80.6 km/h in 2012 to 68.44 km/h in 2014 ($P < 0.005$).

Conclusion: The program contributed to increase in seat-belt use in Afyon and Ankara and by drawing political attention to the issue can contribute to improvements in road safety. We are optimistic that the visible motivation within Turkey to substantially reduce road traffic injuries will lead to increased program implementation matched with a robust evaluation program, with suitable controls.

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Introduction

Road traffic injuries (RTIs) are a major cause of global mortality and morbidity, accounting for 1,328,536 (2.5%) deaths and 81,577,000 (3%) disability-adjusted life years (DALYs).¹ Although middle-income countries only possess 53% of the world's registered vehicles, 74% of all road traffic deaths take place there.² As of 2013, the RTI fatality rate in middle-income countries was 18.4 per 100,000 population, whereas it was 17.4 per 100,000 population globally and only 9.2 per 100,000 population in high-income countries.²

The Republic of Turkey is an upper middle-income country in the European Region. According to the 2010 Global Burden of Disease study, RTIs were the 15th leading cause of death and 10th leading cause of DALYs lost in Turkey.³ The economic cost of RTIs to Turkey is also extensive; in 2000 it was estimated that productivity losses caused by RTI amounted to US \$2.6 billion.⁴

In light of the rising public health concern that RTIs pose worldwide, Bloomberg Philanthropies funded a 5-year Global Road Safety Program to reduce deaths and serious injuries on the roads of ten low- and middle-income countries (LMICs).⁵ The Republic of Turkey was one of the ten countries selected for this program, and Ankara and Afyonkarahisar (Afyon) were chosen as sites where interventions to manage speed and encourage seat-belt use were implemented. From 2010 to 2014, interventions including social marketing campaigns; enhanced police enforcement; legislative advocacy; and training for police, journalists, and academics were implemented.

National, regional, and international partners worked collectively to implement this multisectoral program. The Global Road Safety Partnership worked with local partners to strengthen the capacity of regional traffic police. The Johns Hopkins University International Research Unit worked with the Middle East Technical University (METU) to monitor and evaluate the interventions. The Association for Safe International Road Travel worked with local advocacy organizations and journalist advocate for legislative changes. The World Health Organisation (WHO) took the lead in developing social marketing campaigns, which were aligned with enhanced enforcement. Seat-belt use was the early focus in the program with the launch of social marketing campaigns in Afyon in 2011 and Ankara in 2012 with enhanced enforcement in 2012, whereas interventions related to speeding were introduced in 2013. A good case study emblematic of project activities, describing implementation in Afyon is available,⁶ and we provide a general outline in Table 1.

The primary goal of this study is to present the monitoring and evaluation findings of seat-belt use and speed in Afyon and Ankara over the five years. The specific objectives are to (1) assess time trends of observed and self-reported seat-belt use and speeding in Afyon and Ankara between 2010 and 2014; (2) compare observed and self-reported seat-belt use and speeding with police enforcement data in Afyon and Ankara between 2011 and 2014; and (3) assess the overall impact of the program on health outcomes and on the political environment in Turkey. This article hopes to contribute to further sustainability of road safety in Turkey and other middle-income countries.

Methods

Over the five-year period of this program, complementary research methods were used to establish a baseline and conduct continued monitoring and evaluation activities; details about the baseline (first round) can be found in Puvanachandra et al., 2012.⁷ Monitoring and evaluation activities relied on primary data collection conducted in country, as well as secondary data from the Turkish National Police Statistics Department, and the Turkish Statistical Institute (TurkStat).

From 2010 to 2014, thirteen rounds of observations for seat-belt use, seven rounds of observations for speeding, seven rounds of roadside interviews for seat-belt use, and seven rounds of roadside interviews for speeding were conducted (Table 2).

Observations were conducted and recorded by trained researchers using standardized observation protocols and data recording sheets.⁸ Observational sample size was calculated to detect semi-annual statistically significant change (P -value 0.05) in risk factor prevalence of 3% or higher with a design effect of 3. At their respective locations, two researchers recorded seat-belt use among drivers and front-seat passengers; one of the researchers was responsible for observing seat-belt/child restraint use by vehicle occupants, identifying vehicle type, number of occupants, age and sex of the vehicle occupants, and dictating data, whereas the other researcher was responsible for recording data in the observation form. Two different researchers measured vehicle speeds using hand-held radar guns; one was responsible for recording the free-flow speed using radar equipment, identifying the vehicle type, and dictating data. The second researcher was responsible for recording data in the observation form. Observations at each location were conducted simultaneously during four 90-min time segments over two days per round (Tuesday and

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