

Traffic safety: Road infrastructure

Parallel Tue 1.3

243 THE EFFECT OF REDUCED STREET-LIGHTING ON ROAD COLLISIONS IN ENGLAND AND WALES 2000–2013

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Background Many local authorities in England and Wales have reduced street lighting at night to save money and reduce carbon emissions. Reductions in street-lighting, however, have attracted considerable public concern about road safety. While there is evidence that increasing street-lighting can reduce collisions it is unknown whether reducing street-lighting can increase collisions. We quantified the effect of four street lighting adaptation strategies (switch off, part-night lighting, dimming and white light) on road traffic collisions in England and Wales.

Methods Observational study based on analysis of geographically coded police data on road traffic collisions in 62 local authorities. Conditional Poisson models were used to analyse longitudinal changes in the counts of night-time collisions relative to day-time collisions occurring on affected roads during 2000–2013. Effect estimates were adjusted for regional temporal trends in collisions.

Results There was no evidence that switch-off (rate ratio 0.97; 95% confidence interval 0.82 to 1.15); part-night lighting (RR 0.95; 95% CI: 0.84 to 1.07); dimming (RR 1.00; 95% CI: 0.91 to 1.10); or changes to white light (RR 1.01; 95% CI: 0.93 to 1.09) were associated with a change in collisions at night relative to collisions during the day.

Conclusions This study found little evidence of harmful effects of switch off, part-night lighting, dimming, or changes to white light/LEDs on road collisions in England and Wales.

244 HELMETHON: SUCCESS OF HELMET CAMPAIGN IN AIDING THE HELMET LAW ENFORCEMENT IN A DISTRICT OF SOUTH INDIA

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Background Road traffic injuries were the leading cause of injury with a mortality rate of 18.1/1,00,000/year and accounted for 38% of fatal injury deaths and 39% of nonfatal injuries during Jan 2011–Dec 2011 in Tumkur. Nearly 26% of fatal and 38% of non-fatal road traffic injuries were sustained in the age group of 15–29 years. Two wheeler riders accounted for 45% of fatal and 35.5% of nonfatal injuries. Head injury is the most common cause of death among two wheeler users. Helmet is the only vaccine to prevent head injuries. Though there was a law about compulsory wearing of helmet in the state, it was never enforced in the district and helmet usage rate in a district before campaign was varied from 1% to 5%.

Methods ‘Helmethon’, was a campaign initiated and led by a Medical college with the support of other universities. Campaign targeted the public with special focus 1. To create awareness

among public about helmet safety, with special focus on youth. 2. To promote helmet usage 3. To draw stakeholder’s attention towards importance of helmet safety and need for enforcement. This campaign was designed with the inputs from youth, so that more youth would be part of this.

Multi faceted Campaign was carried out for a period of three months. It had various components like, Helmet education, HEL-fie challenge in a social media, bike rally with a flash mob and wear helmet pledge at different campus and public places, an intercollegiate literary and cultural event with the theme ‘HeL-MeT’ and a first ever marathon-HELMETHON, in a district for Helmet.

Results Campaign was successful in bringing the stakeholders together with good community participation and Helmet law was enforced in Tumkur district in less than a fortnight following the campaign. Now helmet usage rate among riders has increased to 80%.

Conclusions A well planned and committed helmet campaign shall influence stakeholders to enforce the helmet law and sensitises the community regarding helmet safety and encourages them to use it.

245 IMPLEMENTATION AND EVALUATION OF A PROGRAM TO INCREASE BOOSTER SEAT USE AMONG SCHOOL-AGE CHILDREN

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Background Between the 2011–2012 and 2014–2015 school years, the Injury Prevention Centre of Greater Dallas (IPC) implemented *Give Kids a Boost (GKB)*, a one-year, multi-faceted, school-based booster seat program in a total of 8 target schools in the Dallas area. Through the program, the IPC trained school staff and parents to be booster seat champions. Together, they conducted parent presentations, provided fact sheets and tailored communication, educated parents at dismissal, and offered inspection stations. This study aimed to evaluate the effectiveness of all of the IPC’s GKB projects in increasing booster seat use among children 4–7 years of age in motor vehicles.

Methods The IPC conducted observation surveys at target and comparison schools before project implementation (pre-intervention, P₀), 1–4 weeks after project implementation (early post-intervention, P₁), and 4–5 months after project implementation (late post-intervention, P₂). Observations were conducted at morning drop-off times near school entrances. A standardised form was used to document the child’s restraint use, age/race/gender, seating position, vehicle type, and driver belt use. P₀, P₁, and P₂ time periods were analysed to compare the changes in booster seat use across each project. Observations were conducted in the same manner at the comparison schools, which received no intervention.

Results In the 8 target schools, booster seat use for children 4–7 years of age increased an average of 20.9 percentage points between P₀ and P₁ (P₀ = 4.8%, P₁ = 25.7%; O.R. = 6.9, 95% CI: 5.5 to 8.7; P < 0.001). Comparison schools (n = 14) experienced no change in booster seat use (P₀ = 4.7%, P₁ = 4.9%; O.R. = 1.0, 95% CI: 0.8 to 1.3; P = 0.4). In 3 of the 4 years, booster seat use remained at a high level at the P₂ time period (P₂ = 31.5%).

Conclusions The GKB program has been effective in increasing booster seat use in motor vehicles for children ages 4–7 in varied school settings. These increases persisted into the following school year in a majority of the projects.

246 FIVE YEARS OF MANDATORY BICYCLE HELMETS FOR CHILDREN IN AUSTRIA – A POST HOC EVALUATION

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Background In Austria, bicycle helmets have been mandatory on public roads for children under 12 years of age since May 31, 2011 (23rd amendment to the road safety act). The regulation was introduced as an awareness measure and is primarily designed to protect children from head injuries. Thus, there are no consequences for violation of the regulation.

Methods Post hoc evaluation of the effect of the helmet wearing legislation comprised the use of existing data sources about helmet wearing and the rate of head injuries. The main data source used for the analysis, the Injury Databases (IDB Austria), is quite unique for this purpose as it provides information on both the type of road user and the type of injury. The results on helmet wearing are based on regularly conducted counts, performed bi-annually since 2005.

Results After the introduction of the regulation a significant increase of the helmet wearing rate was observed in the target group: before the introduction about 65% of children under 12 wore a helmet, by 2014 the rate was 87%. This trend in helmet wearing was mirrored also in the development of the rate of head injuries of child bicyclists who were treated in hospital after an accident: before the helmets became mandatory 47% of the children under 12 years had head injuries, by 2014 the rate was 38%.

Conclusions As intended by the regulation, an increase in the proportion of children wearing a helmet and a decrease in the rate of head injuries was observed. However, both trends need to be further observed in order to evaluate the supposed effect of the legislation in the long run. By the time of the Safety2016 taking place, the most recent data on both indicators will be presented in addition to results given above.

247 KNOWLEDGE OF, ATTITUDE TOWARD AND PRACTICE OF HELMET USE AMONG MOTORCYCLE PASSENGERS IN CAMBODIA

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Background Road crashes constitute Cambodia's most serious non-communicable public health crisis, claiming on average 6 lives per day and seriously injuring 17 more. In 2014, over 70% of victims were motorcyclists, only 12% of whom wore a helmet. AIP Foundation is implementing the USAID-DIV supported

“Head Safe. Helmet On” (HSHO) project, from 2014 to 2016 to increase helmet use, through three main components: school-based education, high-level advocacy, and behaviour change communications (BCC).

Methods Under BCC, a knowledge, attitude, and behaviour survey including 400 interviews in HSHO target provinces was implemented at baseline in August 2014 and at midline in August 2015. Based off of findings, BCC designs nation-wide mass media campaigns, including television and radio commercials, to address the public's stated reasons for not wearing a helmet and raise awareness on the importance of helmet use.

Results In the mid-term evaluation, most respondents (about 87%) reported exposure to a helmet safety message in the last year. When prompted with an HSHO BCC image, 86% of respondents recalled seeing it on a TV commercial. Respondents who reported that passenger helmet use is important increased from about 45% to 60%. The percentage of respondents who reported that they were likely or very likely to be stopped by police for not wearing a helmet as a passenger increased from 25% to 66%. However, 67% of respondents replied that they are unlikely to be stopped by police if a child is not wearing a helmet. Awareness of the passenger helmet law, expected to be enforced in January 2016, increased from 69% to 91%. Respondents reporting that they “always” wear a helmet increased from 10% at baseline to 20% at midterm.

Conclusions BBC can increase public knowledge of and attitude toward the importance of motorcycle helmet use, and thereby improve citizens' practices.

248 SYSTEMATIC REVIEW AND META-ANALYSIS OF BICYCLE HELMET EFFICACY TO MITIGATE HEAD, FACE AND NECK INJURIES

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Background Past meta-analyses of studies assessing bicycle helmet efficacy have been criticised for poor methodology and the literature has not been systematically reviewed in over 15 years. The most recent meta-analysis reported time trend and publication biases, and found the summary odds ratio (OR) diminished when combining head, face and neck injuries. However, this study did not use standard methodology to identify biases, did not systematically review the literature, and the heterogeneity among studies reporting different injury outcomes was not assessed. The aim of this study is to systematically review and summarise results from studies assessing bicycle helmet efficacy to mitigate head, face and neck injury.

Methods Four electronic databases were searched for relevant, peer-reviewed articles in English. Included studies reported medically diagnosed head, face or neck injuries, other cycling injuries and helmet usage. Non-approved helmets were excluded where possible. Summary ORs were obtained using mixed effects models stratified by injury type and severity. Time trends were tested using cumulative models and mixed models with time as a moderator. Evidence of publication bias was assessed using funnel plot methods.