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Abbreviations

Parliamentary Advisory Council for Transport Safety; WRV: Wheeled Recreational Vehicle; TBI: Traumatic Brain Injuries; ICH: Intracranial Hemorrhage

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# Scooter Safety in Children, A Push for Change

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Opinion Article

Scooter injuries in children continue to form a large majority of bicycle and non-motorized wheeled recreational vehicle (WRV) injuries in the pediatric population with non-helmet users more likely to be admitted to hospital and sustain both minor and major head injuries [1]. Studies consistently demonstrate that push-scooter injuries form a large proportion of WRV trauma cases in pediatric emergency departments around the world [1-3] and that minimal safety legislation and guidance is currently in place to prevent injury and casualties.

The authors are concerned that a lack of vigilance by the UK government will continue to account for preventable injuries from push-scooters in the pediatric population. This is compounded by the increasing uptake of e-scooters in the UK [4] with the number of users expected to amount to 6.1 million by 2026, a large proportion of whom are adolescents and young adults. The Parliamentary Advisory Council for Transport Safety (PACTS) have outlined the increasing prevalence of e-scooter injuries and casualties [5]. In Bristol between May and June 2021, 90 patients presented to emergency departments with e-scooter related incidents, 80% riding hired devices. 20% of these suffered head injuries, three suffering traumatic brain injuries (TBI), intracranial hemorrhage (ICH) or skull fractures. At The Royal London Hospital between January and August 2021, eight e-scooter riders were seen by the neurosurgical team with two remaining as inpatients on neuro intensive care (ICU) for more than a week.

There is no any UK law enforcing helmet wearing for both push-scooters and e-scooters with government simply suggesting: 'helmet wearing is recommended' [5]. We fear that without mandating helmet use and other safety measures for push-scooters, younger children may continue to develop risk-taking attitudes, leading to more helmetless e-scooter riders in the future and further avoidable casualties in the adolescent pediatric population.

Head injuries form a significant proportion of push-scooter injuries in the pediatric population at 20% of recorded injuries in Chapman, et al. study [2] with upper (54%) and lower limb (22%) injuries also forming significant proportions. Ong et al (1) demonstrate that for WRV related head injuries, push-scooter injuries are the most common vehicle used (46%) compared with bicycles and skateboards. Kaddis, et al. [3] show that independent of injury type, push-scooters are accountable in 51% (23 of 45) admissions due to pediatric trauma due to WRV over their 12-month study period.

Injuries involving the head are associated with increased risk of admission to hospital and mortality. Helmets offer a way of curbing head injury risk. The evidence for helmet use in cycling is clear and unambiguous. Helmets provide up to an 88% reduction in the risk of facial, head and brain injury. Helmets reduce bicycle-related head and facial injuries in all ages, in all types of crashes [6]. Furthermore, Australia has demonstrated a substantial increase in helmet use achieved by education campaigns and subsequent legislation [6]. Another review and meta-analysis by Olivier, et al. [7] demonstrate a significant reduction in facial, head and serious and fatal head injuries with helmet use by cyclists.

Chapman, et al. [2] suggest due to similar mechanisms of injuries and riding styles to bicycles, the potential benefits of helmets in preventing grave head injury should be translated to scooter riders. It is evident that a significant number of children that present with trauma when using WRV do not use helmets or other safety equipment [1-3]. Moreover, non-helmet users were statistically more likely to be admitted to hospital and twice as likely to sustain a major head injury as helmet users [1]. On review of the literature it is clear that not enough is being done in the UK to prevent avoidable injuries to young children on push-scooters. In view of the rapid rise in availability of e-scooters, their popularity amongst adolescents and young adults, and current debate surrounding their legislation, the authors believe that this is the appropriate time to re-invigorate discussion around push-scooter safety.

The use of helmets has time and again been proven to reduce the severity and impact of head injury, as described above. This is especially important given that head trauma forms a significant proportion of push-scooter injuries. Helmet use is currently not compulsory for cyclists or users of push-scooters in the UK. Other wearable safety equipment, such as elbow pads, kneepads, and footwear should also be worn, if limb injuries are to be prevented [2]. To tackle this pressing issue a two-pronged approach should be considered. A campaign aimed at parents highlighting the importance of regular use of helmets and safety equipment as well as reinforcing road safety would be the first aspect. A possible alternative would be to embed road safety training into the school curriculum. If these safety habits are instilled in children belonging to a younger age range, it may be more straightforward to encourage this behavior when they eventually start to use e-scooters. The second facet to this would be for the UK government to encourage local authorities to widely assess the safety of the environment (i.e. roads, pavements) around schools as well as other areas where young children commonly utilize WRVs.

The authors believe that improving safety amongst young children in push-scooters should be urgently deliberated by policymakers. Given the momentum in discussion surrounding safety for e-scooter users, now is the time for implementing change.

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