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4D.001 INNOVATING ROAD SAFETY COMMUNICATION: IDENTIFYING ENGAGEMENT FACTORS FOR MOTIVATING SAFER DRIVER BEHAVIOUR

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Introduction The risk of road traffic death is three times higher in low income countries than in high-income countries (WHO, 2018). Mass media social marketing campaigns can play an important role in road safety programs by increasing road user knowledge, promoting specific safety behaviours and contributing to the development of shared social norms for safety.

Purpose During 2015–2019 under the Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) 45 campaigns were conducted across 10 cities in lower and middle-income countries (LMICs) to reduce road deaths and injuries related to the four priority risk behaviors of speeding, drink driving, proper helmet use and seatbelt wearing. Reflecting a research-based social marketing approach to campaign development, 18 formative research studies were conducted in these cities to guide campaign communication and marketing strategies to engage drivers.

Method A consistent research protocol was applied in formative research studies across cities, employing a combined quantitative/qualitative methodology to test road safety messages with people aged 18 to 44 years who drove cars or motorcycles on five or more days of the week. Combined analyses across countries identified key communication and messaging factors for engaging drivers to motivate safer driving behaviours. Mean perceived effectiveness scores of different types of communication concepts were compared across the city data sets to identify these key engagement factors.

Utility of Findings Findings from this cross-country combined analysis will inform innovation in development of effective road safety social marketing campaigns in LMICs to facilitate behaviour change in conjunction with regulation and effective enforcement.

4D.002 USING COMPUTER VISION FOR ASSESSING LAW-ADHERENCE OF MOTORCYCLISTS

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Background The motorcycle is the main form of transport for many road users in the world, especially in low- and middle-income countries (LMIC). and since motorcycle riders are critically vulnerable in case of a crash, there should be strong enforcement of road safety related rules, such as helmet use. However, insufficient resources in LMIC hinder a comprehensive and continuous enforcement, subsequently leading to risky rider behavior. Computer vision can be used as a resource-efficient method to detect safety-critical behavior of

motorcyclists and facilitate targeted enforcement on a country wide level.

Methods Using video data from Myanmar, a computer vision algorithm was trained to detect helmet use of motorcycle riders. The algorithm was trained on 91,000 frames of the video dataset, containing 10,006 individual annotated motorcycles. It was then tested on diverse data that was not part of the training dataset, and compared to helmet use rates registered by human observers.

Results The computer vision based approach can detect motorcycle helmet use with a precision of -4.4% to +2.1% compared to human observation, independent of traffic flows and road type. Detection accuracy deteriorated only when video data was unclear, e.g. due to adverse weather conditions.

Conclusion Computer vision can facilitate an economic data collection of crucial road safety related rider behaviors. It can be applied to collect continuous data and create an evidence base for police enforcement that targets specific patterns of traffic law violations.

Learning Outcomes Attendants will learn how computer vision can be levied to improve road safety globally.

4D.003 THE PREVALENCE OF SEATBELTS USE IN THE UNITED ARAB EMIRATES

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Background and Aims Road traffic injury (RTI) is a leading cause of death and injury in the United Arab Emirates (UAE). Mortality from RTI is higher in the UAE compared to similar countries in the world (MoH, 2018). Wearing seatbelts reduce deaths among drivers and front seat occupants by 45–50% (WHO, 2018). The enforcement and regular observation of seatbelt are essential to control deaths from RTIs. This study aims to estimate seatbelt use in Abu-Dhabi emirate, UAE.

Methods A cross sectional analysis, using direct observation of drivers and front seat passengers at petrol stations in Abu Dhabi and Al Ain, the two large cities in Abu Dhabi emirate, was undertaken during January-March 2020, to assess compliance with the seatbelt law in the UAE.

Results A sample size of 706 motor vehicles was approached, and the response was 87.4%. Overall, 45.5% of drivers and 50% of front seat passengers wore seatbelts. Women (55.7%) were more compliant with seatbelts compared to men ($p < 0.04$). Local citizens were less compliant with seatbelts compared to nonlocals (39.1% vis-a-vis 44.2%; $p < 0.05$).

Conclusions The results showed a slight improvement in seatbelts use in Abu Dhabi emirate, compared with previous estimates by Barss et al. (2008), where 10% of local citizens and 40% of nonlocal citizens were reported using seatbelts (2008). More efforts are thus needed to maintain the improvements made. The new data will help directing the public attention to increase awareness and enforcement of seatbelt use among the population in the UAE.