

# Non-standard motorcycle helmets in low and middle- income nations:

## A Multi-country Study



# Rationale

- Motorcycles are a common and increasing form of transport in many LMIC
- Efficacy of helmets in reducing serious head injuries and deaths is well described
- Suggestion that non-standard helmets, for which evidence of efficacy is limited, are commonly used
- However, limited data on prevalence of use of non-standard helmets or on factors that may be associated with their use

# Study objectives

- Study 1: To identify the **prevalence** and **determinants of choice** for non-standard helmet use among motorcyclists in several LMICs
- Study 2: To identify the **cost differentials** between standard and non-standard helmets
- Study 3: To identify **current legislation and enforcement policies and practices** regarding the manufacture/import/sale/use of non-standard helmets



# Collaborating Sites

- China: The George Institute for Global Health
- Ghana: CSIR – Building and Road Research Institute
- India: National Institute of Mental Health and Neurosciences
- Malaysia: University Putra Malaysia\*
- Mexico: The National Institute of Public Health of Mexico
- Nigeria: University of Ibadan
- Pakistan: Aga Khan University
- Thailand: Thammasat University
- VietNam: Hanoi Department of Public Health

\* also hosted the co-coordinating centre



# Methods: Study 1

## ***Sampling and recruitment:***

- Recruitment June and December, 2008
- Random sample of motorcyclists, wearing helmets, petrol stations, urban centre
- “Observed” information collected on all invited participants
- Both drivers and passengers wearing helmets were included

## ***Part A. Interviewer-administered questionnaire:***

- Information about the helmet
  - Ownership; site of purchase; cost; purchase considerations
- Information about motorcycle
  - Ownership; trip purpose
- Information about the motorcyclist
  - Age; education

## ***Part B. Interviewer-observed data collection:***

- Information about the helmet
  - Observation of certification marking; standard or non-standard
- Information about motorcycle
  - Size
- Information about the motorcyclist
  - Driver vs. passenger; gender



# Methods: Study 2

## ***3 or more sites from each of the following markets***

- Shops selling motorcycles and related products
- General shops and supermarkets
- Informal road vendors and roadside shops
- Minimum/maximum prices, most commonly sold standard/non-standard
- Costs converted for comparison purposes into US\$

# Methods: Study 3

## ***Legislation:***

- Documented legislature in relation to the defined urban centre

## ***Enforcement policies and practices:***

- Documented enforcement agency policies for the defined urban centre
- Documented citations/offence records for previous 12 months, for the defined urban centre

## ***Data management and analysis:***

- Web-based data entry and electronic transferral of data for Study 1, managed by The George Institute for Global Health, Sydney, Australia
- Paper-based data management for Study 2 and 3
- All analyses undertaken by the coordinating centre, University Putra Malaysia

# Results: Study 1

- 5,563 helmet wearing motorcyclists invited to participate and observations made
  - 81% males; 95% riders
- 5,088 (91%) consented to interview
  - 87% owned their motorcycle
  - 93% owned their helmet
    - 61% had purchased from motorcycle-specific shop
    - Helmet quality was the factor that most influenced purchase, followed by price

# Results: Study 1

*Of 5,563 helmets observed:*

- 53% did not have a certification marker/sticker
  - 10% of those with a marker were judged as non-authentic
- 49% judged to be non-standard helmets
  - 27% of these were helmets designed for other purposes (e.g. construction helmets)
  - 21% of these were cracked or damaged
  - 68% of these were judged to be non-standard given the absence of a marker/sticker

# Results: Study 1

## *Factors associated with non-standard helmet use in multivariable analyses:*

- Male gender
- Less than post-school education
- Non-ownership of motorcycle
- Engaged in commercial activities or riding for leisure
- Riding with passengers
- Helmet cost <US\$20\*

\* Risks were highest for helmets costing < US\$5

# Results: Study 2

- 126 outlets surveyed
  - 67% motorcycle-specialist shops
- Across all countries, regardless of the type of outlet or whether they were the cheapest, most expensive, or most commonly sold, ***non-standard helmets cost between 2-3 times less than standard helmets***

# Results: Study 3

## ■ Manufacture

4/9 countries had legislation; 3 had enforcement policies; only 1 reported offences in the previous 12 months

## ■ Import

3/9 countries had legislation and enforcement policies; 1 reported offences

## ■ Sales

4/9 countries had legislation and enforcement policies; 2 reported offences

## ■ Use

7/9 countries had legislation; 6 had enforcement policies; **0 reported offences**



# Summary and implications

- Prevalence of non-standard motorcycle helmet use was substantial in the 9 participating low and middle-income countries
  - Our measure of “non-standard” helmets, based in large part on presence of certification marker/sticker, may have led to both an over- and under-estimation of true prevalence
  - Similar patterns of use might exist in other low and middle-income countries, undermining the potential gains from introducing helmet programs

# Summary and implications

- While quality is important, price is a significant helmet purchase factor for 1/3 respondents
- Most significant factor associated with use was lower cost of helmet
  - Other risk factors similar to those previously observed for those at high risk of not wearing a helmet: i.e. lower SES males
  - Target groups for helmet intervention programs – use of helmet, and use of standard helmets – are the same

# Summary and implications

- Non-standard helmets are significantly cheaper than standard helmets
  - Given consistency of our findings, likely that they will be applicable across many low and middle-income countries
  - Need for governments to consider pricing options that reduce significant pricing differentials between standard and non-standard helmets
    - Cost subsidisation programs for purchasers, sellers and/or manufacturers

# Summary and implications

- Limited legislation relating to manufacture, import or sale
- While legislation exists against *use* of such helmets in most countries, little evidence exists that such laws are enforced
  - Consistent with findings of WHO Global Road Safety Status Report
  - Need for helmet legislation and enforcement programs to not only focus on the use of helmets but also on the ***use of standard helmets***

# Acknowledgements

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