Non-Transportation Pediatric Mortality in U.S.-Mexico Border Region

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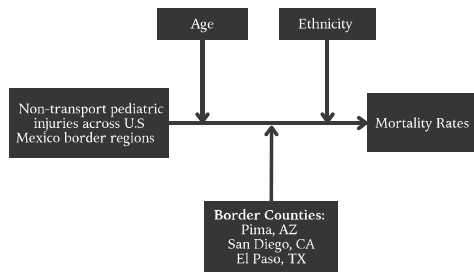
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Objective

Aim: To evaluate the differences in mortality among non-transport pediatric injuries across age, race/ethnicity, & border counties

Figure 1. Model of Study

Introduction

- One-third of unintentional injuries along the U.S.-Mexico border occur in children/adolescents [1,2]

- U.S.-Mexico Border regions are associated with increased numbers of migrant deaths, specifically among Arizona and Texas [3]

- Identifying culturally and sociopolitically relevant interventions is important to prevent deaths of children/adolescents in border regions

Methodology

- Cross-sectional retrospective correlational analysis
- Data sourced from Centers for Disease Control and Prevention (CDC) **W**ide-ranging **ON**line **D**ata for **E**pidemiologic **R**esearch (**WONDER**) database
- Covariates:
  - Hispanic or non-Hispanic ethnicity
  - Age by 5-year age ranges
    - Categories of infants aged <1, children aged 1-4, and teenagers aged 15-19
- Outcome variable: crude death rate from non-transport accidents (MCD codes W00-X59 and Y86)
- Statistical analysis
  - ANOVA for our data by border county
  - Compare death rates between Hispanic and non-Hispanic ethnicities and those <1, 1-4, 5-9, 10-14, and 15-19 years of age

Results

CDC WONDER Database

**Table 1. Demographics in the U.S.-Mexico border region (N=163,624,400)**

Characteristic, n (%)	
Age (Years)	
<1	2,509,184 (1.5)
1-4	9,723,900 (5.9)
5-9	11,842,754 (7.2)
10-14	12,105,108 (7.4)
15-19	12,343,666 (7.5)
20+	112,547,062 (68.8)
Male	81,267,598 (49.7)
Hispanic/Latino	87,867,881 (53.7)

Figure 2. U.S.-Mexico border region as defined by the U.S. government

This image is adapted from the U.S. Health Resources and Services Administration website

Figure 3. (A) Crude Death Rates from Non-transportation Accidents by Age Range Among Children and (B) Crude Death Rates from Falls by Ethnicity
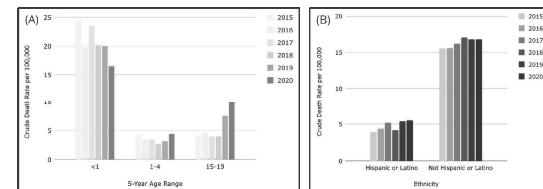
In Fig. 3A <1 year & 15-19 years (p<0.001); <1 year & 1-4 years (p<0.001)
In Fig. 3B, Hispanic/Latino and Non-Hispanic/Latino (p<0.001)

**Table 2. Crude Death Rates from Falls in U.S.-Mexico Border Region by County, 2015-2020**

County	Pima, AZ	San Diego, CA	El Paso, TX	p-value
Crude death rate per 100,000, mean (SD)	20.2 (1.7)	10.5 (1.1)	7.1 (1.4)	<0.001

- Crude death rates from non-transportation accidents significantly differed between those aged <1 & 15-19 and between those aged <1 & 1-4 (**Fig. 3A**)
- Significantly greater deaths from falls found among non-Hispanic individuals compared to Hispanic individuals (**Fig. 3B**)
- Pima, AZ had more deaths from falls than San Diego, CA & El Paso, TX (**Fig. 4**).
- San Diego, CA had slightly more deaths from falls than El Paso, TX (**Fig. 4**)

Acknowledgements

Figure 4. Crude Death Rates from Falls by Border County, 2015-2020
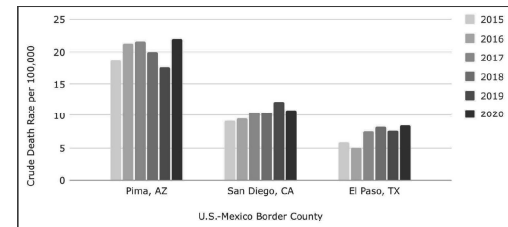
Significant association (p<0.001) between Pima, AZ & San Diego, CA and Pima, AZ & El Paso, TX; El Paso, TX & Pima, AZ. Significant association (p=0.003) between El Paso, TX & San Diego, CA

Discussion

- Increased deaths among **Pima, AZ**, and falls from 2015-2020, suggest the need to implement resources to mitigate falls

- **Younger age groups (<1)** had significantly greater deaths from falls, highlighting the need for infant health resources and preventative interventions in the U.S.-Mexico border area

- The exclusion of non-resident individuals may have biased results among **Hispanic/Latino groups**

- Findings provide insight into unintentional injuries among pediatric populations and understanding how age, ethnicity, and border counties' residence may contribute to local deaths

- Risk mitigation policies can be implemented and researched for their impact on injury rates

- U.S. Public Health Department should implement efforts of injury prevention education in the most affected border subregions while targeting most affected populations (**Pima, AZ; infants; and non-Hispanic individuals**), as well among evidence-based common migration routes into the Southwestern U.S. [3]

- Future studies should evaluate other sources of data that include nonresidents to best understand undocumented migrant deaths

References

References can be found online at the QR code: