Introduction

Injuries are the leading cause of death for children aged 5–19 in the World Health Organization (WHO) European region and their prevention should therefore be a public health priority. Children are particularly vulnerable to injuries and require special consideration as emphasized by the United Nations Convention on the Rights of the Child and World Health Assembly resolution (WHA 64.27) on child injury prevention. Despite progress in terms of reducing overall mortality, reports have highlighted persistent inequalities in child injury deaths in Europe, both between and within countries. This has been re-emphasized in a recent analysis showing large geographical inequalities in Europe with children in low- and middle-income countries (LMIC) much more likely to die due to injury than in high-income countries (HICs) of western Europe.

Political commitment to tackle health inequalities has been proclaimed both globally and in Europe with the adoption of the WHO European policy Health 2020: a European policy framework for the 21st century and the EU Health Strategy, yet child injury inequalities are persisting. This article aims to utilize the opportunity presented by the publication of the Global Health Estimates 2011 (GHE) to examine whether inequalities in child injury mortality have narrowed between 2000 and 2011 when HIC are compared with LMIC.

Methods

The recent GHE uses comparable methodology and classification codes for disease and injury, and population estimates for the years 2000 and 2011 allowing for robust comparisons. The 53 countries of the European region were classified as HIC or LMIC as defined for 2011 by the World Bank. Data were analysed for unintentional injury, comprising road traffic injuries, drowning, poisoning, injuries related to fire, heat and hot substances, falls and other unintentional injuries (suffocation, choking, strangulation, hypothermia, hyperthermia, animal bites, natural disasters and others), and intentional injury (suicide, homicides, collective violence and legal intervention). Mortality rates were calculated for children aged 0–14 years and mortality rate ratios calculated to compare relative inequality in mortality rates between HIC and LMIC in 2000 and 2011. The difference between the rate ratios observed in years 2000 and 2011 was tested for statistical significance using exact test for comparing rate ratios of Poisson counts based on the method described by Lehman as implemented in the R package rate.ratio.test (http://CRAN.R-project.org/package=rate.ratio.test).

Results

The number of deaths from injury in children aged 0–14 years decreased by 44% in the WHO European region from 31 899
Table 1 Child injury death rates and mortality rate ratios for LMIC compared with HIC in 2000 and 2011

<table>
<thead>
<tr>
<th>Injury mechanism</th>
<th>2000</th>
<th>Rate ratio</th>
<th>2011</th>
<th>Rate ratio</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LMIC</td>
<td>HIC</td>
<td>LMIC</td>
<td>HIC</td>
<td></td>
</tr>
<tr>
<td>All injuries</td>
<td>28.78</td>
<td>6.68</td>
<td>4.31</td>
<td>4.19</td>
<td>4.44</td>
</tr>
<tr>
<td>Unintentional injuries</td>
<td>25.73</td>
<td>5.90</td>
<td>4.36</td>
<td>4.22</td>
<td>4.50</td>
</tr>
<tr>
<td>Road traffic injuries</td>
<td>5.40</td>
<td>2.75</td>
<td>1.96</td>
<td>1.86</td>
<td>2.06</td>
</tr>
<tr>
<td>Poisonings</td>
<td>2.21</td>
<td>0.14</td>
<td>15.92</td>
<td>13.16</td>
<td>19.43</td>
</tr>
<tr>
<td>Falls</td>
<td>1.44</td>
<td>0.27</td>
<td>5.32</td>
<td>4.61</td>
<td>6.17</td>
</tr>
<tr>
<td>Fire, heat, hot substances</td>
<td>2.18</td>
<td>0.35</td>
<td>6.27</td>
<td>5.53</td>
<td>7.14</td>
</tr>
<tr>
<td>Drowning</td>
<td>6.93</td>
<td>0.90</td>
<td>7.69</td>
<td>7.13</td>
<td>8.32</td>
</tr>
<tr>
<td>Other unintentional injuries</td>
<td>7.58</td>
<td>1.49</td>
<td>5.07</td>
<td>4.77</td>
<td>5.40</td>
</tr>
<tr>
<td>Intentional injuries</td>
<td>3.05</td>
<td>0.77</td>
<td>3.94</td>
<td>3.61</td>
<td>4.31</td>
</tr>
<tr>
<td>Suicide</td>
<td>1.20</td>
<td>0.27</td>
<td>4.45</td>
<td>3.84</td>
<td>5.17</td>
</tr>
<tr>
<td>Interpersonal violence</td>
<td>1.20</td>
<td>0.48</td>
<td>2.49</td>
<td>2.22</td>
<td>2.81</td>
</tr>
<tr>
<td>Collective violence/intentional</td>
<td>0.64</td>
<td>0.02</td>
<td>30.55</td>
<td>18.92</td>
<td>52.8</td>
</tr>
</tbody>
</table>

Inequalities have widened for unintentional injuries where the mortality rate ratio has increased from 4.36 to 6.04 (P < 0.001) despite decreases in both number of deaths and mortality rates. This is true for most of the mechanisms of unintentional injury. For example, deaths due to road traffic injuries have decreased by 43% yet the relative inequality has widened with rate ratio increasing 94% from 1.96 to 3.8 (P < 0.001). There are similar patterns for deaths from drowning, fire, heat and hot substance and for other unintentional injury deaths (table 1).

In contrast, there has been a narrowing in inequalities from intentional injury. For intentional injuries the mortality rate ratios have decreased by 19% from 3.94 to 3.21 (P < 0.001).

Discussion

Despite European aspirations to tackle health inequalities and a reduction in child injury death rates, this article shows widening of relative inequalities in child injury death rates between LMIC and HIC countries over the last decade. The widened gap suggests unequal progress across the region and emphasizes the need for improved policies in LMIC to ensure safer physical and social environments for children.

Clearly actions to prevent childhood injury have not kept pace in LMICs. Policy surveys and analyses reveal that more prevention policies for injury and violence exist in HIC than in LMIC in the region. Few countries have national policies for child injury prevention, but the vast majority of those that exist are in HIC. The lack of national policy response translates into a lack of programming. Many evidence-based interventions exist to prevent child injuries but their implementation varies enormously. For example, child-resistant lighters and child-resistant packaging are now almost universally implemented in HICs but much more scantily implemented in LMICs.

Similarly in the area of road safety where there has also been an increase in inequality, far fewer LMICs than HIC report comprehensive legislation, suggesting that LMICs are not keeping abreast with more rapid motorization.

Previous policy analyses to determine factors essential for policy success shed some light on the current findings. Amongst these leadership, legislation and enforcement, intersectoral coordination, surveillance and capacity have been noted as essential for injury prevention programming. Weakness in these structural factors, resulting in poor implementation of policies, enforcement of legislation and execution of prevention programming in LMIC have been proposed as contributory to the poorer performance in injury prevention and the increase in inequalities. Further, the economic crisis of 2008 may be an additional factor, differentially affecting children in LMIC.

Of interest there has been a narrowing in relative inequalities between LMIC and HIC for intentional injuries. A survey undertaken revealed that 60% of countries had policies on intentional injuries compared with 49% for unintentional injuries. Fewer national policies have been reported in the eastern part of the region, but with greater attention to violence prevention. When combined these trends suggest that LMICs are responding more readily to intentional injury than to unintentional injury. Propose that this is because new governments in former Soviet states prioritized tackling violence and crime as levels were so high, resulting in widespread progress.

This analysis has limitations that arise from using data from GHE: the format and nature of these data estimates, their availability at only two points in time, and as two groups of countries, and which does not allow comparisons between and within individual countries. However trend analyses reported elsewhere support our results. Furthermore, limiting the analysis to deaths does not allow consideration of factors such as injury severity and differential improvements in paediatric trauma care as reported in HIC. Nevertheless, findings in our study strongly suggest increased relative inequalities in deaths from childhood injury in Europe.

In spite of considerable progress, LMIC need to give renewed attention to the prevention of child injury, where stakeholders need to prioritize injury prevention in children and to ensure that interventions are equity based. Though progress in injury prevention took decades in HIC, there is an opportunity to accelerate this in LMIC utilizing examples of success from HIC. This is a particularly important lesson given the state of childhood injury prevention in LMICs.

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Introduction

There is strong evidence that people’s current health situation is dependent on earlier life circumstances. During recent decades, a growing interest in life-course epidemiology has emerged within the research on the development of social inequalities in health. Three models of life-course epidemiology have been identified (critical periods, accumulation and pathways) and recent reviews favour the accumulation model because of its predictive power, aetiological insights and social policy implications.

A question that has rarely been analysed within the accumulation hypothesis of life-course epidemiology is how the accumulation of unemployment over time might influence health outcomes. Unemployment is normally a transitory state. Due to regulations

Key points

- Childhood deaths from injuries in the WHO European region are decreasing.
- In contrast, inequalities in unintentional injury mortality between LMIC and HIC have widened between 2000 and 2011.
- Policymakers need to give renewed attention to prevent childhood injuries in LMIC.

References


Length of unemployment and health-related outcomes: a life-course analysis

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Background: Most previous studies on the effects of length of unemployment on health have focused on the duration of continuous spells of unemployment rather than on the cumulative length of intermittent spells. This study analysed the relationship between the cumulative length of intermittent spells of unemployment and different health-related outcomes using data from a longitudinal study of school leavers. Methods: All pupils who completed compulsory schooling in 1981 in a medium-sized town in northern Sweden (N= 1083) were followed for 14 years with repeated questionnaires including questions about unemployment, health and health behaviour. Results: Men tended to react with a steady state or a levelling off of health symptoms with increased unemployment, whereas women showed deteriorating health symptoms. For health behaviour the reverse occurred. Women’s health behaviour was less connected with increased unemployment while men’s health behaviour tended to deteriorate. Conclusion: Cumulative length of unemployment is correlated with deteriorated health and health behaviour. Long-term unemployment, even as a result of cumulated shorter employment spells over a number of years should be an urgent target for policy makers.