



**Karolinska
Institutet**

Department of Public Health Sciences

Child injury in Europe: scope, circumstances and association with country-level housing conditions and economic disparities

AKADEMISK AVHANDLING

som för avläggande av medicine doktorexamen vid Karolinska
Institutet offentligen försvaras i Rockefeller salen, Nobels väg 11

Måndagen den 19 mars, 2012, kl 13.30

av

Mathilde Sengölge

MPH

Huvudhandledare:

Lucie Laflamme, Professor
Karolinska Institutet
Institutionen för folkhälsovetenskap
Avdelningen för global hälsa / IHCAR

Bihandledare:

Marie Hasselberg, Docent
Karolinska Institutet
Institutionen för folkhälsovetenskap
Avdelningen för global hälsa / IHCAR

Fakultetsopponent:

David Stone, Professor
University of Glasgow
Glasgow, United Kingdom

Betygsnämnd:

Lennart Köhler, Professor Emeritus
Nordic School of Public Health
Göteborg, Sweden

Pernille Due, Docent
University of Southern Denmark
Copenhagen, Denmark

Staffan Janson, Professor
Karlstad University
Karlstad, Sweden

Stockholm 2012

ABSTRACT

Background: Injuries are a major cause of social inequality in child health in Europe and the leading cause of mortality. There is a need for information to assist in developing a coordinated policy action to tackle these problems.

Aims: This thesis aims to increase knowledge about child home injuries in the European context and the role played by housing conditions at country level in the association between country economic level and income disparity and child safety.

Methods: Four cross-sectional register-based studies were conducted, three of which at country level. Injury incidence and patterns were described using data from the EU Injury Database for children ages 0 to 18 (6 countries). The WHO Mortality Database served to estimate injury cause-specific mortality rates in children ages 0 to 14 (16 countries). Compositional characteristics of the home and its surroundings were extracted from the 2006 European Union Income Social Inclusion and Living Conditions Database. Three types of country-level housing strains (9 variables) were identified and their role was assessed in relation to country economic level/income inequality and child mortality (26 countries).

Results: The crude annual incidence of emergency department-attended child non-fatal home injuries for 0-18 years based on an average of six European countries was estimated at 44.9 (95% CI 29.1-60.7) per 1,000 inhabitants, with the incidence peaking at one to two years. The characteristics of these injuries fit into six consistent and distinctive clusters (Article I). Fatal home injuries in 16 European countries were highest in children under five and the majority of the upper middle income countries tended to have higher rates than the high income ones. In all countries aggregated drowning, fire, poisoning, falls and homicide accounted for almost 90% of all home injury deaths (Article II). At country-level, income inequality positively correlated with housing strain ($r=0.62$, $p=0.001$) and economic household strain ($r=0.42$, $p=0.009$), but not with neighbourhood strain ($r=0.34$, $p=0.087$). All three strains tended to be worse in countries with higher income disparities and injury mortality rates correlated more strongly with country level housing strain than income inequality (Article III). Housing conditions significantly contributed to explain the association between both country economic level and country income inequality and child mortality (all causes or all injury causes). Adjusting for housing and neighbourhood strain respectively increased the association between country economic level and child mortality for most mortality causes (Article IV).

Discussion: In upper middle- and high-income countries of Europe child home injuries were both frequent and occurring in a number of typical circumstances, often associated with developmental age changes. While developmental aspects help to understand patterns of child injury, country level housing disparities shed light on inequalities in child health and safety. In fact, in Europe country level disparity in housing and neighborhood conditions forms part of the pathway between country income inequality (and economic level) and child mortality.

Conclusion: This thesis reveals that nonfatal and fatal child home injuries make an important contribution to the total burden of child injury in Europe. The potential for improvement is high both between and within countries and a number of typical injury circumstances can be targeted. Also, tackling country level housing differentials to reduce material deprivation may assist in both child injury prevention and in the reduction of social inequality in child health and safety.

Providing for more equal access to safe and healthy housing for children is a matter of social justice.

ISBN 978-91-7457-665-8