

LETTER TO THE EDITOR

Child and adolescent injury in Africa – still underappreciated and understudied

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Child and adolescent injury in Africa

Worldwide, injuries are responsible for more than 950,000 child deaths annually. African children and adolescents are overrepresented in this figure, with an average injury rate of 53.1/100,000/year for those under age 20 years (Moshiro *et al.*, 2005; Peden *et al.*, 2008). This translates into an injury rate which exceeds those of all other world regions. When compared to infectious disease among persons aged 5-14 years, injuries contribute to more deaths than the combined totals of malaria, diphtheria, measles, polio, tetanus and whooping cough (Ebrahim, 2010). Furthermore, because data which describe injury patterns among children and adolescents are limited, all official figures are likely to be underestimates (Ruiz-Casares, 2009). This lack of data comes at a severe cost – it obscures the evidence-based reality about the leading causes of mortality and morbidity in the region for the most vulnerable segments of the population.

For those who survive their injuries, the consequences extend beyond increased costs to already burdened healthcare systems. A child or adolescent, who is physically or psychologically impaired in the aftermath of an injury, is unlikely to return to school and without an education they are less likely to be employed as adults (Hawley *et al.*, 2004). The families, who then become responsible for rehabilitating and caring for these injured youth, must often borrow money or sacrifice meaningful economic activity. This drives already poor households deeper into poverty (Mock *et al.*, 2003).

Injuries do not just happen; they are a product of largely predictable risk relationships which are often environmental or behavioral in origin (Gururaj, 2012). For example, much of the rapid urbanization on the continent is ill-planned and under-resourced. This creates situations where urban slums or squatter settlements become increasingly more common (Ziraba *et al.*, 2011). In these areas, children often compete with motor vehicles for open play spaces. The poor visibility along small winding roads in these settlements often results in life-threatening collisions (Zimmerman *et al.*, 2012). Poor quality building materials mean that house fires spread quickly with devastating results. Household chemicals are often stored in unlabeled containers previously used for storing food, and their contents can be easily mistaken for being edible by small children. Open pit wells or drainages mean that falls and drowning are also pervasive

dangers (Ruiz-Casares, 2009). These risks to children are additionally compounded by physiological and developmental differences which make them more vulnerable.

Vulnerability under appreciated

Young children (ages 0-5 years) are particularly vulnerable to injury, especially burns, head trauma, poisoning and drowning. Their compact physiologies, with larger head-to-body ratios, mean that they are especially prone to falls which result in head trauma (Kemp & Sibert, 1997). The lower skin-to-body surface area and greater skin sensitivity mean that burns which can be treated with over the counter consultation in an adult can be life-threatening in a small child. Young children are also cognitively less able to recognize dangerous situations and have greater physical difficulty in escaping from them. Their safety is therefore entirely dependent on competent adult supervision (Peden *et al.*, 2008).

As children mature into adolescents (ages 10-18 years), their risk for injury greatly increases. This is due to heightened risk-taking behavior as they learn to navigate greater autonomy in decision-making (Steinberg & Silverberg, 1986). They also spend less time under the supervision of parents and more time with peers of the same age or older. They may begin to consume alcohol and experiment with drugs for pleasure, to fit in with peers or to manage emotional problems. These substances impair judgment and result in decreased executive functioning, especially when abused (Parry *et al.*, 2004). Very little is known about the interaction between injury and increasing substance use among youth in African settings (Rudatsikira *et al.*, 2007). However, studies from high-income countries suggest that alcohol and drug consumption are strongly associated with physical fighting, drowning, vehicle collisions and sexual violence (Keating & Halpern-Felsher, 2008).

Rapid physiological and cognitive changes in the adolescent anatomy and brain also increase their risks for being injured. The body grows at such an expedited rate during adolescence, that the brain's mental map of the body's appendages is unable to keep pace with their growth. This results in the brain having a different anatomical scheme of the body as compared to reality, resulting in poor coordination. This suboptimal level of coordination is an important risk factor for sport related injuries for example (Michaud *et al.*, 2001).

Understudied

The World Report on Child Injury Prevention, which was released in 2008 by the World Health Organization and UNICEF, represented a global call to action (Peden *et al.*, 2008). The call was for increased resources being dedicated to prevent injury, and improving the research output to steer these efforts. Nearly five years later, studies are still lacking which would contribute to the understanding the patterns and causes of injury among

children and adolescents in the African region.

Conducting these desperately needed studies is complicated by several factors. First, few countries in the region have adopted national frameworks or policies which include injury control, consistent with an overall population health strategy. This means that non-governmental organizations and others, who may have recognized injury as an important concern within their communities, face a lack of official guidance on the matter. Second, this lack of official recognition means that donor agencies have been reluctant to seriously consider proposals for injury control. Third, without adequate funding, the research will not happen. Finally, if the research doesn't happen, there is no evidence to convince policy makers that injury is an important issue which deserves attention.

Despite this, several well organized groups have become established in the region. Researchers in Egypt, Uganda, Kenya, South Africa and elsewhere, have been largely successful in creating strategic partnerships that merge research and practice. The World Health Organization is also active in its dissemination of practical tools and training packages for researchers and practitioners. However, there still remains a lack of a critical mass in African injury research, and more must be done to develop younger researchers during their academic formations.

Conclusions and recommendations

Injuries represent immense preventable burdens among individuals, communities and the larger society. Greater interest is needed from government and policy makers to tackle what still amounts to a silent epidemic. In the absence of such top-level leadership, communities themselves (non-governmental organizations and civil society) represent an important potential source of prevention leadership. Several training programs exist to guide communities and health professionals in augmenting their knowledge to be a part of efforts which save lives.

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