

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/burns

Burns in Baghdad from 2003 to 2014: Results of a randomized household cluster survey



Barclay T. Stewart^{a,k,l,*}, Riyadh Lafta^{b,c}, Sahar A. Esa Al Shatari^d,
Megan Cherewick^e, Gilbert Burnham^f, Amy Hagopian^{c,g},
Lindsay P. Galway^h, Adam L. Kushner^{i,e,j}

^a Department of Surgery, University of Washington, Seattle, WA, USA

^b Department of Community Medicine, Al Munstansiriya University, Baghdad, Iraq

^c Department of Global Health, University of Washington, Seattle, WA, USA

^d Human Resources Development and Training Center, Iraq Ministry of Health, Baghdad, Iraq

^e Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

^f Department of International Health, Center for Refugee and Disaster Response, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

^g Department of Health Services, University of Washington, Seattle, WA, USA

^h Faculty of Health Sciences, Simon Fraser University, Burnaby, BC, Canada

ⁱ Surgeons OverSeas (SOS), New York, NY, USA

^j Department of Surgery, Columbia University, New York, NY, USA

^k School of Public Health, Kwame Nkrumah University, Kumasi, Ghana

^l Department of Interdisciplinary Health Sciences, Stellenbosch University, Cape Town, South Africa

ARTICLE INFO

Article history:

Received 23 June 2015

Received in revised form
30 September 2015

Accepted 1 October 2015

Keywords:

Burn

Electrical injury

Iraq

War

Epidemiology

Global surgery

ABSTRACT

Purpose: Civilians living amid conflict are at high-risk of burns. However, the epidemiology of burns among this vulnerable group is poorly understood, yet vital for health policy and relief planning. To address this gap, we aimed to determine the death and disability, healthcare needs and household financial consequences of burns in post-invasion Baghdad. **Methods:** A two-stage, cluster randomized, community-based household survey was performed in May 2014 to determine the civilian burden of injury from 2003 to 2014 in Baghdad. In addition to questions about cause of household member death, households were interviewed regarding burn specifics, healthcare required, disability, relationship to conflict and resultant financial hardship.

Results: Nine-hundred households, totaling 5148 individuals, were interviewed. There were 55 burns, which were 10% of all injuries reported. There were an estimated 2340 serious burns (39 per 100,000 persons) in Baghdad in 2003. The frequency of serious burns generally increased post-invasion to 8780 burns in 2013 (117 per 100,000 persons). Eight burns (15%) were the direct result of conflict. Individuals aged over 45 years had more than twice the odds of burn than children aged less than 13 years (aOR 2.42; 95%CI 1.08–5.44). Nineteen burns (35%) involved $\geq 20\%$ body surface area. Death (16% of burns), disability (40%), household financial hardship (48%) and food insecurity (50%) were common after burn.

Conclusion: Civilian burn in Baghdad is epidemic, increasing in frequency and associated with household financial hardship. Challenges of healthcare provision during prolonged

conflict were evidenced by a high mortality rate and likelihood of disability after burn. Ongoing conflict will directly and indirectly generates more burns, which mandates planning for burn prevention and care within local capacity development initiatives, as well as humanitarian assistance.

© 2015 Elsevier Ltd and ISBI. All rights reserved.

1. Introduction

Trauma and violence continue to be under-appreciated public health problems, accounting for more than 6 million deaths and 275 million disability-adjusted life years globally [1]. Civilians living amid conflict carry a disproportionate burden of injury [2]. Although intentional harm of civilians during war violates human rights and humanitarian law, civilians are injured in modern-day conflicts because of indiscriminate combat tactics and weapons used near them [3–5]. Subsequently, civilians may account for up to 80% of killed or wounded during war [3,5,6]. Moreover, indirect wartime civilian injury may be even greater due to the effect of conflict on daily living conditions, safe behavior, and health systems [2,7–9].

Since the United States-led coalition invasion in 2003, persons living in Iraq have had one of the highest risks of dying violently in the world [4]. Estimates of excess deaths from violence range between 100,000 and 800,000 persons in post-invasion Iraq with Baghdad at the epicenter [10–13]. Despite coalition withdrawal from the city center in 2011, dramatic acts of violence continue to threaten civilians daily [14]. Further, displaced persons that have taken residence in Baghdad have overwhelmed the fragile healthcare system [15]. Together, civilian injury and its sequelae likely represent an urgent public health problem.

The risk of burn is ubiquitous during conflict among both combatants and civilians [16]. Most wartime burns result from explosive devices, resulting breakdown of infrastructure and poor fire prevention practices [2,3,17]. In 2009, burns were responsible for 9% of all injuries in Baghdad [2]; death from explosions and electrocutions were common [2]. Even in peacetime, burns can be difficult to manage; they require brisk resuscitation and an adept multidisciplinary team to avert death and disability [18]. During insecurity, these services are in jeopardy or non-existent. Consequently, mortality and morbidity is common among civilians burned during conflict [2,17].

Despite a growing need to prevent and treat injury among civilians living amid conflict, few community-based studies characterize injury and burn epidemiology during conflict [2]. In addition, none have described both mortality and morbidity over time [2,6]. To address this gap, we conducted a two-stage, cluster randomized, community-based survey of injuries and disabilities in Baghdad in 2014, just before the security situation worsened. We aimed to understand the epidemiology

of civilian conflict- and non-conflict-related burns in post-invasion Baghdad. By doing so, a better estimate of the cumulative effect of insecurity on civilian burn could be determined, which might inform prevention initiatives, health policy and relief planning.

2. Methods

2.1. Study design

A team of international and Iraqi public health and trauma experts with experience from previous two-stage cluster study designs in Iraq, Rwanda and Sierra Leone developed the survey strategy [11,19,20]. A survey instrument was adapted from the World Health Organization's community injury survey guidelines and the Surgeons OverSeas Assessment of Surgical Need (SOSAS) [19–21]. The instrument was translated into Arabic, back translated to assure accuracy and piloted for utility and validity. The final version was designated the Surgeons OverSeas Injury Survey (SOSINJ).

A two-stage randomized 30 cluster by 30 households sample was performed. The total sample size was estimated to be 3650 individuals using $n = Z^2 p (1 - p) / L^2$, where Z is confidence interval (95% – Z is 1.96), p was the anticipated prevalence of the injury (5%), L was the accepted range around the estimated prevalence of injury (1%), and the design effect was 2. Therefore, our sample of 5148 individuals was more than adequate to achieve our desired precision (1%).

Baghdad was divided into 14 administrative districts and sectors and 30 random clusters were chosen using Google Earth™. Clusters were delineated based on the 2011 population estimates for administrative units in Baghdad. Data were obtained from the Iraqi Central Organization for Statistics and Information Technology and Ministry of Health [22]. Five clusters were randomly replaced due to security concerns or being located proximate sensitive military facilities a priori.

2.2. Data collection

The starting household and a backup starting household were selected using satellite imagery and grids in Google Earth™ [23]. If teams deemed the starting household unsafe they proceeded to the backup starting household. After the starting household, every other household was interviewed until 30 households were completed. A household was defined as a group of persons living together in a dwelling with a separate outer door and a separate kitchen. Most clusters had no household refusal. However, five clusters had a single refusal each.

* Corresponding author at: University of Washington, Department of Surgery, 1959 NE Pacific St., Suite BB-487, PO Box 356410, Seattle, WA 98195-6410, USA. Tel.: +1 206 543 3680; fax: +1 206 543 8136. E-mail address: stewarb@uw.edu (B.T. Stewart).

Download English Version:

<https://daneshyari.com/en/article/3104171>

Download Persian Version:

<https://daneshyari.com/article/3104171>

[Daneshyari.com](https://daneshyari.com)