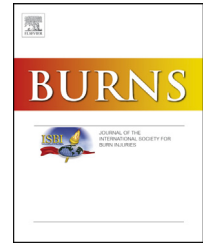


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Gender differences in burns: A study from emergency centres in the Western Cape, South Africa

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ABSTRACT

Introduction: Little is known about gender differences in aetiology and management of acute burns in resource-constrained settings in South Africa.

Method: This cross-sectional study is based on burn case reports ($n = 1915$) from eight emergency centres in Western Cape, South Africa (June 2012–May 2013). Male/female rate ratios by age group and age-specific incidence rates were compiled for urban and rural areas along with gender differences in proportions between children and adults for injury aetiology, burn severity, length of stay and patient disposition.

Results: Children 0–4 years in urban areas had the highest burn incidence but only among adults did male rates surpass females, with fire burns more common among men 20–39 years and hot liquid burns among men 55+ years. Men had a higher proportion of burns during weekends, from interpersonal violence and suspected use of alcohol/other substances, with more pronounced differences for hot liquid burns. Despite similar Abbreviated Injury Scale (AIS) scores, men were more often transferred to higher levels of care and women more often treated and discharged.

Conclusion: Burns were far more common among children although gender differences arose only among adults. Men sustained more injuries of somewhat different aetiology and were referred to higher levels of care more often for comparable wound severity. The results suggest different disposition between men and women despite similar AIS scores. However, further studies with more comprehensive information on severity level and other care- and patient-related factors are needed to explore these results further.

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1. Introduction

The risk of burns is highly influenced by people's living conditions, life styles, and culture, and these factors partly explain differences that are observed globally in the rates and distribution of burn-related injuries – both between and within countries [1,2]. As with most other injuries, burns are unequally distributed between socio-economic groups but, in contrast, they tend to occur in similar proportions among men and women and, in some instances, they are even more frequent among women [3]. Women actually account for approximately 47% of both the global burn deaths and the Disability-Adjusted Life Years (DALYs) [4]. Whether these differences are a reflection of the risks of sustaining a burn (differential risk [1,2]), of being more severely injured for similar injuries (differential susceptibility [5]), or of being treated differently once injured (differential treatment [6]) is uncertain. Biological differences are more difficult to act upon than those related to exposure to fire and flames (often related to the division of responsibilities and chores within societies and families [6,7]) or treatment (where male and female patients may not be provided with the same amount and quality of care [6]).

Studies from Sub-Saharan Africa (SSA), where this study was conducted, indicate that gender differences vary by the age of the victim and injury severity level. Studies using mortality data [8,9] and those based on inpatient data [10–14] indicate that men are a risk group for burns, as are boys [9,15–18]. Inpatient data present gender similarities in Total Body Surface Area (TBSA) burned [11,12,16] and studies considering in- and out-patient data reveal gender similarity in patients of all ages [19–21] with a preponderance of boys [22]. On the other hand, studies including all severity levels of burns show higher risks for young and middle-aged women [23] and similar incidence for children [23–25] and all ages aggregated [26].

There are no reported gender differences in burn mechanism [10,16,18,26] and studies examining gender differences in other injury aetiology or care parameters are scarce in SSA. Studies of specific causes have reported gender differences with women overrepresented among burns due to kerosene stove explosions [27] and men among petrol fire disaster victims [28]. Studies also show that South African men are a particular risk group for burns related to interpersonal violence [19,29,30] and women, for self-inflicted burns [19,29,31]. There are also indications that there might be an over-representation of burns among women during the weekend [8]. As for burn treatment, a study on burns of all severities report no gender differences in health-seeking behaviour and treatment received [26], another that hospitalisations are more common for adult men than women but this gender difference is not reported in young children [23]. This latter finding regarding children is in line with a South African study when adjusted by severity of the burn [22].

This study attempts to fill part of this knowledge gap and investigates the following research questions: (I) What are the gender differences across age groups? (II) Are gender differences in burn aetiology consistent over types of burn? (III) Are there gender differences in length of stay and patient disposition? The results will be stratified by burn mechanism.

2. Method

2.1. Design and setting

The study is cross-sectional and based on case reports of patients (74% outpatients) seeking care for a burn at emergency centres in eight health care facilities in the Western Cape Province, South Africa between June 2012 and May 2013.

The Western Cape Province has a rapidly growing population that reached 5.8 million in 2011 and is the fourth largest province in South Africa, both in surface and population [32]. The city of Cape Town accounts for two-thirds of the province's population and the level of immigration is high with more than 8000 new immigrants entering the Cape Town area each month [33]. Although the province has slightly better indicators in terms of energy use than the rest of the country, the percentage of households using electricity for heating decreased considerably in the province from 80.0% in 2007 to 63.5% in 2011, a change that was not apparent in the rest of the country [32]. Electrical appliances are less frequently purchased and used in resource-constrained settings as they cannot be afforded [34].

South Africa has a two-tiered system for the provision of healthcare with both public and private providers. The public system covers 84% of the population [35] and the payment for care is income-based, whereby some of the population are entitled to free care and others to subsidised care to various degrees. In the public system, for emergency care access there are three central, five regional, and thirty-four district hospitals, and nine 24-h community health centres (CHCs) in the province. Two of the central hospitals (both in Cape Town) have dedicated burns units: one for children 0–12 years and the other for adults 13 years and older.

2.2. Data collection and study population

The data collection took place as part of a baseline study for an intervention [36]. Six hospitals and two CHCs were included, all with an emergency centre opened 24 h a day, seven days a week. Five of them (one regional and four district) are located in predominantly rural areas and the urban hospital (district) and the two CHCs, are located on the outskirts of Cape Town in areas predominated by informal settlements. Patients could either seek care directly at the emergency centres or seek care at any of the clinics that are available during office hours and thereafter, if necessary, be referred to the emergency centres at the CHCs or the hospitals. In some cases, especially concerning the urban facilities, patients might arrange their own transport to one of the central hospitals although this would mean they are not qualified for full subsidisation of fees.

A standardised case report form based on WHO guidelines [37] was used for data capture including data on patient socio-demographics (age, gender, place of residence), health condition prior to injury (known disease, medication), burn characteristics and aetiology (total body surface area, burn depth, body part, cause, intent, report of alcohol/substances) and patient transport and injury care (transport to hospital, medication, treatment, length of stay at hospital, disposition).

Of the 2146 cases identified, 230 patient folders could not be found (10.7%). Of the 1916 cases available, one for which

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