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Citation

Rahman, Nadia, Indranil Sinha, Fatima Husain, Ajul Shah, and Anup Patel. 2014. "The Incidence of Burns Among Sex-Trafficking Victims in India." The Yale Journal of Biology and Medicine 87 (3): 263-267.

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YALE JOURNAL OF BIOLOGY AND MEDICINE 87 (2014), pp.263-267.
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FOCUS: GLOBAL HEALTH AND DEVELOPMENT

The Incidence of Burns Among Sex-Trafficking Victims in India

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Sex trafficking remains a flagrant violation of human rights, creating many public health concerns. During the initiation period, these victims experience acts of violence including gang rapes, subjecting them to traumatic injuries that include burns. Furthermore, lack of access to health care, particularly surgical, keeps them from receiving treatment for these functionally debilitating contractures caused by burns. This piece provides an overview of burns among sex-trafficked victims in India and the efforts by Cents of Relief to address the associated surgical burden of disease.

INTRODUCTION

Sex trafficking is a form of modern day slavery that flagrantly violates human rights [1,2]. Despite this, it continues to rise prolifically, particularly in resource-constrained settings, as traffickers prey on the impoverished. Under the guise of a better life or through sheer violence, these traffickers dupe or beat women and children into a life of sex slavery [3]. Once trafficked into prostitution, the victims face a violent initiation period, during which they are subjected to burns from acid and cigarettes to multiple gang rapes and to vicious floggings by pimps, all in an effort to make them understand that they are not human beings, but rather a piece of property [4].

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†Abbreviations: CoR, Cents of Relief; NGOs, non-governmental organizations; STIs, sexually transmitted infections.

Keywords: burns, sex trafficking, India, prostitution, contractures

Author contributions: All authors contributed in the generation of this manuscript. All have been part of Cents of Relief's programs discussed here.

The public health concerns arising from the initiation period prove catastrophic, where many contract sexually transmitted infections (STIs†), including HIV/AIDS, and suffer functionally compromising contractures from burns [5]. Contractures are an excessive thickening of the skin that compromise function, restricting movement in areas of the body such as the hands or neck. To address the dire need for health care among these victims, certain nonprofits and nongovernmental organizations (NGOs) are collaborating to raise awareness about sex trafficking, implement health care educational programs, and offer treatment from burns. This article reflects the experience of Cents of Relief (CoR), a 501(c)3 nonprofit, working in the red-light areas of India with various NGOs and focusing on burns.

CENTS OF RELIEF OVERVIEW

Established in 2003, CoR endeavors to empower victims of human trafficking through health care and education. Our staff is comprised solely of volunteers who come from all areas of the globe to develop programs and workshops that tackle human trafficking. The volunteers hail from various backgrounds, including social work, public health, law, and medicine. This diversity engenders creativity necessary to overcome limitations of working in a resource-constrained setting and assist human trafficking victims. Funds for the charity come from private donors, grants, golf tournaments, and galas.

Through the program "A Prescription (Rx) for Healthy Solutions," women and children receive monthly health kits. These kits come with toothbrushes, toothpaste, cough suppressants, and anti-itch creams. In addition, CoR helps subsidize monthly checkups for these victims. The program "Crafting the Change" educates victims in developing handicrafts ranging from iPhone holders to wedding bags. All profits go to the victim who designed the product and assists in gaining economic independence.

The organization conducts research related to its public health interventions with much of it featured in peer-reviewed journals. The research often arises from collaborations with the Yale School of Epidemiology and Public Health, whose students spend a month in India working with CoR's partners. For example, one project demonstrated the poor usage of condoms in the red-light areas of India after interviewing the buyers of prostituted sex [4]. The findings were featured in the *New York Times* best-seller *Half the Sky: Turning Oppression into Opportunity,* questioning the otherwise purported high use of condoms achieved by the Sonagachi Project and serving as a warning signal to its funders such as the Gates Foundation [3].

Future directions will be the development of a film by Invisible Man Productions capturing our projects and victims of human trafficking, highlighting our work in hopes of raising awareness and funds to expand our outreach in India's red-light areas.

THE BURN BURDEN

Burns represent a significant cause of morbidity and mortality globally, particularly among the destitute of India [6,7]. The etiologies of burns among sex-trafficked victims stem from violence, overcrowding, and dilapidated conditions. Ganesamoni et al. evaluated 222 consecutive patients, albeit occupational history was not documented, admitted for in-hospital treatment of burn injury in India, finding 52.5 percent of the patients had suffered accidental burns and 43.9 percent of the patients had suffered intentional burns [8]. Aside from gang raping and physical beatings, pimps and traffickers burn sex-trafficked victims with flames, cigarettes, and acid [3,4]. These oppressive conditions often coerce sex-trafficked victims into attempting suicide by lighting themselves on fire, but then they terminate the attempt only to suffer large, total body surface area full-thickness (involving the epidermis and dermis) burns to the face and torso [9]. While there remains a paucity of details between burns and sex-trafficked victims [10], the senior author has evaluated hundreds of these victims corroborating the aforementioned.

Figure 1. Full-thickness burn of the neck and right arm.

Figure 2. Contracture of right neck limited range of motion.

Overpopulation, loosely fitted saris, and reliance on open-flame stoves in the red-light areas engender a disproportionate number of burns from cooking [11]. In addition, feeder cables, often made of defective material that transmit high electrical voltage, are abundant in the red-light areas and can snap and cause devastating electrical burns to children playing in the vicinity [12]. This comes in the setting of the underserved population with virtually no access to surgical care and no knowledge about burn safety and prevention [13]. Given this background, an immense surgical burden of disease related to burn injuries exists and is amenable to treatment by contracture release, skin grafting, and local flaps. Contracture release consists of excising the scar, followed by closure. Often, closure is not feasible and the plastic surgeon must rely on either a skin graft or local flap. The former relates to harvesting skin that can contains epidermis with varying degrees of dermis and using this tissue to resurface the contracture release. The latter relates to using moving tissue with its own blood supply to close the resultant tissue deficit from contracture release.

THE RESTORATION OF FORM AND FUNCTION

These post-burn sequelae remain primary public health issues in developing countries, particularly in South and Southeast Asia [8,14]. Contractures are thought to be preventable complications of burn injuries when treated adequately and comprehensively, including splinting and skin grafting (Figures 1 and 2) [15,16]. However, many patients in developing nations, such as India, do not receive optimal care at the time of initial burn injury and, therefore, experience significant functional impairment [17].

Identifying a pre-existing hospital with staff and basic surgical equipment may prove a more cost-effective means of establishing and sustaining a burn program. CoR partnered with the National Burn Centre in Airoli, a 50-bed, pro-bono hospital in Mumbai devoted to burn care. Patients can return to the center for post-operative monitoring and management of complications [18]. Additionally, local staff may able to locate patients in rural areas through outreach programs. These patients may not have any access to surgical care otherwise.

Regarding intervention, we have screened approximately 185 patients in 3 years of mission operations and have operated on 150 of them. Complication rates have been approximately 15 percent [18]. These complications, consisting generally of wound dehiscence or partial loss of the skin grafts, were all identified and treated at the National Burns Center by a local burn surgeon.

Multiple patients have been operated on more than once during two missions themselves, allowing for longitudinal care and the ability to address multiple contractures serially. Preliminary results from our last mission to Mumbai, completed in 2012, demonstrates a reduction in AMA disability score as well as an improvement in SF-36 overall health status following intervention (Sinha et al., data not published). The AMA disability score assesses difficulty performing activities of daily living, range of motion, and strength following an injury. The

SF-36 is a more subjective assessment of patient well-being; it measures the patient's perceived physical limitations and overall emotional and mental state.

Our group continues to raise funds to pay for these missions where costs remain high secondary to the poverty of the patients who present in a delayed fashion and require substantial operative interventions. It is our hope this will increase the frequency of these 1-week missions and number of plastic surgeons from more than three per mission.

A TALE OF BURN SAFETY

Admittedly, the logistics and funding of burn missions can be challenging, leading to a strong impetus to develop a public health campaign to keep burns from occurring. To this end, CoR developed and launched a colorful comic-book entitled *A Tale of Burn Safety*, detailing a young boy's preparation to celebrate Diwali, an Indian holiday involving fireworks [19]. While the target audience for the comic book was for school-aged children between the ages of 5 and 16, its illustrations, created by artists Zafreen Syed and Ryan Hanser, enable its use for virtually any age. Furthermore, the vivid pictures overcome the literacy barrier, sharing ways to prevent burns related to cooking over open flames, wearing silk garments, and lighting fireworks. The story concludes with measures to take if one is burned or witnesses a burn. The script accompanying the depictions now comes in five different languages and has been featured in peer-reviewed journals as a highly effective, low-cost method to disseminate knowledge of burn safety [20]. The comic book's only charge relates to printing, enabling many organizations involved with burn missions to utilize it, including the International Plastic, Reconstructive and Aesthetic Surgery's Women for Women Foundation and Operation Smile.

CONCLUSION

The surgical burden of disease among sex-trafficked victims India continues to increase, largely due to violence and unmet health care needs. Partnerships between nonprofits such as CoR and NGOs can realize synergistic relationships to reduce the burn injuries among sex-trafficked victims.

Acknowledgments: We would like to recognize our partners in our efforts to empower victims of human trafficking: Harvard Brigham and Women's Hospital, Destiny Reflection, New Light Foundation, Apne Aap Women Worldwide, and Operation Smile. We are indebted to the efforts of Rina Patel, Holly Clune, Anjali Fox, Shefali Shah, Christy Garg, Sunny Dhillon, Moni Shah and Liz Hutchison for assisting with the production of the programs associated with Cents of Relief.

REFERENCES

1. Decker MR. Sex trafficking, sex work, and violence: evidence for a new era. Int J Gynaecol Obstet. 2013;120(2):113-4.
2. Silverman JG, et al. HIV prevalence and predictors of infection in sex-trafficked Nepalese girls and women. JAMA. 2007;298(5):536-42.
3. Kristof ND, WuDunn S. Half the sky: Turning oppression into opportunity for women worldwide. New York: Alfred A. Knopf; 2009.
4. Patel A. Funding a Red-Light Fire: Prostitution in Calcutta. The Yale Journal of Public Health. 2007;4(3):20-2.
5. Wirth KE, et al. How does sex trafficking increase the risk of HIV Infection? An observational study from Southern India. Am J Epidemiol. 2013;177(3):232-41.
6. Wong JM, et al. Sustained high incidence of injuries from burns in a densely populated urban slum in Kenya: An emerging public health priority. Burns. 2014 Jan 22.
7. Peck MD. Epidemiology of burns throughout the World. Part II: intentional burns in adults. Burns. 2012;38(5):630-7.
8. Ganesamoni S, Kate V, Sadasivan J. Epidemiology of hospitalized burn patients in a tertiary care hospital in South India. Burns. 2010;36(3):422-9.
9. Castana O, et al. Outcomes of patients who commit suicide by burning. Ann Burns Fire Disasters. 2013;26(1):36-9.
10. Konstantopoulos WM, et al. An international comparative public health analysis of sex trafficking of women and girls in eight cities: achieving a more effective health sector response. J Urban Health. 2013;90(6):1194-204.
11. Ahuja RB, Dash JK, Shrivastava P. A comparative analysis of liquefied petroleum gas (LPG) and kerosene related burns. Burns. 2011;37(8):1403-10.

12. Mathangi Ramakrishnan K, et al. High voltage electrical burn injuries in teenage children: case studies with similarities (an Indian perspective). Ann Burns Fire Disasters. 2013;26(3):121-5.
13. Bilwani PK. Unfavourable results in acute burn management. Indian J Plast Surg. 2013;46(2):428-33.
14. Murray CJL, Lopez AD, editors. The global burden of disease: A comprehensive assessment of mortality and disability from disease, injuries, and risk factors in 1990 and projected to 2020, Vol. I. Boston: Harvard University Press; 1996.
15. Forjuoh SN. Burns in low- and middle-income countries: a review of available literature on descriptive epidemiology, risk factors, treatment, and prevention. Burns. 2006;32(5):529-37.
16. Harrison CA, MacNeil S. The mechanism of skin graft contraction: an update on current research and potential future therapies. Burns. 2008;34(2):153-63.
17. Kim FS, et al. Experience With Corrective Surgery for Postburn Contractures in Mumbai, India. J Burn Care Res. 2012;33(3):e120-6.
18. Patel A, et al. Establishing sustainable international burn missions: lessons from India. Ann Plast Surg. 2013;71(1):31-3.
19. Comic Relief. A Tale of Burn Safety. Cents of Relief; 2009.
20. Sinha I, et al. Comic books can educate children about burn safety in developing countries. J Burn Care Res. 2011;32(4):e112-7.