Distribution Agreement

In presenting this thesis or dissertation as a partial fulfillment of the requirements for an advanced degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis or dissertation in whole or in part in all forms of media, now or hereafter known, including display on the world wide web. I understand that I may select some access restrictions as part of the online submission of this thesis or dissertation. I retain all ownership rights to the copyright of the thesis or dissertation. I also retain the right to use in future works (such as articles or books) all or part of this thesis or dissertation.

Signature:

_____ _____

Samantha Perkins Date

Prevalence and Characteristics of Disability in Post-Conflict Jaffna District, Sri Lanka (2009)

By

Samantha Perkins
MPH

Behavioral Sciences and Health Education

_____

Dabney P. Evans, PhD, MPH
Committee Chair

_____

Kristin Becknell, MPH
Committee Member

_____

Colleen McBride, PhD
Department Chair

Prevalence and Characteristics of Disability in Post-Conflict Jaffna District, Sri Lanka (2009)

By

Samantha Perkins

Bachelor of Science, Anthropology
University of Arizona
2011

Thesis Committee Chair: Dabney P. Evans, PhD, MPH

An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
in Behavioral Sciences and Health Education
2015

Abstract

Prevalence and Characteristics of Disability in Post-Conflict Jaffna District, Sri Lanka (2009)
By Samantha Perkins

Introduction
Approximately 15% of the global population lives with some form of disability. Regardless of this significant representation in the population, little is known about the health risk factors for those with disabilities in conflict-affected states. As the civil war in Sri Lanka concluded in 2009, an opportunity to address this dearth of information arose.

Objectives
To describe the characteristics of the disabled population in post-conflict Jaffna District, Sri Lanka. Types and causes of disabilities were assessed, as well as sociocontextual factors that impact daily and lifetime well-being of those with disabilities. Subgroups within the disabled population were defined and differences between them were analyzed. Additionally, access to water/sanitation/hygiene and food resources and experiences of traumatic effects were analyzed in households with and without disabled persons.

Methods
A multistage cluster survey was conducted between July and September 2009 in Jaffna District, Sri Lanka. Of the 1494 households included in the general health survey, 172 individuals were identified as being disabled. Frequencies and bivariate analyses were used to describe and compare subgroups of the disabled population and households with and without disabled persons.

Results
The most common types of disability were experiencing mobility problems, paralysis, blindness, and mental disability. Common causes of disabilities were disease, congenital problems, aging, and injury. Over 48% of the population was 60 years or older. Comparisons of households with and without disabled persons revealed few differences in access to water/sanitation/hygiene and food resources. However, there were statistically significant differences in these populations when assessing lifetime experiences of lack of shelter, loss or destruction of property, ill health without access to medical care, torture, and missing or losing family members.

Conclusion
Those who provide services to the disabled population in Jaffna District, Sri Lanka, should create specific interventions that address the sociocontextual challenges of being disabled by mobility problems and aging. Additionally, caregivers and others who live with disabled persons should be considered in the implementation of services.

Prevalence and Characteristics of Disability in Post-Conflict Jaffna District, Sri Lanka (2009)

By

Samantha Perkins

Bachelor of Science, Anthropology
University of Arizona
2011

Thesis Committee Chair: Dabney P. Evans, PhD, MPH

A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
in Behavioral Sciences and Health Education
2015

TABLE OF CONTENTS

i. List of Appendices
ii. List of Graphs and Figures
iii. Acronym List
iv. Glossary of Terms
v. Acknowledgements

Chapter I: Introduction and Background 1
- Statement of Problem 1
- Purpose of Project 2
- Research Questions: Disability Prevalence and Bivariate Analyses 3
- Disabilities in Emergency and Post-Conflict Settings: A Human Rights Issue 4
- Sri Lanka Background 5
- Conceptual Model 8
- Summary 11

Chapter II: Literature Review 12
- Introduction 12
- Global Burden of Disability 12
- Disability in Areas of Conflict 13
- Disability among Refugees and Internally Displaced Persons 17
- Disability in Sri Lanka 17
- Summary of Past Work with These Data 20
- Summary 22

Chapter III: Methods 24
- Description of the Original Study and Data Source 24
- Questionnaire Development and Delivery 24
- Survey Tools 25
- Ethical Approval and Considerations 27
- Target Study Population and Participant Selection Criteria 27
- Sample Size Calculation and Weighting 28
- Sampling 28
- Data Entry and Analysis 30
- Summary 31

Chapter IV: Results 32
- Demographic and Household Characteristics of the Disabled Population 32
  - Disability Types and Characteristics 33
  - Disability Type and Characteristics Analyzed by Sex 37
  - Disability Type and Characteristics Analyzed by Age 40
- Household and Mental Health Data Comparing Households with and without Disabled Persons 41
  - Displacement Status 41
  - Access to Water/Sanitation/Hygiene, Food, and Health Services 42
  - Differential Experiences of Traumatic Events 44
- Summary 44

Chapter V: Discussion **47**
Characteristics of the Disabled **47**
Daily and Lifetime Affectedness among the Disabled **49**
Key Differences between Disabled Males and Females **50**
Key Associations between Age and Disability **51**
Comparisons between Households with and without Disabled Individuals **51**
Differential Access to Water/Sanitation/Hygiene, Food, and Health Services 52
Differential Experiences of Traumatic Events 52
Conclusions **54**
Limitations **54**
Recommendations **56**
Future Studies and Research 56
Public Health Practice 58
Chapter VI: References cited **60**

APPENDICES

A. Map of Sri Lanka, highlighting location of Jaffna District
B. Years Lived with Disability (YLDs) in Sri Lanka, 2010
C. General Health and Mortality Assessment Tool (GHMAT)
D. General Mental Health Assessment Tool (MHAT)
E. Disability Assessment Tool (DAT)
F. Flow chart depicting survey distribution method. Jaffna District, Sri Lanka (July-September 2009)
G. Sampling scheme for the Household Component Survey. Jaffna District, Sri Lanka, (July-September 2009)
H. **Table 1**. Demographic characteristics of persons with disabilities in Jaffna District, Sri Lanka (July-September 2009)
I. **Table 2**: Basic characteristics of disability in Jaffna District, Sri Lanka (July-September 2009)
J. **Table 3**. Treatment seeking among the disabled in Jaffna District, Sri Lanka (July-September 2009)
K. **Table 4**: Frequency of difficulty with mental and motor Skills, Jaffna District, Sri Lanka (July-September 2009)
L. **Table 5**. Participation in common activities among the disabled in Jaffna District, Sri Lanka (July-September 2009)
M. **Table 6**. Daily activities and marital status among the disabled in Jaffna District, Sri Lanka (July-September 2009)
N. **Table 7**. Type of disability among the disabled, disaggregated by sex, in Jaffna District, Sri Lanka (July-September 2009)
O. **Table 8.** Cause of disability among the disabled, disaggregated by sex, in Jaffna District, Sri Lanka (July-September 2009)
P. **Table 9**. Daily activities and marital status among the disabled, disaggregated by sex, in Jaffna District, Sri Lanka (July-September 2009)
Q. **Table 10**. Difficulty with common tasks among the disabled, disaggregated by age, in Jaffna District, Sri Lanka (July-September 2009)
R. **Table 11**. Participation in common activities among the disabled in Jaffna District, Sri Lanka (July-September 2009)
S. **Table 12**. Displacement status among households with and without disabled individuals in Jaffna District, Sir Lanka (July-September 2009)
T. **Table 13**. Water, sanitation and hygiene access among households with and without disabled individuals in Jaffna District, Sri Lanka (July-September 2009)
U. **Table 14**. Food availability and accessibility among households with and without disabled individuals in Jaffna District, Sri Lanka (July-September 2009)
V. **Table 15**. Healthcare access and use among households with and without disabled individuals in Jaffna District, Sri Lanka (July-September 2009)
W. **Table 16**. Traumatic events experienced by households with and without disabled individuals in Jaffna District, Sri Lanka (July-September 2009)

LIST OF GRAPHS AND FIGURES

GRAPHS

1. Top five types of disabilities and their causes, Jaffna District, Sri Lanka (July-September 2009)
2. Types of disability by age group, Jaffna District, Sri Lanka (July-September 2009)

FIGURES

1. Important social determinants of health inequity in conflict-affected states (Diderichsen, Evans & Whitehead 2001; Whitehead, Diderichsen & Burnstrom 2000)
2. Conceptual model relating exposure, vulnerability, and associations with disability (Bornemisza, 2009)
3. Reformulation of models for disability in Jaffna District, Sri Lanka
4. Comparison of YLDs in Sri Lanka and Globally, 2010

ACRONYM LIST

CBR: community-based rehabilitation

CDC: United States Centers for Disease Control and Prevention

CRPD: United Nations Convention on the Rights of Persons with Disabilities

CSDH: World Health Organization Commission on Social Determinants of Health

DAT: Disability Assessment Tool

EA: enumeration area

ERRB: Emergency Response and Recovery Branch

GHMAT: General Health and Mortality Assessment Tool

HSCL: Hopkins Symptom Checklist-25

HTQ: Harvard Trauma Questionnaire

IERHB: International Emergency and Refugee Health Branch

IRB: Internal Review Board

LTTE: Liberation Tigers of Tamil Eelam

MH: mental health

MHAT: Mental Health Assessment Tool

MOH: Ministry of Health, Sri Lanka

NCD: Non-Communicable Disease

NIDI: Netherlands Interdisciplinary Demographic Institute

PPS: probability proportional to size

PTSD: post-traumatic stress disorder

UN: United Nations

UNICEF: United Nations Children's Fund

WHO: World Health Organization

YLD: years lived with disability

GLOSSARY OF TERMS

Disability
A disability is any restriction or lack (resulting from impairment) of ability to perform an activity in the manner or within the range considered normal for a human being (WHO 1980). Disability includes socially imposed restrictions. Disability summarizes a great number of different functional limitations occurring in any population. People may be disabled by physical, intellectual or sensory impairment, medical conditions or mental illness. Such impairments, conditions, or illnesses may be permanent or transitory in nature (UN Standard Rules on the Equalization of Opportunities for Persons with Disabilities). (CDC Survey Protocol, 2009).

Household (HH)
A domestic unit consisting of family members who live together and share the same cooking facility. (CDC Survey Protocol, 2009).

Household Members
Persons who are the *usual residents* of the household. Usual residents are defined as people who have been living continuously at the place of residence. More specifically, it is defined as those people who stayed continuously in the selected household for a period of 1 month or more. The question to be asked in case of doubt if a person visits home regularly will be "where does he/she spend most of his time"? If he/she spends more than 6 months in a certain area, then that will be his/her area of residence. Visitors are not classified as usual residents. (CDC Survey Protocol, 2009).

Head of Household
The person who usually resides in the household and is acknowledged by the other members of the household as the head. The designation head of household, also termed head of family, is applied to one whose authority to exercise family control and to support the dependent members is founded upon a moral or legal obligation or duty. This person may or may not be the primary wage earner, but is representing or acting as the head of household *at the time the survey is administered.* (CDC Survey Protocol, 2009).

Internally Displaced Persons (IDPs)
Persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized State border. (UNHCR, 2006).

Noncommunicable Disease
Noncommunicable diseases (NCDs), also known as chronic diseases, are not passed from person to person. They are of long duration and generally slow progression. The four main types of noncommunicable diseases are cardiovascular diseases (e.g., heart attacks

and stroke), cancers, chronic respiratory diseases (e.g., chronic obstructed pulmonary disease and asthma) and diabetes. (WHO Noncommunicable Diseases Fact Sheet, 2015)

Odds Ratio
An odds ratio (OR) is a measure of association between an exposure and an outcome. The OR represents the odds that an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of that exposure. Odds ratios are most commonly used in case-control studies, however they can also be used in cross-sectional and cohort study designs as well (with some modifications and/or assumptions). (Szumilas, 2010).

Probability Proportion to Size (PPS)
Sampling procedure under which the probability of a unit being selected is proportional to the size of the ultimate unit, giving larger clusters a greater probability of selection and smaller clusters a lower probability. In order to ensure that all units (ex. Individuals) in the population have the same probability of selection irrespective of the size of their cluster, each of the hierarchical levels prior to the ultimate level has to be sampled according to the size of ultimate units it contains, but the same number of units has to be sampled from each cluster at the last hierarchical level. (WHO, 2015).

Years Lived with Disability (YLDs)
A quantity that is derived in order to serve as a comparable measure of burden of a disease in a given population. These figures are calculated by multiplying the prevalence of a disease by the loss of health (i.e., the objective severity of the disease). (National Institute of Mental Health, 2014)

ACKNOWLEDGEMENTS

There were many, many helping hands in the creation of this thesis. My first thanks should go to my thesis committee: Dabney Evans and Kristin Becknell. Dabney read several drafts of this thesis, provided feedback, and served as a wonderful graduate advisor (in many more ways than being my thesis advisor). Kristin dedicated many, many hours to reading this thesis and to walking me through the data; she patiently allowed me to find ways to be creative with the data, and ensured that various staff members of the Emergency Response and Recovery Branch (ERRB) were able to provide feedback. Without these two incredible women, this thesis (and thus my MPH degree) would not have happened.

Members of the ERRB are also deserving of thanks. Mark Anderson provided initial guidance and information, Curtis Blanton contributed advice on data analyses and interpretations, and Leisel Talley and Susan Cookson read late drafts of this thesis and gave advice on doing these data justice.

My fellow MPH students Kincaid Lowe and Meaghan Novi were kind enough to read drafts and listen to my presentation of findings. Their support and feedback were much appreciated. As a member of a thesis "All-Star" team I was able learn from some of the most talented and motivating women I've had the pleasure to meet.

Finally, my fiancé Joe Meredith must be thanked for providing never-ending and unconditional support. I am eternally grateful to my parents who have always encouraged me to follow my passions and never let me believe I couldn't do something. Lucy ("Goose") the cat and Luna the dog should also be thanked for providing love and distraction when I needed it.

Chapter I: Introduction and Background

Statement of Problem

In 2009 Sri Lanka was a lower-middle-income (World Bank, 2015) country that had recently concluded a violent 26-year civil war. In settings such as this, the risk of poor health outcomes (e.g., lack of access to health care and infrastructure, increased risk of disease, and decreased ability to care for oneself) is often elevated. Disabled individuals in these settings are often considered to be among the most vulnerable and difficult to reach. In general, more information is needed about the impact of conflict and the long-term experience of disability among displaced persons.

Civil war significantly increases the risk of death and disability from infectious diseases via the dissolution of social norms and order (Ghoborah, Huth & Russett, 2004). The mortality and disability rates of conflict-affected populations often remain unknown due to the breakdown of health information systems, and existing information sources can be negatively impacted by political influence (Murray et al., 2002).

Historically, few resources have been committed to identify and address the challenges faced by disabled persons in emergency settings. In an analysis of over 6,000 project proposals submitted to the UN in 2010 and 2011, HelpAge International found that fewer than two percent (98 studies) of those studies specifically targeted disabled persons, and that only 0.7% (43 studies) of all proposed studies received funding (HelpAge, 2012). The most common method of determining disability prevalence in post-conflict settings has been assessment of disabled persons who attend health facilities (Murray et al., 2002), but this approach is problematic for several reasons. It is not representative of the entire population, and health facilities, if open and accessible at all,

may not be functioning at full or adequate capacity. Use of these records does not directly address the issue of differential experiences of the disabled compared to the non-disabled.

Without a thorough understanding of the relationship between violent conflict, long-term disability, and overall health, the Sri Lankan Ministry of Health and humanitarian aid agencies may not be able to comprehensively address the needs of the disabled. In order to develop effective interventions, stakeholders must possess a more detailed understanding of the challenges facing this particularly vulnerable population.

Purpose of Project

The purpose of this project is to: 1) provide an accurate characterization of the disabled population of Jaffna District, Sri Lanka as of 2009; 2) determine how disability impacts overall well-being by comparing households with and without disabled individuals in Jaffna District; and 3) use this information to create meaningful recommendations for those who serve the disabled population in Jaffna District. This project will follow the interdisciplinary approach that is necessary to solve complex public health issues (Panter-Brick, 2010). Much of the work that has been conducted on similar populations assesses singular conflicts individually; as a result little externally generalizable information is available in the literature. This study will view disability not as an outcome of the conflict, but rather as a critical determinant of overall health both in a physiological and social context. Additionally, this analysis will add to the body of literature that suggests that disability is more than a decrease of physical or mental ability, but rather is one element in a larger network of possible health problems in post-conflict settings.

Research Questions: Disability Prevalence and Bivariate Analyses

This project consists of two phases. The first phase will determine the prevalence of different types of disability in the study population (Jaffna District) and describe the characteristics of the subpopulation with disability. Bivariate analyses will be conducted to determine which health characteristics are most highly associated with being disabled. In keeping with other studies based on data from the same survey (Husain et al., 2010; Meiqari, 2012), the effect of displacement status in particular will be assessed. Other bivariate analyses will consider sex, age, type of disability, and other elements of daily life that may impact overall well-being. EPI INFO v. 7.1.1.4 will be used to determine the prevalence of these characteristics and to conduct bivariate analyses.

Phase 1 Research Questions

- What were the most common characteristics found among the disabled population of Jaffna District in 2009?
- Are there significant differences in disability between subgroups of the disabled population (e.g., sex and age group)?

The second phase of this analysis is based on the description of the social determinants of health inequity in conflict-affected states developed by Diderichsen, Evans, and Whitehead (2001) and Whitehead, Diderichsen, and Burnstrom (2000). Differential social stratification, exposure, vulnerability, and association of disease will be described both within the disabled population, and in the comparison of households with and without disabled persons. This analysis will provide insight into how the lives of residents of Jaffna District in 2009 differed based on disability status.

Phase 2 Research Question

- Do households with disabled individuals have differential health outcomes, access to resources such as food, water, and sanitation services, and experiences of traumatic events compared to households without disabled individuals?

Disabilities in Emergency and Post-Conflict Settings: A Human Rights Issue

The inclusion of disabled persons in emergency response programming and research has historically presented a challenge (Murray, 2012). Disabled persons often are thought of merely as a "vulnerable group" requiring additional protections and consideration, but specific and standardized recommendations have yet to be developed for the inclusion of disabled members of populations affected by civil conflict (Kett, 2009). The United Nations (UN) Convention on the Rights of Persons with Disabilities (CRPD) specifically proclaims that it is the State's obligation to protect the rights and safety of the disabled during times of increased risk, including armed conflict or foreign occupation (UN, 2006). Sri Lanka signed the Convention in March 2007, but has yet to ratify its commitment (UN, 2015). While disability is troublesome in any context, there is reason for special concern about disability in the context of an armed conflict or natural disaster. Assessing precisely how the disabled population is impacted in the midst of a conflict is not only a logistical challenge, but the development of a standardized approach in situations that are often heavily context-dependent presents an additional layer of complexity. Considerations must be made to address disabled persons' access to general community services and ability to overcome structural barriers to accessing care (Kett, 2009).

While this study focuses on disability in a post-conflict setting, it is pertinent to mention that the World Health Organization (WHO) has recently shed greater light on the increased risk for non-communicable diseases (NCDs) in post-conflict settings, noting

the virtual absence of NCDs in the agendas of institutions that specialize in humanitarian and reconstruction efforts in conflict-affected areas (Roberts, Patel & McKee, 2012). In 2010, NCDs accounted for over 80 percent of the years lived with disability (YLDs) in Sri Lanka (GBD, 2013) (see Appendix B). Indeed, further study is needed to understand risk factors and interventions for all types of disability, including those caused by non-infectious characteristics or events (e.g., injuries, congenital cognitive disabilities, paralysis from non-infectious disease).

Framing future research on disability in emergency settings as a human rights issue may lead to a more inclusive approach in humanitarian response (Kett, 2009), and may garner additional support for resources to meet the requirements of the CRPD. If evidence indicates that disabled persons account for a significant portion of a population in a post-conflict setting, then more sustainable programs that serve that population will be more likely to be put into practice during the acute emergency phase (Kett, 2009). This may lead to actions that can save lives and improve quality of life, ultimately improving broader public health during violent conflict. Given Sri Lanka's long history of conflict, this analysis may serve as an example for how evidence-based practices can be used to address social and health inequities in such a context.

Sri Lanka Background

Sri Lanka underwent a long period of European colonial rule during the past three centuries, falling under Portuguese, Dutch, and finally British control before establishing independence in 1948 as the state of Ceylon (CIA World FactBook, 2015). This state eventually became the Democratic Socialist Republic of Sri Lanka in 1972 (CIA World FactBook, 2015). During this most recent change, certain actions were carried out by the Sinhalese, the majority ethnic group, that were viewed as targeted attempts to marginalize

minority Tamil communities (Wilkinson, 2003). In response, the Liberation Tigers of Tamil Eelam (LTTE) formed in 1976 (Bajoira, 2009) with the primary mission of establishing a separate homeland for the nation's three million Tamil residents in northern and eastern Sri Lanka.

In an attempt to win independence for all Tamils in Sri Lanka, the LTTE ambushed government soldiers in July 1983. Thirteen soldiers were killed, and subsequent riots left 2,500 Tamils dead (Bajoria, 2009). This event would eventually spark nearly three decades of civil war with only sporadic reprieves of peace. This conflict was one of the longest-running civil wars in Asia and was characterized by significant human rights violations committed by both the Sri Lankan government and the LTTE (Human Rights Watch, 2015). These events almost certainly negatively impacted the health of Sri Lankan citizens during this time.

Jaffna District was one of the hardest hit regions of the country during the conflict, with many villages destroyed. The case of Jaffna was particularly notable during the conflict because the single road providing access to the Jaffna peninsula was blocked as a result of the Second Battle of Elephant Pass in April 2000 (see Appendix A for a map highlighting the location of Jaffna District). This resulted in severely restricted access to health and humanitarian aid for inhabitants of Jaffna District by limiting the movement of aid workers and the general population into and out of the district (Husain, et al., 2011). The civil war also had a drastic impact on the region's most common economic activities (World Bank, 2007), which tend to be concentrated in farming, fishing, and herding. Many men were either forced into or voluntarily left for the war, and since the primary occupation was agricultural work (a highly gendered field), this left

many women with no source of income (Husain et al., 2011). Even if job opportunities were available in these sectors, displacement, landmines, and restricted access to high security zones made these opportunities far more difficult to access (World Bank, 2007). In the years leading up to the conclusion of the war, income inequality was at its highest peak and was found to be associated with decreased education and access to basic services such as clean water and sanitary toilets (World Bank, 2007).

In 2006, the United Nations High Commissioner for Refugees (UNHCR) and the Netherlands Interdisciplinary Demographic Institute (NIDI) conducted an assessment of the living conditions of internally displaced persons (IDPs) in Sri Lanka. The resulting data describe the time just before an upsurge of violence in the country and do not include Jaffna District in the analysis, but still shed some light on poor conditions for IDPs in the country. When compared to non-displaced persons, IDPs were less likely to display improved outcomes in nearly every indicator measured. IDPs typically had the poorest income levels in the country; despite being able-bodied and skilled workers they were less able to successfully find work than their counterparts. IDPs had inferior water and sanitation supplies, and displaced children were more likely to display higher levels of stunting and wasting (UNHCR, 2006). Additionally, while both IDPs and non-IDPs reported high levels of concern about accessing community and health care, IDPs were far more likely to be concerned about accessing health care, education, official documents, and places of worship (UNHCR, 2006). In this same study, IDPs reported little desire to leave their current location and hoped to find long-term solutions to their current situations (UNHCR, 2006).

Conceptual Model

The precise mechanisms through which disabled persons experience different health outcomes can be difficult to determine, especially in the context of a humanitarian emergency. Ample evidence supports the notion that deficiencies are present in the resources made available to disabled persons in these settings. Such deficiencies are exacerbated by protracted conflict and displacement, leading to poorer overall health outcomes and decreased social mobility for disabled populations.

The model used to frame this study is a modified version of a conceptual framework developed by Bornemisza et al. (2010). The groundwork for this original framework came from work that had identified four types of social determinants of health: social stratification, differential exposure, differential vulnerability, and differential consequences of disease. (Diderichsen, Evans, & Whitehead, 2001; Whitehead, Diderichsen & Burnstrom, 2000). These definitions are provided in Figure 1.

Important Social Determinants of Health Inequity in Conflict-Affected States (Diderichsen, Evans & Whitehead 2001; Whitehead, Diderichsen & Burnstrom, 2000)	
I.	**Social Stratification – Social stratification assigns people to different social positions, which in turn determine their health opportunities. Social stratification occurs along the lines, for example, of education, occupation, income, and gender.**
II.	**Differential exposure – Exposures may vary between social groups by type, amount, and duration.**
III.	**Differential vulnerability – Even when a given risk factor is distributed evenly across social groups, its impact on health may be unevenly distributed due to underlying differences between social groups in their vulnerability or susceptibility to that factor.**
IV.	**Differential consequences of disease – The impact of a certain health event differs depending on an individual's or family's socio-economic circumstances or health.**

Figure 1: The four social determinants of health as explained by (Diderichsen, Evans & Whitehead 2001 and Whitehead, Diderichsen & Burnstrom, 2000). These determinants were developed to describe differential health outcomes within populations affected by emergencies.

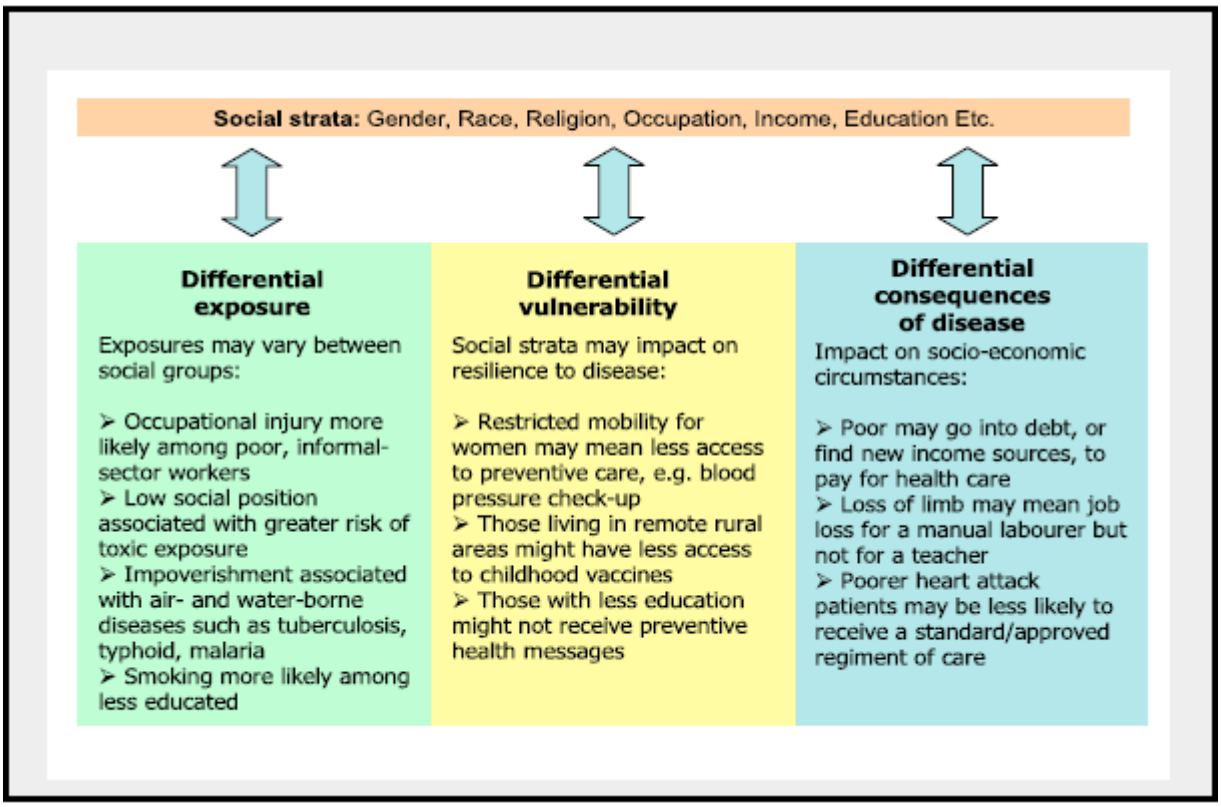


Figure 2: Bornemisza et al.'s (2009) conceptual model relating exposure, vulnerability, associations with disability, and the resulting effects on the social stratification.

The definitions described in this framework will be used to categorize and compare various characteristics of the current study population. Social stratification in particular may play a role in the experience of disabled persons in Sri Lanka; there is some evidence to suggest that disabled women, children, and elderly are more likely to experience difficulties with their disabilities (Bombi, 2010).

Bornemisza et al. (2009) adapted the aforementioned framework in an attempt to identify factors that affect health equity and understand general health outcomes in fragile states including post-conflict settings under the guidance of the WHO Commission on Social Determinants of Health (CSDH). The resulting framework was then used to create strategies to improve health inequity in areas with recent history of conflict.

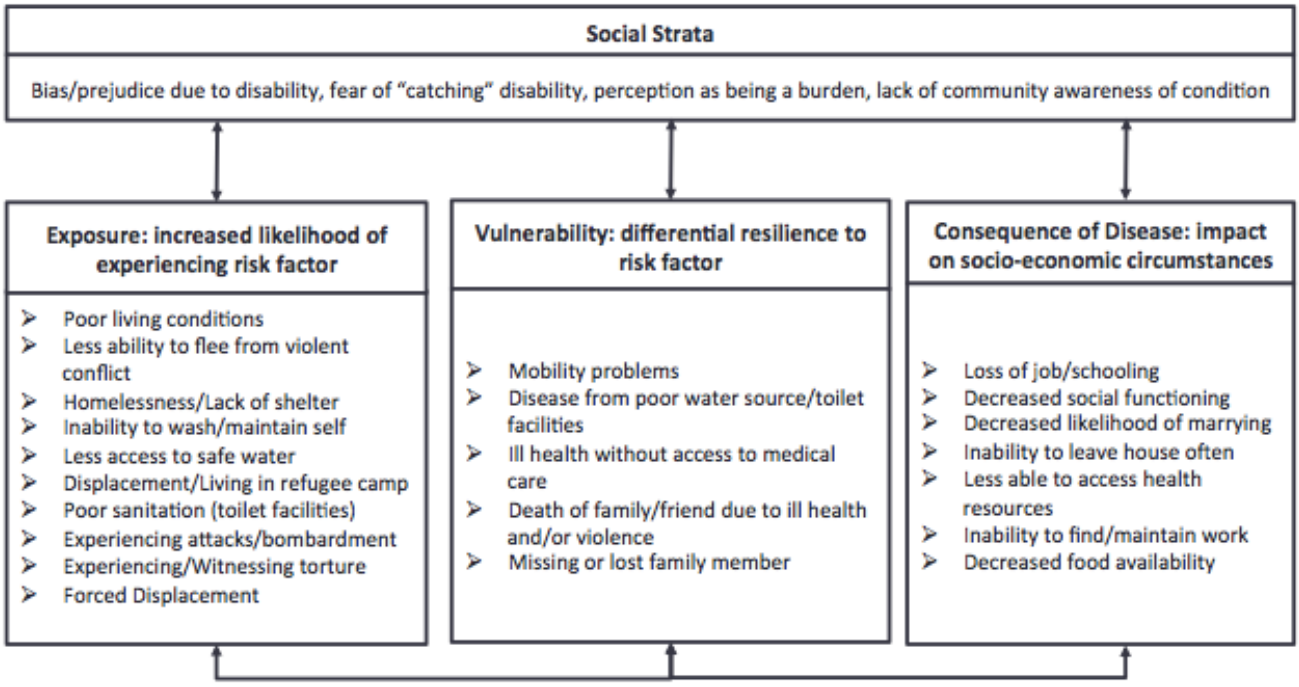


Figure 3: Perkins' utilization of Bornemisza et al.'s (2009) conceptual framework based on previously established sociocontextual determinants of health (Diderichsen, Evans & Whitehead, 2001 and Whitehead, Diderichsen & Burnstrom, 2000)

The current study proposes the use of another conceptual model based on the Diderichsen, Evans & Whitehead (2001) and Whitehead, Diderichsen & Burnstrom, 2000 characterizations in social determinants of health. In the proposed model, disability is specifically viewed as a risk fact or for health inequity (Figure 3).

This conceptual model posits that being disabled makes an individual more vulnerable to the effects of humanitarian crises. In applying this model to the conflict-affected population of Jaffna District, the outcomes of interest will be increased exposure and vulnerability to negative health experiences (i.e., having access to fewer resources, having more experience with trauma) and negative consequences of disease (e.g., being less able to care for oneself, not being able to maintain a job and support one's family). Combined, all of these elements are likely to affect the disabled person's social life (e.g.,

being married, going to school, leaving the household). Disability will be considered one of a larger network of risk factors rather than a health outcome of interest.

Summary

The problems that Sri Lanka faced during and following the civil war were of serious concern. The country had recently ended a long armed conflict and reconstruction was necessary. Any population that has endured years of violent conflict in a lower-middle-income setting is bound to suffer from dire public health problems, and the disabled population of Jaffna District was almost certainly at risk of negative health outcomes. At the time little was known about this subpopulation (characteristics, demographics, medical needs, associated risk factors, etc.). This study aims to address some of this missing information by describing the disabled population, and identifying differential health outcomes associated with disability by comparing this population with the non-disabled population. This work will be carried out under the guidance of a conceptual framework that links differential exposure, vulnerabilities, and health outcomes together to explain the cumulative impact of these characteristics on the social lives of disabled persons. This conceptual framework encourages the consideration of additional associations in the study of disability and general well-being.

Chapter II: Literature Review

Introduction

Post-conflict settings present a complicated set of problems for all who live in them, and disabled persons may be at an increased risk of adverse health outcomes. The aim of this literature review is to consolidate the most relevant existing knowledge about disability in post-conflict settings, with an eye toward identifying the most pressing public health problems the disabled face.

It will begin with a brief discussion on disability at the global level, and then will provide the most recent information available on disability in Sri Lanka specifically. Summaries of work detailing disability in post-conflict, refugee, and IDPs settings will also be provided. Finally, descriptions of major findings from prior work with this dataset will be outlined (Husain et al., 2011; Meiqari, 2012). Overall this information offers support for the idea that disability is a concerning public health and human rights issue and that there are missing links in our understanding of the mechanisms that diminish the quality of life of disabled persons.

Global Burden of Disability

It is estimated that approximately 1 billion people in the world (roughly 15% of the global population) are currently living with some form of disability (WHO World Report on Disability, 2011). Between 110 and 190 million of these disabled persons have significant difficulties in functioning. In addition to generally requiring more medical care, disabled individuals are more likely to have unmet health care needs and they are often not included in public heath programs (WHO World Report on Disability, 2011).

Globally, disabled individuals have additional barriers to health care includin, but not limited to prohibitive costs, limited availability of service, physical barriers,

inadequate skills and inadequate knowledge among health workers of the risk factors and needs of the disabled population. These barriers are particularly problematic as Article 25 of the CRPD reinforces the right of persons with disabilities to attain the highest standard of health care without discrimination. (WHO World Report on Disability, 2011). These rights can be difficult to attain in any lower-income setting, but especially in such settings where there has been protracted conflict. While Sri Lanka is only a signatory—and not a ratifying party—to this convention, it is important to have an understanding of the challenges and risk factors faced by the disabled population in this country.

Disability in Areas of Conflict

Given that limited information is available on post-conflict settings, it is informative to look at the work that has been conducted among disabled persons in active conflict settings. While there is ample evidence that armed conflict has both direct and indirect effects on health at the population level, the magnitude by which individual conflict-affected populations suffer from mortality and disability often remains unknown (Murray et al., 2002). This is especially true among IDPs, as the public health needs of the displaced have typically focused on easier accessed and more clearly defined refugee populations (Burkholder & Toole, 1995). In their analysis of a decade of such emergencies, Salama et al., (2004) found that the number of IDPs has increased relative to the number of refugees. In 2006, UNHCR was granted the legal mandate for the provision of humanitarian assistance to IDPs, but resources for such activities remain limited and a marked difference in health outcomes continues between IDPs and refugees (Bornemisza et al., 2010).

In 2008 the Women's Refugee Commission developed a guide for the inclusive treatment of disabled refugees. This was the first undertaking of this kind to provide

specific advice on the needs of this population, who were deemed to be virtually invisible in refugee and IDP assistance programs (Reilly, 2008). This work was based upon extended and collaborative fieldwork and found that disabled persons faced increased difficulty in accessing certain resources including additional or specialized food rations, community resources (e.g., food dispensaries), and health care services specialized for the needs of the disabled. Certain mental health characteristics, such as increased feelings of isolation, depression and mental health problems, were also identified to occur at higher rates among the disabled. Notably, no mental health services were offered. There were some positive findings: there did not appear to be a discrepancy between disabled and non-disabled children's school attendance, and vocational and skills-based trainings were not always found to be uncommon among the disabled. Of particular interest, nearly all participants in the study vocalized a desire for more community involvement in the form of leadership within their camps (Reilly, 2008).

The negative effects of a person's disability may be compounded by the "breakdown of social fabric, family loss and disruption of daily life, lack of shelter and food shortages, the dismantling of basic services and destruction of local infrastructure" that are often brought on by conflict (Pederson, 2002). All of these factors fall under the umbrella of displacement during emergency contexts and often are not resolved during protracted conflict. The extended nature of the conflict in Sri Lanka, as well as the sporadic upsurges of violent conflict in the northern region in and around Jaffna District, render the development of social infrastructure even more complicated. While it is challenging and sometimes impossible for any displaced person to find adequate shelter during an emergency, these problems are magnified for those who are disabled. It has

been found that even when shelters have been constructed for refugees and IDPs, little consideration has been given to the needs of the disabled and the shelters often fall short of this group's particular vulnerabilities (Twigg et al., 2011). It is also of note that many disabled people are separated from their caregivers by conflict-related death, displacement, or abandonment, increasing vulnerability among the disabled (Reilly, 2010).

During focus group discussions with women in an IDP camp in Darfur, Kett and Trani (2010) noted that many women identified the challenges disabled individuals experienced starting from the moment of fleeing the conflict. For many of these individuals, journeys to refuge took about twice as long due to mobility problems, and this drastically decreased their odds of survival in the early stages of the violent conflict. Once they arrived in the camp, many of the disabled women ended up in a segregated portion of the camp next to the elderly and those thought to have leprosy (Kett & Trani, 2010). This, coupled with the extra resources necessary to care for some disabled persons, led to a noted strain on household finances and coping strategies (Kett & Trani, 2010).

Difficulties in accessing water and sanitation resources have been noted among disabled populations in post-conflict settings. These problems can be viewed as both technical barriers (e.g., physical inability to travel to water sources, lack of handicap accessible latrines, inability to carry water) and social barriers (e.g., community members' expressed fear of "catching" the disability by sharing resources, stigma from taking longer to use facilities, low self-esteem and lack of dignity as a result of discrimination) (Groce et al., 2011).

Such problems are exacerbated by a common lack of planning and consideration of the fact that some members of migrating populations will be disabled (Shivji, 2010). This lack can result from outdated attitudes about disabled persons, underestimation of their abilities, and a general lack of consideration that is given to disabled persons in emergency contexts (Twigg et al., 2011). Common misperceptions about individuals with disabilities in these contexts have been found to include the requirement of expensive and specialized health care, helplessness in the care of others, the inability to participate in education or community activities, and an assumption that disabled individuals simply will not survive the emergency (Kett, 2009; Simmons, 2010). While these misconceptions must be addressed both in practice and in the research surrounding this topic, it is important to recognize that the CRDP specifically declares that disabled members of any group in an emergency setting are deserving of special inclusion and consideration (United Nations, 2006).

In their work on differential health outcomes among disabled and non-disabled persons in post-war Afghanistan, Lopes Cardozo et al. (2004) found that disabled persons demonstrated significantly lower social functioning and worse mental health outcomes than their non-disabled peers (Lopes Cardozo et al., 2004). These findings were linked with increased exposure to traumatic events that unfolded over the course of two decades of war. Additionally, disabled participants reported a lower general health perception on average, and were over two and half times more likely to report anxiety symptoms (Lopes Cardozo et al., 2004). These findings support the notion that disabled persons in particular are at greater risk of experiencing poor health outcomes on average, especially since a person's mental health status plays a significant role in overall well-being.

Disability among Refugees and Internally Displaced Persons

In 2013 UNCHR estimated that there were nearly 43 million people of concern, including refugees, asylum-seekers, IDPs, returnees, and stateless persons. If 15% of a given population is disabled (WHO World Report on Disability, 2011), then it may be possible to assume that approximately 6.4 million persons of concern are also disabled andin need of special considerations during humanitarian aid development (Pearce, 2012). The primary challenge in addressing these needs is the fact that disabilities and those who live with them are widely varied and will cause different impacts on individuals' overall health based on different contexts. As such, a standardized approach to addressing the needs of all displaced disabled persons is not feasible (Pearce, 2012).

Funding for disabled persons in emergencies is often solely allocated to people disabled as a direct result of armed conflict (Kett, 2009). This lack of inclusion leaves people with preexisting disabilities without anywhere to turn for care (Kett, 2009). An additional oversight that has occurred in these settings is that many assume that a disabled person is completely inept and should not be included in the development of interventions and recovery attempts; this is a disservice to the population as it is not only ignoring the needs but also the capabilities of this group (Pearce, 2012). This lack of thoughtful consideration may lead to poor policy-making in post-conflict settings; this is especially concerning during this key phase of infrastructure development and reconstruction.

Disability in Sri Lanka

In May of 2003, the Sri Lankan Ministry of Social Welfare released a National Policy on Disability. This was a multi-faceted plan that treated disability as a "cross-cutting issue of immense dimensions" (Ministry of Social Welfare, 2003). Contained

within this document are lists of specifically socioeconomic considerations that must be made, including barriers to inclusion and policies and strategies for increased inclusion of this population. It is interesting that this plan not only existed but was created six years prior to the official conclusion of the civil war. No other information was found regarding whether these plans were put into action, and no evidence was found indicating violations of these regulations or what penalties or reparations would be made for non-compliance. This may change in the future if Sri Lanka ratifies its commitment to the CRPD.

The top five causes of years lived with disabilities (YLDs) in Sri Lanka and globally in 2010 are as follows (Health Metrics and Evaluation – Global Burden of Disease: Sri Lanka, 2010):

Figure 4: Comparison of YLDs in Sri Lanka and Globally, 2010

Top Five Conditions Contributing to YLDs Sri Lanka, 2010	Top Five Conditions Contributing to YLDs Globally, 2010
1. Major depressive disorders	**1. Lower back pain**
2. Lower back pain	**2. Major depressive disorders**
3. Iron-deficiency anemia	**3. Iron-deficiency anemia**
4. Chronic obstructive pulmonary disease	**4. Neck pain**
5. Diabetes mellitus	5. **Chronic obstructive pulmonary disease**

Figure 4: A comparison of the top five conditions that contribute to years lived with disabilities (YLDs) in Sri Lanka and Globally, 2010. Data from the Institute for Health Metrics and Evaluation (2013).

Additionally, Appendix B shows the breakdown of YLDs by age in Sri Lanka in 2010. The younger cohorts (children and adolescents) suffer the most from nutritional deficiencies and other key contributors to development, young and middle-aged adults tend to have higher rates of mental and behavioral disorders, and the older cohort shows a higher burden of musculoskeletal disorders and other NCDs (GBD, 2010).

It must be noted that disabling conditions are not mutually exclusive. For example, Andersen et al., (2014) examined psychosocial elements of daily life for those who live with chronic musculoskeletal pain. Through their review of the literature covering 23 unique populations, the authors came to the consensus that living with chronic pain is associated with higher prevalence and higher levels of depressive symptoms. Additionally, this same review found that interpersonal conflicts were more common for those who suffer from chronic pain (Anderson et al., 2014). This provides support for the notion that disability may be a salient social determinant for health.

There has been some criticism of the treatment of disabled persons during humanitarian response, especially regarding the inclusion of disabled individuals in coordination and recovery after emergencies (Kett, 2009). In Higashida's (2014) analysis of resources available to disabled persons in Sri Lanka at the individual and social levels, the primary objective was to determine the efficacy of community-based rehabilitation (CBR) programming designed for disabled people. Disabled participants were selected only through a local registry conducted by the health care system; only 363 participants (1.1% of the overall population) were included—almost certainly a small fraction of the disabled in the survey area. This sample revealed that physical disability was the most common form of all disabilities (68.2%). According to the report the local resources available to the disabled in 2008 were extremely limited. When the community resource intervention was put into place in 2009, improvements were seen in the quality of life among the disabled and more specific recommendations for the treatment of disabled persons and their caregivers were created as a result of this report.

Bombi (2010) conducted an assessment of the perceptions and protections of disabled individuals in Sri Lanka in 2008, just before the conclusion of the civil war in 2009. A noteworthy finding from this study was that displacement was a salient predictor of permanent disability among those who acquired serious injuries resulting from conflict (Bombi, 2010). Another matter of concern was the discrimination that many disabled persons faced upon entry into the camp; amputees were often assumed to be of Tamil ethnicity and thus were seen as part of the cause for the war. Disabled IDPs faced discrimination at security checkpoints, were forced to separate from family members, experienced a lack of accessibility to food and water dispensaries and community information, and faced limited planning for ease of travel home once it became secure to do so (Bombi, 2010). Several of these findings will also be tested in the current study of Jaffna District, within the constraints of the existing data gathered just after the period of conflict. Similarly, displacement and traumatic experiences among the Jaffna population will be studied.

Summary of Past Work with These Data

These data have been previously analyzed in two different studies. In 2011, the original researchers published a paper assessing the prevalence of mental health conditions in Jaffna District (Husain et al, 2011). In 2012, a research thesis utilized these data to determine the prevalence of injury in the same population. The analysis contained within this report is an attempt to complete the overall study's goal of understanding how the long-term conflict affected the health of this population. The findings of these other studies are summarized below, as they were used as a foundation for the research questions explored in this analysis.

Prevalence of War-Related Mental Health Conditions and Association with Displacement Status in Postwar Jaffna District, Sri Lanka

The primary objective of the Husain et al. (2011) study was to assess the prevalence of mental health conditions among IDPs. Mental health survey responses from 1408 were used in this analysis. The primary outcomes of interest were post-traumatic stress disorder (PTSD), anxiety, and depression. The associations between displacement status and each of these outcomes were determined. Participants were divided into three categories: currently displaced persons, resettled residents, and long-term residents. Additionally, data collected in the survey allowed the researchers to determine the prevalence of trauma exposure and related coping mechanisms.

The authors found the overall prevalence for symptoms of PTSD (7.0%), anxiety (32.6%), and depression (22.2%). These outcomes were highest among currently displaced populations (PTSD=13.0%, anxiety=48.5%, depression=41.8%). Overall, 68% of the population had experienced at least one traumatic event, and the mean number of traumatic events experienced was 2.76. A dose-response relationship was found between the number of such events and symptoms of poor mental health outcomes.

Women were found to be at higher risk of symptoms of anxiety and depression, and older members of the population were found to be more susceptible to mental health disorders.

The Association between Internal Displacement Status and Violent Injuries in Jaffna District, Sri Lanka: A Retrospective Population-Based Survey

A Master of Public Health student at the Rollins School of Public Health completed a thesis using these data in 2012. This thesis focused on injury data from the

survey, and determined whether displacement status was a meaningful predictor of experiencing an injury. Of those who had experienced an injury, 30 percent had been displaced as a result of the war. There were statistically significant differences between the IDPs and non-IDPs in terms of age, access to healthcare facilities, and length of time it took to reach the nearest health care facility. Violent injuries were far more common among IDPs than among non-IDPs. Displaced persons were more than three times more likely to report having experienced a violent injury, with bombs and explosions being the most common cause of injury. Nearly one third of the injuries were fatal.

Bivariate analyses conducted on these data found that being male and between the ages of 25 and 34 were most commonly associated with experiencing a violent injury. Multivariate analyses showed that displaced persons, even after controlling for all other relevant factors, were more likely to report having experienced violent injuries than non-IDPs. Disability was not assessed in this study.

Summary

Global and Sri Lanka-based work that has been conducted regarding disability in post-conflict settings demonstrates that disabled populations face significant challenges in already difficult environments. These are difficult circumstances not only due to direct physical and mental obstacles caused by disability, but also due to the social implications of disability. Past studies among refugees and IDPs have shown a lack of consideration given to the disabled population in the planning and implementation of humanitarian aid.

Data on disability type and frequency in Sri Lanka provide additional evidence for the sort of issues the disabled population in Jaffna District is likely to face. Past work with these data similarly found that displacement is a key factor associated with many important health outcomes (e.g., symptoms of mental health disorders and violent

injuries). Most importantly, these studies demonstrate that many of these health outcomes are intertwined, indicating that a network of interrelated issues may be a better model than a cause-and-effect relationship to indicate the interconnectedness of negative health outcomes. This type of cyclical model was the driving force in the development of the methods for this current study, as described in Chapter 3.

Chapter III: Methods

The purpose of this chapter is to describe the methods used for data collection and analysis. This study consisted solely of secondary data analysis; no additional information was collected from the original study population.

Description of the Original Study and Data Source

The data for this analysis were obtained by members of the Emergency Response and Recovery Branch (ERRB), formerly the International Emergency and Refugee Health Branch (IERHB), at the Centers for Disease Control and Prevention (CDC). These data were collected in collaboration with the United Nations Children's Fund (UNICEF) and the Sri Lankan Ministry of Health (MOH).

The survey was conducted using a multi-stage cluster design. Data were collected via retrospective community and household surveys conducted between July and September of 2009. The data were collected to assess the health of residents in Jaffna District and plan targeted interventions to prevent additional injuries in Jaffna District and assist in capacity building of local and national agencies (CDC Study Protocol, 2009).

Questionnaire Development and Delivery

An advisory panel including key local informants who were familiar with health issues in Jaffna District provided consultation during the development of the questionnaires and survey protocol. Questionnaires were translated into Tamil by field staff and then back translated by other staff not involved in the initial translation. The instruments were piloted in 40 households in Jaffna District to identify ambiguous phrasing, determine the appropriateness of included language, and practice interview techniques. Interviewers were selected based on their status as educated and respected

community members who were familiar with local customs and health care issues. Each interviewer team consisted of 2-3 local people, in addition to support staff and drivers. Interviewers participated in three to four days of trainings that ensured that the survey teams were conducting interviews in a standardized, accurate, sensitive, and safe manner (CDC Study Protocol, 2009).

Survey Tools

This survey included an exhaustive mortality survey, a community assessment, and a household survey; only the latter was considered in this analysis. Responses from three components of the household survey were included in the analysis; the disability component was the focus of this analysis, but selected variables from the general health and mortality and mental health components were also considered. Variables from each of these surveys were included as potential predictors for the outcome of disability. A flowchart describing the data collection process for the three survey components is available in Appendix F.

General Health and Mortality Assessment Tool (GHMAT)

The purpose of the GHMAT (see Appendix C) component was to obtain information on the mortality, general health, and demographic characteristics of all household members during a 12-month recall period. For this study component, a household was defined as a domestic unit consisting of members who lived together and shared the same cooking facility. Information was collected on both fatal and non-fatal violent injuries experienced by household members during the past 10 years. Additionally, interviewees were asked to list all members of their households from the past year and to provide information on mortality and disability status for all members.

Information collected during the GHMAT indicated which other survey components were appropriate for use in each household (CDC Study Protocol, 2009).

Mental Health Assessment Tool (MHAT)

The MHAT (see Appendix D) was developed by CDC subject matter experts. The Hopkins Symptom Checklist-25 (HSCL)[1] and the Harvard Trauma Questionnaire (HTQ)[2] were modified to collect information on the prevalence and symptoms of mental health illness (see Appendix D, Parts 4 and 5 for the modified versions of measures). The primary goal of this section was to assess general and social functioning through the use of these standardized tools. Information was obtained from one randomly selected individual, aged 18 or older (or aged 16 or older if married) in each household CDC Study Protocol, 2009).

Disability Assessment Tool (DAT)

The DAT (see Appendix E) was used to collect information about individuals who were disabled at the time of the interview. If disabled persons were incapable of providing responses to the survey, their caretakers or heads of household were asked to respond on their behalf (CDC Study Protocol, 2009).

[1] The Hopkins Symptom Checklist (HSCL) is a standardized and widely used tool that was created by Parloff, Kelman, and Frank at Johns Hopkins University in the 1950s. Since its creation, it has been translated into several languages and used in a variety of contexts (Harvard Program in Refugee Trauma, 2011).

[2] The Harvard Trauma Questionnaire is similar in design to the HSCL, but was designed specifically to ask about a variety of traumatic events and associated emotional symptoms. It has been widely used among Southeast Asian refugee populations (Harvard Program in Refugee Trauma, 2011).

Ethical Approval and Considerations

The original study team verbally obtained informed consent from each study participant prior to conducting every survey component. A consent form read to all participants, in which their rights as a participant were made clear. Verbal consent was then obtained. If an unmarried minor[3] was participating in the survey, permission was obtained from the minor's guardian and assent was obtained from the minor prior to the application of the survey. Potential participants were informed of their rights to confidentiality and potential risks and benefits of participation. CDC's Institutional Review Board (IRB) provided approval for the original survey. (CDC Protocol and Questionnaire, 2009). In addition, a waiver of formal IRB review from Emory University was obtained for this secondary data analysis, as there was no direct contact with or additional data collection from human subjects.

Target Study Population and Participant Selection Criteria

The original study population included all residents of Jaffna District. In order to participate in this study, an individual must have met at least one of the following criteria: head of household (for the GHMAT), age of 15 years or older (for the MHAT), or currently disabled or taking care of a disabled individual (DAT) (CDC Study Protocol, 2009).

Only one disabled person per household was able to participate in the DAT; if more than one disabled person lived in a household, one survey participant was selected randomly. If the selected person was under the age of 18 or if his/her disability impaired

[3] Minors were defined as anyone under the age of 18. "Emancipated" minors were defined as anyone aged 16 or 17 and married; such individuals were considered adults for the application of this survey.

his/her ability to complete the survey, a caregiver was asked to provide responses to the disability component on his/her behalf (CDC Study Protocol, 2009).

Individuals with any of the following characteristics were excluded from the study: inability to speak Tamil, age under 15 years, inability to complete an interview due to physical or mental impairment, and refusal of consent to participate. Prisoners were excluded from the study because prisons, jails, and similar institutions were not included in the sampling frame (CDC Study Protocol, 2009).

Sample Size Calculation and Weighting

Because the prevalence of the health outcomes of interest were unknown in Jaffna District, a prevalence of 50% for mental health conditions and 10% for disability were estimated for the original survey. An 80% response rate and a design effect of two were used to calculate a sample size of 1280 people (one person per household). This sample size would achieve a ±4.4% precision around the estimates for all key measures in the study with a 95% confidence interval (Husain, et al., 2011).

Sample weights were used in the analysis to account for unequal probabilities of selection and non-response. Enumeration areas with higher proportions of displaced people were oversampled.

Sampling

A graphic displaying the multi-cluster sampling design may be found in Appendix E. Jaffna District comprised 435 enumeration areas (EAs) at the time of the survey. The sampling frame was based on a national census conducted by the Sri Lankan government in 2007. Census data listed the names and populations of villages and larger communities. UNHCR provided a list of IDP camp names and populations in Jaffna District in 2009 (CDC Study Protocol, 2009).

In order to obtain representative health information on displaced persons, EAs with larger IDP populations were divided into four strata based on the percentage of IDPs in each area and were then oversampled. Probability proportional to size (PPS) was carried out to randomly select 40 clusters (also called EAs) within the sampling frame.

Each selected cluster was then divided into segments consisting of 200 to 250 households using maps and population data provided by local officials. One segment in each cluster was then randomly selected using PPS. Enumeration of all households was carried out, and a systematic random sample of 40 households was generated. The number of people surveyed in each selected household depended on the number of surveys for which household members qualified. The mortality and household component was completed by the head of household, and a household census within this component determined eligibility for other components. The MHAT component was completed by one randomly selected individual in each household. If a household member was identified as having a disability, that person was deemed eligible for the DAT component. (CDC Study Protocol, 2009).

DAT Component Population

A total of 172 participants completed the DAT survey component. This component was not designed to meet any standalone threshold for sample size requirements, as it was assumed that the randomization that took place in the beginning of the study would sufficiently capture a representative sample of disabled persons. Differential weighting went into place after the surveys were completed in order to account for the differences in sample size (CDC Study Protocol, 2009).

No sample size calculation was conducted for the second phase of this study, as this phase was limited to exploratory research looking for trends in the data from the GHMAT, MHAT, and DAT components.

Data Entry and Analysis

Field staff and interviewers were trained to enter the data collected on paper-based surveys into Epi Info (version 3.5.1). Data entry occurred on a daily basis, and double data entry was used to reduce human error. Nopersonally identifiable information was collected throughout the survey process. Unique household and individual identification numbers were assigned for every interview; it is in no way possible to link the information collected to the study participants (CDC Study Protocol, 2009).

Data were provided by ERRB staff in Microsoft Access format. These data were then transferred to an Excel document for data consolidation and cleaning. Missing variables and skip patterns were also accounted for in this step of the program in order to simplify the analysis. Missing values were recoded in order to avoid errors during analysis. Data were read into Epi Info (v. 7.1.1.4.) for basic analysis to determine prevalence and bivariate associations.

Data analysis was conducted in two phases. During the first phase, data from the disability component were analyzed according to the same pattern used to analyze other components of this dataset (Husain et al., 2010; Meiqari, 2012). The results of this descriptive analysis guided the second phase of this study, which compared household and mental health data of households with and without disabled persons. In particular, factors that might impact household exposure, vulnerability, disease consequences and social status were examined.

To create the two comparison groups for the second phase, households were identified as having or not having a disabled member based on responses in the household census completed by participating heads of households (Appendix C). Household ID numbers found on the surveys of all households reporting the presence of disabled persons were matched to the GHMAT and MHAT surveys completed by individuals in the same households. The result was two different study groups: one in which at least one disabled individual was living in the house during the past 12 months and one in which disabled persons were not living in the house during the last 12 months.

Summary

This study consisted solely of secondary data analyses on data that were collected in Jaffna District, Sri Lanka in 2009 by the Emergency Response and Recovery Branch (ERRB) at CDC in conjunction with UNICEF and the Sri Lankan MOH. Both studies (the original study and this analysis) were approved by ethical review boards. The instruments were developed by ERRB with input from other study partners, and data from three separate survey components were used in this analysis. The purpose of this study was to describe the disabled population and to compare households with and without disabled individuals. Data collection and data entry took place in late summer of 2009, and were carried out by Sri Lankan survey teams specially trained for this project. Bivariate data analyses for this study were conducted using Epi Info (v. 7.1.1.4.). The significant results of this study are described in Chapter IV, and a full set of results tables can be found in Appendices H-W.

Chapter IV: Results

The purpose of this chapter is to describe the most relevant findings in both phases of this analysis. The first part of these analyses describes the demographic, household and disability characteristics of the disabled participants. This includes frequencies of disability types and causes and the impact of disability on selected elements of the disabled persons' lives. Additional comparisons were made among subgroups within the disabled population. Finally, the household and mental health data comparing households with and without disabled persons are also described. All tables are located in Appendices H-W.

Demographic and Household Characteristics of the Disabled Population

The demographic and household characteristics of disabled individuals in the study population are presented in Table 1. A total of 172 disabled persons were identified through the process of stratified cluster sampling. Overall this represented about 2.4%[4] of the study population (a total of 7,190 people were identified in the overall household survey). One hundred and seventy households[5] were found to include at least one disabled person, representing approximately 11%[1] of all households included in the survey (n=1517). The division between males and females was relatively evenly represented when accounting for weighted data: males (54.85%) and females (45.15%). When compared to the larger population, males were found to be 1.7 times more likely to be identified as disabled when compared to females. This was the only statistically significant finding (p-value=0.00074) with the demographic data. The majority of the

[4] This figure was derived from unweighted data.

[5] While there were 172 disability surveys, there were only 170 households that claimed to include a disabled person and were included in the household survey. As such, only the 170 households who were known to have a disabled person were included in any analyses that involved household characteristics. All 172 of the disability records were included in the analysis of the disability survey.

disabled population were over the age of thirty-five (86.96%), and half of the population was sixty years or older (48.08%). The average age for males was 52.72 years, while the average age among females was 54.51 years.

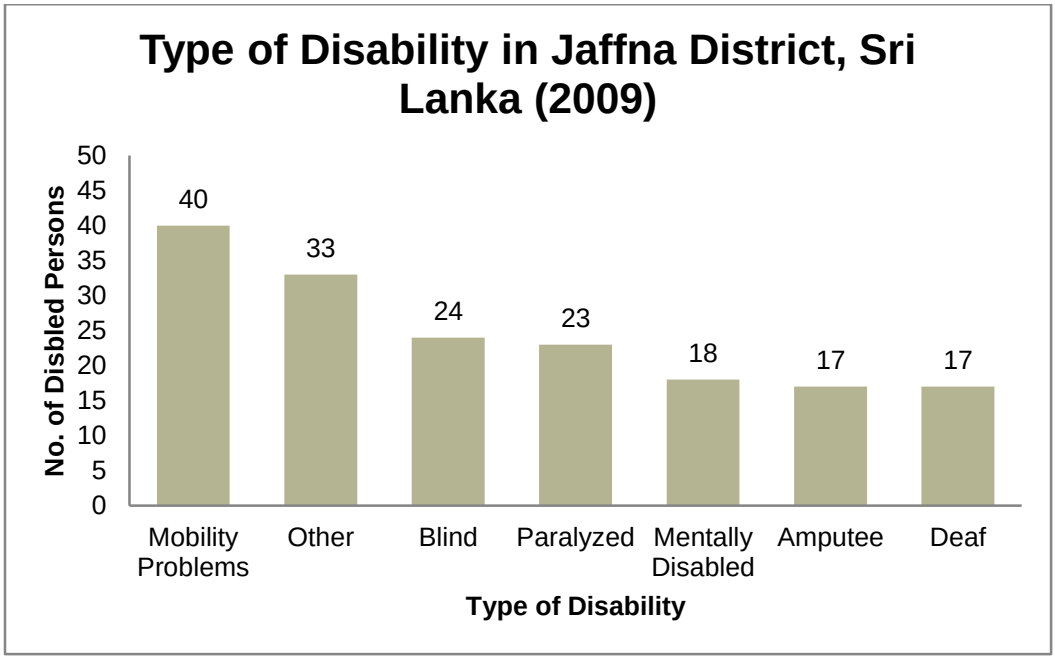
One hundred percent of the disabled population identified Tamil as their ethnicity. About half of the households with disabled persons included four or fewer people, and more than 90% claimed eight or fewer people. The population was almost evenly divided in terms of displacement: 47.19% (n=82) had been displaced, while 52.81% (n=88) had never been displaced. Of those who had been displaced only 18 people (7.75%) had been displaced outside of Jaffna. Over 15% (n=30) were displaced from their homes at the time of the survey.

About half of the disabled respondents (50.89%; n=82) were able to respond to the disability questions on their own behalf. The rest of the disability surveys were answered by caretakers or other family members of the disabled, most commonly the disabled persons' spouses (13.47%; n=26), parents (13.22%; n=27), and children (10.21%; n=7).

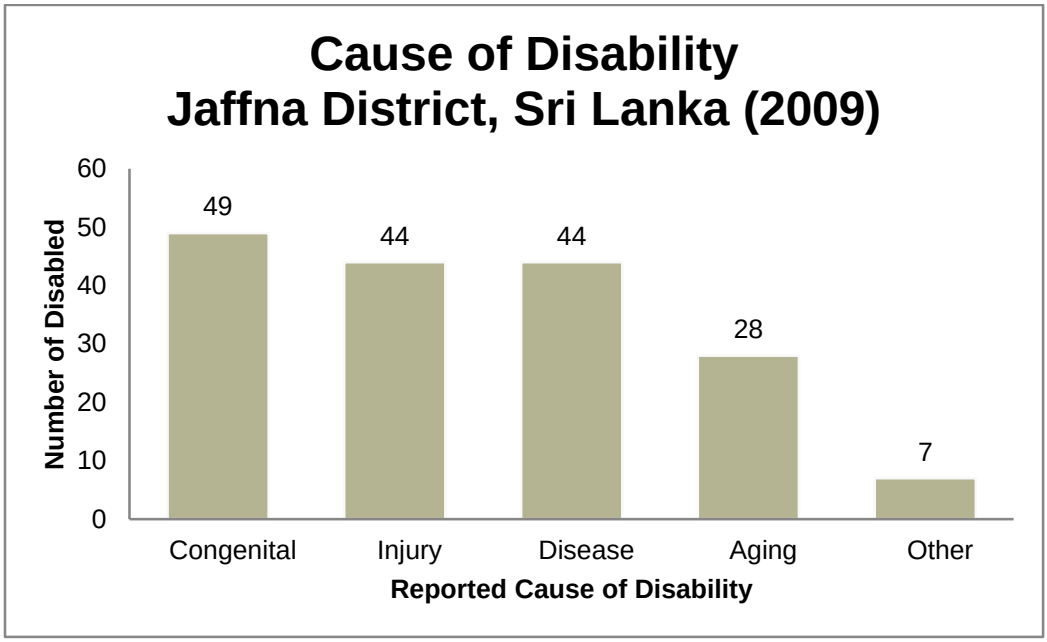
Disability Types and Characteristics

The characteristics of the disabilities experienced by this population are displayed in Table 2. The most common type of disability was having a mobility problem (20.54%; n=40). Other commonly reported disabilities were paralysis (19.51%; n=24), blindness (15.30%; n=25), mental disability (12.10%; n=18), and amputation (4.56%; n=17). Over 30 percent of the subpopulation reported disease as the cause of disability (n=44), closely followed by congenital problems (25.96%; n=49) and aging (21.82%; n=28). It should be noted that 44 individuals (16.12%) reported injury as the cause of disability. However, the weighting scheme used in the analysis drove down the frequency. Graph 1

provides the raw frequencies of the reported types of disability in this population, and Graph 2 depicts the frequencies of the reported causes of disabilities.



Graph 1: Reported types of disability in Jaffna District in July to September 2009. N=172. Note that the percentages described above are weighted, and thus may not appear to align with the crude frequencies shown here.



Graph 2: Reported causes of disability in Jaffna District in July to September 2009. N=172. Note that the percentages described above are weighted, and thus may not appear to align with the crude frequencies shown here.

Among those disabled by injury (16.13%; n=44), 41 individuals provided the cause of their injuries. The most common types of injury were falls (30.24% of the injured population; n=10), bombs/grenades/explosions (20.38%; n=10), "other" (19.19%; n=6), and being hit/struck/experiencing blunt force trauma (8.87%; n=3). Most injuries were isolated events (51.18% of the injured population; n=25), and armed conflict was the second most commonly reported injury context (23.61%; n=11).

Among those disabled by disease (30.70%; n=44), the most frequently reported diseases were arthritis (23.90%; n=9) and polio (20.23%; n=10). Many participants reported diseases that were classified during data collection and entry in the "Other" category (38.17%; n=16), which included four individuals who reported "blood pressure" and/or "heart problems".

Most people reported age at onset of disability as near either the beginning or the end of life. About 34 percent (n=60) reported an age at onset between birth and five years old, and a nearly identical percentage (34.77%; n=48) of people reported an age at onset of 56 years or older. All other age groups demonstrate similar prevalence rates to each other (all are between three and eight percent). This pattern corroborates answers for the number of years lived with disability: the majority of people had lived with their disabilities between zero and five years (35.80%; n=57) or 21 or more years (35.25%; n=60).

Most people reported seeking advice or treatment for their disabilities (89.19%; n=154), and over half of the population (53.28%; n=85) claimed to have sought treatment for their disabilities in the last year. These data are shown in Table 3. Reasons cited for

not seeking advice or treatment for disability were not wanting to go (2.79% of disabled population; n=5), having no medical facilities available (1.30%; n=3), having financial difficulty (1.19%; n=2), being afraid to go (1.64%; n=2), and being denied admission/treatment (1.14%; n=1). For those who did receive treatment, over half (53.28%; n=85) had done so within the last year. Sixty-five (32.20%) individuals reported that the last time they had received treatment was more than one year prior to the survey. Over 68% of the disabled persons reported seeking general medical treatment for their disability (n=112), 5.30% (n=13) reported using crutches, 4.17% (n=8) had sought psychological treatment or counseling, and 3.77% (n=9) had received physical therapy.

The frequencies of difficulties with mental and motor skills were also assessed and can be found in Table 4. Respondents were asked how much of the time they experienced difficulty carrying out certain tasks, and responses were then dichotomized into half or more of the time and less than half of the time. Nearly 60% of respondents (58.65%; n=88) experienced difficulty walking half or more of the time. Other commonly reported activities (for which disabled individuals had difficulty half or more of the time) were using their legs (52.81%; n=83), washing/dressing themselves (49.12%; n=76), and using their arms (44.11%; n=74).

Respondents were also asked to describe how often they participated in common activities. These results are displayed in Table 5, and responses were again dichotomized into half or more of the time and less than half of the time. Of particular interest is the finding that 77.58% (n=106) of disabled persons reported doing outside chores like working in the field less than half of the time. Similar percentages of respondents

reported doing home chores like cooking or laundry (70.85%; n=112) and going to the market/running other errands outside the home (70.11%; n=92) less than half of the time.

Specific indicators of daily activities and marital status among the disabled were analyzed and these results can be found in Table 6. Overall, 51.07% (n=119) reported ever leaving the house while 48.32% (n=50) reported never leaving the house. Receiving assistance to perform daily activities was found to be fairly common, most often with the help of another person (70.95%; n=109). However, 27.16% (n=58) reported not having any help with daily activities. Eighty-six respondents (48.31%)stated that their disabilities had impacted their work status; losing a job was the most common impact reported (15.23%; n=26). Twenty-four individuals reported difficulty finding work as a result of their disabilities (13.77% of disabled persons) and 8.81% (n=15) mentioned other impacts on work status, including being inhibited in the ability to work due to mental disability (50.26% of those who reported "other" impacts; n=5), and being unable to do school-related activities (20.60%; n=4).

Over 50 percent of disabled persons were married at the onset of disability (50.26%; n=86), while 31.67% (n=59) had never been married at the time of the survey. Additionally, 9.86% (n=14) reported being widowed at the onset of disability. Over 75% of the disabled population reported that their disabilities had not impacted their marital status (77.96%; n=139), while the remaining 22.04% (n=33) of participants indicated that their disabilities had affected their marital status; the most commonly reported impact was a decrease in marriage prospects (18.05%; n=29).

Disability Type and Characteristics Analyzed by Sex

Frequencies of disability types were disaggregated by sex; results can be found in Table 7. Males accounted for higher frequencies of the following disabilities: polio

(86.82%; n=7), amputation (70.61%, n=12), mental illness (64.42%; n=11), blindness (56.37%; n=16), mobility problems (50.23%; n=26), paralysis (56.10%; n=13), and a combination of disabilities (51.98%; n=2). Females accounted for higher frequencies of delayed development (60.93%; n=2), deafness (53.69%; n=9), and age/aging (51.73; n=1). No statistically significant difference between males and females was found in the analysis of age at onset of disability. Of the seven age categories, men accounted for a greater proportion of four (birth to 5 years, 16 to 25 years, 26 to 35 years, and 46 to 55 years).

Differences in frequencies of the disability causes between males and females are reported in Table 8. Males had higher frequencies of disabilities brought on by disease (34.67% of disabled males; n=28) and congenital problems (30.22%; n=30). Females displayed higher frequencies of disabilities brought on by aging (26.27% of disabled females; n=15) and injury (16.50%; n=14). For males who were disabled by injury (15.80%; n=30), the most common causes of injury were bombs/grenades/explosions (35.46% of males disabled by injury; n=9) and falls (15.22%; n=5). Most injuries among males (n=9) who were disabled by injury were isolated events (59.50%; n=19); 35.70% (n=9) of respondents reported that the injuries occurred in the context of armed conflict. Notably, nearly half of the women who were disabled by injury (48.94%; n=6) did not report the context of their injuries, while 41.51% (n=6) indicated that their injuries were isolated events.

Among males and females disabled by disease, the same diseases were frequently reported for both sexes. Among males disabled by disease, the most common diseases specified were polio (23.42%; n=8) and arthritis (23.37%; n=5); 33.71% (n=9) reported

"Other". Among females disabled by disease, the most common diseases were also arthritis (24.77%; n=4) and polio (15.03%; n=2) and 45.42% (n=7) reported "Other". It is notable that of the 10 polio cases that were reported to cause disability, eight were among males.

Few differences were found in a comparison of age at onset of disability between the sexes. The most common ages at onset of disability were birth to five years old (37.51% of disabled males; n=34 and 31.30% of disabled females; n=26) and 56 years and older (30.05% of disabled males; n=25 and 40.52% of disabled females; n=23). The only substantial difference was in the age group of 46 to 55 years at onset of disability. Eleven disabled males reported this age group (11.28%), compared to five women (4.04% of disabled females).

Selected indicators of daily lifetime affectedness among the disabled are disaggregated by sex in Table 9. A greater proportion of males reported ever leaving the house (55.67% of disabled males; n=75), compared to 45.48% of disabled females (n=44). A higher percentage of disabled females (78.20%; n=48) reported having help from another person to perform daily activities, while a smaller proportion of men indicated having assistance with daily activities (64.98%; n=61). Fifty-eight respondents (27.16%) replied that they did not require any help in performing daily activities; more than 33 percent of males indicated that they did not require help (n=38), while only 19 percent of females reported the same (n=20). Men had over three and half times the odds of reporting that their work status was impacted by their disability when compared to disabled women (cOR: 3.67, p-value=0.00). A far higher percentage of women reported being widowed at the age of onset (20.53%; n=12) when compared to men (1.07%; n=2).

Both groups reported high percentages for being married at the onset of their disability (men: 58.35%; n=56 and women: 45.91%; n=30), and similar percentages of both groups indicated that disability had impacted their marital statuses (men: 22.96%; n=15 and women: 20.93%; n=18). When asked to indicate how their marital statuses had been impacted by disability, the majority of both men and women stated that disability had led to fewer marriage prospects (overall 75.79%; n=27).

Disability Type and Characteristics Analyzed by Age

Data about the difficulty of carrying out common tasks was disaggregated by age; results can be found in Table 10. Ages were broken into three groupings for this analysis: ≤17 years, 18-59 years, and ≥ 60 years. All of the nine indicators analyzed showed that either the youngest or the oldest age cohorts more often experienced difficulty with the tasks half or more of the time, when compared to the other groups; for example, 42.85% (n=26) of the oldest group indicated having difficulty seeing half or more of the time and 36.40% (n=5) of the youngest cohort indicated experiencing the same. Overall, the oldest cohort was more likely to experience difficulty walking (71.29%; n=14) and using legs (68.85%; n=41) half or more of the time compared to the other age groups. The youngest cohort was more likely to experience the following difficulties half or more of the time: hearing (34.80%; n=7), understanding or remembering things (61.11%; n=11), speaking or being understood by others (65.49%; n=10), using arms (59.76%; n=8), washing and dressing themselves (64.18%; n=7), and feeding themselves (58.69%; n=6).

Participation in common activities was also analyzed by age group; results are presented in Table 11. Because participants were able to opt out of inapplicable questions, total numbers of answers vary by question. The older population was more

likely to report conducting the following activities less than half of the time: working outside the home (47.46%; n=31), going to school (46.79%; n=23), doing outside chores like working in the field (40.41%; n=37), and doing home chores like cooking or laundry (48.05%; n=48).

Household and Mental Health Data Comparing Households with and without Disabled Persons

Displacement Status

A comparison of displacement patterns in households with and without disabled persons can be found in Table 12. A household was defined as a domestic unit consisting of members who lived together and shared the same cooking facility. Members who were born, died, or moved into a household during the 12 months prior to the survey were considered members of that household in survey components considered in this analysis. Overall there were no statistically significant differences in displacement patterns between households with and without disabled persons. However, a greater proportion of households with disabled persons were displaced (47.19%) than households without any disabled members (28.31%). Households with disabled members had 1.27 the odds of being displaced when compared to households without disabled members; however, this finding was not statistically significant (p-value=0.1477).

This pattern remains consistent in the analysis of the number of times households had been displaced since the Second Battle of Elephant Pass in April 2000; households with disabled members were more likely to have been displaced once, two to four times, and 5 or more times than households without disabled members. Overall, the households with disabled members experienced higher rates of displacement when compared to households without disabled members. Both groups showed that most households had

never been displaced outside of Jaffna District; only 7.75% (n=18) of households with disabled members and 4.85% (n=94) of households without disabled members reported such displacement. At the time of the study (July-September 2009), 15.82% (n=30) of households with disabled members were currently displaced from their homes, while 9.56% (n=187) of households without disabled members were currently displaced. This indicates that households with disabled members were 23% more likely to be displaced at the time of the survey than households without disabled members (p-value=0.395).

Access to Water/Sanitation/Hygiene, Food, and Health Services

Drinking water accessibility is described in Table 13. Few differences were found between households with and without disabled persons. Majorities of both groups had with access to reliable water sources, and both groups most commonly reported protected wells and springs as their primary water sources (households with disabled persons: 54.52%; n=94 and households without disabled persons: 62.18%; n=829). Majorities of both groups did not have to wait for water (households with disabled persons: 72.75%; n=119 and households without disabled persons: 69.52%; n=873). Among households who did have to wait for water access, most indicated that the wait for water was typically for less than 30 minutes. Both groups tended to believe that their primary water sources were safe for drinking (households with disabled persons: 90.48%; n=155 and households without disabled persons: 93.50%; n=1244). Rates of water treatment also followed a similar pattern: 62.41% of households with disabled persons reported treating their water (n=101) and 59.53% of households without disabled persons reported treating their water (n=533).

Toilet use and availability are also reported in Table 13. The majority of both groups reported using protected or safe toilet facilities. Those who did not use protected

or safe toilet facilities reported using no facility, a bush, or a field (households with disabled persons: 7.12%; n=13 and households without disabled persons: 7.98%; n=122). The majority of households in both groups had soap in their homes on the day of the survey (households with disabled persons: 95.72%; n=158 and households without disabled persons: 93.71%; n=1266).

Indicators of food availability were also compared for both groups (Table 14). Most household food came from the market. While majorities of households in both groups had access to food half or more of the time, only 57.45% (n=95) of households with disabled persons had enough to eat all of the time. Households without disabled members reported a similar trend: 61.39% (n=827) had enough to eat all of the time.

Indicators of health care accessibility among the two groups are displayed in Table 15. Overall, both groups reported with similarly high rates that hospitals were their primary health care sources (households with disabled members: 92.12%; n=156 and households without disabled members: and 98.28%; n=1231). A greater proportion of households with disabled members reported international aid organizations as their primary health care consultants (4.6%; n=6) than households without disabled members (0.96%; n=22). The majority of both groups indicated that it took less than one hour to get to the nearest health care facility (households with disabled members: 89.26%; n=150 and households without disabled members: 94.03%; n=1256). However, a greater proportion of households with disabled members reported that they used a three-wheeler to get to the nearest health care facility than households without disabled members (11.58%; n=13 and 3.71; n=50, respectively). Rates of seeking advice or treatment the last time a family member was ill were nearly identical among both groups: 82.58% of

households with disabled members (n=139)and 82.80% of households without disabled members (n=1117) reported seeking advice or treatment.

Differential Experiences of Traumatic Events

Components of the mental health questionnaire were analyzed to determine whether experiences of certain stressors or traumatic events differed significantly between members of households with and without disabled members. Specifically, items from the Harvard Trauma Questionnaire (HTQ) were taken from the MHAT component of the household study. These results can be found in Table 16. Members of households with disabled persons were more likely to experience or witness 12 of 13 analyzed indicators when compared to the members of households without disabled persons. The odds of experiencing the traumatic events were significantly higher among members of households with disabled individuals for the following six indicators: lack of shelter (cOR: 1.40, p-value=0.05), loss or destruction of property or belongings (cOR: 1.41; p-value=0.04), lack of food or water (cOR: 1.64; p-value=0.00), ill health without access to medical care (cOR: 1.44; p-value=0.03), torture (cOR: 2.37; p-value=0.00), and missing or lost family members (cOR:1.78; p-value=0.00). The rest of these indicators did not yield statistically significant differences between the two groups.

Summary

A total of 172 disabled persons or their caretakers consented to participate in the disability survey. Males had greater odds of being in the study (cOR: 1.7; p-value=0.000) when compared to females. The most common types of disabilities were mobility problems, “other” disabilities such as disability brought on by polio or a combination of disabilities, blindness, paralysis, and mental disability. The most commonly reported causes of disability were congenital problems, injuries, disease, and

aging. Most participants reported seeking advice or treatment for their disabilities. Walking, using their legs, washing and dressing themselves, and using their arms were found to be a challenge for the disabled population half or more of the time. Nearly half of the disabled participants had never left their homes, and over 70% reported receiving assistance from other people in their daily activities. Marital status among most disabled individuals was not impacted by disability; the most common marital impact reported was fewer marriage prospects.

Men were more likely to report being disabled from polio, amputation, mental illness, blindness, mobility problems, paralysis, and combinations of disabilities. Females were more likely to report delayed development, deafness, and age/aging as their causes of disability. Females were also more likely to report having the assistance of another person for daily activities, whereas men were more likely to report not having help.

The youngest and oldest cohorts were more likely to report experiencing difficulty in everyday tasks when compared to the other age groups. The older group (aged 60 years or more) reported greater frequencies of doing certain activities less than half of the time (i.e., working outside the home and doing both indoor and outdoor chores).

In comparing households with and without disabled persons, no substantial differences were found in indicators of access to water/sanitation/hygiene, food, and health services. However, statistically significant differences were found in the odds of households with disabled persons experiencing certain traumatic events when compared to households without disabled persons. These traumatic events were lack of shelter, loss

or destruction of property or belongings, lack of food or water, ill health without access to medical care, torture, and missing or lost family members.

Chapter V: Discussion

The purpose of this chapter is to describe the results of the analysis in the context of previous work, to provide a summary of the relevant findings, and to demonstrate how the previously described framework may be used to formulate recommendations for practice and future work in this field.

The analysis of these data was carried out in two phases. The first phase was meant to describe the characteristics of the disabled population of Jaffna District, Sri Lanka in July-September 2009 using the DAT. Of particular interest in this analysis were impacts of disability on the everyday lives of the disabled and further clarity regarding the most common types of disability among the disabled.

The objective of the second phase was to establish a deeper understanding of how being disabled may serve as a social determinant for health. This phase of analysis was conducted according to a conceptual model based on frameworks developed by Diderichsen, Evans & Whitehead (2001), Whitehead, Diderichsen & Burnstrom, (2000), and Bornemisza et al. (2009) that characterize the social determinants of health and differential exposure, vulnerability, and consequences of disease among conflict-affected populations. Bivariate analyses were used to compare households with and without disabled members.

Characteristics of the Disabled

Males accounted for over 59% of the 172 disabled participants. This corroborates previous assertions that men in particular are at greater risk of disability due to their susceptibility to violent injury during armed conflict and the reliance of many men on agricultural work for their livelihoods (World Bank, 2007). A correlation was found between age and cause of disability; after accounting for weighting in the data the most

commonly reported causes of disability were congenital problems, disease, and aging. A dose-response relationship was found between age and representation in the study; 131 (86.96%) of the participants were over the age of 35, and 63 of those persons were 60 years or older. This indicates that particular attention should be given to the aging members of the disabled population. The youngest members of the disabled population reported increased difficulty in carrying out tasks such as understanding and remembering things and caring for themselves.

The most commonly reported disability type was characterized as "other mobility problems", excluding those due to paralysis, polio, and amputation. Unfortunately it is impossible to provide additional information based on the data available, but given that nearly half (48%) of the population were aged 60 years or older, it could be useful to examine arthritis and other musculoskeletal disorders as possible causes of or risk factors for disability. This corresponds with other findings that musculoskeletal disorders are highly prevalent among the disabled in Sri Lanka (Higashida, 2014). Interestingly, the majority of people reported either very young or very old ages as their ages at onset of disability. This suggests that the youngest and oldest among this particular disabled population were at greatest risk of negative physiological health outcomes.

The vast majority of people had sought advice for their disabilities, but only half had received treatment in the last year. This suggests that most of this population would be amenable to services if they were available. The majority of the reasons provided for not seeking treatment were lack of personal or community resources, fear, and belief that services were not needed. This suggests that an education component could be beneficial if introduced alongside programmatic interventions implemented in this area.

Daily and Lifetime Affectedness among the Disabled

While this survey does not allow for an in-depth understanding of every person's disability, some statements can be made about the effects of disability among the study population. Over half of the population reported difficulty in walking and using their legs; this is not surprising given that the two most common types of disability were mobility problems and paralysis. Nearly half of respondents reported difficulty in washing and dressing themselves half or more of the time. This has implications for sanitation and hygiene, and has potential to increase infectious disease risk. For all other tasks (seeing, hearing, understanding and remembering things, speaking or being understood by others, using arms, and feeding oneself), over a quarter of the population reported having difficulty half or more of the time. It is possible for these challenges to limit occupational, educational and other opportunities that could be necessary for improved quality of life.

This study provides evidence that having a disability impacts one's ability to carry out everyday household responsibilities. Most of the population reported that they worked outside the home, went to school, went to the market and ran errands, and did indoor and outdoor chores less than half of the time. Over 70 percent of the population reported that they had help from another person in performing daily activities. When disabled participants could not respond to the survey on their own behalf, the most common people to provide these answers were their parents or spouses.

Half of the population indicated that they were married at the onset of their disabilities, and nearly 80 percent said that their disabilities had not impacted their marital statuses. However, it is also true that not being married at the onset of the disability was also relatively common, and many people reported fewer marriage

prospects as a result of their disability. Additional research should examine the rate of divorce in Sri Lanka; if it is not a common practice then it is possible that people who are married before they become disabled fare better than their unmarried counterparts. \

Key Differences between Disabled Males and Females

The most substantial difference between the sexes was the finding that males appeared to be more heavily affected by polio than females. Of the 10 individuals who reported polio as their cause of disability, eight were males. This may be due to differential immunization rates; additional research in this area may be useful.

Some other key differences were found in the disability experiences of males and females. Disabled males had over three and half times the odds of their disabilities impacting their work status than disabled women. This is likely due to previous findings that men were more often the household earners, and would thus be more likely to have a job to lose (World Bank, 2007). This is particularly important because the loss of one's income is significant not only for that individual but for his or her entire household as well. This loss of potential earning power could be further compounded by the likelihood that another household member could be spending his/her time taking care of the disabled household member.

While both men and women reported that the biggest impacts of their disabilities on their marital lives were related to marriage prospects, more women were widowed at the onset of their disabilities. It is possible that these widowed women faced a higher risk of not having a partner to care for them subsequent to becoming disabled. This is of particular concern since a greater proportion of females indicated that they required assistance on a daily basis when compared to males.

Key Associations between Age and Disability

When ability to conduct nine common tasks was analyzed by age group, the oldest and youngest cohorts were more likely to experience difficulty with these tasks half or more of the time. Among the youngest group, a greater percentage of participants experienced difficulty hearing, understanding and remembering things, speaking and being understood by others, using their arms, washing and dressing themselves, and feeding themselves. The oldest age group experienced greater difficulty seeing, walking, and using their legs. These findings indicate that interventions that target the oldest and youngest groups would yield the highest impact. Each of these groups have different difficulties in their daily lives, and the resources that are made available to them should correspond with these difficulties.

Comparisons between Households with and without Disabled Individuals

Few differences were found between these two groups in regards to drinking water access and quality, toilet facilities, food availability and accessibility, and health care utilization. One might have expected decreased access to these services among households with disabled members as they are theoretically more constrained financially and geographically. However, this could be due to the fact that greater proportions of households with disabled members are displaced. Some studies have found that mortality rates decrease within the stability that refugee camps offer, especially when compared to the surrounding host population, as more services are immediately available (Salama et al., 2004). While this phenomenon does not directly apply to the situation in Jaffna District, it is possible that the isolation of people on the Jaffna Peninsula allowed for a more equal distribution of services to all members within the population. Another possible explanation for this is the fact that nearly 70 percent of disabled persons reported

the assistance of caregivers in their daily activities; it is plausible that the availability of caregivers in these households indicate relative wealth or increased access to resources.

Differential Access to Water/Sanitation/Hygiene, Food, and Health Services

Few differences were found in access to water/sanitation/hygiene, food, and health care services among households with and without disabled members. This is contrary to other findings in the literature (Groce, et al., 2011; Bombi, 2010). This lack of difference may be explained by several factors. Since Jaffna District was a relatively small area that was blocked off from the rest of the country, isolation may have been a protective factor. For example, both groups seemed to have adequate access to reliable water sources, protected toilet facilities, and accessible health services. Perhaps the geographically small area made it easier for all members of the population to access resources. While this analysis did not differentiate between those living in IDP camps and those who were not currently displaced, it would appear that these basic necessities were being covered for most members of the community, regardless of disability. This analysis did not include an evaluation of the humanitarian response programs in place in Jaffna District at this time, but the actions of such agencies should be considered as a possible explanation for this finding.

Differential Experiences of Traumatic Events

The similarities between households with and without disabled members did not persist in the analysis of traumatic events. Members of households with disabled individuals reported higher frequencies of experiencing or witnessing 12 of the 13 traumatic events included in this analysis. Specifically, members of households with disabled individuals reported significantly higher odds of having experienced or witnessed lack of shelter, loss or destruction of property or belongings, lack of food or

water, ill health without access to medical care, torture, and missing or losing a family member. Each of these items directly relates to the increased exposure and vulnerability of individuals and households living in conflict-affected settings, which could, in turn, increase the risk of poor health outcomes.

The increased odds of experiencing or witnessing the absence or loss of a family member is also an important risk factor to consider in the conceptual model. This study has shown that the majority of disabled people in Jaffna District rely on other people when carrying out their daily activities. If disabled persons are both in greater need of this assistance and at higher risk of losing the persons who would provide it, such relationships should be taken into account during future programming and research.

The mental health analysis previously conducted on this dataset found lower-than-expected rates of symptoms of PTSD, anxiety, and depression among the inhabitants of Jaffna District. However, the current study finds that households with disabled persons had over 2.3 times the odds of either experiencing or witnessing torture compared to households without disabled members. This was a highly unexpected finding, but corroborates Husain et al.'s (2011) hypothesis that relatively low reports of trauma, violence, and mental health issues in protracted conflicts may result from the normalization of such phenomena after extended exposure. However, significant associations between disability and poor mental health outcomes have been found in other settings (Lopes Cardozo, 2004). Another necessary consideration is that there may be a lack of a cross-cultural definition of mental health disability. Different cultures may define mental health disorder and disability in different ways; Western and Sri Lankan notions of mental health, for example, may vary significantly.

Conclusions

The disabled population of Jaffna District in 2009 possessed certain risk factors for poorer overall health outcomes. These outcomes may be brought about by differential exposure, vulnerability, and consequences of disability, and these elements may culminate in decreased social standing. The conceptual model used to describe these data was adequate in identifying some of these associations, but more information is needed on the social impact of the disability.

Overall this model was useful in looking at this post-conflict state. The war in Sri Lanka was somewhat atypical in that it was a protracted conflict with bouts of extreme violence throughout. The categories in the conceptual framework used in this study were broad enough to include the wide number of challenges expected to affect the disabled population. This broad approach was ideal for this secondary data analysis in which data from several survey components were used concurrently.

Limitations

Several limitations to this analysis inhibit the ability to establish true patterns of association. The first consideration that should be made is that these data were not collected with any hypothesis in mind; they were collected in a cross-sectional manner with the intent of understanding the overall situation in Jaffna District at the time. As such, care should be taken to avoid assertions of cause-and-effect relationships with these data.

Furthermore, the original study was not designed to blend different survey components. Rather, each section was designed to be analyzed on its own as an individual component. Additionally, comparing households with and without disabled

people may have led to issues with sample size. It was assumed that the disability dataset's weighting would help account for this, but the uneven group sizes may have still led to statistical challenges.

The data were collected in 2009; the age of the data indicates that more current information is needed before implementing resource-intensive research and programmatic interventions in Sri Lanka. Due to the rapid changes that have occurred in Sri Lanka since data collection, especially in Jaffna District with the reopening of Elephant Pass, these findings should not be considered an exact description of the current situation. Rather, they should be used as a first step in understanding the risks and challenges associated with being disabled in northern Sri Lanka. Additionally, this study may serve as a foundation on which additional studies may be based in order to understand the challenges facing vulnerable populations in post-conflict settings.

The participants were asked to either self-identify as being disabled or were identified by their heads of household as being disabled. This was not based on a clinical determination and thus people who were not disabled according to clinical diagnostic guidelines may have been included in the study. This could have made some of the results appear more moderate than the reality. It is even more likely that people who would actually qualify as being disabled in another context were missed in this analysis, in part due to differences between cultural definitions of mental health disability in particular. Disabilities that were not visually apparent had a drastically reduced representation in this study compared to the other disabilities. This might be due to lack of clinical diagnoses or cultural differences in the definitions of disability.

Recommendations

These recommendations will be separated into suggestions for future research to address the gaps in these analyses and proposals for public health practitioners who wish to serve this particular population or other disabled populations in post-conflict settings.

Future Studies and Research

The initial purpose of the 2009 study was to provide an understanding of the overall public health situation in one district of a post-conflict state; the goal of the study was to collect information that had greater breadth than depth. As such, limited information on individual subpopulations—including the disabled—was available.. More research should be conducted among the disabled population; one possibility could be a study matching disabled and non-disabled persons to determine the overall increased risk for the former group. A study similar in structure to that conducted by Lopes Cardozo et al. (2009) would be highly recommended to obtain a greater understanding of the characteristics of the disabled population and the challenges they face on the individual and community levels.

Additionally, more work is necessary to understand characteristics of the disabled population in other parts of the country. Because the civil war affected different regions of the country in varying ways, it stands to reason that the disabled persons in each area may have had different experiences than those in Jaffna District. Studies using similar conceptual models should be employed in each of these areas; furthermore, these conceptual models should not treat disability solely as an outcome, but rather as one element of a larger social system that leads to interconnected health outcomes. Conducting similar analyses in different regions could also allow for a greater

understanding of how Jaffna District's isolation may have impacted the disabled population.

More current information is needed on the disabled subpopulation throughout Sri Lanka. The current information describes the situation as it was in July-September 2009. While this is illuminating about post-conflict settings, for which little is typically known, it may not adequately speak to the current status of Jaffna District. Additionally, these data could be improved with the addition of qualitative research among people of different ages who suffer from different types of disability. Qualitative research would provide a more comprehensive picture of the secondary health effects of being disabled. For example, being unable to walk could lead to an increased risk of obesity, which in turn would increase the risk of diabetes, hypertension, and cardiovascular disease. Obtaining this more comprehensive view of disability in terms of overall health would better inform interventions.

Finally, further work could be conducted to determine the utility of the model linking exposure, vulnerability, and negative health outcomes among disabled groups. This model demonstrated potential for providing valuable associations, but better definitions for various parts of the model should be determined. The cross-sectional nature of these data did not necessarily allow for the establishment of causal pathways between exposure, vulnerability, and health outcomes; as a result it was not possible to determine whether characteristics were exposure or outcome (vulnerability) variables. There is potential that this model would provide more meaningful results if applied to a longitudinal study.

Finally, a community needs assessment and evaluation of services for the disabled that is driven by the elements of the CRPD should be conducted in Sri Lanka. If Sri Lanka aims to ratify its commitment to this convention, it would be beneficial to know the precise challenges that would need to be addressed in order to meet the stipulations of the convention. An evaluation such as this would not only address some of the gaps that were found in this analysis, but would also provide meaningful recommendations for humane treatment and care of disabled persons.

Public Health Practice

Agencies who serve the disabled population in northern Sri Lanka may use the results of this study as a guide for developing a deeper understanding of the characteristics of the population. Some may assume that because the violent conflict in Sri Lanka went on for such a long time, the most affected group would be younger, fighting-age men. This analysis, however, found that the most affected groups tend to be the youngest and oldest members of the population. This is especially true in those groups' reliance on others to carry out basic tasks. As such, interventions that target disabled persons should take age into account.

Interventions should also make an effort to address the needs of the caregivers of the disabled. Firstly, considerations should be made as to whether an individual has a caregiver, and if he/she does, steps could perhaps be taken to provide resources directly to the caregiver. The evidence presented here suggests that people who live with disabled persons are also at greater risk of experiencing or witnessing several different traumatic events. Any public health intervention that aims to improve the lives of disabled persons should take this into account.

These results may also be used to identify risk factors that decrease disabled persons' chances at utilizing resources to improve their health. For example, given that mobility issues were the most common type of disability in this analysis, it would be of the most benefit to address infrastructural elements to improve mobility. This could include the construction of roads, paths and housing to accommodate people who have a more difficult time getting around.

Any public health or humanitarian agency serving this population is strongly encouraged to include disabled persons in community planning and development. There is no better way to gain information on what resources would be most worthwhile to a subpopulation than asking the population themselves.

Chapter VI: REFERENCES CITED

Anderson, L.N. (2014). Psychosocial aspects of everyday life with chronic musculoskeletal pain: a systematic review. *Scandinavian Journal of Pain* 5: 131-148.

Bajoria, J. (2009). The Sri Lankan Conflict: Backgrounder. *The Council on Foreign Relations*. Retrieved from http://www.cfr.org/terrorist-organizations-and-networks/sri-lankan-conflict/p11407. Accessed on March 2nd, 2015.

Bombi, F. (2010). Perception and protection in Sri Lanka. *Forced Migration Review* 35: 14-15.

Bornemisza, O., Ranson, M. K., Poletti, T. M., & Sondorp, E. (2010). Promoting health equity in conflict-affected fragile states. *Social Science & Medicine, 70*(1), 80-88. doi: http://dx.doi.org/10.1016/j.socscimed.2009.09.032

Burkholder, B. T., & Toole, M. J. (1995). EVOLUTION OF COMPLEX DISASTERS. *Lancet, 346*(8981), 1012-1015. doi: 10.1016/s0140-6736(95)91694-6

CIA World Factbook: Sri Lanka Background. Retrieved from https://www.cia.gov/library/publications/the-world-factbook/geos/ce.html. Accessed March 11, 2015

de Jong, J. T., Komproe, I. H., & Van Ommeren, M. (2003). Common mental disorders in postconflict settings. *Lancet, 361*(9375), 2128-2130. doi: 10.1016/S0140-6736(03)13692-6

Diderichsen F, Evans T, & Whitehead M. (2001). The social basis of disparities in health. In T. Evans, M. Whitehead, F. Diderichsen, A Bhulya, & M. Wirth (Eds.), *Challenging inequtiies in health: From ethics to action* (pp. 13-23). Oxford: Oxford University Press.

Ghobarah, H. A., Huth, P., & Russett, B. (2004). The post-war public health effects of civil conflict. *Social Science & Medicine, 59*(4), 869-884. doi: http://dx.doi.org/10.1016/j.socscimed.2003.11.043

Global Burden of Disease Report, Sri Lanka 2010. WHO: 2013. http://vizhub.healthdata.org/gbd-compare/

Groce N, Baily N, Lang R, Trani JF, and Kett M. (2011). Water and sanitation issues for persons with disabilities in low- and middle-income countries: a literature review and discussion of implications for global health and international development. *Journal of Water and Health* 09.4: 617-627.

Harvard Program in Refugee Trauma. (2011). Hopkins Symptom Checklist-25 (HSCL-25). 2011. Retrieved from http://hprt-cambridge.org/screening/hopkins-symptom-checklist/. Accessed March 10, 2015.

Harvard Program in Refugee Trauma. (2011). Harvard Trauma Questionnaire (HTQ). Retrieved from http://hprt-cambridge.org/screening/harvard-trauma-questionnaire/. Accessed March 10, 2015.

HelpAge International. (2012). A study humanitarian financing for older people and people with disabilities, 2010-2011. Retrieved from http://www.helpage.org/what-we-do/emergencies/a-study-of-humanitarian-financing-for-older-people-and-people-with-disabilities/. Accessed March 12, 2015.

Higashida M. 2014. Local resources of disabled people in Sri Lanka: Action research on community-based rehabilitation programme. *Sociology and Anthropology* 2: 159-167.

Human Rights Watch (HRW). 2014. *World Report 2014: Sri Lanka*. Retrieved from http://www.hrw.org/world-report/2014/country-chapters/sri-lanka?page=1. Accessed on March 2, 2015.

Husain, F., Anderson, M., Lopes Cardozo, B., Becknell, K., Blanton, C., Araki, D., & Vithana, E. K. (2011). Prevalence of war-related mental health conditions and association with displacement status in postwar Jaffna District, Sri Lanka. *JAMA, 306*(5), 522-531. doi: 10.1001/jama.2011.1052

Kett, M. and van Ommeren, M. (2009). Disability, conflict, and emergencies. *The Lancet* 374: 1801-1802.

Lopes Cardozo, B. L., Bilukha, O. O., Crawford, C. A., Shaikh, I., Wolfe, M. I., Gerber, M. L., & Anderson, M. (2004). Mental health, social functioning, and disability in postwar Afghanistan. *JAMA, 292*(5), 575-584. doi: 10.1001/jama.292.5.575

Murray CJL, King G, Lopez AD, Tomijima N, Krug EG. (2002). Armed conflict as a public health problem. British Medical Journal 324: 346-349.

National Institute of Mental Health. (2014). Leading Causes of Global YLDs: Individual Diseases/Disorders. Retrieved from http://www.nimh.nih.gov/health/statistics/global/leading-causes-of-global-ylds-individual-diseases-disorders.shtml. Accessed on January 26, 2015.

Panter-Brick, C. (2010). Conflict, violence, and health: Setting a new interdisciplinary agenda. *Social Science & Medicine, 70*(1), 1-6. doi: http://dx.doi.org/10.1016/j.socscimed.2009.10.022

Pearce E. (2012). Refugees and displaced persons with disabilities – from 'forgotten' to 'vulnerable' to 'valuable' *Forced Migration Review – 25th Anniversary Edition*. Retrieved from http://www.fmreview.org/25th-anniversary/pearce.

Pedersen, D. (2002). Political violence, ethnic conflict, and contemporary wars: broad implications for health and social well-being. *Social Science & Medicine, 55*(2), 175-190. doi: http://dx.doi.org/10.1016/S0277-9536(01)00261-1

Reilly, R. (2008). Disabilities Among Refugees and Conflict-Affected Populations. *Forced Migration Review: Disability and Displacement.* Retrieved from http://www.fmreview.org/fr/node/275?text_size=large-text. Accessed Feb 26, 2015.

Roberts, Patel & McKee. (2012). Non Communicable Diseases and Post-Conflict Countries. Retrieved from http://www.who.int/bulletin/volumes/90/1/11-098863/en/. Accessed on March 13, 2015.

Salama, P., Spiegel, P., Talley, L., & Waldman, R. (2004). Lessons learned from complex emergencies over past decade. *Lancet, 364*(9447), 1801-1813. doi: 10.1016/s0140-6736(04)17405-9

Senarath, U., Wickramage, K., & Peiris, S. L. (2014). Prevalence of depression and its associated factors among patients attending primary care settings in the post-conflict Northern Province in Sri Lanka: a cross-sectional study. *BMC Psychiatry, 14*, 85. doi: 10.1186/1471-244X-14-85

Shivji, A. (2010). Disability in displacement. *Forced Migration Review* 35: 5-8.

Simmons KB. (2010). Addressing the data challenge. *Forced Migration Review* 35: 10-11.

Szumilas M. (2010). Explaining Odds Ratios. *J Can Acad Child Adolesc Psychiatry* 19 (3): 227-229.

Trani J.F., Browne J., Kett M., Bah O., Morlai T., Bailey N., Groce N. 2011. Access to health care, reproductive health and disability: A large scale survey in Sierra Leone. *Social Science and Medicine* 73: 1477-1489.

Twigg J, Kett M, Bottomley H, et al. 2011. Disability and public shelter in emergencies. *Environmental Hazards-Human and Policy Dimensions* 10: 248-261.

United Nations. (2006). Final report of the Ad Hoc Committee on a Comprehensive and Integral International Convention on the Protection and Promotion of the Rights and Dignity of Persons with Disabilities. Retrieved from http://www.un.org/esa/socdev/enable/rights/ahcfinalrepe.htm. Accessed Apri 5, 2015.

United Nations. (2015). Convention and Optional Protocol Signatures and Ratifications. http://www.un.org/disabilities/countries.asp?navid=12&pid=166#S. Accessed April 2, 2015.

United Nations High Commissioner for Refugees. (2006). The living conditions of refugees in Armenia and Pakistan, asylum-seekers in Ecuador and internally displaced persons in Sri Lanka: sub-project monitoring report. Retrieved from http://www.unhcr.org/45bdca422.html. Accessed March 14, 2015.

United Nations High Commissioner for Refugees. (2006). Handbook for the Protection of Internally Displaced Persons. http://www.unhcr.org/4c2355229.pdf. Accessed Feb 9, 2015.

Whitehead M, Diderichsen F, & Burnstrom B. (2000). The contribution of social welfare policies in addressing inequalities in health. *Research Findings from the Variations Programme* (4).

Wilkinson R. (2003). After two decades of war, Sri Lanka is on the mend. *Refugees* 1: 5-11.

World Health Organization. *Metrics: Disability-Adjusted Life Years*. (2014). http://www.who.int/healthinfo/global_burden_disease/metrics_daly/en/. Accessed Jan 26, 2015.

World Health Organization. (2015). Steps in applying probability proportional to size (PPS) and calculating basic probability weights. http://www.who.int/tb/advisory_bodies/impact_measurement_taskforce/meetings/prevalence_survey/psws_probability_prop_size_bierrenbach.pdf. Accessed April 8, 2015.

World Bank. (2007). Sri Lanka – Poverty Assessment: Engendering Growth and Equity, Opportunities and Challenges. Retrieved from https://openknowledge.worldbank.org/handle/10986/8050. Accessed April 3, 2015.

World Bank. (2015). Country and Lending Groups. Retrieved from http://data.worldbank.org/about/country-and-lending-groups#Upper_middle_income. Accessed April 16, 2015.

World Health Organization. (2015). Noncommunicable diseases fact sheet, January 2015. http://www.who.int/mediacentre/factsheets/fs355/en/. Accessed April 8, 2015.

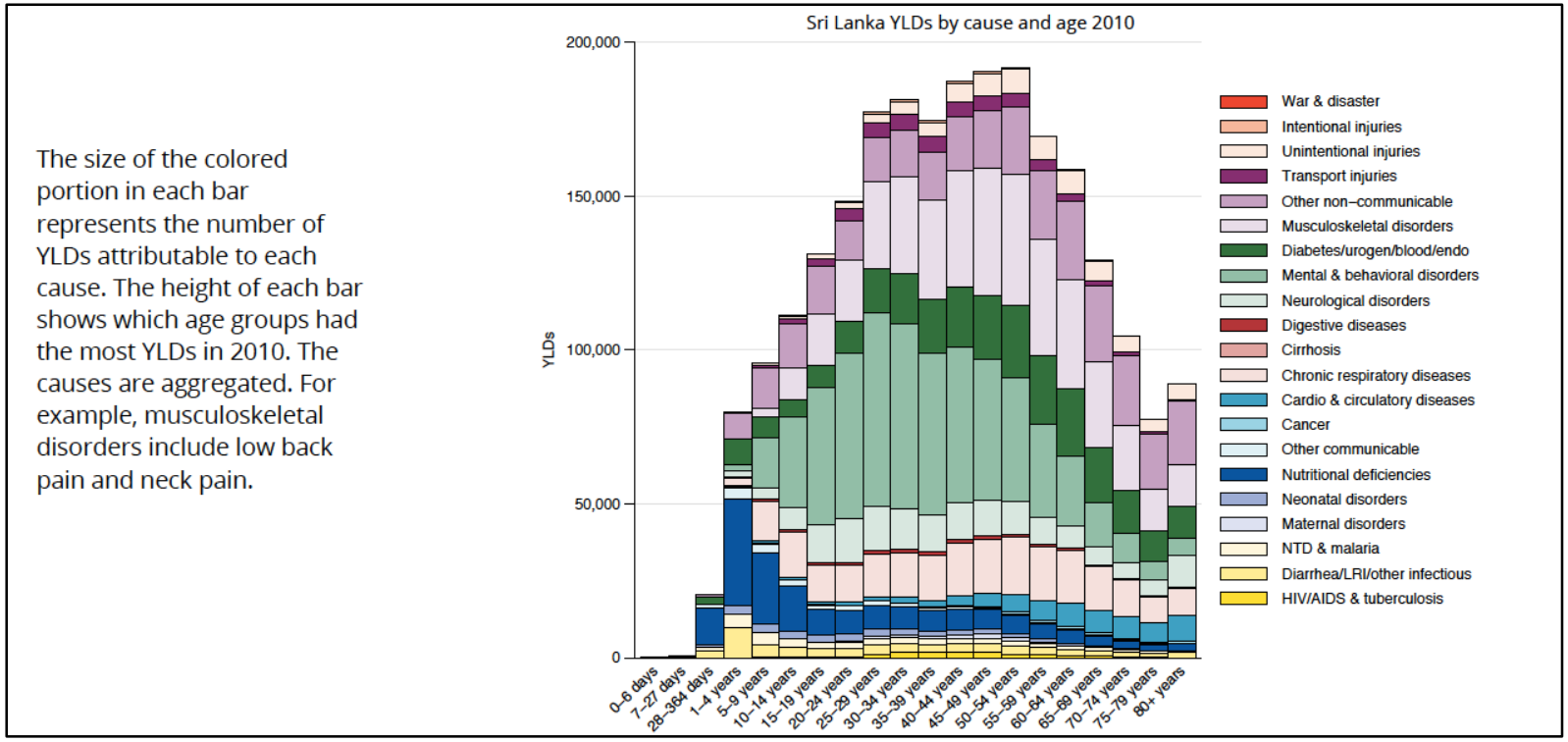
UNPUBLISHED WORKS

Husain, et al. Jaffna Survey Protocol: General Health and Injury among Residents in Jaffna District, Sri Lanka. May 2009. Unpublished.

Meiqari L. 2012. The association between internal displacement status and violent injuries in Jaffna District, Sri Lanka: A retrospective population-based survey. Unpublished thesis.

APPENDIX A: Map of Sri Lanka, highlighting location of Jaffna District.

APPENDIX B: Years Lived with Disability in Sri Lanka, 2010



Estimates are from the Institute of Health Metrics and Evaluation, Global Burden of Disease Sri Lanka Health Report (2010)

Appendix C: General Health and Mortality Assessment Tool (GHMAT)

3. Household Component Tool

Household Component
Tool for Section A (General Health and Mortality)

COMPLETE BEFORE THE INTERVIEW

Location ID	⌊_⌊_⌋ *Cluster Code*		⌊_⌊_⌋ *Household Code*		
Survey Team ID	⌊_⌊_⌋				
Team	⌊_⌊_⌋				
	Visit Number	**1**	**2**	**3**	**4**
	Date of Visit	⌊_⌊_⌋/⌊_⌊_⌋ *Day Month*	⌊_⌊_⌋/⌊_⌊_⌋ *Day Month*	⌊_⌊_⌋/⌊_⌊_⌋ *Day Month*	⌊_⌊_⌋/⌊_⌊_⌋ *Day Month*
	Result				
Visit Record	1 = Completed interview 2 = No eligible head of household 3 = Nobody home 4 = Incomplete interview 5 = Refused to participate 6 = Unoccupied home 66 = Other: _____	___	___	___	___
	Interviewer ID	⌊_⌊_⌋	⌊_⌊_⌋	⌊_⌊_⌋	⌊_⌊_⌋

COMPLETE UPON DATA ENTRY

Complete	**Y / N**
Date	⌊_⌊_⌋/⌊_⌊_⌋ *Day Month*
Data Entry Personnel ID	⌊_⌊_⌋

Select one answer for each question and do not read answer choices unless otherwise noted.

Part 1 (Household Background Information)

HB1. What is the gender of the head of household?
1 = Male
2 = Female

HB2. How many people currently live in your household?
|__|__|

HB3. What is your ethnicity?
1 = Sri Lankan Tamil
2 = Sri Lankan Moor
3 = Sinhalese
4 = Indian Tamil
5 = Burgher
6 = Sri Lankan Malay
7 = Vedda
8 = Kaffir
66 = Other: _____

HB4. What is your religion?
1 = Hinduism
2 = Islam
3 = Buddhism
4 = Christianity
5 = None
66 = Other: _____

HB5. Have you and your family ever been displaced from your home?
1 = Yes
2 = No ***(Skip to HB9)***

"In some of the following questions, I will ask you to think back over the period of time since the beginning of the Second Battle of Elephant Pass (April 22-23, 2000). As the survey continues, please think back to the beginning of the battle if I ask you to remember the period since April 2000."

HB6. How many times have you and your family been displaced from your home since the beginning of the Second Battle of Elephant Pass (April 22, 2000)?
1 = Once
2 = 2-4 times
3 = 5 or more times

HB7. Have you and your family ever been displaced outside of Jaffna?
1 = Yes
2 = No

HB8. Is your family displaced from your home now?
1 = Yes
2 = No

HB9. How long has your family lived here?

└┴┘ years └┴┘ months

HB10. What is your primary source of drinking water?
1 = Tap in the home
2 = Tap in the yard
3 = Bore hole with hand pump
4 = Protected well/spring
5 = Unprotected well/spring
6 = Rain water
7 = Surface water (lake, pond, river, stream, canal, irrigation channel)
8 = Bottled water
9 = Water bowser
66 = Other: _____

HB11. How long does it take for you to get to the drinking water source?
1 = No wait
2 = Less than 30 minutes
3 = 31 to 60 minutes
4 = 61 to 120 minutes
5 = More than 120 minutes

HB12. How long do you have to wait in line to collect drinking water?
1 = No wait
2 = Less than 30 minutes
3 = 31 to 60 minutes
4 = 61 to 120 minutes
5 = More than 120 minutes

HB13. How frequently is drinking water available from this source? ***Read answer choices without percentages, and use percentages as prompts as needed.***
1 = None of the time **(0% of the time)**
2 = A little of the time **(25% of the time)**
3 = Half of the time **(50% of the time)**
4 = Most of the time **(75% of the time)**
5 = All of the time **(100% of the time)**

HB14. Do you think your water is safe to drink?
1 = Yes
2 = No

HB15. Does your household treat water before drinking it?
1 = Yes
2 = No ***(Skip to HB17)***

HB16. How is the drinking water treated?
1 = Boiled
2 = Chemical
3 = Filtered
66 = Other: _____

HB17. How many drinking water containers do you have in your home?
└┴┘ ***(If 0, skip to HB19)***

HB18. What types of containers do you use to store drinking water? ***Check all that apply.***
1 = Clay pot

2 = Jerrican
3 = Bucket
66 = Other: _____

HB19. What kind of toilet facility does your household use?
1 = Own pour flush toilet ***(Skip to HB21)***
2 = Shared pour flush toilet
3 = Own pit latrine ***(Skip to HB21)***
4 = Shared pit latrine
5 = Own water seal latrine ***(Skip to HB21)***
6 = Shared water seal latrine
7 = Bucket
8 = No facility/bush/field ***(Skip to HB21)***
66 = Other: _____ ***(Skip to HB21)***

HB20. How many households share this latrine?
|__|__|

HB21. Do you have any hand soap in your house today?
1 = Yes
2 = No

HB22. Where does your household get most of the food that you eat?
1 = Garden
2 = Farm
3 = Market
4 = Combination of market, garden and/or farm
5 = Food aid
66 = Other: _____

HB23. How often does your household get enough to eat? ***Read answer choices without percentages, and use percentages as prompts as needed.***
1 = None of the time **(0% of the time)**
2 = A little of the time **(25% of the time)**
3 = Half of the time **(50% of the time)**
4 = Most of the time **(75% of the time)**
5 = All of the time **(100% of the time)**

HB24. Where do you primarily go for health care?
1 = Hospital
2 = Health clinic
3 = Health post
4 = Pharmacy
5 = Place of worship
66 = Other: _____

HB25. Who do you primarily consult for health care?
1 = Local medical provider
2 = Medical provider working with international aid organization
3 = Pharmacist
4 = Traditional and/or spiritual healer
66 = Other: _____

HB26. How long does it take you to get to the nearest health care facility?
1 = Less than 1 hour
2 = 1 to 5 hours

3 = 6 to 24 hours
4 = More than 24 hours
5 = Cannot get to health care facility

HB27. How do you get to the nearest health care facility?
1 = Ambulance
2 = Three-wheeler
3 = Other vehicle
4 = On foot
5 = By animal
6 = By boat
66 = Other: _____

HB28. The last time someone in your home was ill or injured, did you seek advice or treatment outside of the home?
1 = Yes ***(Skip to HB30)***
2 = No

HB29. What was the primary reason why you did not you seek advice or treatment?
1 = Financial difficulty
2 = No medical facilities available
3 = Denied admission/treatment
4 = Lack of transportation
5 = Travel restrictions
6 = Afraid to go
7 = Did not want to go or think it was necessary
66 = Other: _____
88 = Don't know
99 = No response

HB30. How many of the children in your household are school-aged - between 4 and 18 years of age?
└__┘ ***(If 0, skip to Part 2 (Immunization Status))***

HB31. How many of these children are enrolled in school?
└__┘

HB32. How long does it take the enrolled children to get to school?
└__┘ hours └__┘ minutes

If HB30 ≠ HB31:
HB33. What is the primary reason why these children are not enrolled in school?
1 = We cannot afford tuition and/or books
2 = Schools are closed
3 = There are not enough schools
4 = There are not enough teachers
5 = Schools do not have enough spaces for children
6 = Schools are too far from home
7 = Children have chores or other obligations at home
8 = Community violence, unrest and/or insecurity
9 = Children have arrived too recently/irregularly
66 = Other: _____
88 = Don't know
99 = No response

Appendix D: Mental Health Assessment Tool (MHAT)

Tool for Section D (Mental Health)

COMPLETE BEFORE THE INTERVIEW

Location ID	⌊__⌋ *Cluster Code*	⌊__⌋ *Household Code*	⌊__⌋ *ID Number (from GM1 in Tables 4A-4C)*		
Survey Team ID	⌊__⌋				
Team Leader	⌊__⌋				
	Visit Number	**1**	**2**	**3**	**4**
	Date of Visit	⌊__⌋/⌊__⌋ *Day Month*	⌊__⌋/⌊__⌋ *Day Month*	⌊__⌋/⌊__⌋ *Day Month*	⌊__⌋/⌊__⌋ *Day Month*
	Result				
Visit Record	1 = Completed interview 2 = No eligible respondent 3 = Nobody home 4 = Incomplete interview 5 = Refused to participate 6 = Unoccupied home 66 = Other: _____	___	___	___	___
	Interviewer ID	⌊__⌋	⌊__⌋	⌊__⌋	⌊__⌋

COMPLETE UPON DATA ENTRY

Complete	**Y / N**
Date	⌊__⌋/⌊__⌋ *Day Month*
Data Entry Personnel ID	⌊__⌋

Select one answer for each question and do not read answer choices unless otherwise noted.

Part 1 (Demographic Information)

DE1. What is the gender of the respondent?
1 = Male
2 = Female

"I'd like to start by asking you some general questions about yourself."

DE2. Do you know your date of birth?
1 = Yes
2 = No ***(Skip to DE4)***

DE3. What is your date of birth?
└┴┘ / └┴┘ / └┴┴┴┘ ***(Skip to DE5)***

DE4. What is your age in years?
└┴┘ years

DE5. Are you currently in school?
1 = Yes ***(Skip to DE7)***
2 = No

DE6. What was the main reason you stopped attending school?
1 = Completed schooling
2 = Community violence/unrest
3 = Cannot afford tuition/books
4 = No school
5 = School closed
6 = Lack/shortage of teachers
7 = No space in school
8 = Informal school
9 = Children need to work at home/help with chores
10 = Newly/irregularly arrived
66 = Other: _____
88 = Don't know
99 = No response

DE7. What is the highest level of education you (have) completed?
1 = None ***(Skip to DE9)***
2 = Kindergarten ***(Skip to DE9)***
3 = Grade 1-13
4 = Certificate or Diploma ***(Skip to DE9)***
5 = Bachelor's degree ***(Skip to DE9)***
6 = Master's degree or Doctorate ***(Skip to DE9)***

DE8. What is the highest grade you completed? ***(Give number of grade between 1 and 13)***
└┴┘

DE9. What is your marital status?
1 = Never married
2 = Married
3 = Widowed

4 = Divorced
5 = Separated

DE10. Do you earn a regular income?
1 = Yes
2 = No
88 = Don't know
99 = No response

Part 2 (Mental Health)

MH1. Do you use any drugs that were not given to you by a health professional? This includes illicit drugs. Please remember that all of your answers are confidential.
1 = Yes
2 = No ***(Skip to MH3)***
88 = Don't know ***(Skip to MH3)***
99 = No response ***(Skip to MH3)***

MH2. Which of the following do you use? ***Check all that apply.***
1 = Marijuana or hashish
2 = Opium
3 = Heroin
4 = Cocaine
5 = Amphetamines
6 = Valium (tranquilizers/sleep medicine)
7 = Sniff glue or gasoline
66 = Other: _____
88 = Don't know
99 = No response

MH3. On average, how many standard drinks of alcohol do you drink per day? One standard drink is equal to 1 glass of wine, 1 shot of liquor, or 1 can of beer.
1 = I never drink
2 = Less than 1 drink per day
3 = 1 drink per day
4 = 2-3 drinks per day
5 = 4-5 drinks per day
6 = More than 5 drinks per day
88 = Don't know
99 = No response

MH4. What kind of attention or help do you seek when you are upset?
1 = Talking to family or friends
2 = Medical assistance
3 = Counseling from a mental health professional
4 = Counseling from a religious leader or traditional healer
66 = Other: _____

MH5. Given your current situation, what would help your state of mind most?
1 = More income
2 = Better access to food
3 = Better access to clean water
4 = Better housing
5 = Better education and/or skills training
6 = More employment opportunities
7 = Better general health care

8 = Better mental health care
9 = Better security
10 = Better infrastructure
11 = Humanitarian assistance
66 = Other: _____

Part 4 (Hopkins Symptom Checklist-25)

Ask if the respondent has had any of the following symptoms or problems during the past 4 weeks. Check one box (not at all, a little, quite a bit, extremely) per question.

	1 = Not at all	2 = A little	3 = Quite a bit	4 = Extremely	88 = Don't know	99 = No response
HS1. Suddenly scared for no reason						
HS2. Feeling fearful						
HS3. Faintness, dizziness, or weakness						
HS4. Nervousness or shakiness inside						
HS5. Heart pounding or racing						
HS6. Trembling						
HS7. Feeling tense or keyed up						
HS8. Headaches						
HS9. Spells of terror or panic						
HS10. Feeling restless, can't sit still						
HS11. Feeling low in energy, slowed down						
HS12. Blaming yourself for things						
HS13. Crying easily						
HS14. Loss of sexual interest or pleasure						
HS15. Poor appetite						
HS16. Difficulty falling asleep, staying asleep						
HS17. Feeling hopeless about the future						
HS18. Feeling sad						
HS19. Feeling lonely						
HS20. Thoughts of ending your life						
HS21. Feeling of being trapped or caught						
HS22. Worrying too much about things						
HS23. Feeling no interest in things						

HS24. Feeling everything is an effort						
HS25. Feelings of worthlessness						

Part 5 (Harvard Trauma Questionnaire)

Read the following: "We would like to ask you questions about your past history and present symptoms. This information will be used to help us provide people in this region with better medical care. If you find any questions upsetting, please feel free not to answer. All of your answers will be kept confidential."

Ask if the respondent has experienced, witnessed, or heard about any of the following events since the beginning of the Second Battle of Elephant Pass (April 22, 2000). Check one box (Experienced, Witnessed, Heard about, No) per question.

	1 = Experienced	2 = Witnessed	3 = Heard about	4 = No	88 = Don't know	99 = No response
HA1. Lack of food or water						
HA2. Lack of shelter						
HA3. Ill health without access to medical care						
HA4. Loss or destruction of property or belongings						
HA5. Forced displacement						
HA6. Forced separation from family member(s)						
HA7. Missing or lost family member(s)						
HA8. Living in refugee camps						
HA9. Kidnapping or abduction						
HA10. Imprisonment						
HA11. Interrogation/harassment by combatants and/or others with threats to life						
HA12. Torture (systematic infliction of intense pain used to punish or coerce)						
HA13. Beatings by combatants and/or others						
HA14. Attacks/bombardment with shells/rockets						
HA15. Shot at with a gun						
HA16. Injury from a knife, gun or other weapon						

HA17. Injury from a landmine or UXO						
HA18. Rape or sexual abuse						
HA19. Disability from an injury received during a battle or attack						
HA20. Caught in the crossfire of an attack or battle						
HA21. Death of family member or friend due to illness or lack of food						
HA22. Death of family member or friend due to fighting, murder or suicide						
HA23. Death of other acquaintance due to fighting, murder or suicide						

Part 6 (PTSD Symptoms)

Read the following: "The following are symptoms that people have after experiencing hurtful or terrifying events in their lives. Please listen to each one carefully and decide how much the symptoms have bothered you during the past 4 weeks."

Ask if the respondent has experienced, witnessed, or heard about any of the following events during the past 4 weeks. Check one box (Not at all, A little, Quite a bit, Extremely) per question.

	1 = Not at all	2 = A little	3 = Quite a bit	4 = Extremely	88 = Don't know	99 = No response
PS1. Recurrent thoughts or memories of the most hurtful or terrifying events						
PS2. Feeling as though the hurtful or terrifying event is happening again						
PS3. Recurrent nightmares						
PS4. Feeling detached or withdrawn from people						
PS5. Unable to feel emotions						
PS6. Feeling jumpy, easily startled						
PS7. Difficulty concentrating						
PS8. Trouble sleeping						
PS9. Feeling on guard						

PS10. Feeling irritable or having outburst of anger						
PS11. Avoiding activities that remind you of the traumatic or hurtful event						
PS12. Inability to remember parts of the most traumatic or hurtful events						
PS13. Less interest in daily activities						
PS14. Feeling as if you don't have a future						
PS15. Avoiding thoughts or feelings associated with the traumatic or hurtful events						
PS16. Sudden emotional or physical reaction when reminded of the most hurtful or traumatic events						
PS17. Feeling guilty						

Appendix E: Disability Assessment Tool (DAT)

Tool for Section C (Disability)

COMPLETE BEFORE THE INTERVIEW

Location ID ⌊__⌋ *Cluster Code* ⌊__⌋ *Household Code* ⌊__⌋ *ID Number (from GM1 in Tables 4A-4C)*

Survey Team ID ⌊__⌋

Team Leader ID ⌊__⌋

	Visit Number	**1**	**2**	**3**	**4**
	Date of Visit	⌊__⌋/⌊__⌋ *Day Month*	⌊__⌋/⌊__⌋ *Day Month*	⌊__⌋/⌊__⌋ *Day Month*	⌊__⌋/⌊__⌋ *Day Month*
Visit Record	**Result** 1 = Completed interview 2 = No eligible respondent 3 = Nobody home 4 = Incomplete interview 5 = Refused to participate 6 = Unoccupied home 66 = Other: _____	___	___	___	___
	Interviewer ID	⌊__⌋	⌊__⌋	⌊__⌋	⌊__⌋

COMPLETE UPON DATA ENTRY

Complete	**Y / N**
Date	⌊__⌋/⌊__⌋ *Day Month*
Data Entry Personnel ID	⌊__⌋

Select one answer for each question and do not read answer choices unless otherwise noted.

DISABILITY		
Enter data for DY1-3 from Tables 4A-4C in Section A (General Health and Mortality).		
DY1	**I.D. number** (from GM1 in Tables 4A-4C)	⌊_⌊_⌋
DY2	**Gender** (from GM2 in Tables 4A-4C)	M / F
DY3	**Date of birth** (from GM3 in Tables 4A-4C)	⌊_⌊_⌋ / ⌊_⌊_⌋ *month* *year*

DY4. What is/was the relationship of the respondent to the disabled person?
1 = Self
2 = Parent
3 = Child
4 = Sibling
66 = Other: _____

DY5. How would you describe (your) (the disabled person's) disability?
1 = Mentally disabled
2 = Blind
3 = Deaf
4 = Paralyzed
5 = Amputee
6 = Other mobility problems
7 = Pain
66 = Other: _____

DY6. Would you say the disability is from… ***(Read answer choices)***
1 = Injury
2 = Congenital ***(Skip to DY12)***
3 = Disease ***(Skip to DY11)***
4 = Aging ***(Skip to DY12)***
66 = Other: _____ ***(Skip to DY12)***

DY7. How (were you) (was the disabled person) injured?
1 = Transport injury
3 = Hit, struck, blunt force
4 = Landmine or UXO
5 = Sexual assault/violence
6 = Fall
7 = Gun shot
8 = Stab or cut
9 = Choking, hanging, strangulation, suffocation
10 = Drowning
11 = Poisoning
12 = Bomb, grenade, other explosion
13 = Fire, burns, heat
14 = Electrocution
15 = Bite or sting
66 = Other:_____

DY8. In what context did the injury occur? ***Read answer choices.***

1 = Tsunami
2 = Other natural disaster
3 = Armed conflict
4 = Isolated event
66 = Other: _____
88 = Don't know
99 = No response

DY9. Did the injury occur while (you were) (the injured person was) working for pay or for some other kind of compensation (goods or services)?
1 = Yes
2 = No ***(Skip to DY12)***

DY10. What was (your) (his her) occupation at the time of the injury?
1 = Construction or industrial worker
2 = Homemaker
3 = Farmer
4 = Herder/shepherd
5 = Fisherman
6 = Member of the military
7 = Member of the police
8 = Deminer
9 = Religious leader
10 = Teacher/educator
11 = Student
12 = NGO worker
13 = Government worker
14 = Businessman/woman or trader
15 = Driver
16 = Unemployed
66 = Other: _____

Skip to DY12.

DY11. What disease?
1 = Arthritis
2 = Cancer
3 = Cataract
4 = Diabetes
5 = Leprosy
6 = Polio
7 = Rheumatic fever
8 = Trachoma
9 = Tuberculosis
10 = Malaria
66 = Other: _____

DY12. How old (were you) (was the disabled person) at the onset of your disability?
└┘└┘ years / └┘└┘ months
88 = Don't know

DY13. (Have you) (Has the disabled person) ever sought advice or treatment for the disability?
1 = Yes ***(Skip to DY15)***
2 = No
88 = Don't know ***(Skip to DY17)***

DY14. What is the primary reason why (you have not) (the disabled person has not) sought advice or treatment for your disability?
1 = Financial difficulty
2 = No medical facilities available
3 = Denied admission/treatment
4 = Did not want to go
5 = Afraid to go
66 = Other: _____
88 = Don't know ***Skip to DY17.***

DY15. When was the last time (you) (the disabled person) received treatment?
1 = Less than 1 month ago
2 = 1 to 12 months ago
3 = More than 1 year ago
88 = Don't know

DY16. What kind of treatment and/or devices (have you) (has the disabled person) received? ***Read answer choices and check all that apply.***
1 = Medical treatment
2 = Psychological treatment/counseling
3 = Physical therapy
4 = Occupational therapy
5 = Prosthesis
6 = Crutches
7 = Wheelchair
8 = Artificial limb
9 = Glasses
10 = Hearing Aid
66 = Other: _____
88 = Don't know

DY17-DY25. How often (do you) (does the disabled person) have difficulty with the following tasks? ***Read answer choices without percentages, and use percentages as prompts as needed.***

	1 = None of the time (0% of the time)	**2 = A little of the time (25% of the time)**	**3 = Half of the time (50% of the time)**	**4 = Most of the time (75% of the time)**	**5 = All of the time (100% of the time)**
DY17. Seeing					
DY18. Hearing					
DY19. Understanding and remembering things					
DY20. Speaking or being understood by others					
DY21. Walking					
DY22. Using (your) (his/her) legs					
DY23. Using (your) (his/her) arms					
DY24. Washing and dressing by (yourself) (himself/herself)					

DY25. Feeding (yourself) (himself/herself)					

DY26. (Have you) (Has the disabled person) ever gone out of the house?
1 = Yes
2 = No ***(Skip to DY32)***
88 = Don't know ***(Skip to DY32)***

DY27. How long ago did (you) (the disabled person) last go out of the house?
1 = Less than 1 month ago
2 = 1 to 12 months ago
3 = More than 1 year ago
88 = Don't know

DY28-DY32. "How often (do you) (does the disabled person) do the following?" Read answer choices without percentages, and use percentages as prompts as needed.

	1 = None of the time (0% of the time)	**2 = A little of the time (25% of the time)**	**3 = Half of the time (50% of the time)**	**4 = Most of the time (75% of the time)**	**5 = All of the time (100% of the time)**	**66 = Not applicable**
DY28. Work outside the home						
DY29. Go to school						
DY30. Go to the market or run other errands outside the home						
DY31. Do outside chores like working in the field						
DY32. Do home chores like cooking or laundry						

DY33. (Do you) (Does the disabled person) have help in performing daily activities?
1 = Yes, another person
2 = Yes, an assistive device
3 = No help is needed
4 = No help is available

DY34. Has the disability affected (your) (his/her) work status?
1 = Yes
2 = No ***(Skip to DY36)***

DY35. How has the disability affected (your) (his/her) work status? Check all that apply.
1 = (I have) (He/she has) trouble finding work
2 = (I) (He/she) lost a job
3 = (I) (He/she) was forced to quit a job
4 = (I work) (He/she works) more slowly

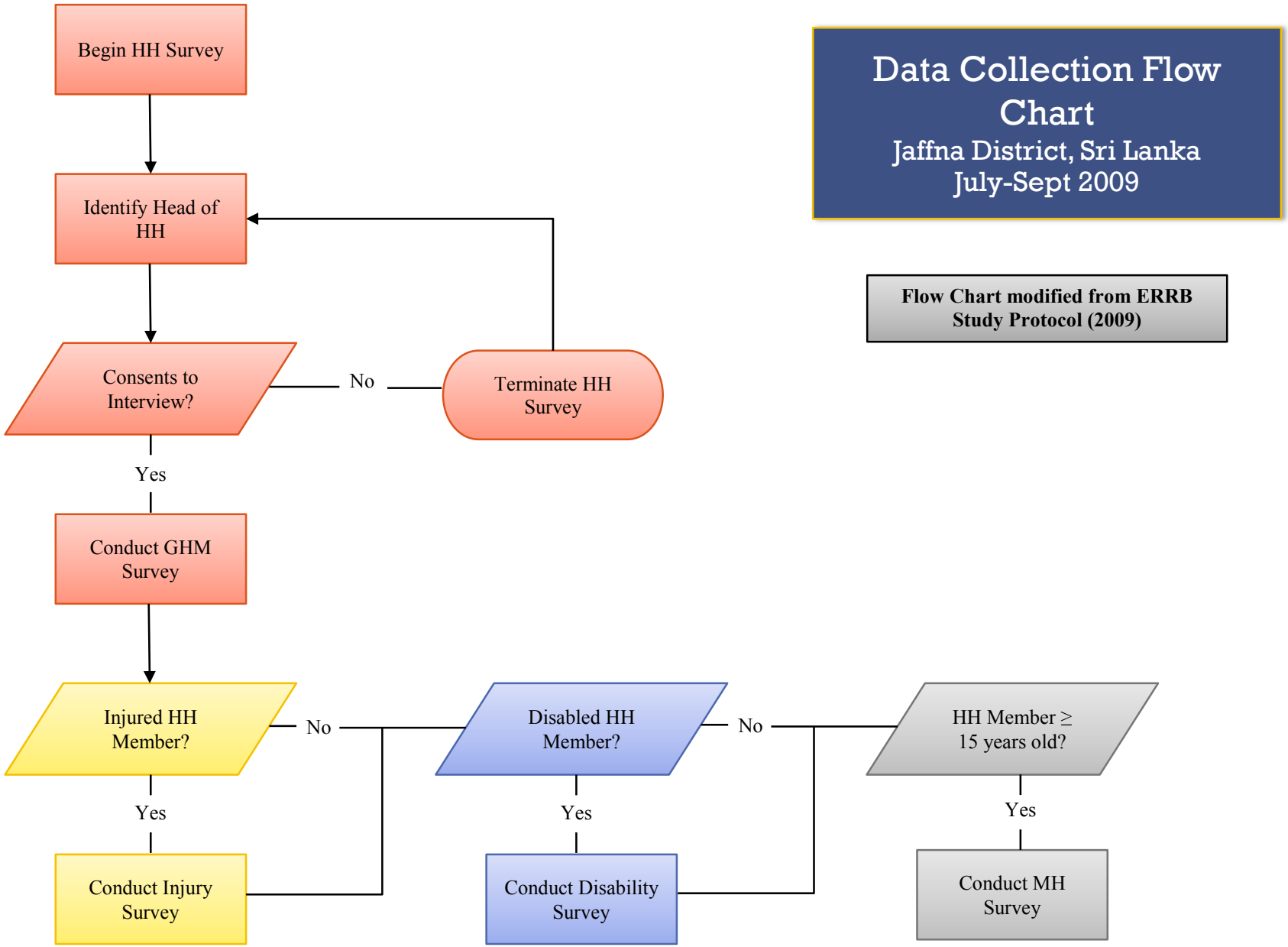
5 = (I make) (He/she makes) less money
66 = Other: _____

DY36. What was (your) (his/her) marital status at the time of the onset of disability?
1 = Never married
2 = Married
3 = Widowed
4 = Divorced
5 = Separated
66 = Not applicable (child)
88 = Don't know
99 = No response

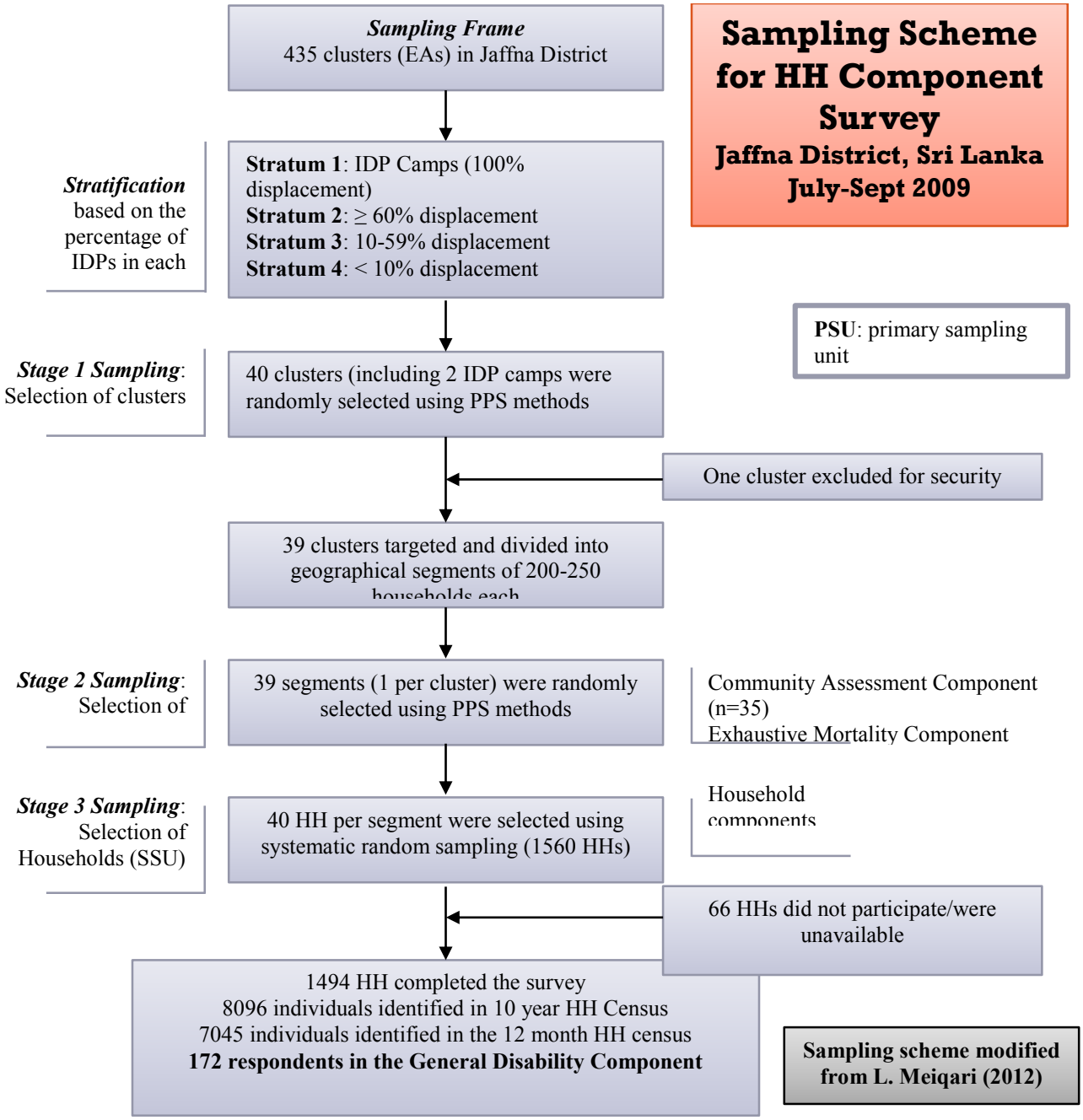
DY37. Has the disability affected (your) (his/her) marital status?
1 = Yes
2 = No ***(Section C (Disability) is complete. Skip to stop scripts at end of section.)***

DY38. How has the disability affected (your) (his/her) marital status? Check all that apply.
1 = Fewer marriage prospects
2 = Ended engagement
3 = Divorced or separated
66 = Other: _____

Appendix F: Flow chart depicting survey distribution method. Jaffna District, Sri Lanka (2009)



Appendix G: Sampling Scheme for the Household Component Survey. Jaffna District, Sri Lanka, July - Sept (2009)



Appendix H

Table 1. Demographic characteristics of persons with disabilities in Jaffna District, Sri Lanka (July to September, 2009). N=172.

Variable	No.	Wtd % (95% C.I.)	Crude OR	Chi²	p-value
Sex					
Male	102	54.85 (45.41, 64.28)	1.7	11.39	0.00074
Female	70	45.15 (35.72, 54.59)	1.0 [ref]		
Age					
≤17 years	17	7.20 (3.03, 11.38)			
18-34 years	24	10.84 (5.69, 15.98)			
35-59 years	68	38.88 (29.62, 48.15)			
≥60 years	63	48.08 (33.39, 52.76)			
Mean Age					
Male	52.72	(48.27, 57.71) Min: 2 Max: 91			
Female	54.51	(48.21, 60.80) Min: 0 Max: 90			
Ethnicity					
Tamil	172	100.00 (100.00, 100.00)			
Number of People Living in HH (N=169)					
≤ 4 People	80	50.90 (41.50, 60.30)			
5-8 People	73	41.45 (31.85, 51.04)			
≥9 People	16	7.02 (2.70, 11.35)			
Ever been displaced from home (N=170)					
Yes	82	47.19 (34.21, 60.18)			
No	88	52.81 (39.82, 65.79)			
No. times displaced since 2nd Battle of Elephant Pass					
Once	58	32.41 (20.40, 44.42)			
2-4 times	20	12.39 (2.55, 22.23)			
5 or more times	4	2.39 (-0.26, 5.04)			
Ever displaced outside of Jaffna (N=170)					
Yes	18	7.75 (2.91, 12.59)			
No	64	39.44 (27.68, 51.2)			
Currently displaced from home					
Yes	30	15.82 (7.74, 23.90)			
No	51	31.02 (17.8, 44.45)			
Respondents' Relationship to Disabled Person (N=170)					
Self	82	50.89 (41.07, 60.70)			
Parent	27	13.22 (8.47, 17.96)			
Spouse	26	13.47 (8.56, 18.38)			
Child	15	10.21 (3.86, 16.57)			
Sibling	12	6.35 (1.89, 10.80)			
Other	12	5.87 (0.97, 10.87)			

Appendix I

Table 2. Basic characteristics of disability in Jaffna District, Sri Lanka (July to September, 2009). N=172.

	Number	Wtd % (95% C.I.)
Type of Disability		
Mentally disabled	18	12.10 (5.35, 18.85)
Blind	25	15.30 (8.73, 21.87)
Deaf	16	6.16 (2.41, 9.90)
Paralyzed	24	19.51 (11.54, 27.48)
Amputee	17	4.56 (1.76, 7.36)
Other mobility problems	40	20.54 (13.57, 27.50)
Other	32	21.85
Pain	1	0.58 (-0.56, 1.73)
Combination of disabilities	4	2.87 (-0.97, 6.72)
Delayed development	3	2.91 (-0.51, 6.32)
Aging/Old Age	2	2.31 (-2.34, 6.95)
Polio	8	4.41 (1.11, 7.70)
Other	14	8.77 (1.13, 16.41)
Cause of Disability		
Injury*	44	16.12 (9.48, 22.76)
Congenital	49	25.96 (15.97, 35.96)
Disease**	44	30.70 (21.26, 40.14)
Aging	28	21.82 (12.86, 30.78)
Other	7	5.40 (1.41, 9.39)
***Cause of Injury (N=43)**		
Transport injury	6	7.87 (1.15, 14.59)$^{+}$
Hit/struck/blunt force	3	8.87 (-4.13, 21.86)$^{+}$
Landmine	5	6.48 (0.29, 12.66)$^{+}$
Fall	10	30.24 (9.69, 50.78)$^{+}$
Stab or Cut	1	1.30 (-1.44, 4.02)$^{+}$
Bomb/grenade/explosion	10	20.38 (2.03, 38.72)$^{+}$
Fire/burns/heat	1	1.29 (-1.14, 3.73)$^{+}$
Other	6	19.19 (-1.61, 39.99)$^{+}$
No response	2	4.40 (-1.87, 10.67)$^{+}$
***Context of Injury**		
Armed conflict	11	23.61 (0.90, 46.32)$^{+}$
Isolated event	25	51.18 (25.83, 76.52)$^{+}$
Other	1	1.29 (-1.44, 4.02)$^{+}$
No response	7	23.92 (5.03, 42.81)$^{+}$
****Type of Disease**		
Arthritis	9	23.90 (7.64, 40.16)^
Cataract	1	1.74 (-1.97, 5.46)^
Diabetes	4	8.87 (-1.61, 19.36)^
Polio	10	20.23 (3.71, 36.74)^
Trachoma	3	5.44 (-1.20, 12.07)^
Malaria	1	1.66 (-1.45, 4.76)^
Other	16	38.17 (22.14, 54.19)^

Age at Onset of Disability		
Birth to 5 Years	60	34.70 (24.47, 44.94)
6 to 15 years	11	4.61 (1.36, 7.86)
16 to 25 years	13	6.31 (2.11, 10.52)
26 to 35 years	8	3.44 (0.76, 6.11)
36 to 45 years	16	8.15 (3.00, 13.30)
46 to 55 years	16	8.01 (3.89, 12.13)
56+ years	48	34.77 (26.05, 43.49)
Years Lived with Disability		
0 to 5 years	57	35.80 (25.62, 45.98)
6 to 10 years	26	11.28 (5.34, 17.23)
11 to 15 years	14	9.59 (3.38, 15.81)
16 to 20 years	15	8.07 (3.43, 12.71)
≥21 years	60	35.25 (25.36, 45.15)

[+]Indicates percentage of those who were disabled by injury.
^Indicates percentage of those who were disabled by a disease.

Appendix J

Table 3. Treatment seeking among the disabled in Jaffna District, Sri Lanka (July to September, 2009). N=172.

Indicators	No.	Wtd % (95% C.I.)
Ever sought advice or treatment for disability		
Yes	154	89.19 (83.90, 94.47)
No*	17	10.62 (5.31, 15.94)
Don't Know	1	0.19 (-0.20, 0.57)
***Reasons for not seeking treatment**		
Financial Difficulty	2	1.19 (-0.51, 2.90)
No medical facilities available	3	1.30 (-0.92, 3.53)
Denied admission/treatment	1	1.14 (-1.15, 3.43)
Did not want to go	5	2.79 (0.15, 5.44)
Afraid to go	2	1.64 (-0.72, 4.01)
Other	2	1.83 (-0.62, 4.27)
Most recent treatment received (N=157)		
Less than 1 month ago	51	34.14
1 to 12 months ago	34	19.14
More than 1 year ago	65	32.20
Don't Know	7	4.87
Type of treatment received (selected all that applied)		
Medical treatment	112	68.24 (58.63, 78.04)
Psychological treatment/counseling	8	4.17 (0.90, 7.43)
Physical therapy	9	3.77 (0.33, 7.22)
Prosthesis	4	1.25 (-0.64, 3.14)
Crutches	13	5.30 (1.59, 9.00)
Wheelchair	6	3.38 (-0.10, 6.86)
Artificial limb	3	1.56 (-0.81, 3.93)
Glasses	4	3.32 (-0.34, 6.99)
Hearing aid	3	0.96 (-0.27, 2.19)
Other	3	1.70 (-0.10, 4.39)
Don't know	1	1.05 (-1.03, 3.13)

Appendix K

Table 4: Frequency of Difficulty with Mental and Motor Skills, Jaffna District, Sri Lanka (July-September, 2009). N=172.

Task	Half or more of the time No. (Wtd. %)	Less than ½ time No. (Wtd. %)
Seeing	60 (36.19)	112 (63.81)
Hearing	54 (27.66)	118 (72.35)
Understanding and remembering things (N=171)	71 (40.14)	100 (59.74)
Speaking or being understood by others	66 (36.34)	106 (63.66)
Walking (N=164)	88 (58.65)	76 (39.66)
Using legs (N=171)	83 (52.81)	88 (47.1)
Using arms	74 (44.11)	98 (55.89)
Washing/dressing self (N=171)	76 (49.12)	95 (50.78)
Feeding self (N=171)	53 (32.21)	118 (67.66)

Appendix L

Table 5. Participation in common activities among the disabled in Jaffna District, Sri Lanka (July to September, 2009). N=172.

Task	Less than half of the time	Half or more of the time
Work outside the home (N=138)	79 (64.36)	59 (30.78)
Go to school (N=78)	60 (47.97)	18
Go to the market or run other errands outside the home (N=141)	92 (70.11)	49 (25.60)
Do outside chores like working in the field (N=121)	106 (77.58)	15 (8.08)
Do home chores like cooking or laundry (N=151)	112 (70.85)	39 (19.12)

Appendix M

Table 6. Daily activities and marital status among the disabled in Jaffna District, Sri Lanka (July to September, 2009). N=172.

Factor	No.	(Wtd %)
Has ever gone out of the house		
Yes*	119	(51.07)
No	50	(48.32)
No Response	3	(00.61)
***Time since last going out of the house**		
Less than one month	106	(46.87)
One to twelve months	9	(3.60)
More than one year ago	2	(1.06)
No response	7	(1.73)
Has help in performing daily activities		
Yes, another person		
Yes, an assistive device	109	(70.95)
No help is needed	3	(0.63)
No help is available	58	(27.16)
	2	(1.26)
Disability has affected work status		
Yes^	86	(48.31)
No	86	(51.68)
^How disability has affected work status (selected all that applied)		
Difficulty finding work	24	(13.77)
Lost a job	26	(15.23)
Was forced to quit job	1	(0.54)
Works more slowly	15	(6.66)
Makes less money	7	(4.05)
Other	15	(8.81)
Unable to do school-related activities	4	(20.60)[1]
Mental disability inhibits work	5	(50.48)[1]
Unable to work	3	(18.77)[1]
Other	3	(10.15)[1]
Marital status at onset of disability		
Never married	59	(31.67)
Married	86	(50.26)
Widowed	14	(9.86)
Separated	2	(2.23)
N/A (child)	10	(4.85)
Don't Know	1	(1.14)
Disability has affected marital status		
Yes	33	(22.04)
No	139	(77.96)
How disability has affected marital status		
Fewer marriage prospects	29	(18.05)
Divorced or separated	1	(1.05)

1. Indicates percentage of those who provided an "other" response on how their disability had impacted their work status.

Appendix N

Table 7. Type of disability among the disabled, disaggregated by sex, in Jaffna District, Sri Lanka (July to September, 2009). Males: n=102, Females: n=70

Type of Disability	No. (Wtd. %)
Mental Illness	
Male	11 (64.42%)
Female	7 (35.58%)
Blind	
Male	16 (56.37%)
Female	9 (43.63%)
Deaf	
Male	7 (46.31%)
Female	9 (53.69%)
Paralyzed	
Male	13 (56.10%)
Female	11 (43.90%)
Amputee	
Male	12 (70.61%)
Female	5 (29.39%)
Mobility Problems	
Male	26 (50.23%)
Female	14 (47.99%)
Pain	
Male	0 (--)
Female	1 (100%)
Combination	
Male	2 (51.98%)
Female	2 (48.03%)
Delayed Development	
Male	1 (39.07%)
Female	2 (60.93%)
Age/Aging	
Male	1 (48.27%)
Female	1 (51.73%)
Polio	
Male	7 (86.82%)
Female	1 (13.18%)
Other	
Male	6 (40.97%)
Female	8 (60.03%)

Appendix O

Table 8. Cause of disability among the disabled, disaggregated by sex, in Jaffna District, Sri Lanka (July to September, 2009). N=172.

	Male (n=102)	**Female (n=70)**
	No. (Wtd %)	No. (Wtd %)
Cause of Disability		
Injury*	30 (15.80)	14 (16.50)
Congenital	30 (30.22)	19 (20.80)
Disease**	28 (34.67)	16 (25.88)
Aging	13 (18.15)	15 (26.27)
Other	1 (1.16)	6 (10.55)
***Cause of Injury (n=43)**		
Transport injury	5 (12.20)+	1 (2.84)++
Hit/struck/blunt force	2 (4.86) +	1 (13.52)++
Landmine/UXO	4 (9.60) +	1 (2.85)++
Fall	5 (15.22) +	5 (47.70)++
Stab or Cut	0 (--)+	1 (2.80)++
Bomb/grenade/explosion	9 (35.46) +	1 (2.84)++
Fire/burns/heat	0 (--)+	1 (2.78)++
Other	4 (20.25) +	2 (17.96)++
Not reported	1 (--)+	1 (6.72)++
***Context of Injury**		
Armed conflict	9 (35.70) +	2 (9.55)++
Isolated event	19 (59.50) +	6 (41.51)++
Other	1 (2.40) +	0 (--)++
Not reported	1 (2.40) +	6 (48.94)++
****Type of Disease (n=44)**		
Arthritis	5 (23.37)^	4 (24.77)^^
Cataract	1 (2.81)^	0 (--)^^
Diabetes	3 (11.22)^	1 (5.06)^^
Polio	8 (23.42)^	2 (15.03)^^
Trachoma	2 (5.48)^	1 (5.36)^^
Malaria	0 (--)^	1 (4.35)^^
Other	9 (33.71)^	7 (45.42)^^
Age at Onset of Disability		
Birth to 5 Years	34 (37.51)	26 (31.30)
6 to 15 years	7 (3.13)	4 (6.42)
16 to 25 years	7 (6.41)	6 (6.19)
26 to 35 years	7 (5.11)	1 (1.41)
36 to 45 years	11 (6.52)	5 (10.13)
46 to 55 years	11 (11.28)	5 (4.04)
56+ years	25 (30.05)	23 (40.52)

Table 8:
+ Indicates percentage of males disabled by injury
++ Indicates percentage of females disabled by injury
^ Indicates percentage of males disabled by disease
^^ Indicates percentage of females disabled by disease

Appendix P

Table 9. Daily and lifetime affectedness among the disabled, disaggregated by sex, in Jaffna District, Sri Lanka (July to September, 2009). N=172.

	Males		**Females**	
Factor	No. (Wtd. %)		No. (Wtd. %)	
Has ever gone out of the house				
Yes*	75	(55.67)	44	(45.48)
No	25	(43.60)	25	(54.05)
No Response	2	(0.73)	1	(0.47)
***Time since last going out of the house**				
Less than one month	69	(52.74)	37	(39.75)
One to twelve months	3	(2.29)	6	(5.19)
More than one year ago	1	(0.92)	1	(1.23)
No response	5	(2.43)	0	--
Has help in performing daily activities				
Yes, another person	61	(64.98)	48	(78.20)
Yes, an assistive device	2	(0.77)	1	(0.47)
No help is needed	38	(33.87)	20	(19.01)
No help is available	1	(0.38)	1	(2.33)
Disability has affected work status				
Yes	64	(64.96)	22	(28.10)
No	38	(35.05)	48	(71.90)
Marital status at onset of disability				
Never married	36	(36.88)	23	(25.35)
Married	56	(53.85)	30	(45.91)
Widowed	2	(1.07)	12	(20.53)
Separated	1	(1.91)	1	(2.60)
N/A (child)	7	(6.29)	3	(3.10)
Don't Know	0	-	1	(2.51)
Disability has affected marital status				
Yes	15	(22.96)	18	(20.93)
No	87	(77.04)	52	(79.07)
How disability has affected marital status				
Fewer marriage prospects	10	(65.96)	17	(88.89)
Divorced or separated	1	(8.34)	0	--

Appendix Q

Table 10. Difficulty with common tasks among the disabled, disaggregated by age, in Jaffna District, Sri Lanka (July to September, 2009)

Task	Half or more of the time	Less than ½ time
Seeing		
≤17 years	5 (36.40)	12 (63.61)
18-59 years	29 (30.40)	63 (69.60)
≥60 years	26 (42.85)	37 (57.15)
Hearing		
≤17 years	7 (34.80)	10 (65.20)
18-59 years	28 (27.65)	64 (72.35)
≥60 years	19 (26.47)	44 (73.34)
Understanding and remembering things (N=171)		
≤17 years	11 (61.11)	6 (31.89)
18-59 years	36 (37.19)	55 (62.81)
≥60 years	24 (38.86)	39 (61.14)
Speaking or being understood by others		
≤17 years	10 (65.49)	7 (34.51)
18-59 years	39 (40.09)	53 (59.91)
≥60 years	17 (27.14)	46 (72.87)
Walking (N=164)		
≤17 years	5 (47.18)	12 (52.82)
18-59 years	42 (49.44)	45 (50.56)
≥60 years	41 (71.29)	19 (28.72)
Using legs (N=171)		
≤17 years	5 (47.18)	12 (52.82)
18-59 years	37 (39.67)	54 (60.33)
≥60 years	41 (68.85)	22 (31.15)
Using arms		
≤17 years	8 (59.76)	9 (40.24)
18-59 years	35 (35.93)	57 (64.07)
≥60 years	31 (50.92)	32 (49.08)
Washing/dressing self (N=171)		
≤17 years	7 (68.14)	10 (31.86)
18-59 years	35 (37.31)	56 (62.70)
≥60 years	34 (59.52)	29 (40.48)
Feeding self (N=171)		
≤17 years	6 (58.69)	11 (41.32)
18-59 years	26 (26.21)	65 (73.80)
≥60 years	21 (34.67)	42 (65.33)

Appendix R

Table 11. Participation in common activities among the disabled in Jaffna District, Sri Lanka (July to September, 2009). N=172.

Task	Less than half of the time	Half or more of the time
Work outside the home (N=138)		
Overall	79 (64.36)	59 (30.78)
≤17 years	12 (9.07)	1 (0.87)
18-59 years	36 (43.47)	47 (83.91)
≥60 years	31 (47.46)	11 (15.23)
Go to school (N=78)		
Overall	60 (47.97)	18
≤17 years	3 (6.73)	10 (39.88)
18-59 years	34 (46.49)	8 (60.12)
≥60 years	23 (46.79)	0 (--)
Go to the market or run other errands outside the home (N=141)		
Overall	92 (70.11)	49 (25.60)
≤17 years	10 (7.63)	3 (2.96)
18-59 years	46 (46.77)	38 (83.60)
≥60 years	36 (45.60)	8 (13.44)
Do outside chores like working in the field (N=121)		
Overall	106 (77.58)	15 (8.08)
≤17 years	10 (6.37)	1 (3.10)
18-59 years	59 (53.22)	12 (84.76)
≥60 years	37 (40.41)	2 (12.14)
Do home chores like cooking or laundry (N=151)		
Overall	112 (70.85)	39 (19.12)
≤17 years	10 (8.21)	4 (3.98)
18-59 years	54 (43.75)	28 (78.53)
≥60 years	48 (48.05)	7 (17.49)

Appendix S

Table 12. Displacement status among households with and without disabled individuals in Jaffna District, Sir Lanka (July to September, 2009).

	HH with disabled person(s). N=170.		**HH without disabled person. N=1347.**	
Indicator	No.,	Wtd % (95% C.I.)	No.	Wtd % (95% C.I.)
Ever been displaced from home				
Yes	82	47.19 (34.21, 60.18)	569	28.31 (18.45, 38.17)
No	88	52.81 (39.82, 65.79)	773	71.36 (61.59, 81.13)
Times displaced since Second Battle of Elephant Pass				
Once	58	32.41 (20.40, 44.42)	411	20.16 (13.26, 27.06)
2-4 times	20	12.39 (2.55, 22.23)	136	7.28 (3.35, 11.20)
5 or more times	4	2.39 (-0.26, 5.04)	25	0.90 (-0.05, 1.85)
Ever displaced outside of Jaffna				
Yes	18	7.75 (2.91, 12.59)	94	4.85 (2.82, 6.89)
No	64	39.44 (27.68, 51.2)	480	23.85 (15.25, 32.44)
Currently displaced from home				
Yes	30	15.82 (7.74, 23.90)	187	9.56 (5.97, 13.16)
No	51	31.02 (17.8, 44.45)	392	19.46 (33.44, 58.70)

Appendix T

Table 13. Water, sanitation and hygiene access among households with and without disabled individuals in Jaffna District, Sri Lanka (July to September, 2009).

	HH with disabled person(s). N=170.		**HH without disabled person. N=1347.**	
	No.,	Wtd %	No.	Wtd %
Primary source of drinking water				
Tap in the home	17	12.12	77	6.31
Tap in the yard	5	2.54	54	4.02
Bore hole with hand pump	9	6.24	58	6.18
Protected well/spring	94	54.52	829	62.18
Unprotected well/spring	3	2.21	30	1.97
Water bowser	12	5.77	72	3.29
Other	30	16.60	225	15.81
Length of time to get to water source				
No wait	119	72.75	873	69.52
< 30 minutes	42	21.90	439	27.87
31 to 60 minutes	6	3.43	29	2.04
61-120 minutes	2	1.39	4	0.40
> 120 minutes	1	0.53	1	0.15
Length of time to wait in line to collect drinking water				
No wait	145	88.10	1131	86.66
Less than 30 minutes	12	10.62	190	11.54
31 to 60 minutes	2	1.28	22	1.51
How frequently water is available from primary source				
Less than half the time	2	1.68	24	2.01
Half or more of the time	168	98.32	1321	97.81
Belief that water is safe to drink				
Yes	155	90.48	1244	93.50
No	14	8.94	97	5.90
HH treats water before drinking				
Yes	101	62.41	810	59.54
No	68	37.00	533	40.11
Type of toilet facility HH uses				
Protected/safe source	153	91.71	1200	89.84
Unprotected/unsafe source	13	7.12	146	9.66
Has hand soap in house today				
Yes	158	95.72	1266	93.71
No	9	4.28	63	5.07

Appendix U

Table 14. Food availability and accessibility among households with and without disabled individuals in Jaffna District, Sri Lanka (July to September, 2009).

	HH with disabled person(s) N=170		**HH without disabled person. N=1347**	
Indicator	No.,	Wtd %	No.	Wtd %
Where HH gets most food				(n=1345)
Garden	2	0.78	19	1.03
Farm	0	0	6	0.26
Market	124	74.73	951	73.61
Combination of the three above	13	8.57	129	9.34
Food Aid	11	5.03	67	2.07
Other	20	10.89	173	13.59
How often HH gets enough to eat				(n=1342)
None of the time	0	0	3	0.23
A little of the time	6	2.96	16	1.29
Half of the time	26	16.44	140	11.52
Most of the time	43	23.15	356	25.30
All of the time	95	57.45	827	61.39

Appendix V

Table 15. Healthcare access and use among households with and without disabled individuals in Jaffna District, Sri Lanka (July to September, 2009).

	HH with disabled person(s). N=170.		**HH without disabled person. N=1347.**	
Indicator	No.,	Wtd % (95% C.I.)	No.	Wtd % (95% C.I.)
Primary Health Care Source				
Hospital	156	92.12	1231	98.28
Health clinic	9	5.42	82	5.04
Health post	3	1.65	24	2.05
Pharmacy	1	0.58	5	0.25
Other	0	--	3	0.28
Primary health care consultant				
Local medical provider	155	91.47	1193	88.59
International aid organization	6	4.60	22	0.96
Pharmacist	4	2.07	47	3.68
Traditional and/or spiritual healer	0	--	2	0.17
Other	5	1.86	81	6.50
Length of time to get to nearest health care facility				
Less than 1 hour	150	89.26	1256	94.03
1 to 5 hours	20	10.74	88	5.83
Cannot get to health care facility	0	--	1	0.03
Transportation to nearest health care facility				
Ambulance	0		5	0.14
Three-wheeler	13	11.58	50	3.71
Other vehicle	117	68.74	961	69.31
On foot	40	19.68	326	26.48
By boat	0		1	0.15
Other	0		1	0.03
Sought advice/treatment the last time member of HH was ill or injured				
Yes	139	82.58	1117	82.80
No	30	17.23	224	16.84

Appendix W

Table 16. Traumatic events experienced by households with and without disabled individuals in Jaffna District, Sri Lanka (July to September, 2009).

	HH with disabled person(s) N=161.	**HH without disabled person. N=1271.**
Indicator	No., (Wtd. %)	No. (Wtd. %)
Lack of shelter		
Experienced or Witnessed	90 (53.37)	605 (42.78)
Not Experienced or Witnessed	71 (46.63)	666 (57.23)
cOR (95% CL)	**1.40 (1.00, 1.94)**	1.0 [ref]
chi^2	3.941	
p-value	**0.0471**	
Loss or destruction of property or belongings		(n=1270)
Experienced or Witnessed	88 (52.32)	585 (38.42)
Not Experienced or Witnessed	73 (47.69)	686 (61.58)
cOR (95% CL)	**1.41 (1.02, 1.96)**	1.0 [ref]
chi^2	4.274	
p-value	**0.0387**	
Lack of food or water		
Experienced or Witnessed	87 (52.49)	531 (36.99)
Not Experienced or Witnessed	74 (47.69)	740 (63.01)
cOR (95% CL)	**1.64 (1.18, 2.28)**	1.0 [ref]
chi^2	8.754	
p-value	**0.0031**	
Ill health w/o access to medical care		(n=1268)
Experienced or Witnessed	66 (36.45)	412 (28.25)
Not Experienced or Witnessed	95 (63.54)	856 (71.75)
cOR (95% CL)	**1.44 (1.03, 2.02)**	1.0 [ref]
chi^2	4.639	
p-value	**0.0314**	
Attacks/bombardment with shells/rockets		(n=1269)
Experienced or Witnessed	40 (18.64)	302 (17.34)
Not Experienced or Witnessed	120 (80.82)	967 (82.65)
cOR (95% CL)	1.07 (0.73, 1.56)	1.0 [ref]
chi^2	0.113	
p-value	0.7371	
Living in a refugee camp		
Experienced or Witnessed	42 (20.34)	314 (20.20)
Not Experienced or Witnessed	119 (79.67)	957 (79.80)
cOR (95% CL)	1.08 (0.74, 1.56)	1.0 [ref]
chi^2	0.146	
p-value	0.7023	

Disability from an injury received during a battle or attack		
Experienced or Witnessed	30 (13.04)	201 (14.23)
Not Experienced or Witnessed	130 (86.96)	1069 (85.78)
cOR (95% CL)	1.23 (0.80, 1.88)	1.0 [ref]
chi^2	0.897	
p-value	0.3437	
Death of a family member or friend due to illness or lack of food		
Experienced or Witnessed	32 (17.63)	239 (17.32)
Not Experienced or Witnessed	129 (82.37)	1031 (82.68)
cOR (95% CL)	1.07 (0.71, 1.62)	1.0 [ref]
chi^2	0.104	
p-value	0.7471	
Death of a family member or friend due to fighting, murder, or suicide		
Experienced or Witnessed	24 (14.76)	187 (12.86)
Not Experienced or Witnessed	137 (85.25)	1083 (87.13)
cOR (95% CL)	1.01 (0.64, 1.61)	1.0 [ref]
chi^2	0.004	
p-value	0.9510	
Torture (systematic infliction of intense pain used to punish or coerce)		
Experienced or Witnessed	18 (8.65)	64 (3.58)
Not Experienced or Witnessed	143 (91.34)	1205 (96.35)
cOR (95% CL)	**2.37 (1.37, 4.11)**	1.0 [ref]
chi^2	2.534	
p-value	**0.0016**	
Missing or lost family member(s)		
Experienced or Witnessed	30 (16.33)	145 (9.01)
Not Experienced or Witnessed	131 (83.67)	1125 (90.99)
cOR (95% CL)	**1.78 (1.14, 2.72)**	1.0 [ref]
chi^2	6.932	
p-value	**0.0042**	
Imprisonment		
Experienced or Witnessed	12 (4.09)	58 (3.61)
Not Experienced or Witnessed	149 (95.91)	1209 (96.39)
cOR (95% CL)	1.68 (0.88, 3.20)	1.0 [ref]
chi^2	2.534	
p-value	0.1114	
Forced displacement		
Experienced or Witnessed	79 (43.43)	545 (31.87)
Not Experienced or Witnessed	82 (56.58)	722 (68.41)
cOR (95% CL)	1.28 (0.92, 1.77)	1.0 [ref]
chi^2	2.13	
p-value	0.1447	