# Women’s mental health, reproductive health, and agency in humanitarian crises

by

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# DEDICATION

This dissertation is dedicated to my one-person support team for the past twenty years. Thank you for always having the highest of expectations for me and also for the many sacrifices you have made so that we can both follow our dreams. Also to my girls, Madison, Megan, and Meredith ($M^3$). My family is my reason for being. Thank you for supporting me unconditionally.

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## LIST OF ABBREVIATIONS

AIDS- acquired immunodeficiency syndrome

ANOVA- Analysis of variance

ARC- American Refugee Committee

CDC- Centers for Disease Control

CMD- Common mental health disorders

DMAT- Disaster Medical Assistance Team

DSM-IV – Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition

HC- Humanitarian Crisis

HIV- Human Immunodeficiency Virus

IDP- Internally displaced person

IASC-Inter-Agency Standing Committee

IAWG- Inter-agency Working Group

MISP- Minimum Initial Service Package for Reproductive Health

mhGAP-Mental Health Gap Action Project

MGD- Millennium development goal

PRIME-Program for Improving Mental Health Care

PTSD- Posttraumatic Stress Disorder

RAISE -Reproductive Health Access, Information, and Services in Emergencies

SD- Standard deviation

SPSS – Statistical Package for the Social Sciences

SRQ- Self-Report Questionnaire

SIB- Suicidal ideation and behavior

STI- Sexually transmitted infection

UN- United Nations

UNPF- United Nations Population Fund

UNAIDS- Joint United Nations Program on HIV/AIDS

UNICEF- United Nations Children's Fund

WHO- World Health Organization

ABSTRACT

**Purpose** With over 20 million refugee women in the world today, health of refugee women has significant global health implications. Women affected by humanitarian crisis have significant trauma related mental health concerns that may affect reproductive health. The purpose of this study was to test the hypothesis that poor mental health status impinges upon reproductive health service use within the population of refugee women living in temporary camps and settlements.
**Methods** This study consisted of 1) psychometric validation of the Self Report Questionnaire (SRQ) and the Self Report Questionnaire-Suicide Ideation and Behavior (SRQ-SIB), 2) a mixed methods analysis of cross-sectional data and 3) data reduction of the SRQ-SIB, using data from the Reproductive Health Assessment for Conflict Affected Women survey conducted among Congolese refugee women in the summer of 2008. A qualitative component was added post hoc with interviews and written communication with key informants. The sample size was 810 participants.
**Results** The SRQ and the SRQ-SIB demonstrated a high level of reliability at .911 for both scales. Predictive validity revealed a highly significant model for both instruments in relation to women who experienced sexual violence. While the mean score on the SRQ-SIB was 6.2 (SD=5.6), women who had experienced a traumatic event or reported suicidal behavior had much higher mean scores; 8.2(SD=5.8) and 14.1(SD=5.5) respectively. Antenatal care rates were high (90%), as were HIV screening rates (81%); alternatively, family planning use (11%) and sexually transmitted infection (STI) treatment seeking (7%) were low among those at risk. No significant associations were found between mental health status and reproductive health service use. Qualitative interviews revealed that while reproductive health service use was strongly encouraged, mental health assessment and care were not available.
**Conclusion** This study provides details on mental health status and reproductive health service use in Rwandan refugee camps. Reproductive health is broadly available and reaches most women for HIV testing and antenatal care. Prevalence of common mental disorders (CMDs) in this sample was high. The SRQ-5 may be a useful and important tool in the clinical setting for quickly assessing women in crisis situations for CMDs and suicidal behavior.

# Introduction

*If you find yourself in a space where you have enormous power to make change and you're saying to yourself, "Oh, I can't do it, or it's not within my reach to do it," my challenge to you is to rise up. Whether it's in your backyard, your front yard or your office: DO SOMETHING. Mighty be our powers! I'm not just talking about the powers of Liberian women or African women, but about the unique power that each and every woman possesses. And that power should really translate into bringing beauty and hope and peace into the world.*

*-Leymah Gbowee,*

*Liberian Peace Activist and Nobel Peace Prize Winner*

Women in humanitarian crisis around the world exist in varying degrees of poverty, degradation and poor health. While we exist in our comfortable homes in the United States, displaced women from countries such as the Democratic Republic of Congo, Syria, Sudan, and Iraq are facing enormous challenges in terms of basic survival, and much more. I am seeking a PhD not only to improve myself and achieve the pinnacle of academic degrees, but also to use this degree to understand and contribute to achieving health equity for women everywhere. The focus for my dissertation research is to address mental health and reproductive health among refugee women.

My career background has always focused on women, emergencies, and global health. As a nurse practitioner and nurse educator in settings such as Cambodia, India, Ghana, Ethiopia and even Brooklyn, New York, I have learned valuable and insightful lessons from my patients and the community. These lessons led me to teaching other nurses, and finally, to pursue a research doctorate to attempt to address the gaps I saw in understanding women's health in emergencies.

I have been a member of the Disaster Medical Assistance Team (DMAT) in Michigan since 2009, and prior to that was on the Georgia team for 4 years. As a DMAT team member, I have been trained to provide rapid-response medical care during a terrorist attack, natural disaster, or other incident in the United States. DMAT members are part of the National Disaster Medical System and operate with security clearance under the Department of Health and Human Services. The purpose of the National Disaster Medical System is to provide an integrated national medical response capability for assisting state and local authorities in addressing the health needs of people affected by major disasters and providing support to the U.S. medical systems during times of crisis. I volunteered for ten years as an American Red Cross Disaster Action Team member. I have lived and worked in post-conflict countries and areas, including in Cambodia, where I worked with village health workers in developing low-tech educational resources.

As the days after Hurricane Katrina unfolded, I packed my bags as instructed and waited on stand-by for our DMAT team to deploy. In those confusing times, my team members and I were never green lighted to respond, and as I sat watching the newscasts, waiting and wondering if I would be there, the experience had a deep impact

on me. It should be clear to all that the United States was vastly unprepared for Hurricane Katrina and its aftermath. While efforts have been made in the years after this event for further preparedness, large gaps still exist both in the knowledge base and, more importantly, in interventions. The limited evidence that does exist suggests that women are more vulnerable during a humanitarian crisis and particularly more so, in the aftermath of the crisis.

My doctoral studies began under the tutelage of my advisor, Dr. Julia Seng, where, for my initial research experience, I studied the effects of PTSD on childbearing women. The desire to wed my newfound knowledge of trauma exposure among women to my longstanding interest in disaster health led me to pursue a graduate certificate in women's studies. This avenue of study allowed me to frame my research from a feminist perspective, or more specifically in a manner that examines hegemonic power structures where domination of some groups by subjugation of others is the norm. The concept of women's agency is strongly grounded in power studies, and provides an excellent tool for understanding women's responses to reproductive health needs after trauma exposure. I searched the literature for an understanding of how mental health after trauma exposure affected women's health outcomes, and was surprised and intrigued by the lack of directly relevant research, and furthermore, at the lack of integration between women's (reproductive) health and mental health in current interventional studies. It is with this background that I moved forward into developing this body of knowledge.

I plan to focus my research career on the effects of disasters and humanitarian crises on women's health, adding theory-driven, empirical findings to use as a basis for

designing maximally-effective women's health interventions for rapid implementation in the aftermath of a humanitarian crisis, potentially advancing a new model for service delivery where women's health is not limited to reproductive needs only, but also encompasses mental health and holistic care specific to women's needs. My long-term goal is to create a research center focusing on this very issue, which will serve as a repository of information on understanding, addressing, intervening, and disseminating knowledge and strategies to improve women's health in disasters.

The purpose of this dissertation was to explore the research question, "Is there an association between trauma-related mental health morbidity and reproductive health outcomes among refugee women?" This dissertation is divided into four chapters that seek to explore and answer this overarching research question. These chapters proceeded logically as a matter of understanding the data, the survey questionnaire, and the sample itself. The first chapter consists of a comprehensive literature review that leads to the formulation of a conceptual framework which guides the dissertation research. This chapter lays the groundwork and establishes the need for proceeding with the research topic. The second chapter presents and compares the findings from reliability and validity assessments of the 20-item Self-Report Questionnaire with a modified version (the SRQ-SIB) where two additional items were added regarding lifetime suicidality in a sample of Congolese refugee women. This chapter was necessary in that it established the SRQ-SIB as an appropriate instrument for measuring mental health in this sample. The third chapter tests the hypothesis that poor mental health status impinges upon reproductive health service use within the population of refugee women living in temporary camps and settlements. The core

analysis of the dissertation, this chapter allowed for understanding of the quantitative data with post-hoc support from qualitative data collection, including interviews with camp personnel, with findings from both the qualitative and quantitative analyses showing that there was a high prevalence of women screening positive for CMDs, with no route to address this finding, while rates of certain types of reproductive health care were higher than expected proportions given the setting. The findings from this chapter led to the focus of fourth chapter, which identifies a small subset of the highest performing SRQ-SIB items that show the best potential for use in the clinical setting. This chapter makes a recommendation for a short and simple screening tool for CMDs that is intended for use in a primary care or antenatal setting. The final chapter is a synopsis and synthesis of the three main chapters, with recommendations for the future. Each chapter of this dissertation helps to contribute to the predominant research question, with the end result being a cohesive research study that is able to draw conclusions for future study.

# Chapter 1

# Women's Mental Health, Reproductive Health, and Agency in Humanitarian Crises: Literature and Theoretical Support

## Overview

The purpose of this paper is to describe as richly as possible the integration of three domains: mental health, reproductive health, and women's agency in the aftermath of humanitarian crisis (HC). The theoretical and research evidence basis to support linking attention to all three are very limited. The reason for this, as the gathered documents will show, is that the central role of action has been siloed into different disciplinary domains, with different professionals responding separately to psychiatric and physical needs. Thus, this review will consider the three domains (mental health, reproductive health, and women's agency) by looking broadly at a range of information on humanitarian crisis, disaster mental health, reproductive health (i.e., family planning, prenatal care, STI, and HIV/AIDS screening), and the structural issues women in crisis settings encounter. Finally, the evidence will be synthesized, with the knowledge gaps highlighted in order to formulate the research questions.

### Organization of the Manuscript

This chapter is organized into four sections following the well-known and often utilized typology from the discipline of nursing, Carper's four ways of knowing. Developed by the nursing theorist, Barbara Carper in 1978, Carper's four ways of knowing serve as a tool for organizing and presenting ways of thinking, learning, and integration/explanation of knowledge (Johns, 1995). She organizes this typology into four domains: empirical, ethical, aesthetic, and (personal) experiential. The purpose of this organization is to provide order to the review of different types of information on the specific topic. A thorough understanding of the research hypothesis could not be reached without incorporating the different ways that knowledge was gained. That is to say, that this paper is not simply based on scholarly articles alone, but rather is based on experience, shared values, theory, and empirics.

**Empirical knowledge.** Empirical knowledge is described by Carper as "knowledge that is systematically organized into general laws and theories, for the purpose of describing, explaining and predicting phenomena" (Carper, 1978, pg 14). Empirical knowledge is "factual and descriptive and aimed at developing abstract or theoretical ideas" (Carper, 1978, pg 15). This "factual" knowledge is generally thought of as something that can be verified by observation. Research reports, whether quantitative or qualitative in nature, constitute empirical knowledge. Within this paper, in the empirical section, the methods used to find relevant literature will be described, and more importantly, the findings from the eight papers that support this avenue of research. Table 1.1 provides the information in a quick-reference, reduced format, and Table 1.5 gives detailed summary.

**Ethical knowledge.** Ethical knowledge is derived from moral questions and choices surrounding a given idea. Ethical knowledge "raises fundamental questions about morally right and wrong action in connection with the care and treatment of illness and the promotion of health" (Carper, 1978, pg 17). Within the ethical knowledge section, the ethical concerns surrounding women's health will be described among women who have been displaced from their homes due to humanitarian crisis, i.e. internally displaced persons and refugees. This includes an understanding of gender issues and differences, as well as accepted human rights assumptions that govern ethical treatment of displaced persons. Finally, mandates from international organizations that further ethical principles will be discussed, specifically the Millennium Development Goals as well as World Health Organization standards in the care of displaced persons.

**Aesthetic knowledge**. Aesthetic knowledge refers to a total understanding, utilizing "the creative process of discovery within the empirical patterns of knowing" (Carper, 1978, pg 15). The definition of aesthetic used in this form of knowledge is "pertaining to, involving, or concerned with the senses and emotion as opposed to pure intellectuality" (Dictionary-Reference, 2010, para 3). Aesthetic knowing encourages applying experiential, ethical, and empirical knowledge together in order to form a full picture of a situation. Aesthetic knowledge gained through this literature review will be detailed through a synthesis of theoretical underpinnings into a conceptual framework to guide future research. These underpinnings include eco-social models of emergency programming as well as feminist and post-colonial undergirding.

**Experiential knowledge.** Experiential knowledge is derived from personal experience, such as within the clinical and global health realm. In this section, the emphasis will be shifted from Carper's 'personal' knowledge (emphasizing empathy and use of self in interpersonal practice) to 'experiential' (emphasizing empathy and use of experience gained from work in the field) as befits practice with a population or community. Within the experiential knowledge section, the clinical reality and constraints that occur in understanding mental health and reproductive health among women in humanitarian crisis will be discussed. The current "on the ground" practices in place that guide care for both mental health and reproductive health, including the Minimum Initial Service Package for Reproductive Health Care and the Inter-Agency Standing Committee guidelines on Mental Health and Psychosocial Support in Emergency Settings will be highlighted. Since much of this paper relies on clinical experience and theory generation, organizing the paper via Carper's four ways of knowing forms an adjunct to the traditional literature review (see Table 1.2).

## Background

According to United Nations High Commission for Refugees data, there are approximately 43.3 million forcibly displaced persons in the world, approximately half of whom are women (United Nations High Commission for Refugees, 2010). Countries affected by humanitarian crises (defined as armed conflict, famine, epidemics, or natural disaster) rank among the lowest in child and maternal indicators of well-being, including health status, contraceptive use, and infant mortality (Women's Refugee Commission, 2009). Experts in the field concur that mental health morbidity from trauma exposure is significant. According to Richard Mollica, director of the Harvard Program in Refugee

Trauma, refugees experience depression and PTSD at more than double the rate of the US population (Mollica et al., 2004). Naeema Al-Gasseer, former Senior Scientist for Nursing and Midwifery at WHO and now a WHO representative focusing on Reproductive Health and Family Planning, writes that women affected by humanitarian crises have significant trauma-related mental health concerns (Al Gasseer, Dresden, Keeney, & Warren, 2004; Amowitz, Heisler, & Iacopino, 2004). Mental health morbidities have been described as the most pronounced of all health outcomes associated with migration, culture conflict, and resettlement (Carballo, Grocutt, & Hadzihasanovic, 1996). Al Gasseer, Dresden, Keeney, and Warren (2004) report that mental health issues resulting from the combined effects of displacement, poor nutrition, lack of access to care, decreased support systems, increased care giving burden, and exposure to trauma all contribute to women's short term or long term mental health. Women displaced due to humanitarian crisis are disadvantaged in addressing mental health concerns, as mental health services are sparse in the immediate aftermath of a crisis.

According to the National Center for Posttraumatic Stress Disorder, exposure to trauma has negative effects on physical health (Jankowski, 2007). Additionally, both trauma exposure and posttraumatic spectrum mental health morbidity have been associated with adverse patterns of women's health outcomes and childbearing outcomes under *normal* circumstances (Seng, Clark, McCarthy, & Ronis, 2006). In a study that evaluated birth outcomes after Hurricane Katrina, women who experienced three or more severe traumatic situations during the hurricane, for example feeling as though one's life was in danger, walking through flood waters, or having a loved one die,

were found to have a higher rate of low birth weight infants and an increase in preterm deliveries (Xiong, et al, 2008). There is also literature to support that trauma-spectrum diagnoses related to gender-based violence as well as childhood maltreatment affect both reproductive health treatment seeking behaviors and reproductive health outcomes, studies which were conducted in both the United States (U.S.) and Germany which represent countries at peacetime (Leeners, Stiller, Block, Gorres & Rath, 2010; Seng, Clark, McCarthy, & Ronis, 2006; Seng, Low, Sparbel, & Killion, 2004; Seng, Low, Sperlich, Ronis, & Liberzon, 2011). Low-income women in the U.S. with depression were less likely to utilize contraception (Berenson, Breitkopf, & Wu, 2003), and women with depressive symptoms were more likely to engage in unprotected sex (Garbers, Correa, Tobier, Blust, & Chiasson, 2011). In a study of Chinese female sex workers, mental health was significantly associated with inconsistent condom use and non-use of prevention services, including HIV and STI screening (Lau, Tsui, Ho, Wong, & Yang, 2010). If trauma exposure and mental health concerns have been shown to affect reproductive health outcomes in low-conflict settings such as China, Germany, and the U.S., how much more would trauma-exposure and related mental health sequelae affect women's health in highly traumatized populations such as those affected by HC?

While reproductive health outcomes can encompass many aspects of woman's health care, this paper focuses on the specific measurable indicators of family planning use including antenatal care, sexually transmitted infections (STI), and HIV/AIDS screening, which are also indicators in the Minimum Initial Services Package for Reproductive Health in Humanitarian Crisis, a key document in determining reproductive health services in post-disaster/conflict settings. Since much of the

literature focuses on crises in Africa, it is important to note that seventy-six percent of all HIV-positive women in the world live in this region, and the majority living with HIV are girls and women aged 15-24 (UNAIDS, 2010). A UNAIDS (2003) study examining the prevalence of STIs in refugees in Rwanda found high rates of infection among women who attended antenatal care clinics (trichomonas 31%, syphilis 4%, and gonorrhea 3%, chlamydia not assessed).

Family planning is a challenge for displaced women, as multiple barriers exist including access to contraception, limited health facility availability and relational aspects pertaining to gender that prevent women from seeking family planning resources. According to one report, approximately 58% of women in internally displaced person camps in Uganda reported an unmet need (defined as the condition of wanting to avoid or postpone childbearing) for family planning, compared to the national average of 40.6% (Uganda Bureau of Statistics and Macro International Inc, 2007). In four countries with a high rate of displaced women, Rwanda, Togo, Ethiopia, and Uganda, approximately 35% of women aged 15-49 reported an unmet need for family planning, while only 18% of married women in sub-Saharan Africa use any type of family planning (Casterline & Sinding, 2000; Sedgh, Hussein, Bankole, & Singh, 2007). However, the need for family planning remains great; the United Nations Population Fund (2008) estimates that in a crisis situation, one in five women of childbearing age are pregnant.

Prenatal care is an issue as well. In sub-Saharan Africa, where most of the literature is focused, already 34 out of every 100 women do not receive any prenatal care (United Nations Children's Fund (UNICEF), 2012). In the domestic arena, in the 12

months following Hurricane Katrina, the CDC noted that affected counties and parishes had a significant increase in the number of women who received late or no prenatal care. In Mississippi for example, the percentage of inadequate (defined as late or no care) prenatal care increased significantly from 2.3% to 3.3% while in Louisiana, among Hispanic women, the rate of inadequate prenatal care went from 2.3% to 3.9% (Hamilton, Sutton, Matthews, Martin, & Ventura, 2006).

With this knowledge, however, it remains the case that the current research base surrounding women's health outcomes in humanitarian crisis is scant. A review of literature detailed in this paper revealed a lack of knowledge of how women with humanitarian crisis-related mental health concerns are affected in reproductive health outcomes, including family planning use, antenatal care, and reproductive health screening defined as sexually transmitted infections and HIV/AIDS services.

Humanitarian crises resulting from either man-made causes or natural disasters occur worldwide but the effects are felt much more acutely in the poorest countries of the world, where resources and health are already less than optimal (Cohen, 2009). As people leave their homes either due to force or fleeing for safer areas, the health needs of women continue while the surrounding health systems become disabled, leaving women no options for safe childbirth, family planning or other reproductive health care (McGinn, 2000). The effects of displacement from the crisis itself and its aftermath result in loss of family, home and community support, increased sexual and gender based violence, and lack of access to essential health services which lead to increases in mental health needs as well as an increase in communicable disease such as

HIV/AIDS, unwanted pregnancy, and maternal morbidity concerns (Al Gasseer, Dresden, Keeney, & Warren, 2004; WHO, 2005).

Because of the enormous number of refugee women throughout the world, this area of study has strong importance globally, both in refugee settings and in host nations where refugees resettle, and may apply to the general population as well. It is significant for global health because, if mental health morbidity is associated with more adverse women's reproductive health outcomes, then front-line interventions to address mental health and reproductive health in tandem in humanitarian crises could be a pathway to improve key reproductive health indicators. There is relevance for U.S. public health as well; since such programs meet mandates for crisis preparedness as detailed in the Stafford Disaster Relief and Emergency Assistance Act (Federal Emergency Management Agency, 2007). In fact, one of the seminal articles used in this literature review discusses the health outcomes of women affected by hurricanes in the U.S.

Humanitarian crises, defined previously as a broad range of emergency situations, including armed conflict and natural and industrial disasters (Tol, et al., 2011), have traditionally been the realm of humanitarian aid organizations and later, international development agencies, few of which are funded to do outcomes research. This accounts for the relatively small body of literature, especially in terms of interventions (Reynolds & White, 2010). In humanitarian crises, women have unique and gendered needs, in terms of trauma-related mental health, reproductive health outcomes, and agency that must be addressed with continuing research (Al Gasseer, Dresden, Keeney, & Warren, 2004; Carballo, Grocutt, & Hadzihasanovic, 1996; Tol &

van Ommeren, 2012). Access to healthcare, when available, remains a challenge. Women may be reluctant to leave domestic responsibilities unfinished and income generating activities incomplete in order to visit a health care provider. Women may be subjected to confusing and difficult if not impossible circumstances to access mental and reproductive health care, and may require permission from their partner. According to Fadlalla (2007b), "The United Nations Population Fund (UNPF) as part of its humanitarian efforts among Darfurian women, required women to fill out certain forms in order to receive counseling or medical attention. The clause proved such a major obstacle to treatment that the organization had to eliminate it" (pg 218).

According to Deacon and Sullivan (2009), "Refugee women's needs are multiple, complex, and intertwined with their sociodemographic characteristics. Women's gendered experiences during war and flight, combined with the stressors they encounter in exile, result in their needs being qualitatively different from those of men. Nevertheless, women's experiences have long been overlooked in favor of a male-centered paradigm that governs the response to survivors of warfare"(pg. 279). Women may also be reluctant to access Western medicine facilities and may display distrust in treatments and practices of Western healthcare, including modern forms of family planning or psychotherapy interventions. In keeping with a long history of oppressive Western hegemonies, women may view clinics and hospitals practicing biomedicine as foreign intrusions that threaten their health status, rather than improve it (Fadlalla, 2007a). This inherent and historical distrust has resulted in beliefs that hospitals cause infertility, sickness, or in some cases death, and as such, these facilities represent a last resort for many women, when illnesses or injuries are often past the point of treatment

or hope. Additionally, there are concerns about family planning as "foreign devices that tamper with their reproductive potential and thus prevent them from achieving a desired fertility path that may result in a preferable number of sons and daughters" (Fadlalla, 2007a, pg 7); family planning methods are generally available but many choose breastfeeding as a way of managing their fertility (birth spacing) (Fadlalla, 2007b).

Women's agency is directly related to structural factors and relational aspects that affect decision-making. Directly addressing ways to promote women's agency is hypothesized as a way to surmount challenges posed by difficult and confusing situations such as this. The concept of women's agency is key in understanding the contextualized experience of individuals in micro-cultures, as Malkki (1995) describes the problem of essentializing the refugee experience, which "sometimes results in failed health programs because of decontextualized generalizations" (Pavlish, 2005, pg. 884). An in-depth understanding of agency achieved through this study can help to contextualize the individual aspects of each part of the refugee woman's life, so that broader applications to health can be grasped on a micro level.

Since much of the current research on HC has occurred among refugees, this paper works under the assumption that refugee women have experienced a humanitarian crisis that resulted in displacement from their homes and as such, have refugee or internally displaced person (IDP) status. IDPs are persons who have been displaced from their homes within their own country, and are often not reachable (or accounted for) by humanitarian aid agencies.

The empirical section will analyze and synthesize knowledge gained from eight relevant research papers to reveal that women's health needs are greater after a crisis

while at the same time resources are scarce, and highlight the large knowledge gap that exists in understanding of women's health in HCs. Experiential knowledge can tell us that women in disasters have suffered significant trauma simply from the effects of the event itself. There is a significant schism in the care of women after a crisis: psychosocial needs may be addressed, and women's health needs may be addressed, but they are being addressed by separate entities and without regard to how the former may affect the latter. The two main guidelines for care of reproductive health and mental health after crisis will be described, the Minimum Initial Service Package for Reproductive Health (MISP) and the Inter-Agency Standing Committee (IASC) Guidelines on Mental Health and Psychosocial Support in Emergency Settings. However, in each of these documents, there is no mention of the other. The IASC guidelines makes virtually no mention of the unique and gendered needs of women, using the word "gender" three times in its 40 page document, and does not address the effects of mental health on reproductive health. With the exception of sections detailing sexual violence, the MISP does not detail any psychosocial care for women after crisis. This "above the neck" and "below the waist" separation of care represents a major shortcoming in women's health, which is even more concerning in emergency situations such as humanitarian crises. This manuscript hypothesizes that reproductive health needs may not be met because of the mental health effects of the trauma itself; that is to say that <u>women who have lived through a significant disaster or humanitarian crisis will have specific psychosocial needs that may alter their reproductive health needs.</u>

**Definition of Terms**

An understanding of the terms used in the literature search is a key element to understanding the research question. Key terms in this study are trauma-related mental health morbidity, women's health outcomes, agency, and humanitarian crisis.

**Trauma-related mental health morbidity.** Mental health is defined by the World Health Organization (2010) as, "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (para 2). We connect trauma-related mental health morbidity to the effects of war-related violence, loss or separation from loved ones, and displacement from home as significant traumatic experiences. A traumatic event is an event that threatens injury, death, or the physical body while also causing shock, terror ,or helplessness (American Psychological Association, 2008). Trauma also refers to the experience of being harmed by an external agent as well as the response to that experience (Becker, et al., 2004). Trauma exposure can range from global, such as exposure to a disaster (Hurricane Katrina for example) to individual (such as rape, torture, or witnessing either). The trauma exposure can be the actual experience surrounding the crisis: separation from home, family or community, the experience of personal or witnessed violence or other atrocity, or the death of loved ones.

**Women's reproductive health outcomes**. Reproductive health was defined by the United Nations (UN) in 1994 at the Cairo International Conference on Population and Development and subsequently adopted by the World Health Organization. The definition states that reproductive health:

addresses the reproductive processes, functions and system at all stages of life. Reproductive health implies that people are able to have a responsible, satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in this are the right of men and women to be informed of and to have access to safe, effective, affordable and acceptable methods of fertility regulation of their choice, and the right of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant (WHO, 2014).

Women's reproductive health outcomes can encompass many aspects of woman's health care, such as prenatal care uptake, family planning use, and reproductive health infection screening.

**Women's agency.** The conceptual definition for women's agency in this study is the capacity of a woman to act independently and to make choices freely (Bell, 2011). Any discussion of agency must be situated in relation to power. Agency is a response to cultural, social, political, and economic structures, in combination with historical patterns of power inherent in gender (Susser & Stein, 2000), where a basic assumption is that women maintain agency even in the absence of formal power within defined structures (Jani, 2010). This idea supports the development of women while avoiding the understanding of women as victims (Chetcovitch, 2004), where "women present themselves as consenting agents (although resistance occurs) who actively attempt to influence their reproductive well-being and to adjust their own fertility practices to achieve respect and social security" (Fadlalla, 2007b, p. 8). Agency encompasses roles

of women that were noted in spiritual beliefs and religious ideas, which contribute to the formulation of a woman's cultural identity (Basnyat, 2009; Wray, 2004), as well as education, ownership of assets, family and friendship networks, child rearing, and domestic responsibilities (Bespinar, 2010; Wray, 2004). Agency among women can be conceptualized as the role of women in gendered realities of society and culture, which encompasses a set of behaviors particular and unique to women. Women's agency can be a lens that marginalized and vulnerable populations such as refugee women can use in addressing social justice issues that result in decreased health outcomes (Kirkham & Browne, 2006).

**Humanitarian crisis**. While there are varied conceptualizations of a humanitarian crisis, a simple definition is an event or series of events that poses a substantial threat to the health, safety, security, or wellbeing of a large group of people, usually over a wide area. Examples of humanitarian crises include armed conflict, famine, disease epidemics, and natural or man-made disasters (Tol, et al., 2011). Humanitarian crises have traditionally been the realm of humanitarian aid agencies, and later by international development agencies, which accounts for the limited body of evidence within academic literature. A synonym for humanitarian crisis is a complex emergency, which is defined by the Inter-agency Working Group (IAWG) as “a humanitarian crisis in a country, region or society where there is total or considerable breakdown of authority resulting from internal or external conflict and which requires an international response that goes beyond the mandate or capacity of any single and/or ongoing UN country programme” (United Nations High Commission for Refugees, 2006, pg 4). A complex political emergency is defined as a "situation with complex social,

political, and economic origins that involves the breakdown of state structures, the disputed legitimacy of host authorities, the abuse of human rights and possibly armed conflict, that creates humanitarian needs. The term is generally used to differentiate humanitarian needs arising from conflict and instability from those that arise from natural disasters" (WHO, 2007, para 29).

Disasters are similar in scope to humanitarian crises, and are generally thought of as the root cause of a humanitarian crisis, whether natural (such as a hurricane or tsunami) or man-made (due to conflict or political crisis or human error such as toxic emissions). Disaster can be a confusing concept and existing definitions are often ill fitting; either too broad or too narrow. For example, types of disasters could be categorized generally as natural disasters, but seen through a gendered lens, many such natural disasters are actually the result of intrusive and destructive political or governmental policies that allowed events to occur that result in disasters such as drought. The World Health Organization Emergency and Humanitarian Action Department defines disasters as:

> 1. A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses, which exceed the ability of the affected community or society to cope using its own resources;
> 2. Situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance;
> 3. A term describing an event that can be defined spatially and geographically, but that demands observation to produce evidence. It implies the interaction of an external stressor with a human community and it carries the implicit concept

of non-manageability. The term is used in the entire range of risk-reduction activities, but it is possibly the least appropriate for response (WHO, 2007, para 41).

## Section 1: Ethical Knowledge

Gender discourses must be a part of any discussion on women in HCs. The impact of gender on understanding the mental health psycho-social consequences of trauma is not well understood (Sideris, 2003) as research often focuses on funding agency aims rather than needs of women (Almendom, Tesfamichael, Yacob, Debretsion, Teklehaimanot, Beyene, et al, 2003). Byrne and Baden (1995) stressed the need for a gendered approach to identifying specific vulnerabilities in crises as well as capacities and coping strategies. The1995 Fourth World Conference on Women in Beijing mandated mainstreaming gender into humanitarian response (Dakkak, Eklund, & Tellier, 2007). This mandate is consistent with documents calling for a gendered approach to identifying vulnerabilities in crises, as well as identifying gendered aspects of capacities and coping strategies (Byrne & Baden, 1995). Women are more closely linked to domestic responsibilities such as child rearing. Women have less access to resources, such as transportation, employment, and other economic resources and they have fewer job related-skills and therefore less access to paid employment (Pan American Health Organization, 2005). Additionally, displacement post-crisis causes housing issues, replacement housing may be substandard, and the cost of replacing household elements may not be feasible. The crisis and subsequent displacement also increase a woman's vulnerability to domestic and sexual violence.

Article 25 of the Universal Declaration for Human Rights states, “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age, or other lack of livelihood in circumstances beyond his control” (United Nations, 2012, para 25). In the WHO publication, *25 Questions and Answers on Health and Human Rights* (2002), the right to health is described as being inclusive of availability of public health facilities that are in good working order and in sufficient quantity, that health facilities are accessible to all without discrimination, that health facilities are accepting of gender, life-cycle changes, and cultures, follow the code of medical ethics and are respectful of confidentiality, and provide appropriate and quality care. Reproductive health care is specifically mentioned as an essential part of the right to health, through “access to health-related education and information, including on sexual and reproductive health” (WHO, 2002, pg 10). Viewing reproductive health as a human right from our standpoint includes exploring all avenues that could improve health outcomes. This is why we advocate from the ethical standpoint of beneficence, the integration of mental health care with reproductive health care.

The Millennium Development Goals (MDGs) are a blueprint for improving conditions among the world’s poorest nations. Under the auspices of the United Nations Development Program, the eight goals are set to be achieved by 2015. The MDGs were developed in cooperation with the world’s leading development institutions and with input from all nations in the world. This research study aims to directly address three MDGs: #3: empowering women, #5: improving maternal health while achieving

universal access to reproductive health, and #6: developing methods to halt HIV and AIDS (United Nations, 2010). Goal 3, seeks to improve gender equality and empower women, primarily through education. The long-term goal of developing inventions will include reproductive health literacy, as detailed by McGinn (2006) in the empirical knowledge section of this paper. Goal 5, improve maternal health, seeks to reduce by three quarters the maternal mortality ratio and to achieve universal access to reproductive health. This goal includes understanding and addresses the psychosocial factors inherent in reproductive health care that can improve the outcomes for this goal. Goal 6, combat HIV/AIDS, malaria and other diseases, has as its target to achieve universal access to treatment for HIV/AIDS for all those who need it, and have halted by 2015 and begun to reverse the spread of HIV/AIDS. In keeping with this goal, we will seek to understand the mental health consequences of trauma-affected women regarding HIV and STI screening.

In the U.S., the threat of disaster or humanitarian crisis is always possible. The U.S. government has taken measures to support the health of its constituents in the event of a disaster. The Robert T. Stafford Act of 1998 was designed to encourage states to develop a comprehensive disaster preparedness plan, work to ensure better intergovernmental coordination in the event of a disaster, encourage the use of insurance coverage, and provide federal assistance programs for losses due to a disaster. Mental health care was specifically addressed in the Stafford Act. As part of this legislation, the government can "provide professional counseling services, including financial assistance to state or local agencies or private mental health organizations to provide such services or training of disaster workers, to victims of major disasters in

order to relieve mental health problems caused or aggravated by such major disaster or its aftermath" (Federal Emergency Management Agency, 2007, pg 47). Women's health, or reproductive health in general, was not specifically noted in the Stafford Act, although broad measures for addressing the general physical health of the populace are a large focus. Criticisms of the Stafford Act include concerns about its lack of appropriate inclusion of human rights issues and the fact that the government is not specifically mandated to provide healthcare in the event of a disaster, but rather is given the discretion to decide on resources to provide (Advocates for Environmental Human Rights, 2012).

Although both face criticisms for a variety of reasons, fundamentally, the Stafford Act and the MDGs were designed to protect health as a human right. However, neither of these mandates encompasses the aspects of gender, reproductive health, and mental health that may be necessary to provide comprehensive services to those in need. With this ethical knowledge in mind, I proceed to the next section.

## Section 2: Experiential Knowledge

The data-based body of evidence derived from research studies is very limited, therefore I turn to current health care policy to deepen the understanding of mental health and reproductive health care among women in humanitarian crisis. Multiple governmental and non-governmental agencies are actively working on the ground and at the policy level (see Table 1.3 for stakeholders). Attention to reproductive health needs in humanitarian crisis was first highlighted in 1994 in a report by the Women's Refugee Committee (Wulf, 1994). In 2004, the Inter-Agency Working Group (IAWG), a collaboration of over 30 governmental agencies, non-governmental agencies, and

universities working in the reproductive health in crisis sector, conducted a ten year global evaluation of the status of reproductive health services in areas affected by humanitarian crisis. Overall findings showed that reproductive health care of some sort was generally available for refugees in stable settings, but was severely lacking for internally displaced persons (IDP) who lack official governmental recognition of their displaced status, and as such exist in an in-between state where they are not eligible for inter-governmental assistance programs, and are often unreachable by relief agencies. However, overall, in both refugee and IDP settings, HIV and AIDS programs were found to be weak in the IAWG evaluation, while programs targeting maternal health care, sexually transmitted infections, and family planning were in critical need. The IAWG found in their evaluation of health services in conflict- affected areas that close to 90% of health clinics had some form of family planning available; however, only 50% offered long term contraception such as the IUD and less than 36% offered sterilization, while implants were not mentioned in the report (IAWG, 2004). So, while much attention has been given to the need for family planning and the desire for family planning by women in humanitarian crises, many modern forms of family planning, outside of the condom or the pill which are often spurned due to mistrust or refusal by the partner, are not even available. There is still a gap in knowledge of who accesses family planning services when they are available, and who does not.

A key outcome of IAWG's global evaluation was the development of the Minimum Initial Service Package (MISP). The MISP for reproductive health "is a priority set of life saving activities to be implemented at the onset of every humanitarian crisis. It forms the starting point for sexual and reproductive health programming and should be

sustained and built upon with comprehensive sexual and reproductive health services throughout protracted crises and recovery" (IAWG, 2009, para 1). The MISP works in conjunction with the Sphere Minimum Standards, which are universal minimum standards for delivery of humanitarian response, that were developed following the Rwandan genocide. The Sphere Project handbook (2011) covers a set of minimum standards for five areas: a) water supply, b) sanitation and hygiene promotion, c) food security and nutrition, d) shelter, settlement and non-food items, and e) health action.

While neither the Sphere handbook nor the MISP are required for implementation of reproductive health programming, both are widely used by collaborating agencies. Finally, the IAWG published in 2010 an updated version of the *Inter-agency Field Manual on Reproductive Health in Humanitarian Settings,* which provides authoritative guidance on reproductive health interventions in humanitarian settings. Guidance for implementing the MISP is contained within this manual. Mental health care is not addressed in either manual.

Mental health is separately addressed in, '*IASC Guidelines on Mental Health and Psychosocial Support in Emergency Settings*". A similar working group with a different focus, the Inter-Agency Standing Committee (IASC), which is composed of, similarly to the IAWG, governmental and non-governmental agencies working in the humanitarian assistance realm. Members include representatives of the International Committee of the Red Cross, the International Federation for Red Cross and Red Crescent societies, and the International Organization for Migration. The purpose of the IASC is to "improve overall service delivery, share resources, pool analysis and disseminate best practices" (IASC, 2011, pg 1). In 2007, the IASC published the guidelines, which are

thought to be the current gold standard for mental health in a complex emergency. The guidelines are described as being able to "offer essential advice on how to facilitate an integrated approach to address the most urgent mental health and psychosocial issues in emergency situations" (IASC, 2007, pg iii). The guidelines outline the initial minimum approaches to addressing psychosocial and mental health support (Inter-Agency Standing Committee Task Force on Mental Health and Psychosocial Support in Emergency Settings, Van Ommeren, & Wessells, 2007).

At first glance, these guidelines (summarized in Table 1.4) seem reasonably comprehensive. But closer inspection involves also asking, "What has been left out?" Even though unwanted pregnancy and untreated infection and disease would be potential causes of mental distress and impinge on psychosocial functioning, women's health and reproductive health, with the exception of gender-based violence, are not addressed in the guidelines.

## Section 3: Empirical Knowledge

### Method

An integrative review is a type of review method aimed at casting a wide net for the broadest range of empirical literature available, including experimental and non-experimental research, to expand the understanding of a particular phenomenon (Whittemore & Knafl, 2005). An integrative review is an appropriate method to investigate the current state of knowledge on women's health outcomes in humanitarian crisis because of the mix of studies utilizing both quantitative and qualitative data. This method provides an in-depth understanding of the current literature on a specified phenomenon assists in informing both clinical practice and future research. The steps

used to perform this integrative review included 1) problem identification, 2) literature search, 3) data evaluation, 4) data analysis, and 5) presentation (Whittemore & Knafl, 2005).

In order to ascertain the status of the literature on the topic of mental health and women's health outcomes among women affected by humanitarian crisis, a literature search with a narrow scope was undertaken to identify the breadth of knowledge currently in place. This literature search was specifically conducted with a very narrow focus area in order to determine whether or not there was a gap in the literature related to the relationship between mental health and women's health outcomes. The literature review was conducted searching PubMed, CINAHL, EMBASE, Cochrane Database, Web of Knowledge, and Google Scholar using the search language: humanitarian crisis OR internally displaced OR refugee AND women AND reproductive health AND mental health. Inclusion criteria were set to include articles in the English language dealing with female gender. Clinical trials, articles not dealing with human subjects and articles older than 1990 were excluded. A total of 10 articles were identified, but five of these articles dealt with refugee women who were resettled in developed countries, or were anecdotes or recommendations rather than research studies, and as such were excluded. Additionally, since the word *agency* is a homonym whose meanings are both relevant to health, articles were hand searched for semantic relevance to agency, such as "boldness" or "empowerment". The hand search was performed so no relevant articles were missed and additional articles would be identified for inclusion. A total of three additional articles for review were identified with the hand search. Additional texts and review articles were also used to triangulate the findings.

## Results

Eight papers met the criteria for inclusion in this manuscript. Each article represents a rich source of data for understanding the complex mental health, reproductive health, and agentic needs of women in humanitarian crisis. The combination of quantitative and qualitative data presented through the eight articles also contributes to the robust nature of the literature review. Each article will be summarized in the paragraphs below and synthesized at the end of this section. Appendix A provides this information in tabular form. Table 1.1 is a greatly reduced summary for easy reference.

The purpose of the first paper, *Basic Health, Women's Health and Mental Health Among Internally Displaced Persons in Nyala Province, South Darfur, Sudan* by Kim, Torbay, and Lawry (2007), was to contribute valuable data on the current status of reproductive health and mental health from displaced women in Darfur. The purpose of the study was to conduct a population-based assessment of internally displaced persons (IDPs) due to conflict in Darfur. The study was intended to assist in planning to provide basic health services, with a focus on women's health and mental health. A random sample of 1293 female heads of households was taken; the final sample size was 1274 women. The study was centered in the Nyala province of Darfur, and based at six of nine IDP camps with participants represented regions from all of Darfur. A survey questionnaire consisting of 102 questions was reviewed by local experts for content validity and pilot tested with a focus prior to implementation. The survey focused on participant demographics, basic needs, women's health, and mental health, and opinions about the rights and roles of women in Darfurian society. The majority of

the women were married, Muslim, and employed as farmers or pastoralists. The mean length of displacement was 6 months. The majority of respondents (78%) reported they had access to basic needs including food rations, water, and shelter. However, 80% reported insufficient access to fuel that is needed to cook food and boil water. Most reported fuel is mostly firewood or grass that is scavenged daily. While the mean number of reported pregnancies was six, and 58% reported they had access to prenatal care, the mean number of pregnancies for which women received prenatal care was only 1.4. Reasons for not receiving prenatal care included lack of services, financial difficulty, and husbands not permitting wives to seek care. Additionally, 56% reported some type of gynecologic symptom, which could be attributed to STIs. Almost 63% of respondents reported feeling down or depressed, 31% met criteria for major depression and 5% reported suicidal ideation in the past year. The evidence presented in this paper reveals compelling mental health morbidity, as well as significantly high rates of gynecologic concerns, low rates of prenatal care usage, and barriers to exercising agency.

The second paper, *Health Status Among Internally Displaced Persons in Louisiana and Mississippi Travel Trailer Parks* by Larrance, Anastario, and Lawry (2007), was included in the literature review in order to provide a U.S. based context, as well as its inclusion of both mental health and women's health in the survey. The purpose of this study was to assess basic needs, women's health, and mental health as well as opinions about social status of IDPs living in travel trailer parks after the 2005 hurricane season. A survey questionnaire was developed, reviewed for content validity, and pilot tested. Random sampling was employed with a final sample size of 366

respondents, of which 195 were female. The average time of displacement was approximately 8 months. Eighty-four percent of women reported receiving prenatal care. Sixty-two percent used no method of family planning with reasons for not using it including financial concerns as well as issues with healthcare. Sixty-nine percent reported feelings of depression since the displacement, and 50% reported diagnosis of major depressive disorder. Twenty percent reported suicidal ideation and 3% reported a suicide attempt. This paper represents a domestic view of mental and reproductive health issues of displaced persons. In this paper we see that mental health morbidity is high, including depression and suicidal ideation, similarly to displaced persons in Darfur, while access to prenatal care and family planning use was fairly low, given the availability of resources within the southern U.S. This study could have been improved had the authors included an evaluation of PTSD in the survey, especially given the known trauma of the disaster and subsequent displacement.

The third paper, *Family Planning in Conflict: Results of cross-sectional baseline surveys in three African Countries* by McGinn et al. (2011) supports what is known about the status of family planning usage among conflict-affected women. The purpose of this study was to establish a baseline understanding of family planning knowledge, attitudes and practices among conflict-affected displaced women as part of the RAISE Initiative (Reproductive Health Access, Information, and Services in Emergencies), an interagency group focusing on reproductive health in humanitarian crisis. The study was conducted in two parts, first a survey of women within the RAISE program's catchment area and second, an assessment of the health facilities within the same area. Six sites were included in this study: North Darfur, West Darfur, South Darfur,

Southern Sudan, Northern Uganda, and Eastern Congo. The survey questionnaire was adapted from the Reproductive Health Assessment Toolkit for Conflict-Affected Women, which was developed by the Centers for Disease Control for use in conflict and disaster settings. Validity and reliabilities of the toolkit were not discussed. Stratified random sampling was employed, with one woman of reproductive age (15-49 years) who was married or in union being randomly selected from each household within the catchment area. Sample sizes ranged from 420 women in Southern Sudan up to 1238 in Northern Uganda. Women gave verbal consent to participate in the study. Facility assessments were conducted in all hospitals and health centers within the same catchment area. Forty-four facilities were assessed in total across the six sites. Current use of modern contraception (defined as oral contraceptive pills, the intrauterine device, hormonal injection, implant, female sterilization, and male condoms) was 1.7% in Southern Sudan, 1.9% in Northern Uganda, 2.3% in North Darfur, 2.3% in Eastern Congo, 12% in West Darfur, and 16.2% in Northern Uganda. However, between 30.7% and 39.8% of women stated they did not want a child in the next two years and an additional 12.2% to 34.7% did not want any additional children. Of the 44 health facilities assessed, 38 were mandated to provide some form of family planning. All but one did provide some form of family planning in the past three months. However, more than two-thirds of the facilities were either poorly equipped or not equipped with necessary supplies and training for staff. Potential limitations of this study are that it was translated into five different languages, potentially affecting the results. Also, while participants did not need to read to be able to participate, the survey appeared fairly complex which may have affected their responses. Family planning use was low in this study, yet

participants expressed desire for birth spacing. This could be due to lack of availability of a form of contraception appropriate to the woman's needs, or lack of availability in general. Either way, the finding that women *want* birth spacing but do not *use* family planning is concerning.

The purpose of the fourth paper, *Action Responses of Congolese Refugee Women*, by Carol Pavlish (2005) was to explore African women's perspectives on their life experiences in refugee camps. This study was included in the literature review because it focuses on reproductive health issues and is one of the few studies that provide insight into African women's agency. This study is described as transcultural interpretive qualitative in nature, using narrative inquiry, where participants were asked to describe aspects of their past and present lives in a story format. The study was set in a refugee camp in Rwanda. Purposive sampling was used, and as required by the local IRB, Congolese female community health workers recruited potential participants, with the guidance that they should draw participants from various categories such as members of a women's group at the camp, clients of the health clinic, single female heads of households, and marginalized women at the camp. A total of 13 participants participated in two one-hour focus group sessions. Following the narrative inquiry technique, little structure was used in the focus groups; however, all participants focused in their narratives on the difficulties of life in a refugee camp. Six themes emerged from the study as results: a) refiguration, or the process of rearranging circumstances to improve their families' lives; b) advocacy, the acts of support or advising on the behalf of another; c) resistance, or the act of opposing damaging cultural or community norms; d) resignation, or submitting to or accepting cultural

circumstance; e) sorrow, or the sadness the resulted from witnessing atrocities and the losses that result from the atrocities; and f) faith, or belief in a guiding force. However, it was noted not enough information was given to understand the link between faith and agency. Important in this study is the assertion that Western researchers often describe African women as disadvantaged and powerless without seeming to understand how African women exercise power. While women who participated in this study had experiences of violence, oppression, and lack of education that are usually thought of as key in being powerless or disadvantages, the authors found that all women in this study expressed some form of agency in their daily lives, and that even women living in "social and political oppression expressed active engagement in trying to improve their health and the health of their families" (Pavlish, 2005, pg 16).

The purpose of the fifth paper, *A Population-Based Assessment of Women's Mental Health and Attitudes toward Women's Human Rights in Afghanistan* by Amowitz, Heisler and Iacopino (2003) was to assess the health status of Afghan women and attitudes of these women and their male relatives during the period of Taliban rule toward women's rights and community development needs in Afghanistan. Systematic random sampling was used to select a sample size of 724 females in three groups: a) Taliban-controlled Afghanistan, b) non-Taliban controlled Afghanistan, and c) in Pakistan among Afghani refugees. This quantitative study was implemented via structured interviews where a questionnaire was administered assessing demographics, physical and mental health status, access to and quality of health care, experiences of human rights violations, and attitudes on women's human rights. The median age of respondents was 35 years. About half of the women were from urban areas in

Afghanistan, and most were married homemakers. Most described their physical health (63-87%) and mental health (54-85%) as fair or poor. Women living under Taliban rule had an especially high prevalence of poor mental health and suicidal behavior including ideations (65-77%) and attempts (9-16%). Seventy percent of women exposed to Taliban policies met diagnostic criteria for major depressive disorder. In the three groups, 87% of women in the Taliban controlled area reported their general health as fair or poor, compared to 63% in non-Taliban areas and 80% of Afghani refugee women in Pakistan. The same groups reported their mental health as fair or poor, 85%, 54%, and 85% respectively. The findings of this study show that restrictions on human rights of women have had a significant impact on Afghan women's mental health. High rates of depression represent a significant challenge in working to improve overall health status, including key reproductive health outcomes. Although Afghanistan has shown recent dramatic improvement in maternal mortality (World Bank, 2014), significant challenges remain as 60% of women report receiving antenatal care but only 16% reported more than the minimum of four recommended visits (Afghan Public Health Institute, 2011). Additionally, only 1/5 of women report that they are using a modern form of contraception.

The sixth paper, *Improving Refugee's Reproductive Health through Literacy in Guinea* by McGinn and Allen (2006) had the purpose of understanding short and medium term effects of a reproductive health literacy intervention that was implemented several years before a civil war interrupted the study. This study utilized a literacy program for adult women, which was conceptualized as a means for improving the health of women and children in developing countries. Literacy for health programs

integrate health messages directly into the literacy-based curriculum. The study setting was in Sierra Leonean and Liberian refugee camps in Guinea. The total number of women enrolled was 2,325; however, the study was interrupted due to political conflict and rebel invasion and ultimately only 549 participants could be located for follow up. The follow up included a formal interview, where a questionnaire was administered as well as a literacy test. Most women reported being married (56%) although fewer reported their husbands as head of household (44%) suggesting that their husbands were not present in the camps. Six in ten women reported they had at least one child under five die. Forty-seven percent of women had never attended school. Respondent's current knowledge of modern contraception was 48%, and 24% reported using a condom at their last sexual encounter. While knowledge of family planning, safe motherhood and STIs and HIV/AIDS were high before the intervention, specific knowledge about each increased after the intervention. For example, 83% had heard of STIs before the intervention, while 89% could identify a symptom of an STI after the intervention. This study had significant findings that support women's agency. In this study of Sierra Leonean and Liberian refugee women's reproductive health literacy, a potential stand-in for agency was used, 'boldness', which was the term women used to identify empowerment (McGinn & Allen, 2006). Boldness was described by women in the study as:

> *A bold woman is free to go anywhere.*
>
> *A bold woman knows her rights.*
>
> *[I am bold] because I never knew how to read and write but now I can* (McGinn & Allen, 2006, pg 241).

While a third of respondents considered themselves bolder than other women before the intervention, 82% considered themselves so afterwards. The authors suggest that further study is needed to understand boldness and its direct and indirect impact on women's lives. A major limitation of this study was the interruption of the research with dispersal of the study participants due to conflict. The study restarted at a separate location, and only some of the participants were located again. Another limitation of this study is the lack of information on how participants were evaluated after the intervention. The authors focus on communication rather than specific literacy skills. Within this vein, some of the outcome variables did not change significantly after the intervention, or changed in a negative fashion. For example, condom use decreased among women with prior schooling, while increasing only by 2% (from 18-20%) among women without prior schooling. Even given the lack of particulars on evaluation of the intervention and the modest results, this paper provides an idea of refugee women's reproductive health status.

The seventh, *Refugee Women's Health: Collaborative Inquiry with Refugee Women in Rwanda* by Carol Pavlish (2005) was selected due to its focus on family planning and women's agency. This qualitative study, utilizing a collaborative capacity building experience, was done to teach refugee women how to plan and facilitate focus groups within their larger community. The author and principal investigator of the study trained local community health workers, who then facilitated the focus groups and reported the data back to the investigator. The setting of this study was in the same refugee camps in Rwanda as in the fourth paper, with a similar population of Congolese refugee women of reproductive age. Eighteen focus group sessions were completed,

where data was gathered from 100 refugee women. Themes that emerged included the health implications of poverty, the struggle to survive, the overburden of daily work, ambivalence about family planning, and the lack of freedom for women to express themselves. These themes are key to understanding agency as an intermediary factor between mental health, and reproductive health, as the concepts of women's agency, mental health and reproductive health care are ones that we wish to explore.

The eighth and final paper, *Human Rights Abuses and Concerns About Women's Health and Human Rights in Southern Iraq* (2004), by Amowitz, Kim, Reis, Asher, & Iocopino reports on the results of a survey conducted to evaluate the prevalence of human rights abuses occurring in southern Iraq since the Gulf War, as well as to assess attitudes towards women's health, rights and roles in society. The design of the study was cross-sectional and descriptive, using a structured questionnaire among a randomized sample of Iraqi men and women. Little information was given on survey instrument other than that it was pilot tested with Kurdish refugees in Iraq City, and reliability and validities were not reported. The sample size was 1,991 men and women who represented 16,520 household members, conducted in 3 major cities of Iraq in 2003. While every effort was made to interview the female head of household, males still compromised 58% of respondents. Additional demographic considerations include that the majority of respondents were of Arab decent, Shi'ia Muslim, and had a mean age of 38 years. Results documented similar concerns about mental health and reproductive health as the other quantitative articles included in this review. Forty-seven percent of respondents reported that they or a household member had experienced some form of human rights abuse including (but not limited to) torture,

killings, disappearance, forced conscription, kidnapping, ear amputation, beating, gunshot wounds, and being held hostage. Twenty-three percent of respondents reported suicidal ideation in the last year, with 6% reporting a suicide attempt. The percentages of suicidal ideation and attempts were slightly higher for those who reported human rights abuses occurring within their household. Slightly more than half (54%) of female respondents reported receiving prenatal care for all of their pregnancies. Of those women not using prenatal care, 32% did not have access to health care providers, while 25% felt that prenatal care was not necessary. Exactly half of women were using some method of family planning. Of the women who were not using family planning, the majority (87%) reported not wanting to use it, while 13% had no access to contraceptive methods. Only 11% of women and 0.5% of men agreed that women should make the decision to use family planning methods, while the majority believe it should be shared decision-making between the man and woman. However, over 50% of women and exactly 50% of men believe that a man has the right to beat his wife if she 'disobeys', and more than 60% of men and women believe it is the woman's obligation to have sex with her husband even if she disagrees. In this paper, the authors argue that issues surrounding women's rights have detrimental consequences on women's health. Additionally, given a high rate of suicide attempts, they urge individual and community mental health care initiatives. A unique feature of this study in relation to this literature review was the high percentage of male respondents, which broadens the perspective on the topic. Also, while other research articles in this review report on displaced persons, this population experienced a humanitarian crisis without overall displacement. However, the data reported was relevant enough, in terms of

humanitarian crisis related mental and reproductive health indicators, for inclusion in this literature review.

**Synthesis**

Each of the eight papers gives a different representation of the state of mental health and reproductive health in post-disaster settings. It is important to note that only the qualitative studies show integration of the two concepts. The other six papers examine both mental health and reproductive health separately (see Table 1.1 for representation). Across all eight papers, two things are clear: a) both mental health morbidity and reproductive health needs are significant among refugee women, and b) mental health care and reproductive health care are not integrated.

The six quantitative papers all include some aspects of mental health and reproductive health. All are descriptive, so they stop short of theorizing and do not model the relationship of mental health to reproductive health. One paper was an intervention study that only included both mental health and reproductive health topics in the program materials, but did not specifically measure any of those variables. Therefore, more exploration and understanding is needed about the relationship of women's mental health in humanitarian crises as it affects their reproductive health outcomes.

The two qualitative papers do integrate mental health and reproductive health via women's stories, but with no statistical evidence. The integration emerged spontaneously as an issue by the *participants* of the studies, rather than as an *a priori* focus of the study author or as an example of health care provision in their community. The intertwining of the themes in the qualitative studies suggest "the experiences of

violence, conditions of oppression or lack of education can quiet women's voices, but in this study every woman demonstrated that she had a voice, as well as the capacity to act" (Pavlish, 2005, pg 16). Women's actions occur on behalf of family and community based on difficult circumstances and oppressive social pressures. Poverty was a singular issue that affected all aspects of health and well-being; poverty was the driving force that kept women from advancing economically and meeting reproductive health needs. Throughout the focus groups from which the themes emerged, women expressed a desire to have a more prominent and public voice in the social issues that impact health. For example, advocacy was a focus for several participants in Pavlish's 2005 study, including one infected with HIV who stated "I tell them, 'Don't be like me. Go and have a test. Don't let it happen to you.' I talk to everyone openly. Everyone knows I have AIDS" (pg 14).

Across the eight studies, refugee women showed high rates of mental health morbidities (Amowitz, Heisler, & Iacopino, 2004; Kim, Torbay, & Lawry, 2007; Larrance, Anastario, & Lawry, 2007), with depression, PTSD and suicidal ideation being the most commonly cited. The trauma or conflict, forced migration, and loss of homes and loved ones, were seen as major contributors to mental health concerns (Kim, Torbay, & Lawry, 2007; Larrance, Anastario, & Lawry, 2007). The effects of sexual violence, displacement and livelihood disruption may contribute significantly to the mental health burden in this population. Findings from the Sudanese study (Kim, Torbay, & Lawry, 2007) suggest that while basic health needs are being met, mental and reproductive health needs go largely unmet. The authors also suggest that because women head the majority of households in Southern Darfur, poor reproductive, sexual and women’s

rights may negatively affect women's health outcomes and by extension, affect the health of the community. Similar rates of depression were found among women displaced from their homes by Hurricane Katrina and residing in temporary trailer parks (Larrance, Anastario, & Lawry, 2007) where 50% of respondents met the criteria for major depression, 69% of respondents reported some symptoms of depression and 20% reported suicidal ideation. Amowitz, Heisler, and Iacopino's (2003) population based assessment of women's mental health and attitudes towards human rights in Afghanistan, found that major depression was far more prevalent among women exposed to Taliban policies (73-78%) than among women living in a non-Taliban controlled area (28%). In fact, 65% of women living in a Taliban-controlled area and 73% of women in Pakistan exposed to Taliban policies expressed suicidal ideation at the time of the study, compared to 18% of those in a non-Taliban controlled area. These rates of depression and suicidal ideation are extremely high and indicate that intervention to address the gendered realities of women's daily lives should be a high priority.

A desire for access to methods of family planning were reported to be high among refugee women in the selected studies that address family planning, with 30-40% of women in one study desiring not to have a child in the next two years (McGinn et al., 2011). Kim, Torbay, and Lawry's (2007) survey of internally displaced female heads of households in Darfur found that 68% use no birth control, with 28% using natural family planning or the rhythm method. Sixty percent of women reported birth spacing decisions should be shared between reproductive partners and 92% felt similarly about family planning usage. Almost 56% of respondents reported some type

of gynecologic symptoms in this study, while in McGinn and Allen's 2006 study, participants reported high basic awareness of STIs and HIV/AIDS, including knowledge of some symptoms. Larrance, Anastario, and Lawry's (2007) study of women displaced from their homes by Hurricane Katrina and residing in temporary trailer parks found that 62% of respondents were not using any form of family planning, and 88% of those women did not desire to use any form. Prenatal care was also affected. McGinn and colleagues (2011) sought to describe family planning knowledge, attitudes and practices among conflict-affected and displaced African women at six sites; North Darfur, South Darfur, West Darfur, Southern Sudan, Eastern Congo, and Northern Uganda. This research found knowledge of modern family planning methods (defined as oral contraceptive pills, the intrauterine device, injectible contraception, implantable contraception, and the male condom) was low compared to other sub-Saharan African countries. This low knowledge of family planning use was matched with low use of modern methods. Of female respondents, 30% to 40% of women reported they did not desire a child within the next two years, while an additional 12% to 35% wanted no more children. However, current use of modern methods of family planning among married women was under 4% in West and South Darfur, Southern Sudan, and Eastern Congo. In West Darfur and northern Uganda, family planning usage rates were higher at 12% and 16.2%; however, these sites had prior family planning clinics. The low prevalence of family planning use is not surprising in this study; neither is the desire for birth spacing, or limiting, as the environment is one that prevents organizations from working efficiently and family planning supplies are a challenge for even health care facilities to obtain.

From this literature, four key empirical indicators of agency emerged: boldness, empowerment, education, and decision-making. However, none of these indicators were modeled in any of the quantitative studies. The literature review indicates varying interpretations of women's agency in a postcolonial, post-crisis state. Measuring agency represents a challenge at several levels. Since empirical measures of agency were not used in any of the studies assessed, it is important to look deeper into the concept of agency and how aspects of daily life can be studied using a power lens that examines gendered responses of women to daily responsibilities such as domestic chores, income generation, and reproductive activities.  For example, 82% of women reported being more bold after receiving the health literacy education intervention among refugees in Guinea. Boldness was also associated with improved women's health outcomes; women who identified themselves as more bold were significantly more likely to use family planning (51% versus 36%, $p < .01$) and condoms at their last sexual encounter (26% versus 14%, $p < .05$) (McGinn & Allen, 2006).

**Conclusion**

In summary, what has been learned from this small ensemble of empirical work is that mental health and reproductive health needs exist across a variety of post-disaster/post-conflict settings, and that while the opportunity has existed to integrate the services, there is no evidence that this has been done. Therefore, research is needed to consider the mental health sequelae of trauma exposure as a major predictor of reproductive health outcomes.

### Section 4: Aesthetic Knowledge

Based on synthesis of the ethical, experiential and empirical knowledge, I have formulated a practice-level conceptual framework to organize the research exploring the association of mental health to reproductive health outcomes. In the absence of empirical knowledge, the clinician scholar must sometimes respond to the lack of "science" with "art". For purposes of advancing work in this field, art can take the form of conceptualizing and theory-production. This is consistent with how Carper (1978) describes aesthetic knowing as an "increased awareness of the variety of subjective experiences" (pg 18) in the nurse-patient relationship. It seems worthwhile to embed this "awareness" into a conceptual framework to guide future data collection and analysis.

This conceptual framework (see Figure 1.1) posits that women affected by the trauma-related mental health sequelae endemic in disaster and conflict situations will have worse reproductive health outcomes. The model also includes the proposition that women's agency is an intermediary factor in the relationship between trauma-related mental health and women's reproductive health outcomes. Women's agency is a theoretical concept that has been studied and adapted widely throughout many disciplines, including women's studies and sociology (Hitlin & Elder, 2007). Women's agency has been linked to increased family planning use, reproductive health decision-making and sexual knowledge (Curtin, Ward, & Caruthers, 2011). Agency has also been theorized as a factor associated with mental health and reproductive health in limited studies (Lesch & Kruger, 2004). Based on this knowledge and with support for the need for a theoretical framework to guide research in this arena (Lesch & Kruger,

2004; Tol et al., 2011), agency can be a connector between trauma-related mental health morbidity and adverse reproductive health outcomes, meaning that agency can have an effect on health outcomes of women with trauma-related mental health morbidity, potentially mediating or moderating or thought of as a direct or indirect pathway. In this model, the circular arrows represent the potential reciprocal relationship between mental health and reproductive health outcomes. However, as the focus is on reproductive health outcomes, the priority is the study of the effects of mental health on the reproductive health outcomes. The hypothesis is that mental health morbidity affects reproductive health outcomes.

Women's agency is supported in this model by structural factors and relational aspects. Relational aspects comprise the relationships and interactions the woman has on a daily basis with her head of household, elders, children, health workers, community members, friends and employers, all of which can have a strong effect on a woman's decisions and her level of agency. These family and community dimensions have an important interplay with mental health morbidity (Igreja, Kleijn, & Richters, 2006). All representations of relational aspects are strongly influenced by culture and gender.

Structural factors, or the organization of a system which influences and restricts choice, define the forces that interplay within a woman's life. Access to health services, food, water and housing, as well as access to positions of power, are all controlled by structural factors. See Figure 1.1 for a depiction of this model.

A middle-range theory of human development that also undergirds this manuscript is Bronfenbrenner’s Ecological Systems theory (Bronfenbrenner, 1979). This theory is a useful intermediate level of conceptualization because it specifies that

an adult woman's characteristics would become an outcome of the influence of environmental systems. In this model, women's agency is formed as a result of interaction with the norms, roles, and rules of the microsystems, as well as in context within and between each of the five systems (micro-, meso-, chrono-, exo-, and macro-), or as Bronfenbrenner characterizes it, within the larger mesosystem.

A postcolonial critique will also form the feminist foundations of this review. Decentering traditional and dominant Western styles of thinking and communication through a reflexive process will allow for addressing the challenges of study within a context of developing post-colonial national identities. A postcolonial view can "open the possibilities for an understanding not overly constructed by our own preoccupations" (Ong, 1994, p. 378), where a discourse, based on awareness of hegemonic power structures in place and the political, social and economic categories that are inherent in such situations, can facilitate a mutual exchange of ideas and progress. The findings will be framed using a Foucauldian focus, where analysis of common everyday practices through which power relations are reproduced and exchanged can help to understand the politics of gendered power relations within and among ecological systems. According to Fadlalla (2007a, p. 5), "The female body, as a spatial metaphor, becomes the locus of anxieties about foreign dangers and diseases that are perceived to disrupt reproduction, mortality, identity and social well being," meaning that mental health effects may be internalized due to cultural norms and/or lack of access to mental heath services, and manifest in a number of health issues, both psychosocial as well as physical. Reproductive health can be a particularly problematic locus of post-colonial sensitivity where women's ideas about their bodies have been traditionally marginalized.

Although it may go without saying that humanitarian aid responses aim to support those affected by the crisis, there are differing visions for the goals and implementation of such responses that may not focus on the unique and gendered needs of women or attend to the power dynamics occurring between dominant and post-colonial societies. This feminist and post-colonial framing is consistent with the United Nation's Millennium Development focus on women, which includes empowering women and improving maternal health (United Nations, 2010).

## Integrated Conclusion and Discussion

Hopefully, the framing of this paper through Carper's four ways of knowing has shown the significant gap in empiric, aesthetic, ethical, and experiential knowledge surrounding the association of mental health and reproductive health care among women in humanitarian crisis. The empirical literature review has established that there is currently no consideration of the impact of trauma-related mental health morbidity on women's reproductive health outcomes, despite research that shows that female trauma survivors have decreased health-related quality of life (Laffaye, Kennedy, & Stein, 2003). I believe that addressing mental health care in tandem with reproductive health care among trauma-exposed women can lead to improved health outcomes. However, no programs attempting to integrate mental health and reproductive health care have been reported. There is no basis from which to know if there could be potential synergistic benefits to women's health outcomes if this type of tandem care were provided in HC settings. The literature represented here shows what is known: that significant mental health concerns exist among refugee women, as well as compelling adverse reproductive health outcomes. However, many unknowns emerged from the

empirical literature review. The ethical knowledge gained from this review has shown that governing bodies such as the United Nations and the U.S. government have mandated varying interpretations for mental health and reproductive health care in a crisis setting, which underscores the globally recognized need for immediate and consistent care in an emergency context. The experiential knowledge detailed in this manuscript has given evidence for active and detailed work being carried out in the field on mental health and reproductive health, but this section has also given evidence on the lack of integration of this work. The summation of the ethical, empirical, and experiential sections of this manuscript has led to the aesthetic section, which is the development of a conceptual framework that promotes examining the association between mental health and reproductive health in emergency settings given the influence of relational aspects and structural factors, with agency as an intermediary factor. Utilizing social ecological theory with postcolonial and feminist framing, will allow for a decentering of traditional western hegemonic values that may impinge upon the actual realities inherent in refugee women's lives.

The process of writing this paper was novel because the lack of directly relevant empirical work required stepping back and considering what other forms of knowledge were available to enhance an understanding of the current state of the science and existing gaps. What emerged from the process was a need to conceptually clarify the findings from the literature with reports from agencies working in the field, and policy documents outlining standards of care. Hopefully, this has resulted in a strong body of evidence supporting the need for research integrating both mental health and reproductive health in tandem. Certainly, this was a strength of this paper, as it gives a

global perspective, rather than a strictly academic view, which is what this manuscript strives for in its theoretical foundations: to contextualize women's health care in humanitarian crisis using multiple viewpoints. The largest limitation of this endeavor was the lack of strong literature to truly justify linking mental health status with reproductive health in HC. However, this lack of literature led to a larger search outside of traditional norms to answer the research questions, which could be viewed as an unforeseen strength.

The priority research question to emerge from this review is: Is there an association between trauma-related mental health morbidity and reproductive health outcomes in HC? This is a critical question to answer to inform the field and it is likely to lay groundwork for a fruitful trajectory of research. If research shows that the two are linked, in what way would this impact future research into women's health? This research has the potential for a strong impact not just in refugee studies, but in the larger realms of health outcomes and women's health care. If research can model that mental health morbidity is represented in adverse reproductive health outcomes, then a strong case is made for focusing on the underlying mental health issues as a route to addressing women's health needs. Further, if trauma-related mental health morbidity is associated with adverse women's reproductive health outcomes, then the development of field interventions that integrate mental health care with reproductive health care can be developed for rapid-response deployment to improve outcomes of mental health and reproductive health in tandem. This area of research with refugee women, a population with complex and gendered health needs, represents a novel situation that can advance more than one aim: establishing a model of care that can be applied to the broader

population of trauma exposed women AND advancing disaster and crisis preparedness planning in women's health globally.

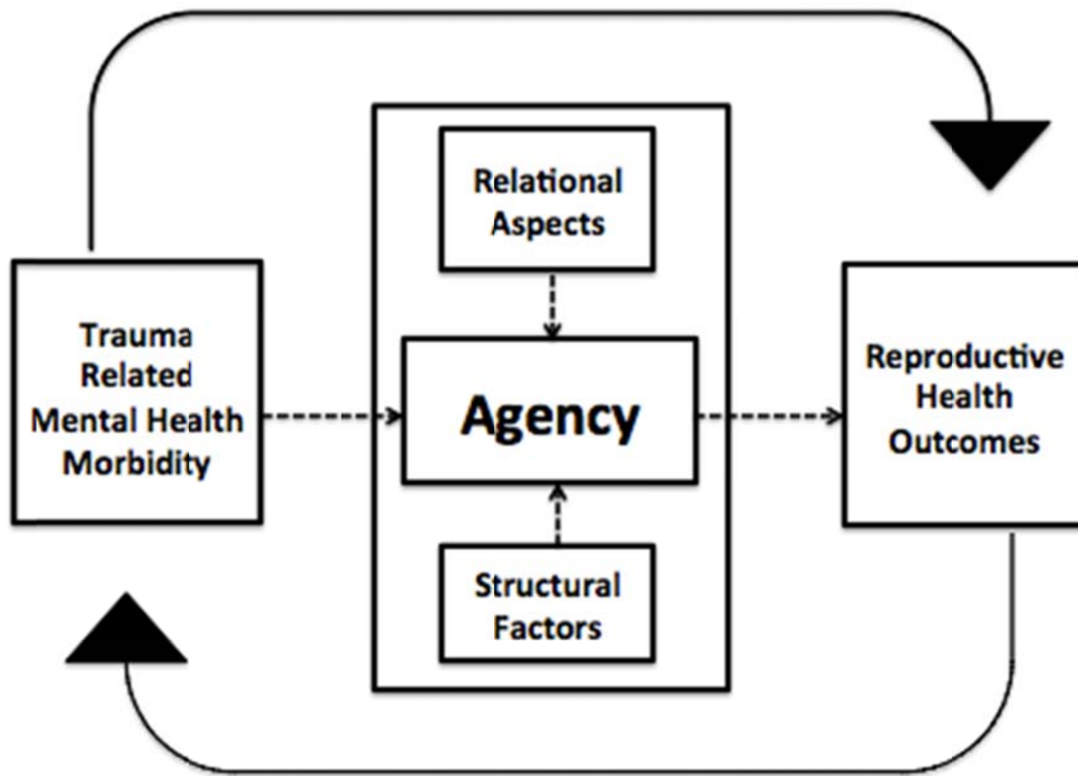


Figure 1.1: Conceptual Model of Trauma Informed Disaster System Response

Table 1.1

*Simplified Evidence Table*

| Title | Context | Purpose | Mental Health Morbidity | Reproductive Health Domain | Integration | Agency |
|---|---|---|---|---|---|---|
| A Population-Based Assessment of Women's Mental Health and Attitudes toward Women's Human Rights in Afghanistan, 2003 -Amowitz, Heisler & Iacopino | Women's health under Taliban Basic Needs Afghanistan | To assess the health status of Afghan women and attitudes of these women and their male relatives -Descriptive and comparative epidemiological design | Major Depression Suicidal Ideation | General Health | None | Yes |
| Basic Health, Women's Health and Mental Health Among Internally Displaced Persons in Nyala Province, South Darfur, Sudan, 2007 -Kim, Torbay & Lawry | Conflict in Darfur Internally displaced persons (IDPs) | To assess basic health, women's health and mental health among Sudanese IDPs in South Darfur -descriptive epidemiological design | Depression Suicidal Ideation | Family Planning Prenatal Care | None | Yes |
| Health Status Among Internally Displaced Persons in Louisiana and Mississippi Travel Trailer Parks, 2007 -Larrance, Anastario & Lawry | Hurricanes IDPs | To assess basic needs, women's health, mental health and opinions about the status of IDPs living in travel trailer parks. -Descriptive epidemiological | Major Depression Suicidal Ideation | Family Planning Prenatal Care | None | No |

| Col 1 | Col 2 | Col 3 | Col 4 | Col 5 | Col 6 | Col 7 |
|---|---|---|---|---|---|---|
| Improving Refugee's Reproductive Health through Literacy in Guinea, 2006<br>-McGinn & Allen | Displacement<br>Guinea, Liberia & Sierra Leone conflict | To describe the results of the Reproductive Health Literacy (RHL) Project among Sierra Leonean<br>and Liberian women in refugee camps in Guinea.<br>-Analysis of health literacy intervention | Attention to Trauma Exposure<br>Gender-based Violence<br>Child death | Family Planning<br>HIV/AIDS<br>STIs<br>Safe Motherhood | None | Yes |
| Family Planning in Conflict: Results of cross-sectional baseline surveys in three African Countries, 2011<br>-McGinn, Austin, Afinson, Amsalu, Casey, & Fadulalmula | Conflict in multiple African countries. | To document and disseminate data on family planning knowledge, attitudes and practices among population groups-conflict-affected, displaced women<br>-Baseline survey of intervention. | Emotional Health<br>Gender-based violence | Family Planning | None | No |
| Action Reponses of Congolese Refugee Women, 2006<br>-Pavlish | Rwanda/Democratic Republic of Congo<br>Displacement<br>War | To explore Congolese women's perspectives of their experiences residing in a refugee camp.<br>-Qualitative analysis | Themes of loneliness, poor in spirit, no peace in the heart | Family Planning<br>STIs | Yes, in the narratives | Yes |
| Refugee Women's Health: Collaborative Inquiry with Refugee women in Rwanda, 2005<br>-Pavlish | Rwanda<br>Displacement<br>War | To describe the experience of a collaborative capacity building exercise among refugee women.<br>-Qualitative analysis. | Themes of sorrow, resignation and resistance | Family planning<br>HIV/AIDS | Yes, in the narratives | Yes |

| | | | | | | |
|---|---|---|---|---|---|---|
| Human rights abuses and concerns about women's health and human rights in southern Iraq, 2004.<br>-Amowitz, Kim, Reis, Asher & Iocopino | Women's health after Gulf War conflict<br>Iraq<br>Human rights | To assess the health status of Iraqi women and attitudes of these women and<br>their male relatives in a post war setting<br>-Descriptive and epidemiological | Suicidal Attempts<br>Suicidal Ideation | Prenatal care<br>Family Planning | None | Yes |

Table 1.2

*Carper's Four Ways of Knowing Applied to this Research*

| **Carper's Four Ways of Knowing** | **Reasons to Integrate** | **Underpinnings for Dissertation Research** |
|---|---|---|
| Ethical | Mandates | WHO/ Human Rights |
| Experiential | Clinical reality & constraints | Minimum Initial Service Package (MISP)<br>Inter-Agency Standing Committee Guidelines for Care in Emergency Settings |
| Aesthetic | Theoretical Underpinnings | Eco-Social Theory<br>Feminist Theory<br>Post-Colonialism |
| Empirical | Scientific Base- 7 scholarly papers | Synthesis of current literature details, Knowns, Unknowns, and Gaps |

Table 1.3

*Selected Stakeholders*

| Governmental | Non-Governmental | Academic Centers |
|---|---|---|
| United Nations High Commission for Refugees (UNHCR) | American Refugee Committee | RAISE Initiative (Columbia University) |
| Centers for Disease Control (CDC) | International Organization for Migration | Disaster Mental Health Institute (University of South Dakota) |
| National Disaster Medical System | Women's Refugee Commission | Preparedness and Emergency Response Learning Centers (PERLC)* - Based at Universities Regionally |
| US Public Health Service (USPHS) | International Rescue Committee | Center for Public Health Preparedness (University of South Carolina) |

*Currently no PERLC coverage in Michigan

Table 1.4

*Current Standards for Health Care in Emergency Situations (selected)*

| | **Reproductive Health** | **Mental Health** |
|---|---|---|
| Title | Inter-agency Field Manual on Reproductive Health in Humanitarian Settings* | IASC Guidelines on mental health and psychosocial support in emergency settings |
| Purpose | Provides the authoritative guidance on reproductive health interventions in humanitarian settings | Provides guidance for planning, establishing and coordinating a set of minimum responses to protect and improve people's mental health and psychosocial well-being in the midst of an emergency |
| Authors | Interagency Working Group on Reproductive Health in Crises: composed of over 100 representatives from United Nations agencies and non-governmental organizations | Inter-Agency Standing Committee Task Force on Mental Health and Psychosocial Support in Emergency Settings: composed of representatives from governmental and non-governmental agencies as well as academic centers |
| Contents | Assessment, Monitoring & Evaluation, Comprehensive Abortion Care, Family Planning, Gender-based Violence, Adolescent Health, Maternal and Newborn Health, Sexually Transmitted Infections, HIV | Coordination, Assessment, Monitoring and Evaluation, Human Resources, Education, Dissemination of Information, Community Mobilization and Support, Food and Nutrition, Shelter and Site Support, Water and Sanitation, Health Services** |

*Contains the MISP
**Does not contain Reproductive Health information in this chapter

Table 1.5

*Table of Evidence*

| Reference | Title/Year | Study Design | Purpose | Descriptive Statistics | Author's Conclusions | Implications for Future Research |
|---|---|---|---|---|---|---|
| Kim, Torbay and Lawry | Basic Health, Women's Health and Mental Health Among Internally Displaced Persons in Nyala Province, South Darfur, Sudan, 2007 | Descriptive Epidemiological | To assess basic health, women's health and mental health among Sudanese IDPs in South Darfur | 68% use no birth control. 53% report at least one unattended birth. 49% report the right to refuse sex. 96% used no contraception or the rhythm method. 84% were circumcised. The prevalence for major depression was 31%. 88% support equal opportunities for education of women. 5% report suicidal ideation and 2% report suicide attempts. | Basic needs are being met. Mental and reproductive health needs are largely unmet. Findings indicate a limitation of sexual and reproductive rights that may negatively affect health outcomes. | Because women head the majority of households in Southern Darfur, poor reproductive health and limited women's rights may by extension affect the health of the community. The effects of sexual violence, displacement and livelihood disruption may contribute significantly to the mental health burden in this population. |
| Amowitz, Heisler and Iacopino | A Population-Based Assessment of Women's Mental Health and Attitudes toward Women's Human Rights in Afghanistan, 2003 | Descriptive Epidemiological | To assess the health status of Afghan women and attitudes of these women and their male relatives during the period of Taliban rule toward women's rights and community development needs in Afghanistan. | Major depression was far more prevalent among women exposed to Taliban policies(73%–78%) than among women living in a non-Taliban controlled area (28%). Sixty-five percent of women living in a Taliban-controlled area and 73% of women in Pakistan exposed to Taliban policies expressed suicidal ideation at the time of the study, compared with 18% of those in a non-Taliban controlled area. | Depression rates among women in Afghanistan, especially in Taliban-controlled areas, were extraordinarily high. | Current efforts to rebuild Afghanistan must address these high rates of depression and other mental health problems to ensure women's full participation in development. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Larrance, Anastario and Lawry | Health Status Among Internally Displaced Persons in Louisiana and Mississippi Travel Trailer Parks, 2007 | Descriptive epidemiological | To assess basic needs, women's health, mental health and opinions about the status of IDPs living in travel trailer parks. | 50% of respondents met the criteria for major depression. 69% of respondents reported some symptoms of depression. 20% reported suicidal ideation and 3% reported attempts at suicide. 62% were not using contraception, and 88% of those did not desire it. | Major depressive disorder in this population is more than 7 times higher than the current US rate. Women in this survey had higher rates of mental illness. | |
| McGinn & Allen | Improving Refugee's Reproductive Health through Literacy in Guinea, 2006 | Intervention study | To describe the results of the Reproductive Health Literacy (RHL) Project among Sierra Leonean and Liberian women in refugee camps in Guinea. | Participants had a high level of reproductive health knowledge after participation, and reported increase in literacy. Respondents' current use of modern contraception was 48%, of which 23% reported using a condom at last sex. Findings suggest an increase from reported pre-RHL behavior. Participants also reported a dramatic increase in 'boldness', the phrase used to describe empowerment. While only a third (32%) of respondents considered themselves 'more bold' than other women before RHL, a majority (82%) so considered themselves after RHL. | | Boldness, a stand in concept for agency. |
| McGinn, Austin, Afinson, Amsalu, Casey, & Fadulalmul | Family Planning in Conflict: Results of cross-sectional | Descriptive epidemiological | To document and disseminate data on family planning knowledge, attitudes and | Use of modern methods was under 4% in four sites; in two sites with prior family planning services it was 12% and 16.2%. From 30% to 40% of women reported they | Knowledge of modern contraceptive methods was low relative to other sub-Saharan African countries. | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | baseline surveys in three African Countries, 2011 | | practices among population groups-conflict-affected, displaced women | did not want a child within two years, however, and an additional 12% to 35% wanted no additional children, suggesting a clear need for family planning services. | | |
| Pavlish | Action Reponses of Congolese Refugee Women (2005) | Transcultural Interpretive Qualitative | To explore Congolese women's perspectives of their experiences residing in a refugee camp. | Process of refiguring circumstances to improve their families lives<br>Advocating for themselves or others for changing women's difficult circumstances<br>Resisting viewing women and girls as sexual objects<br>Resignation to difficult circumstances<br>Sorrow and faith as a result of experiences | Actions occur on behalf of family and community based on difficult circumstances and oppressive social pressures. | Focus on Agency, exploring themes quantitatively. |
| Pavlish | Refugee Women's Health: Collaborative Inquiry with Refugee women in Rwanda, 2005 | Qualitative | To describe the experience of a collaborative capacity building exercise among refugee women. | Themes of Health effects of poverty, struggle to survive, overburden of daily work, ambivalence of reproductive decisions, lack of freedom to express themselves | Women expressed a desire to have a more prominent and public voice in the social issues that impact health. Most health concerns occur in the context of women's daily lives.<br>Ambivalence and confusion about family planning.<br>Discomfort, distrust, dislike for contraception. NFP most common.<br>Poverty largest effect on health. | Connection between agency and reproductive health. Exploring themes quantitatively. |
| Amowitz, | Human rights | Descriptive | To evaluate the | 23% of respondents reported | Issues surrounding | Future intervention |

| | | | | | | |
|---|---|---|---|---|---|---|
| Kim, Reis, Asher & Iocopino | abuses and concerns about women's health and human rights in southern Iraq, 2004. | epidemiological | prevalence of human rights abuses occurring in southern Iraq since the Gulf War, as well as assess attitudes towards women's health, rights and roles in society. | suicidal ideation, 6% reported suicide attempts. 54% of women received prenatal care, of those who did not,32% did not have access to health care providers and 25% felt that prenatal care was not necessary. 50% used some form of family planning, of those who were not, 87% reported not wanting to use it, while 13% had no access to contraceptive methods. Only 11% of women and 0.5% of men agreed that women should make the decision to use family planning methods. | women's rights have detrimental consequences on women's health. Additionally, given a high rate of suicide attempts, urge individual and community mental health care initiatives are urged. | approaches, such as a sex- and rights-based approach, for reconstruction and community health and development in Iraq. |

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# Chapter 2

# Psychometric Validation and Comparison of the SRQ-20 and the SRQ-SIB among Congolese Refugee Women

## Background

The health of refugee women has increasing importance worldwide, as the number of displaced women continues to increase, and the global dispersion of this population leads to significant health policy implications. Approximately 42 million people were displaced from their homes in 2009 (Guterres, 2009), of which more than half were women. Research has demonstrated that mental health and reproductive health concerns occur at a higher rate in refugees than among the general population (Mollica et al., 2004). Women with mental health concerns in low resource settings are at higher risk of providing sub-optimal care for their children, which is exacerbated in settings where poverty, poor sanitation, and lack of health services are the norm (Ola et al., 2011). Countries affected by humanitarian crises (defined as armed conflict, famine, epidemics, or natural disaster) rank among the lowest in mothers' and children's indicators of well-being, including health status, contraceptive use, and infant mortality (Women's Refugee Committee, 2009)

Common mental disorders (CMD) among women are increasingly recognized as a public health issue in low-income countries. Rahman et al (2013) found higher rates of CMDs among perinatal women from low- and lower-middle-income countries than in high-income countries, where the prevalence of these disorders was found to be 15.6% in pregnant women and 19.8% in women who had recently given birth. In other studies from low-income countries, women with mental health disturbances are more likely to stop breastfeeding and their infants are more likely to have restricted growth (Adewuya, Ola, Aloba, Mapayi, & Okeniyi, 2008). Antenatal depression was a risk factor for maternal disability and prolonged labor (Bindt et al., 2012; Hanlon et al., 2008) as well as a risk factor for low birth weight (Rahman & Creed, 2007). In spite of this, there have been limited studies assessing the mental health among refugee women who represent a population with a high level of trauma history, potentially residing in harsh conditions and therefore, may be more predisposed to CMDs.

The SRQ-20 was developed by the WHO in 1994 for the purpose of screening for CMDs in primary care settings (World Health Organization, 1994). Designed to be used across cultures as a screening tool for CMDs, the SRQ-20 is a 20-item tool that includes questions about feelings of unhappiness, physical symptoms, effects on activities of daily living, and one question on current (in the past four weeks) suicidal thoughts. Published studies utilizing the SRQ-20 have included settings such as Nigeria (Ola et al., 2011), Ethiopia (Hanlon et al., 2008), Malawi (Stewart, Umar, Tomenson, & Creed, 2013), Rwanda (Scholte, Verduin, van Lammeren, Rutayisire, & Kamperman, 2011), China (Chen et al., 2009), and Vietnam (Stratton et al., 2013). Our study utilized a modified version of the SRQ-20, henceforth termed the SRQ-SIB

(suicidal ideation and behavior), that included two additional questions about lifetime suicidality.

Factor structure of the SRQ-20 has varied from two to seven factors (Iacoponi & Mari, 1989; Scholte, Verduin, van Lammeren, et al., 2011; Ventevogel et al., 2007), with this variance being attributed to population, gender, and setting. Cut-off scores also vary widely depending on the population and setting, although a cut-off score between 6 and 8 has been commonly used to identify presence of common mental health disorders (Harding et al., 1980; Harpham et al., 2003; World Health Organization, 1994). For this study, we used a cut-off score of 7 or greater to identify presence of CMDs based on other similar studies among conflict affected African women (Ola et al., 2011). While reliability and validity of the SRQ-20 has been assessed in a number of different populations and settings, the SRQ-SIB does not have published psychometric validation.

This paper assesses the psychometric properties of a gold-standard field measure of symptoms of common mental health disorders. The purpose of this paper is to describe the results of exploratory factor analysis, as well as reliability and validity analyses of the SRQ-20 and a modified version of the SRQ (SRQ-SIB) in a sample of Congolese refugee women. We performed psychometric analysis on both the SRQ-20 and the SRQ-SIB in order to determine if the modified instrument performed better in determining mental health issues among conflict-affected women.

## Methods

### Sample and Administration

A total of 810 women were included in the study. The survey was administered in the fall of 2008 to conflict-affected women between 15 and 49 years of age living in the Nyabiheke and Gihembe refugee camps in northeast Rwanda. The survey was translated and back translated between English and Kinyarwanda and administered by local nurses and community health workers, fluent in the local dialect, who read each question to the participant.

The data collection was supported through the American Refugee Committee (ARC) with support from the Centers for Disease Control (CDC). The survey was part of a larger parent study that was intended for field staff and management of non-governmental organizations (NGOs) to identify and prioritize key women's health needs, translate priorities into programmatic responses, evaluate programs and policies, and to disseminate results for improving the reproductive health of women in the camps (Division of Reproductive Health, 2007).

### Human Subjects

The current analysis was exempt from review by the Institutional Review Board at the University of Michigan, Ann Arbor, Michigan, USA, as this was a secondary analysis of previously collected data. This study used de-identified data provided under a data use agreement with the American Refugee Committee. For the original study, in the absence of a formal IRB, the survey collection received approval from the local refugee council of both camps, the Rwandan Ministry of Health, and the local office of the United Nations High Commissioner for Refugees.

**Items and Scoring**

The SRQ-SIB evaluates CMDs that have occurred within a four-week time period (World Health Organization, 1994). The questions are scored dichotomously as *0* if the symptom was absent and as *1* if the symptom was present. The parent instrument, the CDC developed *Reproductive Health Assessment for Conflict-Affected Women,* included the two additional lifetime suicidality items. In an effort to increase the sensitivity of the measure, the two items have been added to the SRQ score and included in the scale as the SRQ-SIB. These two items ask, "Just now, we talked about problems that may have bothered you in the past 4 weeks. I would like to ask you now if, in your life, have you <u>ever</u> thought about ending your life?" and "Have you ever tried to take your life"? Each item is scored as either "yes", "no", or "no response." See Table 2.1 for a complete version of the SRQ-SIB.

**Procedures**

Some missing data was present out of the 22 items that make up the SRQ-20/SRQ-SIB. We chose to include these participants in the study out of respect for their choice to decline to answer upsetting or traumatic questions.

The psychometric properties of both the SRQ-20 and the SRQ-SIB were evaluated initially using descriptive statistics to assess the demographic characteristics and trauma history of the participants. We then assessed instrument scores, distributions, means, and standard deviations. Construct validity was assessed using exploratory factor analysis and analysis of variance statistics. Waltz, Strickland, and Lenz (2010) describe factor analysis as a useful approach to assessing construct validity (p.169). The MPlus (Muthen & Muthen, 2001) statistical analysis package was

used for factor analysis as it is designed for handling dichotomous data. MPlus is useful because it applies a probit in the place of ordinary least squares, important in analysis of dichotomous variables as a probit does not depend on having a normal distribution. Because Mplus uses a probit regression of each item on the factor, it allows for a non-linear relationship (Muthen & Muthen, 2001). Missing data were excluded from the MPlus analysis using the default setting.

While Mplus is the gold standard for exploratory factor analysis, the Statistical Package for the Social Sciences (SPSS) version 21.0 was used for all other statistical analysis. Internal consistency was assessed using Kuder-Richardson's alpha, which measures reliability in dichotomous items, as well as by examining item-total correlations. A small item-correlation indicates empirically that the item is not measuring the same construct measured by other items in the scale. A correlation value of less than 0.3 indicates that the corresponding item does not correlate well with the scale overall, and should be dropped (Fields, 2005).

## Results

### Demographic Characteristics

The average age of participants was 28.7(SD=12.1), with 37% being aged 20-29. The average length of time residing in the camps was 8.7 years (SD=14.8), while 50% reported living in the camp for more than 5 years. Approximately 68% reported that they were ever married. The average age at marriage was 19 years old (SD =8.0) and 71% of participants had ever been pregnant. Seventy percent of participants had ever attended school and 58% could read easily, while 53% reported that they could write easily. Seventy-three percent of the married participants' husbands had attended school

at some point. Religion and ethnicity were not assessed at the request of the camp governing board due to historical issues related to ethnic violence.

The SRQ-20 and the SRQ-SIB both detected at least one symptom of CMD in 85% of the sample. The SRQ-SIB detected 43% of participants above the cut point of 7, while the SRQ-20 detected 40%. Suicidal thoughts or intention were reported by 11%, while 36% reporting feeling unhappy, and 32% reporting being easily frightened. Five percent reported an unwanted sexual encounter, defined as improper sexual comments, being stripped of clothing, or unwanted kissing or touching during the conflict. However, 35% of participants reported any type of gender-based violence during or after the conflict, a figure that also includes sexual violence. Around 25% of participants reported the death of a child that was not due to stillbirth, with 3.5% of women reporting the loss of more than four children to death, not caused by stillbirth. See Table 2.2 for demographic representation of the sample.

**SRQ-20 and SRQ-SIB Score Profiles**

The mean score on the SRQ-SIB for the total sample was 6.2(SD=5.4). Women who answered "yes" to feeling unhappy, had a mean score of 11.4(SD=4.4). As expected, those with violence exposure and loss of children to death had higher scores. For women who reported the death of a child, the mean scores on the SRQ-SIB were 7.3(SD=5.4). Women who experienced any physical violence after the conflict demonstrated a mean score of 8.2(SD=5.8); while women reporting a forced sexual encounter at any time before, during, or after the conflict, displayed a mean score of 9.1(SD=6.5). Among women who answered "yes" on one or more suicide items, the mean score jumped to 14.2(SD=5.4).

Scores on the SRQ-20 were similar. The mean score for the total sample was 6.1(SD=5.2). Women who reported feeling unhappy had a mean score of 11.6(SD=4.5). For women who reported the death of a child, the mean scores on the SRQ-SIB were 7.3(SD=5.6). Among women who answered "yes" to any type of physical violence after the conflict, the mean score was 8.1(SD=5.6). Women who experienced a forced sexual encounter had a mean score of 9.0 (SD=6.0). Finally, women who reported any type of suicidal behavior had a mean score of 12.7(SD=5.2). See Table 2.3 for representation.

**Reliability**

Before conducting factor analysis, the internal consistency of the SRQ-SIB was assessed using Kuder-Richardson's alpha, which measures the alpha coefficient for dichotomous variables. An alpha coefficient of .70 or greater is generally thought to be acceptable (Pallant, 2010; Tabachnick & Fidell, 2007). The alpha coefficient for both instruments was .911, which indicates an excellent reliability by most (Waltz et al., 2010). Item-total correlation was also performed to evaluate the correlation of each item with total scores in which item-total correlation greater than 0.3 indicates acceptable correlation of each question with the total scale. Each of the 22 items in the SRQ-SIB was correlated higher than 0.3. See Table 2.4 for item-total correlations.

**Contrast Validity**

Contrast validity assesses the difference measured by an instrument between two different groups. An independent samples t-test was conducted to compare the functionality of both the SRQ-SIB to the SRQ-20 among women who had been forced to have sex during the conflict versus those who had not. The dependent variable was

whether a female participant had been forced to have sex during the conflict. The hypothesis that was tested was that there would be differences between the forced sex group versus those who were not forced to have sex. As hypothesized, the t-test revealed significant differences ($p<.05$) between the women who had been forced to have sex and those who had not. Results on the SRQ-20 and the SRQ-SIB were largely very similar. See Table 2.5 for statistical representation.

**Construct Validity**

Exploratory factor analysis was performed with binary variables to determine the number of factors that explained correlations among the items. We used weighted least squares with mean variance estimator and an oblique rotation, which assumes a correlation between the variables, for the 20 and 22 variables respectively. We determined the number of factors using the eigenvalues and scree plot, as well as by examining the conceptual meanings behind the factors. Using the Kaiser-Guttman rule, factors with eigenvalues larger than 1 were retained.

The chi-square test of model fit for the SRQ-20 was 171.201 and was highly significant ($p=.001$, df=133). The chi-square test of model fit for the SRQ-SIB was 284.62 and was also highly significant ($p<.001$, df=168). The model fit the data well if the following goodness of fit indices were satisfied: root mean square error of approximation (RMSEA) of less than or equal to 0.06; comparative fit index (CFI) of greater than or equal to 0.95; and Tucker-Lewis index (TLI) of greater than or equal to 0 (Hu & Bentler, 1999; Nisenbaum et al., 2004). In this analysis, a two-factor solution was determined for the SRQ-20 and a three-factor solution was determined for the SRQ-SIB, which was supported by the goodness of fit indicators given above. See Table 2.6

for comparison.

Items fell into factors based on symptomatology: psychological symptoms, somatic symptoms or physical complaints, and suicidality symptoms. Of the newly derived components of the SRQ-SIB, factor 1, Psychological Symptoms, contains ten items and has a reliability of .892; factor 2, Somatic Symptoms, contains nine items with a reliability of .807; and factor 3, Suicidality Symptoms, contains 3 items and has a reliability of .736. For the SRQ-20, factor 1, Psychological Symptoms, contains eleven items with a reliability of .867; factor 2, Somatic Symptoms contains nine items with a reliability of .707. See Table 2.7 for factor loadings and Table 2.8 for representation of the three-factor model.

Analysis of variance was conducted between groups to explore the impact of suicidal behaviors within the SRQ, based on four "SIB" groups, defined as 0, 1, 2, or 3 responses to SIB items. For the ANOVA, suicide items were removed from the total score in order to assess if the means were statistically different between those with SIB versus the remaining 19 items. The mean number of psychological and somatic symptoms increased in a dose response manner from 5 symptoms to 15 symptoms. There was a statistically significant difference at the $p<.05$ level in the SRQ scores with the four groups, $F(3, 756)=64.58$, $p<.001$. However, the three groups with any suicidality did not differ from each other in post-hoc comparisons using the Scheffe test. See Figure 2.1 for representation.

**Predictive Validity**

Predictive validity assesses the instrument's ability to predict something it theoretically should be able to predict (Waltz et al., 2010). Prior to performing logistic

regression to determine the predictive validity, the three newly-derived subscales and the SRQ-SIB were examined for multicollinearity. Collinearity statistics were well above the 0.1 suggested by Pallant (2010), indicating that the model does not have high correlations with other variables in the model.

Logistic regression modeling was performed to examine the measure of the association between scores on the instruments and having experienced sexual violence during the conflict. Modeling examined the SRQ-20 total score, followed by a second model examining the two subscales entered together, then the SRQ-SIB, and lastly a final model where the three subscales were entered together. All models were significant; however, the model with the three separate subscales of the SRQ-SIB explained the most variance ($R^2$=5.6%, *p*=.001), followed by the SRQ-SIB and SRQ-20 which explained 4.4% of the variance (*p*=.001) and 4.3% of the variance (*p*=.001) respectively. In the model with the three subscales, the SIB subscale was the only significant predictor (OR=1.739, *p*=.013) of having experienced sexual violence, meaning a person who scored highly on the SIB was close to 75% more likely to have experienced sexual violence during the conflict. The somatic subscale and psychologic subscales were not predictive of having experienced sexual violence in the SRQ-SIB; however, the somatic subscale in the SRQ-20 remained a significant predictor (OR=1.209, *p*=.049). See Table 2.9 for modeling.

**Discussion**

Validating a psychosocial instrument in new settings demands attention to many aspects of the make-up of the instrument, including semantics, conceptual equivalence, and content (Flaherty et al., 1988). Psychometric testing of the SRQ-SIB and SRQ-20 revealed that both instruments demonstrate a high degree of reliability and validity

among this sample of Congolese refugee women. Using MPlus for dichotomous variables, the exploratory factor analysis elicited a three-factor solution for the SRQ-SIB and a two-factor solution for the SRQ-20. Both the SRQ-20 and SRQ-SIB are potential tools for screening for common mental disorders among Congolese refugee women. However, while both the psychologic and somatic subscales for the SRQ-20 and the SRQ-SIB performed similarly, the suicidality subscale of the SRQ-SIB showed the most functionality. Furthermore, that a dose response relationship exists, where more SIB positive responses indicates more severe CMD status, highlights the suicidality subscale as a marker of severity. This addition of two questions regarding lifetime suicidality in the SRQ-SIB may allow for more precise knowledge about mental health, which could lead to targeted interventions that can address individual symptoms associated with mental health disorders.  Both instruments have value. The SRQ-20 has a long history of effective use at predicting common mental health issues in multiple settings.  However, the SRQ-SIB seems to be a more useful choice, as it can reveal more information about both suicidal ideation and behavior. The three-factor solution divided into three subscales of suicidality, somatic symptoms, and psychological symptoms could allow for analysis by individual subscale, with particular emphasis on the suicidality subscale. The SRQ-SIB may provide better opportunities to examine individual components based on the breakdown of the factor structure.

This study does have several limitations that are important to present.  First, the literature remains unclear on the use of factor analysis with dichotomous variables. There are few published studies of factor analyses of this type and those that are published, utilized different statistical packages and techniques. Next, the regression

model was fairly unbalanced due to the small number of women (n =40) who reported forced sex during the conflict, compared with those who had not (n=810), while maintaining a high level of significance. Further analysis of this instrument could include a dependent variable with a larger sample size. Finally, while the SRQ-20 looks only at events in the past four weeks, the two additional items in the SRQ-SIB look at lifetime events.

In summary, both tools represent excellent choices for screening for common mental disorders in a population of Congolese refugee women. This psychometric analysis is the first step in determining if the SRQ-SIB is a valid and reliable tool for understanding the prevalence of CMDs in a refugee population. This analysis will therefore lay the groundwork for future work in creating innovative interventions to improve both mental health among refugee women.

| Table 2.1<br><br>*SRQ-SIB* | | | |
|---|---|---|---|
| **No.** | **Questions and filters** | **Coding categories** | **Skip to** |
| Q1001 | The next questions are related to common problems that may have bothered you in the past 4 weeks. If you had the problem in the past 4 weeks, answer yes. If you have not had the problem in the past 4 weeks, answer no.<br>A. Do you have headaches?<br>B. Is your appetite poor?<br>C. Do you sleep badly?<br>D. Are you easily frightened?<br>E. Do your hands shake?<br>F. Do you feel nervous, tense, or worried?<br>G. Is your digestion poor?<br>H. Do you have trouble thinking clearly?<br>I. Do you feel unhappy?<br>J. Do you cry more than usual?<br>K. Do you find it difficult to enjoy your daily activities?<br>L. Do you find it difficult to make decisions?<br>M. Is your daily work suffering?<br>N. Are you unable to play a useful part in life?<br>O. Have you lost interest in things?<br>P. Do you feel that you are a worthless person?<br>Q. Has the thought of ending your life been on your mind?<br>R. Do you feel tired all the time?<br>S. Do you have uncomfortable feelings in your stomach?<br>T. Do you easily become tired? | **NR=No Response**<br><br>**YES NO NR**<br><br>A) headaches<br>1……..…2……..…9<br>B) appetite poor<br>1……..…2……..…9<br>C) sleep badly<br>1……..…2……..…9<br>D) frightened<br>1……..…2……..…9<br>E) hands shake<br>1……..…2……..…9<br>F) nervous<br>1……..…2……..…9<br>G) digestion poor<br>1……..…2……..…9<br>H) thinking<br>1……..…2……..…9<br>I) unhappy<br>1……..…2……..…9<br>J) cry more<br>1……..…2……..…9<br>K) not enjoy<br>1……..…2……..…9<br>L) decisions<br>1……..…2……..…9<br>M) work suffers<br>1……..…2……..…9<br>N) useful part<br>1……..…2……..…9<br>O) lost interest<br>1……..…2……..…9<br>P) worthless<br>1……..…2……..…9<br>Q) ending life<br>1……..…2……..…9<br>R) feel tired | |

| | | | |
|---|---|---|---|
| | | 1……..…2……..…9<br>S) stomach<br>1……..…2……..…9<br>T) easily tired<br>1……..…2……..…9 | |
| Q1002 | Just now, we talked about problems that may have bothered you in the past 4 weeks. I would like to ask you now if, in your life, have you <u>ever</u> thought about ending your life? | Yes 1<br>No 2<br>No Response 9 | |
| Q1003 | Have you <u>ever</u> tried to take your life? | Yes 1<br>No 2<br>No Response 9 | |

Table 2.2

*Characteristics of Sample*

| **Demographics**<br>**N=810** | |
|---|---|
| Age | 28.7 (SD=12.1) |
| Years in Camp- | |
| One year or less | 17% (138) |
| 2-5 years | 33% (264) |
| 5 years or more | 50% (408) |
| Ever Married | 68% (548) |
| Husband Ever Attended School | 73% (400) |
| Age at First Marriage | 19.4 (SD=7.8) |
| Children in Household | |
| 0 children | <1% (1) |
| 1-2 children | 29% (161) |
| 3-6 children | 41% (331) |
| 7 or more | 9% (70) |
| Ever attended school | 70% (567) |
| Cannot read easily | 42% (340) |
| Cannot write easily | 47% (389) |
| **Trauma History** | |
| Report Forced Sex during Conflict | 5% (40) |
| Report any gender based violence during conflict | 35% (284) |
| Had a child die (not due to stillbirth) | 25% (140) |
| *Values are %(n) unless stated otherwise | |

Table 2.3

*Comparison of SRQ-20 and SRQ-SIB*

| | **SRQ-20** | **SRQ-SIB** |
|---|---|---|
| Kuder-Richardson's alpha | .911 | .911 |
| Range | 20 | 22 |
| Mean | 6.15 | 6.24 |
| Standard Deviation | 5.49 | 5.63 |
| Variance | 30.16 | 31.74 |
| Median | 5 | 5 |
| % with a suicide symptom | 4% | 6% |
| % above the cut point of 7 | 40% | 43% |

Table 2.4

*Item Total Statistics*

| Corrected Item Total Correlation with Kuder-Richardson's alpha | | |
|---|---|---|
| | **Corrected Item-Total Correlation** | **Kuder-Richardson's Alpha if Item Deleted** |
| Do you cry more than usual? | .583 | .906 |
| Do you find it difficult to make decisions? | .601 | .906 |
| Is your digestion poor? | .417 | .910 |
| Do you become easily tired? | .563 | .907 |
| Do you find it difficulty to enjoy your daily activities? | .663 | .904 |
| Are you easily frightened? | .599 | .906 |
| Do your hands shake? | .386 | .910 |
| Do you have headaches? | .424 | .910 |
| Have you lost interest in things? | .628 | .905 |
| Is your appetite poor? | .507 | .908 |
| Do you sleep badly? | .577 | .906 |
| Do you have uncomfortable feelings in your stomach? | .413 | .911 |
| Has the though of ending your life been on your mind? | .484 | .909 |
| Do you feel easily nervous, tense or worried? | .597 | .906 |
| Do you have trouble thinking clearly? | .666 | .904 |
| Do you feel tired all the time? | .603 | .906 |
| Do you feel unhappy? | .684 | .904 |
| Are you unable to play a useful part in life? | .581 | .906 |
| Do you feel that you are a worthless person? | .616 | .906 |
| Is your daily work suffering? | .590 | .906 |
| Have you ever thought of ending your life? | .322 | .911 |
| Have you ever attempted to take your own life? | .317 | .911 |

Table 2.5
*Mean Comparison between Women who Experienced Forced Sex during Conflict and Those Who Did Not on SRQ-SIB and SRQ-20*

| | **Forced Sex During Conflict** | | **No Forced Sex During Conflict** | | | | |
|---|---|---|---|---|---|---|---|
| | **M** | **SD** | **M** | **SD** | **t** | **df** | ***p*** |
| **SRQ-SIB (n=37)** | 9.1 | 6.6 | 6.1 | 5.3 | -2.7 | 38 | .010 |
| **SRQ-20 (n=40)** | 8.8 | 6.0 | 6.0 | 5.1 | -3.4 | 770 | .001 |

Table 2.6

*Comparison of SRQ-SIB and SRQ-20 in MPlus*

| | **Normal Range** | **SRQ-SIB** | **SRQ-20** |
|---|---|---|---|
| **Root Mean Square Error of Approximation** | Less than or equal to 0.06 | 0.029 (90% CI 0.023, 0.035) | .03 (90% CI 0.024, 0.036) |
| **Comparative Fit Index** | Greater than or equal to 0.95 | .992 | .992 |
| **Tucker Lewis Index** | Greater than or equal to 0.95 | .989 | .990 |

*based on a three-factor solution for the SRQ-SIB and a two-factor solution for the SRQ-20

Table 2.7

*Oblique Rotated Loadings for the SRQ-SIB and SRQ- 20*

| **Item** | **SRQ-SIB Oblique Rotated loadings n=810** | | | **SRQ-20 Oblique Rotated loadings n=810** | |
|---|---|---|---|---|---|
| | **Factor 1 Psychological** | **Factor 2 Somatic** | **Factor 3 SIB** | **Factor 1 Psychological** | **Factor 2 Somatic** |
| Do you have headaches? | | .660 | | | .647 |
| Is your appetite poor? | | .564 | | | .549 |
| Do you sleep badly? | | .444 | | .384 | .427 |
| Are you easily frightened? | .347 | .481 | | .390 | .461 |
| Do your hands shake? | | .484 | | | .483 |
| Do you feel nervous, tense, or worried? | .588 | | | .647 | |
| Is your digestion poor? | | .604 | | | .606 |
| Do you have trouble thinking clearly? | .806 | | | .836 | |
| Do you feel unhappy? | .831 | | | .890 | |
| Do you cry more than usual? | .528 | | | .698 | |
| Do you find it difficult to enjoy your daily activities? | .895 | | | .910 | |
| Do you find it difficult to make decisions? | .841 | | | .859 | |
| Is your daily work suffering? | .866 | | | .810 | |
| Are you able to play a useful part in life? | .833 | | | .888 | |
| Have you lost interest in things? | .807 | | | .827 | |
| Do you feel that you are a worthless person? | .751 | | | .812 | |
| Has the thought of | | | .832 | .661 | |

| | | | | |
|---|---|---|---|---|
| ending your life been on your mind? | | | | |
| Do you feel tired all the time? | .628 | | | .632 |
| Do you have uncomfortable feelings in your stomach? | .764 | | | .778 |
| Do you become easily tired? | .846 | | | .873 |
| Have you EVER thought of ending your life? | | .994 | -------- | ------ |
| Have you EVER tired to take your life? | | .717 | -------- | ------ |

Table 2.8

*SRQ-SIB Three Factor Model*

| Item | Somatic | Psychological | Suicidality |
|---|---|---|---|
| 1 | Do you have headaches? | Do you have trouble thinking clearly? | Has the thought of ending your life been on your mind? |
| 2 | Do you have uncomfortable feelings in your stomach? | Do you feel unhappy? | Have you ever thought of ending your life? |
| 3 | Do you become easily tired? | Are you easily frightened? | Have you ever attempted to take your own life? |
| 4 | Is your appetite poor? | Do you find it difficult to make decisions? | |
| 5 | Is your digestion poor? | Do you feel easily nervous, tense, or worried? | |
| 6 | Do you sleep badly? | Have you lost interest in things? | |
| 7 | Do your hands shake? | Do you find it difficult to enjoy your daily activities? | |
| 8 | Do you feel tired all the time? | Is your daily work suffering? | |
| 9 | | Are you unable to play a useful part in life? | |
| 10 | | Do you cry more than usual? | |
| 11 | | Do you feel that you are a worthless person? | |

Table 2.9

*Logistic Regression of SRQ-20 and SRQ-SIB Total Scores and Subscales as Predictors of Being in the Group of Women who Experienced Forced Sex during the Conflict*

| **Model** | ***p*-value** | **Exp(B)** | **95% Confidence Interval** | |
|---|---|---|---|---|
| | | | **Lower** | **Upper** |
| 1. SRQ-20 | .001 | 1.109 | 1.045 | 1.177 |
| $R^2$=4.3%, $p$=.001 | | | | |
| 2. Somatic subscale | .049 | 1.209 | 1.001 | 1.460 |
| Psychological subscale | .541 | 1.042 | .941 | 1.187 |
| $R^2$=4.5%, $p$=.003 | | | | |
| 3. SRQ-SIB | .001 | 1.102 | 1.043 | 1.164 |
| $R^2$=4.4%, $p$=.001 | | | | |
| 4. Somatic subscale | .147 | 1.137 | .956 | 1.354 |
| Psychologic subscale | .761 | .977 | .840 | 1.136 |
| SIB subscale | .013 | 1.739 | 1.126 | 2.684 |
| $R^2$=5.6%, p=.003 | | | | |

*$p$-value is set at .05, $R^2$ measured using Nagelkerke's R

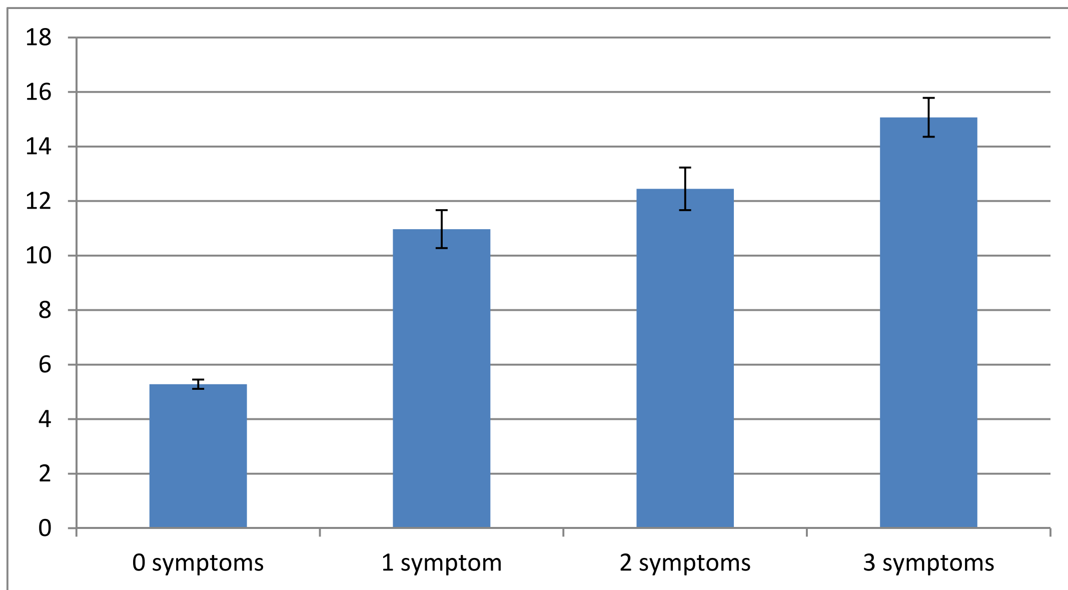


*Figure 2.1*: Dose response relationship of the SRQ-SIB with mean scores on SRQ-SIB with SIB items removed.

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# Chapter 3

## Understanding the Effects of Mental Health on Reproductive Health Post-Crisis: A Mixed Methods Approach

With over 20 million refugee women and children in the world at this time, the health of displaced women and children is a serious concern (United Nations High Commission for Refugees, 2010). Humanitarian crises (defined as armed conflict, famine, epidemics, or natural disaster) resulting from either man-made causes or natural disasters occur worldwide but the effects are felt much more acutely in the poorest countries of the world where access to resources and health care are already less than optimal (Cohen, 2009). Countries affected by humanitarian crises rank among the lowest in child and maternal indicators of well-being, including health status, family planning use, and infant mortality (Women's Refugee Committee, 2009). While a growing body of literature has represented this population in recent years, refugee health is often in the realm of humanitarian aid organizations and international development agencies, few of which have dissemination in the academic literature as a mandate. This likely accounts for the relatively small body of research-based literature, especially in terms of reports on interventions (Reynolds & White, 2010), as research often focuses on funding agency aims (Almedom et al., 2003). However, there is an agreement that in humanitarian crises, women have unique and gendered health needs

that must be addressed with continuing research (Al Gasseer et al., 2004; Carballo, Grocutt, & Hadzihasanovic, 1996; Tol & van Ommeren, 2012). These needs likely encompass both mental health and reproductive health realms. Positive reproductive health outcomes depend to some extent on women using reproductive health services for treatment of infections, use of some type of family planning methods, and use of prenatal care. Likely there are numerous factors that could impinge on women's use of these services. One area that has been almost entirely understudied is mental health status.

**Mental Health Indicators**

Women affected by humanitarian crises have significant trauma-related mental health concerns (Al Gasseer et al., 2004; Amowitz, Heisler, & Iacopino, 2003). Refugees experience depression and posttraumatic stress disorder (PSTD) at more than double the rate of the United States population (Mollica et al., 2004), but may live in areas where open discussion about mental health issues is stigmatized (Ola et al., 2011). Mental health morbidities have been described as the most pronounced of all health outcomes associated with migration, culture conflict, and resettlement (Carballo, Grocutt, Hadzihasanovic, 1996). Al Gasseer and colleagues (2004) report that mental health issues resulting from the combined effects of displacement, poor nutrition, lack of access to care, decreased support systems, increased care giving burden, and exposure to trauma all contribute to women's short term or long term mental health. Women displaced due to humanitarian crisis are disadvantaged in addressing mental health concerns through limited access to services, as mental health services are sparse in the immediate aftermath of a crisis. Since both trauma exposure and

posttraumatic spectrum mental health morbidity have been associated with adverse patterns of women's health outcomes and childbearing outcomes in times of peace and in non-conflict circumstances as well (Leeners, Stiller, Block, Gorres, & Rath, 2010; Seng, Clark, McCarthy, & Ronis, 2006), addressing both appears to be a significant need among women in crisis situations.

**Reproductive Health Indicators**

Reproductive health service use within refugee camps has received growing attention from funding bodies, but little empiric data exists in the literature on service use within camps. Reproductive health service use can encompass many dimensions, however, this study focuses specifically on the measurable indicators of family planning, antenatal care, HIV/AIDS screening, and sexually transmitted infection (STI) care. These are key indicators in the Minimum Initial Services Package for reproductive health in humanitarian crisis, a set of guidelines for determining reproductive health services in post-disaster/conflict settings (Women's Refugee Commission, 2011). Support for addressing these indicators comes from data that is currently available. For example, a UNAIDS (2003) study examining the prevalence of STIs in refugees in Rwanda found high rates of infection among women who attended antenatal care clinics (trichomonas 31%, syphilis 4%, and gonorrhea 3%). Family planning is a challenge for displaced women, as multiple barriers exist including access to contraception, limited health facility availability, and relational aspects pertaining to gender that prevent women from seeking family planning resources. According to one report, approximately 58% of women in internally displaced person camps in Uganda reported an unmet need (defined as the condition of wanting to avoid or postpone childbearing) for family

planning, compared to the national average of 40.6% (Uganda Bureau of Statistics and Macro International, 2006). In four countries with a high rate of displaced women (Rwanda, Togo, Ethiopia and Uganda) approximately 35% of women aged 15-49 reported an unmet need for family planning, while only 18% of married women in sub-Saharan Africa used any type of family planning (Casterline & Sinding, 2000; Sedgh, Bankole, Hussain, & Singh, 2007). However, the need for family planning remains great. The United Nations Children's Fund (UNICEF) estimates that, in a crisis situation, one in five women of childbearing age are pregnant. Antenatal care is an issue as well. In sub-Saharan Africa, where much of the world's displaced women live, 34% of women do not receive any antenatal care (UNICEF, 2012).

**Agency**

The conceptual definition for women's agency in this study is the capacity of a woman to act independently and to make choices freely (Bell, 2011). Agency is perhaps a stronger representation than empowerment which carries the implication of assistance by someone in a position of power. The concept of women's agency is strongly grounded in feminist examinations of power relations (Fadlalla, 2007; Neidell, 1999), and provides an excellent tool for understanding women's responses to reproductive health care after trauma exposure. Agency has been linked to increased family planning use, reproductive health decision-making, and sexual knowledge among women in peacetime settings (Curtin, Ward, & Caruthers, 2011). Agency has also been theorized as a factor associated with mental health and reproductive health in limited studies (Lesch & Kruger, 2004). The idea of agency supports the development of women while avoiding the understanding of women as victims (Chetcovitch, 2004). Advancing an

understanding of agency can help to contextualize the individual aspects of a refugee woman's life, so that broader applications to health can be grasped on a micro level.

The purpose of this analysis was to use data collected from two large refugee camps to test the hypothesis that mental health status and reproductive health service use are associated, while examining agency as an intermediate factor. The priority research question was: "Is poor mental health related to the non-use of reproductive health services?"

## Methods

### Design

This mixed methods study incorporates key informant interviews with quantitative data, a novel research method that was specifically incorporated to extend the level of knowledge and understanding beyond that available from survey data alone. This approach is consistent with a recent report of best practices from the National Institutes of Health describing the need for new methodologies in health research in order to better improve both the quality and the power of data, including research that incorporates "real-life contextual understandings, multi-level perspectives, and cultural influences" alongside "rigorous quantitative data" (Creswell, Klassen, Plano, & Smith, 2011). The approach used in this study deliberately uses qualitative research after quantitative as a means of responding to findings that could not be answered by further analysis of survey data. The quantitative portion of this study was cross-sectional in design, using survey data collected in July and August 2008 by the American Refugee Committee. The qualitative portion included informant interviews with professional staff, along with email correspondence. These were conducted post-hoc with two individuals,

a former camp manager and a survey administrator. The qualitative results of this study complement the quantitative findings by offering a broader understanding of the setting and context in which the empirical data were situated.

**Human Subjects**

The current analysis was determined to be exempt from review by the Institutional Review Board at the University of Michigan, Ann Arbor, Michigan, USA, as this was a secondary analysis of previously collected data. This study used de-identified data provided under a data use agreement with the American Refugee Committee. For the original study, in the absence of a formal IRB, the survey collection received approval from the local refugee council of both camps where data was collected, the Rwandan Ministry of Health, and the local office of the United Nations High Commissioner for Refugees.

**Data**

The data utilized was collected by the American Refugee Committee in July and August 2008. This dataset was most appropriate for answering the specific research question because it included variables specific to mental health, reproductive health, and variables that represented a proxy for women's agency.

**Sample**

The sample consists of Congolese refugee women living in the Nyabiheke and Gihembe camps in Northwest Rwanda. The sample was drawn from the larger population of the two camps, Gihembe having 20,000 total residents, and Nyabiheke having 15,000 total residents. All participants were African women, and all were citizens of the Democratic Republic of the Congo currently residing in Rwanda. The women were of reproductive age, 15-49 years old. Inclusion criteria were women ages 15-49,

residing in one of two refugee camps, and history of reported displacement from their home of origin due to war-related conflict.

Two-stage random sampling using household lists was used. In this method of sampling, households were randomly selected and then a woman of reproductive age was randomly selected from the household. The household lists provided to the American Refugee Committee contained the necessary elements described by the toolkit for random sampling, including the total population, total number of households, and the breakdown of households by categories (Division of Reproductive Health, 2007). Women received a small incentive (e.g., a bar of soap, toothbrush, and toothpaste) for participation. No one selected for the survey refused participation. The total sample includes 810 women, 405 from each of the camps. As explained below, the number used in each model varies based on logical inclusion and exclusion criteria in relation to each outcome of interest.

**Survey Development**

**Reproductive health assessment for conflict affected women.** The survey used for data collection is the Reproductive Health Assessment Questionnaire for Conflict Affected Women (Division of Reproductive Health, 2007). The Reproductive Health Assessment Questionnaire for Conflict-Affected Women was developed by the Centers for Disease Control with the purpose to identify and prioritize reproductive health needs, evaluate programs and policies, and to disseminate results for improving the reproductive health of the women surveyed. This survey was developed based on an unmet need for accurate reproductive health data among conflict-affected populations. Originally developed in 2003 (and pilot tested in Ethiopia, the Democratic

Republic of Congo, and Columbia), the current version was adapted specifically for the local population.

Surveys were translated into Kinyarwanda, the official language of Rwanda, and reviewed for correctness by local staff, then administered by American Refugee Committee staff who received training in survey administration. Because of low literacy levels of many participants, a two-step informed consent process was used. In the first step, a community health worker went to households selected for inclusion, explained the survey and received verbal consent from the participant. The participant was given a consent form to take to her interview. In the second step, the women went to a central location where interviews were being conducted. The interviewer then obtained written consent, which was attached to their survey form, and then administered the survey.

**Measures**

**Mental health.** Aspects of mental health were measured by the Self Report Questionnaire (SRQ-20), a 20-item scale that screens for common mental health disorders (CMD) in primary care settings that have occurred within a four week time period (World Health Organization, 1994). The questions are scored as *0* if the symptom was absent and as *1* if the symptom was present. The SRQ-20 includes one item about current suicidal thoughts. In an effort to increase sensitivity of the questionnaire to severe, chronic distress, two questions about lifetime suicidal thoughts and attempts that were not part of the SRQ-20 were added to the score in this analysis, thus creating a 22-item instrument and a modified version of the SRQ-20, termed the SRQ-SIB (for suicidal ideation and behavior). See Table 3.1 for total SRQ-SIB. The reliability of the 22-item scale was .911. Factor analysis of the SRQ-SIB revealed three

unique subscales, Psychological symptoms which contains ten items and has a reliability of .892: Somatic symptoms which contains nine items and has a reliability of .807; and Suicidality symptoms which contains 3 items and has a reliability of .736 (see companion paper 2).

The SRQ-20 has been widely used in the developing world, including studies in Rwanda and Nigeria (Ola et al., 2011; Scholte et al., 2011) and is usually administered by lay interviewers. Cut-off scores vary widely depending on the population and setting, although a cut-off score of 7 to 8 has been commonly used to diagnose a mental disorder (Harding et al., 1980; World Health Organization, 1994). For this analysis, we used a cut-off score of 7 or greater based on other similar studies among conflict affected African women, which used similar scores (Ola et al., 2011).

Trauma exposure is an important antecedent to mental health morbidity in women generally and especially in post-conflict and post-disaster settings. The survey queries history of conflict and post-conflict gender-based violence by assessing traumatic experiences such as death of a child not due to stillbirth, physical violence during and after the conflict, and sexual violence during and after the conflict.

**Demographics and agency index.** Demographic indices included age, length of time residing in camps, ever married, husband ever attended school, age at first marriage, and number of children in the household.

We developed an agency index to use as a proxy for agency given that no formal measurement tools exist. A recent World Bank policy paper described education as a proxy for empowerment, stating "education (a human asset) often gives an actor greater access to information (itself an asset) and at times improves his/her capacity to envision

alternative options (a psychological asset)" (Alsop & Heinsohn, 2005). With this information, a high level of agency was defined in this study as someone who can read, write, and went to school (with low agency being the opposite). The 0 to 3 sum of reading, writing, and going to school was used as a numerical index of agency.

**Reproductive health services.** Four aspects of reproductive health services were identified as contributing to the research question that were also assessed in the original survey: antenatal care, family planning use, HIV screening, and STI treatment seeking. These four dependent variables were chosen based on their important place in global health policy including their prominent place in the Minimum Initial Services Package for Reproductive Health (Women's Refugee Commission, 2011).

Family planning use was assessed by asking a yes or no answer to the question, "Are you currently using any method to delay or avoid pregnancy?" Sexually transmitted infection screening was assessed by asking a yes or no answer to the question, "The last time you had any unusual genital discharge, genital ulcers, or sores, did you seek treatment?" Antenatal care use was assessed by asking the yes or no question, "Did you see anyone for antenatal care for this pregnancy?" to women who were currently pregnant or who reported being pregnant in the last two years. HIV screening was assessed with a yes, no, or don't know response by asking, "I don't want to know the result, but have you ever had an HIV/AIDS test?"

The sample used for analyses of these outcomes varies based on responses about their reproductive health. Women with a pregnancy in the past 2 years (n=315) were included in the analysis of prenatal care utilization. For the analysis of family planning method use, those who were sexually active (n=582) were included, and those

currently pregnant (n=77) or wanting a child in the next 12 months (i.e., desiring pregnancy, n=296) were excluded. Those with symptoms or risk from “unexpected intercourse” were included in modeling of HIV Testing and STI treatment seeking behaviors. See Table 3.2 for operationalization of each dependent variable and Table 3.3 for a representation of women included in each analysis given logical skip patterns.

**Quantitative Analysis**

Data was analyzed using IBM SPSS version 21.0 (IBM Corporation, 2012). Some missing data was present out of the 22 items that make up the SRQ-SIB. We chose to include these participants in the study out of respect for their choice to decline to answer upsetting or traumatic questions. Missing data are noted in each table. Univariate statistics were employed to describe the sample's characteristics. Bivariate tests were conducted to assess whether those who do and do not use reproductive health services differ from each other on demographic, reproductive status, trauma history, mental health, or agency characteristics.

Since the survey consisted of dichotomous data, logistic regression was employed to test the relationship between mental health status via the SRQ-SIB and the women's reproductive health outcomes. Four dependent variables were examined using logistic regression modeling: antenatal care utilization, family planning uptake, HIV testing behavior, and STI treatment seeking behavior. Agency was hypothesized as an intermediary factor, and was included in each model. A *p*-value of 0.05 or below was considered statistically significant.

**Qualitative Analysis**

The qualitative component was added to better understand the quantitative data, as described above. The volume of information was small, but a systematic process was applied. Data collection procedures included telephone interviews with camp personnel and agency representatives. Written notes were collected and analyzed by two experts with experience in women's mental health. Thematic analysis (Hayes, 2000) was employed to recognize, analyze, and describe themes within the data and draw conclusions from the data (Miles, M. & Huberman, 1994). Qualitative validity was assessed using Lincoln and Guba's (1985) four criterion: credibility, transferability, dependability, and confirmability. After analysis, the themes that emerged were triangulated against quantitative data.

## Results

### Demographics

A total of 810 women were included in the study. The average age of participants was 28.7 (SD=12.1). The average length of time residing in the camps was 8.7 years (SD=14.8). Approximately 68% reported that they were ever married and the average age at first marriage was 19.4 years (SD=7.8). Seventy percent of participants had ever attended school and 58% could read easily, while 53% reported that they could write easily. Seventy-three percent of the married participants' husbands had attended school at some point. The average age of marriage was 19 years (SD =8.0) and 71% of participants had ever been pregnant. Religion and ethnicity were not assessed at the request of the United Nations High Commission for Refugees due to historical issues related to ethnic violence. See Table 3.4 for sample description.

**Mental health and trauma exposure**

The majority of women in this sample reported at least one emotional health symptom (87%). The mean score on the SRQ-SIB for the total sample was 6.2(SD=5.6). Using a cut-off of 7, 42.5% of the sample would be considered to be suffering mental distress consistent with a CMD (e.g., anxiety, depression, or posttraumatic stress). Suicidal thoughts or attempts were reported by 11%.

Although the SRQ is a global assessment of mental health status and not linked to specific conditions, its face validity was supported in these data by mean scores that varied in relation to the types of stressors, trauma exposures, and loss that are known risk factors for mental health morbidity. Trauma seemed to play a significant role in high symptom levels as women who reported a traumatic event had mean scores that were higher than the total population. Approximately 35% of participants reported gender-based violence during or after the conflict, a figure that also includes sexual violence. Around 25% of participants reported the death of a child that was not due to stillbirth, with 3.5% of women reporting the loss of more than four children to death. For women who reported the death of a child, the mean score was 7.3(SD=5.7) Women who experienced any physical violence after the conflict had a mean score of 8.2(SD=5.8), while women who reported a forced sexual encounter during the conflict had a mean score of 9.1(SD=6.5). Among women who answered "yes" on one or more suicide items, the mean score jumped to 14.1(SD=5.5). See Table 3.5 for representation.

**Reproductive Health**

We looked at four main variables representing reproductive health: antenatal care, HIV testing, STI screening, and family planning use. Pregnancy history and

outcome information was asked of women with at least one pregnancy in the last two years (n=315) while sexual health questions were asked of all sexually active women (n=582). The majority of the participants had been pregnant at least once (71%), and 39% had been pregnant in the last two years. Over 90% of the participating women had received antenatal care with their most recent pregnancy. Only 11% of the total sample were using any form of family planning. Of women who were sexually active, 13% were using some form of family planning. In terms of HIV screening, 81% of the total sample reported receiving an HIV test and 96% of those were tested during a recent pregnancy. Of the 539 women who reported at least one symptom of an STI, only 7% sought treatment.

**Hypothesis testing**

Logistic regression was performed in order to determine the extent to which mental health status was associated with and reproductive health service use. See Table 3.7 for depiction. Counter to the hypothesis, scores on the measure of mental health status (the SRQ-SIB) were neither consistently nor strongly associated with use of reproductive health services.

In the first model, testing the SRQ-SIB as a predictor of antenatal care use, neither agency nor the SRQ-SIB was predictive of antenatal care use ($R^2$=.012, *p*=.447). Likewise, in the second model the SRQ-SIB did not reach significance as a predictor of family planning use ($R^2$=.001, *p*=.996). Neither agency nor the SRQ-SIB was predictive of family planning use ($R^2$=.000, *p*=.980).

The third model tested the SRQ-SIB and agency as predictors of HIV testing. Each of the models was close to or at the .05 significance level. In the first regression,

agency is not a significant predictor of seeking an HIV test; however, the SRQ-SIB was, with higher scores predicting ($R^2$=.012, $p$=.057). Looking at HIV testing among sexually active women only, agency became highly significant ($R^2$=.012, $p$<.001) while the SRQ-SIB did not reach significance ($R^2$=.057, $p$=.991). Adding the variable of having an unexpected sexual encounter as a predictor was not significant in this model ($R^2$=.058, $p$=.999).

In the final model, predictors associated with STI screening and mental health did reach statistical significance. With STI screening, higher scores on the SRQ-SIB were associated with being more likely to seek STI treatment ($R^2$=.059, $p$=.008).

**Informant Interviews**

This pattern of quantitative results generated additional questions that could not be answered by data from the survey and statistical methods alone. It became clear that more information was needed in order to situate the quantitative findings. Key informants who were camp employees and agency representatives were interviewed to provide information about the camps, the reproductive health and mental health services in place, and the conduct of the survey project. This qualitative information shed light on the findings and permitted some cautious interpretation.

Questions that emerged included: "Why was there a disconnect between low levels of literacy, but high levels of reproductive health services use?" "What types of mental health and reproductive health services are available?" "Why were some aspects of reproductive health appropriately utilized (e.g., antenatal care), while some were underutilized (e.g. family planning, STI testing when symptomatic)?"

This qualitative analysis allowed for the identification of four key points: 1) social and economic realities, 2) lack of agency, 3) mental health care and 4) services. The first key point that emerged was the social and economic reality in which the participants resided during the study time period. Interviews revealed that no one refused to participate in the study. As refugees, the participants are guests of the Rwandan government. As guests they are not permitted to work outside of the camp and therefore have highly limited sources of income. The incentive for participation, although very small (e.g., a care package of bar of soap, toothpaste and toothbrush) was enough that a larger number of women wanted to be included than was needed to meet target sample sizes. The social and economic realities are closely tied into next key point.

The second key point that emerged was lack of agency. While agency scores were quite high, agency was not a strong predictor in statistical modeling. However, closely linked to social and economic realities of the setting, multiple constraints exist that prevent women from utilizing agency to succeed in terms of advanced education, career, or even trade opportunities. Sex work is common, especially in one camp that is close to the border with the Uganda, as there are so few economic opportunities for the women residing in the camps. Many camp residents choose to leave the camp for other parts of Rwanda where trade, education, and work opportunities are greater. As registered refugees, they can still return to the camp as needed for health care and to receive other camp benefits including food rations. Although this practice is frowned upon, it is very common as it offers a chance at improving life circumstances that is not possible in a crowded, underfunded refugee camp. Thus, although women in the

camps varied in their scores on our proxy for agency (which was derived from their self-reported literacy and education history), other factors inherent in daily survival in a crowded refugee camp impinge on agency.

Mental health needs were another key point, but one where information was sadly lacking. Mental health services are provided by one social worker with limited training in mental health care, and split between two camps, with a total of 35,000 refugees who had fled civil war and genocide. Among a population known to have experienced significant trauma, the lack of mental health resources is surprising.

The final key point that emerged related to services available. All health care is free, although some services are limited or not available. Health care is provided in cooperation with the Rwandan Ministry of Health and camp residents can be referred to district level facilities if advanced care is needed. Antenatal care is available and free providing a possible explanation for the 90% use. Community health workers encourage pregnant women to attend clinics (where HIV testing is part of comprehensive antenatal care), and will visit their homes multiple times to encourage them to come for a visit,. While family planning services were noted by informants to be available, they were not promoted, and were available only on request, which likely accounts for at least part of the reason why there is such a low percentage of women who were using any form of contraception. Reasons for non-use were could be specifically culturally based but additionally, given the low literacy rates of the population and the lack of donor focus on family planning, many women may not have been comfortable having to specifically request family planning services since they were not routinely offered. The informants interviewed gave very consistent descriptions and explanations converging on clear

themes that could be cross-validated in the notes and which were affirmed in conversation with the last informant (Lincoln & Guba, 1985).

## Discussion

This study gives insight into the status of reproductive health services and mental health status among refugee women and is supported by key informant interviews. The purpose of this analysis was to test the hypothesis that mental health would impinge upon use of reproductive health services in two refugee camps. This study has established that serious mental health issues do indeed exist in the Rwandan refugee camps studied. The 11% rate of suicidality mirrors findings in Nigerian refugee camps (Akinyemi, Owoaje, Ige, & Popoola, 2012). Additionally, the SRQ-SIB gives important insight into the significant level of psychological distress that women in this post-conflict community are experiencing. This includes the mean score of 14.1 on the SRQ-SIB among women who answered "yes" to at least one suicidal symptom. However, counter to the hypothesis, scores on the measure of mental health status were neither consistently nor strongly associated with use of reproductive health services.

In order to achieve effective maternal/child health outcomes in crisis situations, women's health service delivery models must attend to both mental health and reproductive health domains, separately or in tandem. In keeping with the findings of this study, recent research suggests that CMDs are much more prevalent than commonly reported and indicate that routine screening in public health facilities may be the best route for identification and treatment (Kagee, Tsai, Lund, & Tomlinson, 2013).

The floor effect seen with the STI and family planning models and the ceiling effect seen with the prenatal care and HIV testing models are an alternative explanation

for the lack of predictive utility of the theoretical model. These high rates of certain types of reproductive health care suggest that reproductive health service coverage is nearly comprehensive, perhaps because of funding support and structures in place such as community health workers, while for other types of care, such as family planning, the structural supports are not in place. Since some key indicators for women's health (antenatal care and HIV screening) are being met quite well, there appears to be room for screening for CMDs at the time of antenatal care visits. Additionally, community health awareness that focuses on women's health can potentially be expanded to include mental health awareness, which can lead to progress in decreasing the stigma that is associated with mental health (Ola et al., 2011).

To understand this unexpected finding from the quantitative analysis, it was useful to broaden the scope of the project to add on a post-hoc qualitative component to help interpret the database results. To that end, the qualitative exploration shed light on the quantitative findings and permitted some cautious interpretation, with recommendations for further research and implications aimed at improving women's health in crisis situations. These contextual narrations rendered the statistical patterns more coherent. On a broad scale, the response to Millennium Development Goal 5, to improve maternal health, has been to focus on reproductive health, while mental health has largely been sidelined. Informant interviews support that there is little integration of mental health services with other health care services and very few mental health services are available at all. In fact, mental health services were only being provided by one social worker with some training in mental health care. This social worker was split between two camps, with a total of 35,000 refugees who had fled civil war and

genocide. In terms of reproductive health service use, community health workers do target women who are pregnant and bring them to antenatal care appointments where HIV screening is incorporated. However, mental health and agency were largely unrelated to health service use since the decision to seek care appeared to be strongly supported, encouraged, and debatably imposed by the community health workers and camp personnel. It appears that the mental health status of most women was not routinely assessed, which therefore cannot be a strong factor in health care workers' decisions on the type and amount of care provided or recommended. With these strong community supports, which appeared to be in place for reproductive health services but not in place for mental health services, an opportunity exists for promoting both mental health and reproductive health services together in tandem

A synthesis of the qualitative and quantitative findings suggests that the effect of extrinsic constraints is perhaps far more powerful than the effects of individual intrinsic mental health or agency. The most frequently referred to intrinsic factor noted in the qualitative interviews was agency. Women's agency should not be considered unimportant, so much as strongly constrained. It should continue to be taken into account, but future studies should consider measuring perceptions of context by women, as well as measuring actual information at the contextual level, including analysis using variables about the actual context with using multi-level models. The effect of having multiple constraints on capacity to act in one's own best interest may have an impact on mental health above and beyond grief, trauma exposure, and the stress of life in the camps. Mental health and reproductive health service use may also play out as extrinsic factors that may have a stronger influence than agency. These

factors could be manifested as camp services and provisions or regulations, including access to services or issues with the services themselves.

Mental health initiatives are slowly on the rise throughout sub-Saharan Africa. Liberia, which had one psychiatrist in the entire country after the end of its civil war, now has a sustainable mental health initiative in place to improve the functioning of persons living with mental illness (Carter Center, 2013). Uganda and Ethiopia are part of a global consortium of partners in the PRIME (Program for Improving Mental Health Care) project, launched in 2011, which seeks to implement and scale up mental health treatment programs in primary and maternal health contexts (Lund et al., 2012). Additionally, a sociotherapy intervention in Rwanda for survivors of mass violence demonstrated a lasting improvement in SRQ-20 scores (Scholte et al., 2011). However, addressing mental health will remain a burden as long as funding agencies such as the US Agency for International Development, which will only support mental health initiatives if they are tied to a MDG (UN Office for the Coordination of Humanitarian Affairs, 2013) avoid making it a priority.

The findings of this study have several limitations. First, this is a secondary analysis of an existing database. Second, there is the potential for underreporting of symptoms as issues surrounding disclosure of mental health as well as history of sexual violence in Africa are significant (Bartels et al., 2012; Ola et al., 2011). Third, there is the potential that participants may not have fully comprehended the questions in the survey, although pilot testing of the survey occurred before it was administered potentially curb this problem. However, despite pilot testing, the inherent meanings of concepts such as "happiness" and "fright" must be contextualized to the setting and

population (Scholte et al., 2011). Interpretation of both of these emotions could depend on the cultural context. Finally, additional modeling to refine the theoretical model on a factor such as STI testing among the symptomatic women where mental health and agency may play more of a role would be a valuable contribution. Given the dearth of information in the literature about mental health and reproductive health of refugee women who have not been resettled, this large database study represents a significant contribution.

## Conclusion

With this study, more knowledge was gained about the health needs of this population who have experienced significant trauma, including genocide and war. This study gives a picture of mental health and reproductive health in Rwandan refugee camps. Integration of survey and interview data indicate that mental health services are badly needed and that, given the better availability of reproductive health services, there may be missed opportunities for addressing mental health needs via integrated programs. Since mental health care services are lacking, providing care for both reproductive and mental health needs at the same time could lead to better outcomes. A significant implication is that those who develop, implement, and evaluate women's health services in humanitarian crises likely need to take the very significant burden of mental health morbidity into account in order to optimize women's overall health outcomes, not only reproductive health outcomes. Since child health and developmental outcomes in crisis situations also likely depend on maternal health broadly defined, women's health service delivery models need to attend to both psychological and physical/reproductive health domains, separately or in tandem.

Although mental health care and reproductive health care are not usually delivered in tandem, the disparity in provision of mental health needs might be most readily redressed by attaching them to the well-established and more universal HIV and prenatal care services.  Integrating primary mental health care into reproductive care services could help to achieve key outcomes, including Millennium Development goals 3 (Promote gender equality and empower women), 4 (Improve maternal health), and 5 (Combat HIV/AIDS) (United Nations, 2010).

| Table 3.1<br><br>*SRQ-SIB* | | | |
|---|---|---|---|
| **No.** | **Questions and filters** | **Coding categories** | **Skip to** |
| Q1001 | The next questions are related to common problems that may have bothered you in the past 4 weeks. If you had the problem in the past 4 weeks, answer yes. If you have not had the problem in the past 4 weeks, answer no.<br>U. Do you have headaches?<br>V. Is your appetite poor?<br>W. Do you sleep badly?<br>X. Are you easily frightened?<br>Y. Do your hands shake?<br>Z. Do you feel nervous, tense, or worried?<br>AA. Is your digestion poor?<br>BB. Do you have trouble thinking clearly?<br>CC. Do you feel unhappy?<br>DD. Do you cry more than usual?<br>EE. Do you find it difficult to enjoy your daily activities?<br>FF. Do you find it difficult to make decisions?<br>GG. Is your daily work suffering?<br>HH. Are you unable to play a useful part in life?<br>II. Have you lost interest in things?<br>JJ. Do you feel that you are a worthless person?<br>KK. Has the thought of ending your life been on your mind?<br>LL. Do you feel tired all the time?<br>MM. Do you have uncomfortable feelings in your stomach?<br>NN. Do you easily become tired? | **NR=No Response**<br><br>**YES NO NR**<br><br>A) headaches<br>1………..2………..9<br>B) appetite poor<br>1………..2………..9<br>C) sleep badly<br>1………..2………..9<br>D) frightened<br>1………..2………..9<br>E) hands shake<br>1………..2………..9<br>F) nervous<br>1………..2………..9<br>G) digestion poor<br>1………..2………..9<br>H) thinking<br>1………..2………..9<br>I) unhappy<br>1………..2………..9<br>J) cry more<br>1………..2………..9<br>K) not enjoy<br>1………..2………..9<br>L) decisions<br>1………..2………..9<br>M) work suffers<br>1………..2………..9<br>N) useful part<br>1………..2………..9<br>O) lost interest<br>1………..2………..9<br>P) worthless<br>1………..2………..9<br>Q) ending life<br>1………..2………..9<br>R) feel tired | |

| | | | |
|---|---|---|---|
| | | 1……..…2……..…9<br>S) stomach<br>1……..…2……..…9<br>T) easily tired<br>1……..…2……..…9 | |
| Q1002 | Just now, we talked about problems that may have bothered you in the past 4 weeks. I would like to ask you now if, in your life, have you ever thought about ending your life? | Yes 1<br>No 2<br>No Response 9 | |
| Q1003 | Have you ever tried to take your life? | Yes 1<br>No 2<br>No Response 9 | |

Table 3.2

*Operationalization of Reproductive Health Service Use Variables*

| | Total Sample | Sexually Active Women Only | Women Pregnant in the Last Two Years Only |
|---|---|---|---|
| **Antenatal Care** | | | X |
| **HIV Screening** | X | X | |
| **STI Treatment Screening** | X | X | |
| **Family Planning Use** | X | X | |

Table 3.3

*Explanation of Women Included in Each Analysis*

| Outcome | Inclusion criteria | Exclusion criteria | Sample size for analysis of this outcome |
|---|---|---|---|
| Antenatal care use | Pregnant past 2 years<br>n=315 | None | n=315 |
| Family Planning use | Sexually active<br>n=582 | Desires pregnancy in next 12 months<br>n=296 | n=582 |
| HIV testing | Sexually active<br>n=582<br>Unexpected sexual Encounter<br>n=52 | None | N=810 |
| STI testing | Unexpected Sexual Encounter<br>n=52 | None | n=582 |

Table 3.4

*Sample Characteristics*

| | **Total Sample n=810** | **Sexually Active Women n=582** | **Pregnancy within Past Two Years n=315** |
|---|---|---|---|
| **Demographics** | | | |
| Age | 28.7 (SD=12.1) | 32.3 (SD=11.1) | 30.3 (SD=9.8) |
| Years in Camp- | | | |
| One year or less | 17% (138) | 22% (121) | 18% (56) |
| 2-5 years | 33% (264) | 34% (192) | 38% (116) |
| 5 years or more | 50% (408) | 45% (251) | 44% (135) |
| Ever Married | 68% (548) | 92% (536) | 94% (295) |
| Husband Ever Attended School | 73% (400) | 74% (392) | 73% (214) |
| Age at First Marriage | 19.4 (SD=7.8) | 18.8 (SD=4.3) | 19.6 (SD=7.4) |
| Children in Household | | | |
| 0 children | <1% (1) | <1% (1) | 0 |
| 1-2 children | 29% (161) | 29% (158) | 30% (93) |
| 3-6 children | 41% (331) | 59% (324) | 62% (194) |
| 7 or more | 9% (70) | 12% (68) | 8% (27) |
| **Reproductive Health History** | | | |
| Ever Sexually Active | 72% (582) | ---------- | ------------ |
| Age at First Sexual Intercourse | 14.6 (SD=13.2) | 18.3 (SD=2.7) | 20.2 (SD=11.5) |
| Ever Pregnant | 71% (571) | 96% (559) | ------------- |
| Pregnant in the last 2 years | 39% (315) | 53% (308) | ------------- |
| Antenatal care with last pregnancy | 90% (322) | 90% (315) | ------------- |
| Preventing Pregnancy now | 11% (87) | 13% (74) | ------------- |
| Desire a Child in the Future | 37% (296) | 36% (207) | 34% (106) |
| Ever heard of an STI | 87% (707) | 88% (514) | 89% (281) |
| Ever heard of HIV | 97% (787) | 97% (567) | 98% (307) |
| Ever had an HIV test | 81% (656) | 90% (523) | 96% (303) |
| History of Unexpected Sexual Encounter | 6% (51) | 9% (51) | 11% (36) |
| Consulted a provider for STI symptoms | 7% (54) | 9% (50) | 7% (23) |
| STI Symptom Summary | 2 (SD=1.9) | 2.1 (SD=2) | 2 (SD=1.9) |
| **Mental Health History** | | | |
| Report any emotional health symptoms | 87% (628) | 86% (469) | 85% (248) |
| Report any suicidal symptoms | 11% (78) | 7% (64) | 11% (34) |
| Report any psychological symptoms | 65% (501) | 70% (387) | 70% (207) |
| Report any somatic symptoms | 85% (643) | 84% (485) | 83% (259) |
| SRQ-SIB summary score | 6.2 (SD=5.6) | 7 (SD=5.7) | 6.7 (SD=5.6) |

| | | | |
|---|---|---|---|
| Suicidal symptoms | 0.2 (SD=0.6) | 0.2 (SD=0.6) | 0.2 (SD=0.6) |
| Psychological symptoms | 3 (SD=3.2) | 3.3 (SD=3.2) | 3.4 (SD=3.3) |
| Somatic symptoms | 3.2 (SD=2.6) | 3.5 (SD=2.7) | 3.3 (SD=2.6) |
| **Trauma History** | | | |
| Report Forced Sex during Conflict | 5% (40) | 6% (36) | 5% (15) |
| Report any gender based violence during conflict | 35% (284) | 38% (219) | 49% (155) |
| | 26% (140) | 26% (141) | 21% (67) |
| **Agency** | | | |
| Agency Summary Score (range 0 to 3) | 2.2 (SD=1.2) | 1.2 (SD=1.3) | 2 (SD=1.3) |
| Ever Attended School | 70% (568) | 62% (359) | 61% (191) |
| Read Easily | 58% (469) | 47% (243) | 45% (142) |
| Write Easily | 53% (430) | 41% (240) | 40% (126) |

*Sample size is given when the reduced number of respondents is due to logical skip patterns. Other responses have small amounts of missing data from women declining to answer the questions.

Table 3.5

*SRQ-SIB Results by Total Sample and By Camp*

| | **Total Sample n=810** | **Gihembe Camp n=405 Mean years in Camp =10.5** | **Nyabiheke Camp n=405 Mean years in Camp=2** |
|---|---|---|---|
| Do you have headaches? | 51% (413) | 50% (206) | 50% (207) |
| Do you have trouble thinking clearly? | 49% (399) | 47% (195) | 52% (204) |
| Do you have uncomfortable feelings in your stomach? | 44% (352) | 42% (172) | 46% (180) |
| Do you become easily tired? | 40%(324) | 39% (162) | 41% (162) |
| Is your appetite poor? | 39% (312) | 36% (149) | 41% (163) |
| Is your digestion poor? | 36% (290) | 34% (139) | 38% (151) |
| Do you sleep badly? | 36% (292) | 36% (147) | 37% (145) |
| Do you feel unhappy? | 36% (292) | 35% (143) | 38% (149) |
| Are you easily frightened? | 33% (268) | 34% (139) | 33% (129) |
| Do you find it difficult to make decisions? | 33% (264) | 30% (124) | 36% (140) |
| Do you feel easily nervous, tense, or worried? | 33% (266) | 36% (147) | 30% (119) |
| Have you lost interest in things? | 33% (267) | 31% (128) | 35% (139) |
| Do you find it difficult to enjoy your daily activities? | 32% (255) | 33% (135) | 30% (120) |
| Do you feel tired all the time? | 30% (240) | 29% (118) | 31% (122) |
| Is your daily work suffering? | 23% (189) | 21% (88) | 26% (101) |
| Are you unable to play a useful part in life? | 22% (178) | 23% (94) | 22% (84) |
| Do you cry more than usual? | 19% (157) | 19% (77) | 20% (80) |
| Do you feel that you are a worthless person? | 18% (146) | 19%( 78) | 17% (68) |
| Do your hands shake? | 14% (112) | 15% (61) | 13% (51) |
| Has the thought of ending your life been on your mind? | 8% (68) | 6% (25) | 11% (43) |
| Have you ever thought of ending your life? | 6% (51) | 4% (15) | 9% (36) |
| Have you ever attempted to take your own life? | 4% (30) | 2% (9) | 5% (21) |
| Summary score (range is 0 to 22) | 6.2 (SD=5.6) | 6.1 (SD=5.7) | 6.4 (SD=5.5) |
| Somatic Symptoms (range is 0 to 9) | 3.2 (SD=5.6) | 3.1 (SD=2.8) | 3.3 (SD=2.5) |
| Suicidality Symptoms (range is 0 to 3) | 0.18 (SD=0.58) | 0.11 (SD=0.45) | 0.24 (SD=0.68) |

| | | | |
|---|---|---|---|
| Psychological Symptoms (range is 0 to 10) | 2.9 (SD=3.2) | 2.9 (SD=3.2) | 3.0 (SD=3.0) |

* Variables are listed in order of frequency of symptoms.

Table 3.6

*Logistic Regression Models for the Four Main Outcomes with the Mental Health Scale entered as a Whole and with Three Subscales*

| Model | SRQ-SIB | | |
|---|---|---|---|
| | **Predictor** | **OR** | *p*-value |
| **ANTENATAL CARE USE MODEL** | | | |
| Antenatal Care Use | $R^2$=.012, $p$=.447 | | |
| Among Women Pregnant in the last 2 years | Agency Score | 1.210 | .216 |
| n=315 | SRQ-SIB | 1.107 | .667 |
| **FAMILY PLANNING USE MODELS** | | | |
| Family Planning Use | $R^2$=.009, $p$ =.275 | | |
| Among Sexually Active Women | Agency Score | 1.175 | .117 |
| n=582 | SRQ-SIB | 1.005 | .819 |
| **HIV TESTING BEHAVIOR MODELS** | | | |
| HIV Testing Behavior | $R^2$=.012, $p$ =.057 | | |
| Among Total Sample | Agency Score | 1.116 | .131 |
| n=810 | SRQ-SIB | 1.036 | .042 |
| HIV Testing Behavior | $R^2$=.057, $p$ <.001 | | |
| Among Sexually Active Women | Agency Score | 1.494 | <.001 |
| n=582 | SRQ-SIB | 0.997 | .991 |
| HIV Testing Behavior | $R^2$=.058, $p$ =.002 | | |
| Among Sexually Active Women | Agency Score | 1.497 | <.001 |
| adding Unexpected Sexual Encounter as a predictor | SRQ-SIB | .565 | .761 |

| | | | |
|---|---|---|---|
| n=582 | Unexpected Sex | .973 | .999 |
| **STI TREATMENT SEEKING MODELS** | | | |
| STI Treatment Seeking Behavior | $R^2$=.086, $p$ <.001 | | |
| Among Sexually Active Women | Agency Score | 0.837 | .138 |
| n=582 | SRQ-SIB | 1.118 | <.001 |
| STI Treatment Seeking Behavior | $R^2$=.184, $p$ <.001 | | |
| Among Sexually Active Women | STI Symptoms | 1.393 | <.001 |
| Adding STI symptom as a Predictor | Agency Score | 0.789 | .081 |
| n=582 | SRQ-SIB | 0.911 | <.001 |
| STI Treatment Seeking Behavior | $R^2$=.090, $p$ <.001 | | |
| Among Sexually Active Women | Unexpected Sex | 0.564 | .369 |
| Adding Unexpected Sexual Encounter as a Predictor | Agency Score | 0.839 | .145 |
| n=582 | SRQ-SIB | 1.122 | <.001 |
| STI Treatment Seeking Behavior | R2=.185, $p$ <.001 | | |
| Among Sexually Active Women | Unexpected Sex | 0.700 | .591 |
| Adding Both Unexpected Sexual Encounter and STI | STI Symptoms | 1.396 | <.001 |
| Symptom Count as Predictors | Agency Score | 0.793 | .089 |
| n=582 | SRQ-SIB | 1.130 | <.001 |

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## Chapter 4

## Development of a Brief Screening Tool for Mental Health Assessment in Refugee Settings

Mental health problems are a serious and growing public health epidemic, contributing 14% to the global burden of disease (Prince et al., 2007). War and conflict have devastating effects on affected populations, with women in particular being more acutely affected than their male counterparts (Usta, Farver, & Zein, 2008). Countries affected by humanitarian crises (defined as armed conflict, famine, epidemics, or natural disaster) rank among the lowest in mothers' and children's indicators of well-being: including health status, contraceptive use and infant mortality (Women's Refugee Committee, 2009). Refugees experience depression and PTSD at more than double the rate of the US population (Mollica et al., 2004). Additionally, both trauma and posttraumatic mental health morbidity have been associated with adverse patterns of women's health outcomes and childbearing outcomes under normal circumstances (Brigitte Leeners, Stiller, Block, Görres, & Rath, 2010; Seng, Low, Sperlich, Ronis, & Liberzon, 2011). Prevalence rates of both common mental health disorders (CMDs) and suicidal ideation and behavior (SIB) are high, with one study citing 31% of Darfurian refugee women as meeting criteria for major depression (Kim, Torbay, & Lawry, 2007). A separate study assessing suicidality among Balkan refugees found a 10% rate of

recent suicide thoughts among refugees, compared to 3% among non-refugee war survivors (Jankovic et al., 2013), while a recent study of Burmese refugee women awaiting resettlement or repatriation in Thailand found 7.4% had suicidal ideation in the past month (Falb, McCormick, Hemenway, Anfinson, & Silverman, 2013).

Development goals have long focused on reproductive health indicators and safe motherhood, while mental health of women (which arguably affects all aspects of women's health), has been neglected, particularly in the Millennium Development Goals. Given that the setting of these goals are in the world's poorest countries where war and human rights violations are endemic, this absence is striking. Mental health initiatives are slowly on the rise throughout sub-Saharan Africa. As it suffered through years of civil war, Liberia until recently had but one psychiatrist in the entire country. It now has a sustainable mental health initiative in place to improve the functioning of persons living with mental illness (Carter Center, 2013). The PRIME (Program for Improving Mental Health Care) project, launched in 2011, counts Uganda and Ethiopia as key partners as it seeks to implement and scale up mental health treatment programs in primary and maternal health contexts, (Lund et al., 2012). Finally, the World Health Organization has implemented a large scale mental health project, the Mental Health Gap Action Project (mhGAP) which calls for mental health to be integrated into primary health care in low-income countries (World Health Organization, 2010). Frontline approaches to mental health services in post-conflict and post-disaster settings are limited and badly needed. Screening of women for CMDs in women's health or primary care clinics through a short written or verbal assessment may be an efficient way to conduct screening.

### *The Self-Report Questionnaire*

It is not realistic to assume that, in low-resource settings, providers will have the time and resources to conduct a complete psychosocial evaluation. However, in a highly traumatized, post-conflict population, this evaluation is crucial for mental well-being. A set of screening questions can be the gateway to identifying women with common mental disorders, and also for a full assessment followed by implementation of the appropriate intervention (Hanlon, 2013). The Self Report Questionnaire (SRQ) has long been used in developing countries as a gold standard means to measure incidence and prevalence of common mental health disorders in women in epidemiological research. Published studies utilizing the SRQ have included settings such as Nigeria (Ola et al., 2011), Ethiopia (Hanlon et al., 2008), Malawi (Stewart et al., 2013), Rwanda (Scholte, Verduin, van Lammeren, et al., 2011), China (Chen et al., 2009), and Vietnam (Stratton et al., 2013). Designed by the World Health Organization (1994), it includes 20 items about depression, anxiety and somatic complaints. Rather than being predictive of specific mental health diagnoses, the SRQ assesses symptoms of CMDs and uses a cut-point on the score to indicate the need for further evaluation. The SRQ has been psychometrically validated in multiple settings, including conflict and non-conflict situations (Iacoponi & Mari, 1989; Scholte, Verduin, van Lammeren, et al., 2011; Ventevogel et al., 2007). Cut-off scores vary widely depending on the population and setting, although a cut-off score of between 6 and 8 has been commonly used to identify presence of common mental health disorders (Harding et al., 1980; Harpham et al., 2003; World Health Organization, 1994). This study described in this manuscript utilized previously collected data, where the parent study used a modified version of the SRQ,

henceforth termed the SRQ-SIB, which supplements the single item about current suicidal thoughts with two additional questions about lifetime suicidal thoughts and behaviors (i.e., suicidal ideation and behaviors; SIB).

The SRQ-SIB is a reliable and valid tool, with an internal consistency alpha coefficient of .911, which indicates an excellent reliability (Waltz et al., 2010). As the number of items may be too many to facilitate broad use in clinical practice settings, we sought to evaluate which items in the SRQ-SIB were most efficacious for use in a brief mental health evaluation that could be used in a low-resource setting as a first step in an assessment and referral process. Our goal was to find the items that classified cases best. We evaluated these in terms of specificity and sensitivity. We started this analysis with the goal of identifying a highly predictive and reliable screening tool that can be used in busy, over-crowded and low-resource primary health care settings, and that can identify nearly as well as the full-length scale women who need mental health attention. Therefore, the purpose of this analysis is to identify a small subset of the SRQ-SIB items with screening efficacy for use in the clinical setting. The primary research question was, "Which items of the SRQ-SIB have the best sensitivity and specificity for identifying women who would screen positive for common mental health disorders?"

**Methods**

We used a cross-sectional database with the SRQ-SIB items and a large enough sample to derive an optimal small set of items on a random half training sample, in order to cross-validate it on the other random half and to validate the brief screener’s performance in relation to clinically relevant variables (i.e., extent of trauma exposure

and suicidality). We based our recommendation on screening items and cut-off score on both psychometric and clinical utility factors.

**SRQ-SIB Descriptive Statistics**

In the overall sample (n=810), the mean was 6.4 (SD=5.3) and the scores were skewed to the right, showing a floor effect, which is to be expected given that a number of women in the sample will have no symptoms of CMD and thus will answer in the negative to most of the 22 items. Using the 7-point cut-off, 42.5% of the women were classified as likely having a CMD (i.e., as 'cases'). The internal consistency reliability by Kuder-Richardson's alpha was .897.

**Dataset**

The dataset employed for this analysis was from a larger analysis of conflict-affected women (see companion papers 1 and 2) using the Reproductive Health Assessment for Conflict-Affected Women, which was conducted by the American Refugee Committee with support from the Centers for Disease Control in July and August 2008. The survey was part of a larger parent study that was intended for field staff and management of non-governmental organizations (NGOs) to use to identify and prioritize key women's health needs, translate priorities into programmatic responses, evaluate programs and policies, and to disseminate results for improving the reproductive health of the women in the camps (Division of Reproductive Health, 2007).

**Sample and Setting**

The sample was drawn from a population of Congolese refugee women living in the Nyabiheke and Gihembe camps in Northwest Rwanda. Inclusion criteria were ages 15-49, residing in one of two refugee camps, and history of reported displacement from

their home of origin due to war-related conflict. Exclusion criteria were male, younger than 15 or older than 49, and having no reported history of displacement from their home. All were natives of the Democratic Republic of the Congo. The sample was drawn from the population of two camps: Gihembe, established in 1997 (termed Older camp) having 20,000 total residents, and Nyabiheke, established in 2005 (termed Newer camp) having 15,000 total residents.

Because of low literacy levels of many participants, a two-step informed consent process was used. In the first step, a locator went to households selected for inclusion and explained the survey and received verbal consent. In the second step, a community health worker went to the home and explained the survey again, received verbal consent, and administered the survey. Women received a small incentive for participation. No one selected for the survey refused participation.

**Human Subjects**

The current analysis was determined to be exempt by the Institutional Review Board at the University of Michigan, Ann Arbor, Michigan, USA, as this was a secondary analysis of previously collected data. This study used de-identified data provided under a data use agreement with the American Refugee Committee. For the original study, in the absence of a formal IRB, the survey collection received approval from the local refugee council of both camps, the Rwandan Ministry of Health, and the local office of the United Nations High Commissioner for Refugees.

**Variables**

In this analysis, we used the total two-item SRQ-SIB as well as its three subscales: Somatic symptoms, Psychologic symptoms and SIB symptoms (see

companion paper). The final scale includes the three items related to suicidality. See Table 4.1 for complete instrument. The split-half and total samples were described in terms of demographic indices, including age, literacy, and marriage, along with trauma exposure, including death of a child not due to stillbirth, conflict victimization, and post-conflict victimization.

### Data Analysis

**Sample and missing data.** A total of 810 women were included in the study. Some missing data was present out of the 22 items that make up the SRQ-SIB as we chose to include participants in the study who preferred not to answer upsetting or traumatic questions. Doing so results in their having slightly lower total scores and decreases the likelihood of their being a CMD case. This results in error in the conservative direction. These participants are excluded from analyses, such as reliability testing, where item-level data are used. Missing data is noted in each table.

**Random split halves.** All analyses were completed in SPSS version 21.0 (IBM, 2012), beginning with creation of two random split half datasets. Training (n=407) and test (n=403) sample datasets were randomly selected through SPSS by using a random seed generator which generated a sequence of random numbers in order to produce the two split half datasets. Analysis began with exploring descriptive characteristics of demographic indicators and trauma history indicators. Chi-squared and t-tests were done to assess whether the testing sample and training sample were statistically significantly different from each other.

Scale descriptive statistics and case classification were similar in both split-half datasets. The reliability of the SRQ-SIB was .868 for the training set and .891 for the

testing set. The mean score on the SRQ-SIB was 6.2 (SD=5.5) for the training set and 6.6 (SD=5.1) for the test set . Prevalence of cases per the full SRQ-SIB was 42% for the training sample and 43% for the testing sample.

**Derivation of screener.** In order to determine which items were the best predictors of CMD 'caseness', we determined the strength of the association between the case variable (SRQ-SIB score >7) and each item in the SRQ-SIB using three approaches. First, we obtained corrected item-total correlation coefficients from the Kuder-Richardson internal consistency analysis. Next, we conducted logistic regression in order to estimate the percent of variance explained by each item using logistic regression's Nagelkerke's R-squared. Finally, we used receiver operating characteristic (ROC) analysis to estimate the area under the curve (AUC) of each item when used to predict caseness. We conducted these item-level analyses on the training set and testing set to evaluate the item performance in both samples but we made the final determination of which items to use for brief screening based on the training set results. We derived a two-item and a four-item brief screener versions, but we conducted clinical validation analyses only on the four-item screener, which we refer to as the SRQ-5.

**Cross-validation and evaluation of diagnostic utility.** Our next step was conducting cross-validation of the SRQ-5 using forced coefficients as a more robust measure of validation (Seng et al., 2010). We conducted a logistic regression in order to determine the relative proportion of variance accounted for by the four-item screener. We then forced the coefficients derived from that regression model into a version of the model equation to run on our test set. To do this, we manually entered the constant and

item coefficients from the training set logistic regression model into the regression model in the test set database. From this result, we conducted a cross-tabulation of the actual test set cases along with the model predicted cases and calculated the sensitivity and specificity, positive predictive value, negative predictive value, and overall accuracy. We then conducted the same process again, only this time fitting the coefficients from the test set model onto our data from the training set.

We assessed diagnostic utility by evaluating sensitivity, specificity, negative predictive value, positive predictive value, and overall accuracy using the results of the cross-validation. We repeated the ROC analysis on the four-item screener to determine an optimal cut-off score on its 0-4 range of scores.

**Assessment of clinical utility.** The screener's performance was also assessed in relation to the important clinical condition of suicidality. We identified women likely to have CMDs because of SIB symptoms. We assessed for a dose response relationship between suicidality symptom count and the sum of 19 items in the SRQ (minus the suicidality symptoms) using a one-way analysis of variance. We then assessed the extent to which the four-item screener identified suicidal women by conducting a cross-tabulation of women who screened positive on the four-item screener with women who reported suicidal thoughts in the past four weeks. This was done in order to examine suicidal women who would potentially be lost to follow-up care because they screened negative on the four-item screener.

## Results

**Examination of the sample.** The average age of participants in the training sample was 28.8 (SD=12.0). The age range was 15 to 49 (in keeping with inclusion criteria) and the median age was 27. Approximately 66% were married ($x^2$=911, $p$=.34),

and 25.8% were unable to read or considered illiterate ($x^2$=1.94, p=.379). Trauma exposures were defined as a death of a child not due to stillbirth, conflict victimization, and post-conflict victimization. Almost 2.4% of women experienced a child death (SD=.43). Conflict victimization, defined as any unwanted physical contact or unwanted sexually suggestive behavior, was experienced by 6.6% of all participants (SD=1.14). Post-conflict victimization was experienced by 2.2% of participants (SD=.60). With the exception of post-conflict victimization (t=1.85, *p*=.064), the distribution of the demographic variables did not come close to significance between the training and the testing set. See Table 4.2 for representation.

**Development of the SRQ-5.** Each item of the SRQ-SIB was tested for strength of the association with the caseness cut point of 7 or greater, using the training set and the testing set, with the end goal to identify which items were the most likely to be predictive. See Table 4.3 for statistical representation.

Four items emerged as the overall top performers in terms of highest correlations, total variance explained, and AUC. This allowed us to select these items with confidence in their ability to detect caseness. The top four performing items were identified as: "Do you have trouble thinking clearly?", "Do you feel easily nervous, tense, or worried?", "Do you feel unhappy?", and "Have you lost interest in things?" Among these four items, we initially tested a two-item screener, consisting of "Do you have trouble thinking clearly?" and "Do you feel easily nervous, tense or worried?" The two-item screener identified 28% of women as cases in the training set with a sensitivity of 89% and specificity of 79%. The four-item screener with a cut point of 2 or higher

yielded a case prevalence of 30%, which was a sensitivity of 80% and specificity of 93%.

These four items are therefore able to detect a much more restrained number of women who may be in need of mental health services. The reliability of the four-item scale was .794 for the training set and .798 for the testing set. While this is not as high as for the two-item scale, given the smaller number of items, it still represents a very acceptable internal consistency reliability.

**Cross-validation.** The predictive efficiency of the four-item screener for detecting CMDs was calculated using ROC curve analysis, which gave us the sensitivity and specificity statistics that serve as the basis for our recommendation of which items to use. The AUC for the four-item scale was .939 for the training set and .933 for the testing set respectively. This result, along with the closely aligned prevalence rates allowed us to conclude that the four-item screener performed well in detecting likely cases of common mental disorders among this refugee population. In the training set, the sensitivity was 80%, the specificity was 93%, the positive predictive value was 89%, the negative predictive value was 88%, and the overall accuracy was 88%. For the testing set, the sensitivity was 79%, the specificity was 93%, the positive predictive value was 89%, the negative predictive value was 87%, and the overall accuracy was 88%. See Table 4.4 for representation.

**Clinical performance assessment in relation to SIB.** A final performance assessment was completed in order to identify if the four-item screener was able to detect the most distressed cases—those represented by positive reports of SIB. First, we verified that suicidality was associated with overall SRQ score using a one-way

analysis of variance of four "SIB" groups, defined as 0, 1, 2, or 3 positive responses to SIB items. For the ANOVA, suicide items were removed from the total score in order to assess if the means were statistically different between those with SIB versus the remaining 19 items. The mean number of psychological and somatic symptoms increased in a dose response manner from 5 symptoms to 15 symptoms. There was a dose-response relationship with statistically significant difference at the $p<.05$ level in the SRQ scores with the four groups, $F(3, 756) = 64.58$, $p<.001$. However, the three groups with any suicidality did not differ from each other in post hoc comparisons using the Scheffe test. See Figure 4.1 for representation.

Next, we classified women as having acute or current suicidality—women we would not want the screener to miss—based on the SRQ-22 item, "If you had the problem in the past 4 weeks, answer yes. If you have not had the problem in the past 4 weeks, answer no. Has the thought of ending your life been on your mind?" Sixty-eight out of 810 women reported suicidal thoughts in the past four weeks, or 8.4%. We then used the cross-tabulation of the four-item screener and current suicidality cases.

On conducting a cross-tabulation using screener's cut-off score of 2, 55 (81%) suicidal women will be identified and 13 (19%) will be overlooked. This seemed like too many suicidal women to overlook. Counter-intuitively, analysis with a higher cut-off score of 3 (so limiting the sample to more severe CMD) misses 28 women, 41% of those with acute suicidality. This clinical validation effort led us to amend our recommendation. Although suicidality and total SRQ score (i.e., CMD symptoms) are correlated, the four-item screener would overlook one in five women experiencing suicidal thoughts. We therefore recommend adding a fifth item: Has the thought of

ending your life been on your mind? The SRQ-5, which is the combination of the four-item screener and the current suicidality item, is formatted as a checklist and appended to the end of this paper (Table 4.5).

## Discussion

This four-item version of the screener derived from the SRQ-SIB stands up well psychometrically, with acceptable reliability, a high degree of specificity, and an acceptable amount of sensitivity. The four-item screening tool met the goals that we and others have sought in using the SRQ: to determine an acceptable level between a high sensitivity and an agreeable specificity (Scholte, 2011) and to identify the best performing test with a high degree of specificity. The four-item version, with its high degree of specificity (93% in the training sample), likely would be effective at screening out those who do not need expanded evaluation, but still has a high degree of sensitivity (89%) at detecting those who screen positive. This high level of specificity will ensure that we are identifying only the cases with evidence of common mental health disorders; or in other words, detecting those with the most serious incidence of disease. The higher specificity also allows for a smaller number of false positives. For both the training and testing sets, approximately 30% screened positive on the four-item scale, compared to 42% for the training set, 43% for the testing set, and 42.5% for the total sample for the SRQ-SIB.

Previous study of the SRQ-SIB included a factor analysis of the SRQ-SIB showed a three-factor model, with items falling into three sub-scales based on somatic, psychological and SIB items (see companion paper 1). Our initial impression was that a brief screening tool should include one item from each of these sub-scales. On closer

examination, we found that no items from either the somatic or suicidality subscales had strong statistical relevance for predicting CMD cases. Three somatic items were statistically relevant, including "Do you sleep badly?," "Do you feel tired all the time?" and " Do you become easily tired?" However, these items were not relevant across the board in terms of correlation, AUC and total variance explained. Additionally, none of these three higher scoring items from the somatic scale were in the total top four performing items.

The suicidality questions begged closer analysis however. While none of the three suicidality questions performed highly in early analysis with low correlational values (ranging from .333 to .507 in the training set), low AUC (.546 to .591), and a lower amount of variance explained (6.4% to 17%) the serious nature with related implications of suicidal behavior required closer attention. The purpose of developing this screening tool was to identify women who need clinical intervention for common mental health disorders. As clinicians however, we cannot omit or overlook the serious issue of suicide. The prevalence of caseness using a two-item cut-off score was 30% while the prevalence for the 3-item cut-off was 17%. Meanwhile, 8.4% of participants, or 68 out of 810, had suicidal thoughts in the past four weeks. Our analysis showed that when using a cut-off score of 2, a smaller number of suicidal women would be lost, but a much larger number would need screening, while with a cut-off score of 3, a smaller number of the total sample would need screening, but a larger number of suicidal women would be lost from future intervention. It seems as though the four-item screener that is efficient for detecting CMDs is not adequate for case-finding for suicidality. The clinical relevance and the resultant morbidity and mortality associated

with suicide cannot be ignored. Thus, we advocate for verbally asking each of the four psychometrically-selected items AND asking about the clinically important concern of suicidal ideation or behavior in the past four weeks. Using with this method (what we would call the SRQ-5), a clinician can quickly identify the need for further attention to potential CMDs and asking about suicide can reliably identify women who need further attention. See Table 4.5 for full SRQ-5.

**Clinical Implications**

A short, focused, and highly specific screening tool can be of enormous benefit in a refugee camp clinic setting. Clinical interview and diagnosis would be the gold-standard in non-conflict settings where functioning health systems and mental health parity exist. The SRQ and SRQ-SIB are examples of brief assessment scales that are reliable and valid for detecting common mental disorders across many cultures. However, these still take considerable time and effort to complete, especially when the population being assessed has low prevalence of literacy. Thus a screening tool, with the fewest possible subset of items that health care providers could memorize and ask verbally could prove extremely useful. The SRQ-5 can be used verbally or in a check-box format that can be implemented in primary care settings. As this is an initial and brief screening tool, a secondary evaluation of all who screen positive in this highly traumatized refugee population should be considered-possibly by using the full SRQ-SIB, with all who screen positive- with additional referral for mental health services.

**Limitations**

This study was not without limitations, the most notable of which is that this was

a secondary analysis of existing data. Therefore, we could not compare the performance of the screening items with clinical diagnosis, but only with performance of the full scale's cut point as a proxy for diagnosis.  The stigma of mental health is well known in Africa (Ola et al., 2011).  It is possible that both responses about trauma and mental health symptomatology may have been underreported.  Finally, the inherent meanings behind some of the SRQ-SIB questions may take on an entirely different meaning when placed in the context of a refugee camp. An exploration of the cultural relevance of many of the questions warrants further examination.

### Research Implications

The SRQ-5 shows promise as a practical tool for screening for CMDs and suicidality among refugee women in this secondary analysis.  Future research to build upon the results of this initial study are needed however.  A comparative study using data from other refugee camp settings would build upon the knowledge imparted through this study.  Additionally, a pilot study at a women's health clinic in the camps studied to test the feasibility and accuracy of the SRQ-5 in screening for CMDs and suicidality would be beneficial.  Finally, while this research has shown the utility of a brief screening tool, mental health supports must be put into place in the refugee camp setting in order for the mental health of the population the camps represent to have access to care, an essential human right.

## Conclusion

Both the SRQ and the SRQ-SIB are excellent tools to assess common mental disorders in a low-resource setting.  However, the SRQ-5 represents a tool with excellent sensitivity, specificity, and reliability that can be administered-perhaps even

verbally-in a far shorter period of time, with very similar results as the full instrument. It opens possibilities for clinical assessment that can allow providers to rapidly identify women with common mental disorders and suicidality who might otherwise go unnoticed or unassessed.

Table 4.1

*SRQ-SIB*

| No. | Questions and filters | Coding categories | Skip to |
|---|---|---|---|
| Q1001 | The next questions are related to common problems that may have bothered you in the past 4 weeks. If you had the problem in the past 4 weeks, answer yes. If you have not had the problem in the past 4 weeks, answer no.<br>OO. Do you have headaches?<br>PP. Is your appetite poor?<br>QQ. Do you sleep badly?<br>RR. Are you easily frightened?<br>SS. Do your hands shake?<br>TT. Do you feel nervous, tense, or worried?<br>UU. Is your digestion poor?<br>VV. Do you have trouble thinking clearly?<br>WW. Do you feel unhappy?<br>XX. Do you cry more than usual?<br>YY. Do you find it difficult to enjoy your daily activities?<br>ZZ. Do you find it difficult to make decisions?<br>AAA. Is your daily work suffering?<br>BBB. Are you unable to play a useful part in life?<br>CCC. Have you lost interest in things?<br>DDD. Do you feel that you are a worthless person?<br>EEE. Has the thought of ending your life been on your mind?<br>FFF. Do you feel tired all the time?<br>GGG. Do you have uncomfortable feelings in your stomach?<br>HHH. Do you easily become tired? | **NR=No Response**<br>**YES NO NR**<br>A) headaches<br>1……….2……….9<br>B) appetite poor<br>1……….2……….9<br>C) sleep badly<br>1……….2……….9<br>D) frightened<br>1……….2……….9<br>E) hands shake<br>1……….2……….9<br>F) nervous<br>1……….2……….9<br>G) digestion poor<br>1……….2……….9<br>H) thinking<br>1……….2……….9<br>I) unhappy<br>1……….2……….9<br>J) cry more<br>1……….2……….9<br>K) not enjoy<br>1……….2……….9<br>L) decisions<br>1……….2……….9<br>M) work suffers<br>1……….2……….9<br>N) useful part<br>1……….2……….9<br>O) lost interest<br>1……….2……….9<br>P) worthless<br>1……….2……….9<br>Q) ending life<br>1……….2……….9 | |

| | | | |
|---|---|---|---|
| | | R) feel tired<br>1……..…2……..…9<br>S) stomach<br>1……..…2……..…9<br>T) easily tired<br>1……..…2……..…9 | |
| Q1002 | Just now, we talked about problems that may have bothered you in the past 4 weeks. I would like to ask you now if, in your life, have you ever thought about ending your life? | Yes 1<br>No 2<br>No Response 9 | |
| Q1003 | Have you ever tried to take your life? | Yes 1<br>No 2<br>No Response 9 | |

Table 4.2

*Comparison of Demographic and Trauma Exposure Profiles by Training and Testing Samples*

| | Total N=810 | Training sample 50.2%, (n=407) | Testing sample 49.8%, (n=403) | Statistic t-test or chi-squared | P value |
|---|---|---|---|---|---|
| **Demographics** | | | | | |
| **Age** | | 28.8 (SD= 12.0) | 28.7 (SD=12.3) | t=.09 | .928 |
| **Ever married** | 67.7% (548) | 66.1% (269) | 69.2% (279) | x2=.911 | .340 |
| **No literacy** | 24.4% (198) | 25.8% (105) | 23.1% (93) | x2=1.94 | .379 |
| **Trauma exposures** | | | | | |
| **Child death** | | .24 (SD=.43) | .27 (SD=.45) | t=.965 | .335 |
| **Conflict victimization** | | .66 (SD=1.14) | .63 (SD=1.1) | t=.346 | .730 |
| **Post-conflict victimization** | | .22 (SD=.60) | .15 (SD=.46) | t=1.85 | .064 |

**p*-value set at .05

Table 4.3

*Descriptive Information About the 22 items in Training Versus Testing Samples and for the Total Sample*

| | Training sample | | | Testing sample | | | Total Sample | | |
|---|---|---|---|---|---|---|---|---|---|
| | r | $R^2$ | AUC | r | $R^2$ | AUC | r | $R^2$ | AUC |
| **Somatic items** | | | | | | | | | |
| Do you have headaches? | .382 | .195 | .714 | .435 | .230 | .698 | .407 | .212 | .670 |
| Do you have uncomfortable feelings in your stomach? | .399 | .233 | .694 | .371 | .194 | .718 | .385 | .213 | .706 |
| Do you become easily tired? | .509 | .430 | .761 | .419 | .326 | .755 | .466 | .280 | .758 |
| Is your appetite poor? | .538 | .272 | .762 | .447 | .348 | .736 | .494 | .312 | .749 |
| Is your digestion poor? | .384 | .169 | .653 | .320 | .106 | .665 | .354 | .137 | .659 |
| Do you sleep badly? | .558 | .344 | .794 | .532 | .341 | .725 | .545 | .344 | .760 |
| Do your hands shake? | .404 | .171 | .613 | .347 | .128 | .622 | .376 | .149 | .617 |
| Do you feel tired all the time? | .591 | .430 | .761 | .527 | .326 | .755 | .560 | .376 | .758 |
| **Psychological items** | | | | | | | | | |
| Do you have trouble thinking clearly? | .645 | .520 | .832 | .627 | .457 | .818 | .636 | .487 | .825 |
| Do you feel unhappy? | .689 | .505 | .792 | .644 | .413 | .816 | .667 | .458 | .804 |
| Are you easily frightened? | .557 | .418 | .723 | .595 | .412 | .746 | .575 | .416 | .781 |
| Do you find it difficult to make decisions? | .526 | .301 | .728 | .502 | .284 | .739 | .514 | .294 | .733 |
| Do you feel easily nervous, tense, or worried? | .583 | .417 | .805 | .539 | .341 | .782 | .562 | .377 | .767 |
| Have you lost interest in things? | .651 | .535 | .776 | .578 | .362 | .758 | .616 | .446 | .793 |
| Do you find it difficult to enjoy your daily activities? | .646 | .334 | .720 | .561 | .230 | .728 | .605 | .280 | .724 |
| Is your daily work suffering? | .599 | 377 | .726 | .537 | .300 | .720 | .569 | .337 | .723 |
| Are you unable to play a useful part in life? | .603 | .376 | .685 | .497 | .187 | .709 | .551 | .273 | .697 |
| Do you cry more than usual? | .546 | .279 | .673 | .426 | .189 | .667 | .488 | .232 | .670 |
| Do you feel that you are a worthless person? | .634 | .358 | .708 | .529 | .309 | .685 | .582 | .333 | .696 |
| **Suicidality items** | | | | | | | | | |
| Has the thought of ending your life been on your mind (past 4 weeks)? | .507 | .170 | .591 | .439 | .186 | .602 | .474 | .176 | .596 |
| Have you ever thought of ending your life? | .367 | .081 | .569 | .323 | .118 | .556 | .345 | .090 | .563 |
| Have you ever attempted to take your own life? | .333 | .064 | .546 | .322 | .064 | .532 | .326 | .060 | .539 |

*r = Pearson's r, $R^2$ =Nagelkerke's r-squared and AUC= area under the curve

Table 4.4

*Cross-Validation Results of Two-Item and Four-Item Screening Tools*

| **Second smallest screening tool (2 items)** | | |
|---|---|---|
| Items<br>1. Do you have trouble thinking clearly?<br>2. Do you feel easily nervous, tense or worried? | | |
| | Training sample results when co-efficients from test set were applied<br>n=407 | Testing sample results when co-efficients from training set were applied<br>n=403 |
| Rate of Cases by Screening | 28% | 27% |
| Sensitivity | 89% | 89% |
| Specificity | 79% | 79% |
| Positive Predictive Value | 74% | 74% |
| Negative Predictive Value | 91% | 91% |
| Overall Accuracy | 83% | 82% |
| **Best screening tool (4 items)** | | |
| Items<br>1. Do you have trouble thinking clearly?<br>2. Do you feel easily nervous, tense, or worried?<br>3. Do you feel unhappy?<br>4. Have you lost interest in things? | | |
| | Training sample results when co-efficients from test set were applied<br>n=407 | Testing sample results when co-efficients from training set were applied<br>n=403 |
| Rate of Cases by Screening | 30% | 30% |
| Sensitivity | 80% | 79% |
| Specificity | 93% | 93% |
| Positive Predictive Value | 89% | 89% |
| Negative Predictive Value | 88% | 87% |
| Overall Accuracy | 88% | 88% |

Table 4.5

*SRQ-5 Screening Tool with Single Item Suicide Screener*

- 1. Do you feel unhappy?
- 2. Do you feel easily nervous, tense, or worried?
- 3. Have you lost interest in things?
- 4. Do you have trouble thinking clearly?
- 5. Has the thought of ending your life been on your mind?

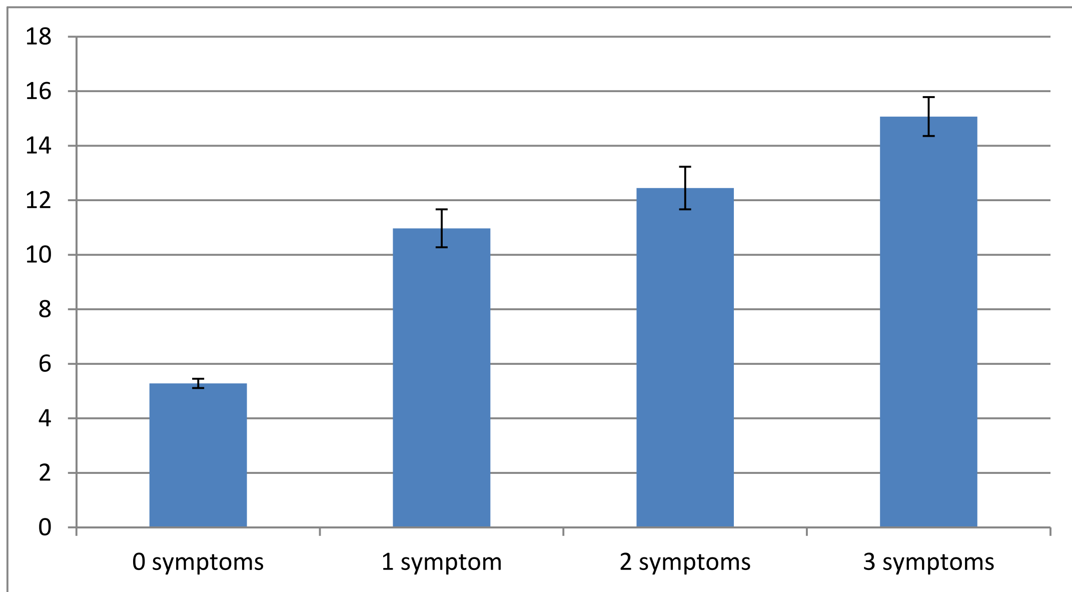


Figure 4.1: Dose response relationship of SIB items to the SRQ-SIB with mean scores on SRQ-SIB with SIB items removed.

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# Chapter 5

# Closing and Summary

## Synthesis

This dissertation research has sought to answer the question, "Is there an association between trauma-related mental health morbidity and reproductive health outcomes in humanitarian crisis?" A comprehensive literature review revealed a gap in this area of research. What was revealed from the literature is that there is a large amount of research on reproductive health among refugee women and women in humanitarian crisis as well as a large amount of published research on psychological status of the same cohort. However there were only eight papers that addressed mental health and reproductive health issues together. Additionally, policy papers were explored for integration of these two concepts. A large amount of information existed about reproductive health, with a much smaller (but growing) amount of policy effort focusing on mental health of refugee women, and no reports spoke to the combination of the two domains. The literature collectively provided a powerful and compelling picture of the status of women in refugee situations and established the need for further research. The theoretical model presented proposes that women affected by trauma-related mental health sequelae endemic in disaster and conflict situations will have poorer reproductive health outcomes than those who have not been affected.

Using an existing dataset collected by the American Refugee Committee, consisting of 810 Congolese women residing in two refugee camps in Rwanda, the research question was explored. A brief summary of each chapter is below.

**Paper 1: Psychometric Validation and Comparison of the SRQ-20 and SRQ-SIB among Congolese Refugee Women**

The detection of common mental disorders in developing countries requires a screening tool that is functional as well as specific. The Self-Report Questionnaire (SRQ) has frequently been used among conflict-affected and refugee populations (World Health Organization, 1994). The purpose of this paper was to present and compare findings from reliability and validity assessments of the 20-item Self-Report Questionnaire (SRQ-20) with a modified version (SRQ-SIB) where two additional items were added regarding lifetime suicidality, in a sample of Congolese refugee women.

Psychometric analysis of both the SRQ-20 and the SRQ-SIB was performed in a sample of Congolese refugee women. Exploratory factor analysis was performed using MPlus for dichotomous variables. Additional analyses included predictive validity, contrast validity, and internal consistency using Kuder-Richardson's alpha.

Both the SRQ-20 and the SRQ-SIB exhibited a high level of reliability at .911 for both scales. For the SRQ-SIB, a three-factor solution was determined with factors grouped into somatic symptoms, psychological symptoms, and suicide symptoms. For the SRQ-20, a two-factor solution was elicited via factor analysis with psychologic and somatic symptoms. Predictive validity found all models were significant; however, the model with three separate subscales of the SRQ-SIB explained the most variance ($R^2$=5.6%, $p$=.001), followed by the SRQ-SIB and SRQ-20 which explained 4.4% of the

variance ($p$=.001) and 4.3% of the variance ($p$=.001) respectively. In the model with the three subscales, the SIB subscale was the only significant predictor (OR=1.739, $p$=.013) of having experienced sexual violence, meaning a person who scored highly on the SIB was close to 75% more likely to have experienced sexual violence during the conflict.

Descriptive and regression analyses validate the utility of both measures, and suggest that the SIB subscale is useful for differentiating more severely affected cases of CMD. The SRQ-SIB may be an important tool for assessing CMDs and suicidality among women in crisis situations.

**Paper 2: Understanding the Effects of Mental Health on Reproductive Health Post-Crisis: A Mixed Methods Approach**

With over 20 million refugee women in the world today, the health of refugee women has significant global health implications. Women affected by humanitarian crisis have significant trauma related mental health concerns (Al Gasseer et al., 2004) and both trauma exposure and mental health morbidity have been associated with adverse patterns of women's health and childbearing outcomes under normal circumstances. Refugees suffer from depression and posttraumatic stress disorder (PTSD) at more than double the rate of the United States population (Mollica et al., 2004). Women's agency, or capacity to act in one's own interest, serves as a potentially important factor since there are many constraints in crisis situations. Countries in humanitarian crisis are among the lowest in women's indicators of well-being (reproductive health status, mental health) (Women's Refugee Committee, 2009).

The purpose of this study was to test the hypothesis that poor mental health status impinges upon reproductive health service use within the population of refugee women living in temporary camps and settlements.

This mixed methods study utilized cross-sectional survey data and post-hoc qualitative interviews. For the quantitative component, the Reproductive Health Assessment for Conflict Affected Women (Division of Reproductive Health, 2007) survey was employed. Mental health was measured using the Self-Report Questionnaire (SRQ-SIB), modified by adding two items about lifetime suicidality. Agency was measured using an agency index, a three item score based on education. Additionally, a qualitative component was added post hoc with interviews and written communication with key informants.

A total of 810 women were included in the study. The average age of participants was 28.7(SD=12.1) with an average length of time residing in the camps of 8.7 years (SD=14.8). The majority of women in this sample reported at least one emotional health symptom (87%). Suicidal thoughts or attempts were reported by 11%. While the mean score on the SRQ-SIB was 6.2 (SD=5.6, range=22) out of 22-total items, women who had experienced a traumatic event or reported suicidal behavior had higher mean scores. Antenatal care rates were high (90%), as were HIV screening rates (81%); alternatively, family planning use (11%) and sexually transmitted infection (STI) treatment seeking (7%) were low among those at risk. No significant associations were found between mental health status and reproductive health service use. However, qualitative interviews revealed that while reproductive health service use is strongly encouraged, mental health assessment and care provisions are available. We conclude

that mental health and reproductive health were not associated in this sample because women had limited options for mental health care, while being overwhelmingly encouraged to receive reproductive health in order to meet camp, NGO and governmental goals. Essentially, receiving reproductive health care was almost unavoidable, regardless of mental health status, while receiving mental health care was virtually impossible to receive, regardless of how needed it was. Camp and governmental goals and funding priorities took precedence over women's individual choices, as well as needs, leaving women with a lack of agency in which to exercise. While it is laudable that reproductive health goals were met so well, it is also dehumanizing to the women in this study that health care priorities were determined by other people, hundreds or thousands of miles away, and many key needs were so grossly overlooked. However, the existing reproductive health services in place could provide an optimal avenue for incorporating mental health services into existing models of care.

This study provides details on mental health status and reproductive health service use in Rwandan refugee camps. A significant relationship between the two could not be adequately assessed based on statistical analysis alone. Extrinsic factors related to camp reproductive health service provision likely accounts for the null findings in relation to the hypothesis that poor mental health status would impinge upon women's optimal use of reproductive health services.

**Paper 3: Development of a Brief Screening Tool for Mental Health Assessment in Refugee Settings**

The detection of common mental disorders in humanitarian crisis requires a screening tool that is practically feasible to use as well as suitably sensitive and specific. The Self-Report Questionnaire has frequently been used among conflict-affected and refugee populations, but is quite long at up to 22 items. Our goal was to identify a highly predictive and reliable screening tool that can be used in busy, over-crowded and low-resource primary health care settings, and that can identify nearly as well as the full-length scale women who need mental health attention. Therefore, the purpose of this analysis was to identify a small subset of the SRQ items with screening efficacy for use in the clinical setting.

We analyzed the responses on an expanded version of the SRQ from 810 displaced women living in refugee camps in Rwanda, dividing the sample into random split halves. Items were evaluated using receiver operating characteristic curve analysis, logistic regression, and internal consistency analysis, as well as for clinical importance.

Four items displayed statistical relevance, while a fifth item on recent suicidal thoughts was deemed clinically relevant. Those items are "Do you feel unhappy?", Do you feel easily nervous, tense, or worried?", "Have you lost interest in things?", "Do you have trouble thinking clearly?" and "Has the thought of ending your life been on your mind?"

The five-item tool, termed the SRQ-5, stands up well psychometrically, with acceptable reliability, a high degree of specificity, and an acceptable amount of sensitivity. The SRQ-5 may be an important tool for furthering the understanding of suicide when assessing mental health among women in crisis situations.

In summary, these manuscripts have established foundations in answering the research question through unique modalities; a comprehensive literature review and theoretical exploration of the phenomenon, a psychometric evaluation of an existing mental health assessment tool used in refugee settings, an empirical analysis of mental health and reproductive health on one population of women who have experienced humanitarian crisis, and finally, a recommendation for a brief screening tool that shows promise for use in women's health settings.

## Recommendations

Based on results of this dissertation work, I can make recommendations for service development to improve the health of women in the context of complex humanitarian emergencies. First, through psychometric evaluation, the reliability and validity of the SRQ-SIB was verified to be appropriate and scientifically sound for use in this population. This modified version builds on the already well-established SRQ by identifying women with chronic suicidal thoughts, a likely indicator of severity of depression, anxiety, and posttraumatic stress. Second, using the SRQ-SIB, I tested the hypothesis that mental health status would be related to reproductive health service utilization. This hypothesis was not supported in the data, despite strong literature support indicating that those with psychological morbidity would seek needed care less. Further interpretation of the quantitative analysis, augmented with qualitative interviews of key informants, provided important insights about this unexpected finding.

It is clear the CMDs are endemic in this sample, with 43% of women above the clinical cut point and 65% reporting psychological symptoms. It also is clear that prenatal care and HIV testing services are achieving very high rates of coverage.

Family planning and other services, such as STI screening, are less available and less utilized. Mental health services are essentially not available (i.e., one social worker per 35,000 residents of the two camps).

Thus the null findings in the statistical modeling likely reflect invariance in the dependent variable (reproductive health services) and a low influence of mental health status because outreach workers and well-funded reproductive health initiatives focusing on maternity and HIV are more powerful structural factors than the intrinsic factors of the woman's mental health or agency. With the integration of both survey and interview data, it was established that mental health services are badly needed and that perhaps, given the better availability of reproductive health services, opportunities exist for addressing mental health needs with equal will via integrated programs.

Since mental health care services are lacking in camps, providing care for both reproductive and mental health needs at the same time could lead to better outcomes potentially for both. This research has led to the key implication that humanitarian crisis response plans likely need to take the significant burden of mental health morbidity into account as part of the core goal for improving women's overall health outcomes, not only reproductive health outcomes. Since child health and developmental outcomes in crisis situations also depend on broad maternal health goals, women's health service delivery models must address both psychological and physical/reproductive health domains, separately or in tandem.

Although mental health care and reproductive health care is not usually delivered in tandem, the disparity in provision of mental health needs might be most readily addressed by attaching these goals to the well-established and more universal HIV and

prenatal care services. As stated previously, the integration of mental health care into reproductive care services could help to achieve key international development outcomes, including Millennium Development goals 3 (Promote gender equality and empower women), 4 (Improve maternal health), and 5 (Combat HIV/AIDS) (United Nations, 2010).

If we are to attempt to create integrated programs, we know they will need to be akin to psychological first aid and feasible to implement via primary care. This awareness led to the third analysis, which created a very brief screening tool from the SRQ-SIB to aid in case-finding for severe CMD. The SRQ-5 is a simple to use, psychometrically sound and specific instrument that can rapidly assess for common mental health disorders in refugee women. This tool was developed through careful exploration of the strongest performing items of the SRQ-SIB, with clinical evidence for examining for suicide symptoms. This tool can easily be integrated into most reproductive health care visits, and can be administered in less than five minutes.

Finally, I have the specific goal of using the results of this dissertation and future research to inform and support health policy for refugee women that is holistic, woman-centered and impactful. Dissemination of this research in the literature, as well as through advocacy with governmental and non-governmental organizations, is key to effecting the needed change that has been evidenced through this research. While the academic and development worlds generally remain quite separate, this dissertation was a collaborative effort between the two, and thus, the hope is that this collaboration will continue through shared knowledge which can lead to implementation of the recommendations presented here.

## Directions for Future Research

I would like to continue my work among women affected by disaster and humanitarian crisis, an area that I believe represents a large gap in scientific understanding of the effects of such events on the health of women. I hope to establish a model of integrated care that can be applied to the broader population of trauma-exposed women that will advance disaster and crisis preparedness planning in women's health globally.

I have several goals to advance this line of research. My next steps are to expand on this dissertation research by examining the same research question among both global and domestic survivors of disaster. I have obtained datasets using the same instruments that were conducted in Thailand among Burmese refugees, and in Columbia with internally displaced persons. I would like to conduct an identical analysis as I did in this dissertation to compare the results across the three settings, Rwanda, Thailand and Columbia. This information could help to support and further refine the theoretical model through examining refugee women's health on three continents, and could represent a substantial contribution to the literature.

It should be noted that research around disasters is only given priority by funding agencies following large-scale disasters with serious threats to population health. Since it is inevitable that such a disaster will occur in the future, I would like to be prepared with a line of research that can deploy targeted interventions to address women's reproductive health and mental health together at the time of a disaster. I am also interested in continuing to explore the SRQ-SIB as a tool for understanding mental health among women after disaster or humanitarian crisis. I would like to begin by

exploring the cultural interpretations and qualitative meanings of the SRQ-SIB. I believe the SRQ-SIB is a beneficial tool for identifying common mental health disorders among refugee women, but agree that qualitative exploration is needed to explore the inherent cultural meanings and assumptions in order to verify its accuracy.

## Closing Statement

In conclusion, integration of survey and interview data have shown that mental health services are badly needed and that, given the better availability of reproductive health services, there are opportunities for addressing mental health needs through integrated programs. The SRQ-5 can help to simplify this integration of primary mental health care into reproductive health visits. Since mental health care services are lacking, providing care for both reproductive and mental health needs at the same time could lead to improved outcomes for this sample of women, and perhaps displaced women worldwide.

## References


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