THE ROLE OF SOCIAL NETWORKS IN PROVIDING SOCIAL SUPPORT TO RESETTLED FEMALE REFUGEES DURING THEIR PREGNANCY IN THE UNITED STATES

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DEDICATION

I would like to dedicate this dissertation and research to my family – my mom and dad (Rita and Fred), siblings (Ray, Rita, Laura, and John), brother-in-law (Tim), and nephews (Tim, Jack, Ben, and Sam) for their unending love and support. I would also like to dedicate this work to Suryakant, Rupam, and Purvi, my second family, who have encouraged me throughout every step of this process. I also dedicate this work to Ritesh, who has supported me day by day and unconditionally from the start of this work to its completion. And finally, to Woodson the American bulldog, who has been an ever-present source of joy to me and my constant companion.
LIST OF ABBREVIATIONS

Centers for Disease Control and Prevention (CDC)
Internally displaced people (IDP)
Network Theory (NT)
Nongovernmental organization (NGO)
Norbeck Social Support Questionnaire (NSSQ)
Postpartum depression (PPD)
Post-traumatic stress disorder (PTSD)
Social network analysis (SNA)
Social Network Theory (SNT)
Socioeconomic status (SES)
United States Department of State Bureau of Population, Refugees, and Migration (PRM)
Resettlement Support Center (RSC)
Refugee Status Determination (RSD)
United Nations (UN)
United Nations High Commissioner for Refugees (UNHCR)
United States (U.S.)
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I would first like to acknowledge the women who devoted their time and shared their stories so the public health community might gain a better understanding of the lived experiences of resettled refugee women in the U.S. I would also like to acknowledge Aruna Khanal, study translator, who played an integral role in connecting me with the women whose experiences are shared in this research. Finally, I would like to acknowledge my dissertation co-chairs, Dr. Jeffrey S. Hallam and Dr. Madhav P. Bhatta who were a constant source of positive support throughout this entire process, as well as committee members Dr. Brian Castellani, who helped expand my knowledge of social network methods and applications, and Dr. Eric Jefferis, who has been a continued source of support throughout the duration of my doctoral studies.
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CHAPTER ONE

INTRODUCTION

Each year, millions of men, women, and children flee their homelands to escape humanitarian crises across the globe. The impact of war, genocide, natural disasters, poverty, and religious, social, and political persecution often leave individuals with the imperative to relocate within a neighboring country or across regions. Defined by the United Nations (UN) as a ‘refugee,’ this is an individual who “owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion, is outside the country of his nationality and is unable or owing to such fear, is unwilling to avail himself of the protection of that country” (United Nations, n.d.).

Of the world’s refugees, nearly 25% are women of reproductive age (United Nations, n.d.). Among refugee women, establishing a sense of identity in the country of resettlement, following what could be significant hardship due to experiences in their home country and as refugees, is often contingent on the strength of their social networks (Smith, 2013). Previous research has demonstrated that women who are able to rely on their social networks (i.e., social connections forged both before and after resettlement) comprised of family, friends, and acquaintances within their country of resettlement reported a greater sense of connectedness than those who were not. The purpose of this research is to describe the structure and composition of the personal social networks of resettled Bhutanese refugee women during their pregnancies in
the United States (U.S.), as well as to determine the provision of social support through them. According to a recent systematic review of social networks and the reproductive choices (which included decision-making related to pregnancy) of females in the developing world, there is a need for continued research about the relationship between maternal health and social networks, particularly how these networks influence health behavior, knowledge, and norms during pregnancy (Lowe & Moore, 2014).

The following chapter provides an introduction to the variety of factors that influence refugee health and well-being in general, primarily from a resettlement perspective. Current statistics on the number of refugees living worldwide and in the U.S. are included, as well as how the resettlement process operates within the U.S. Further information on what differentiates refugees from immigrants is also included. For the present study, Bhutanese refugees of Nepali descent are the focal population. This chapter provides a background of what contributed to the fleeing of ethnic Nepali people from Bhutan, as well as their migration from refugee camps in Eastern Nepal to third country resettlement sites across the world.

Of particular interest to this study are female refugees, specifically, their pregnancy experiences following resettlement in the U.S., as well as the structure and composition of their social networks. An overview of the leading health concerns for refugee women are included, with specific information provided on pregnancy outcomes. This chapter also provides an overview of the theoretical framework that was utilized to guide this research, the public health significance of this topic, the study’s research questions and specific aims, as well as assumptions and delimitations that were considered as part of this work.
Defining Refugee Status

The process of becoming a refugee begins when conditions in an individual’s country of origin become unsafe, dangerous, threatening, and/or violent due to instances of persecution that are either government mandated or based on social or political movements. Individuals who face such circumstances may make the choice to seek protection across borders in order to find safety for themselves and their families. Individuals who flee their homes in this manner are defined as “asylum seekers,” a classification that deems a person as not yet a refugee, but in need of protection their country of origin is unable to provide (United Nations, n.d.). Asylum seekers may await legal recognition as a refugee while they seek protection within a host country.

Refugee status is a legally recognized classification that is granted by either a government or the United Nations High Commissioner for Refugees (UNHCR) (United Nations, n.d.). Refugee Status Determination (RSD) is considered a “legal or administrative process” that is guided by international, regional, or national law (United Nations, n.d.) While states that are granting asylum are primarily responsible for assigning refugee status, the UNCHR may also grant refugee status if the state of asylum is not willing or unable to do so (United Nations, n.d.).

Global Refugee Statistics

Recent statistics report that worldwide, 65.3 million people are considered forcibly displaced, which includes 21.3 million refugees, and 10 million “stateless people” (United Nations, n.d.). Included among the categories of the forcibly displaced are asylum seekers and internally displaced people (IDPs), who have fled within the borders of their country of origin and continue to remain under the protection of their own government (UNESCO, 2016). Stateless people are individuals who are not displaced, but may not be recognized as citizens in
their country of origin and are not protected by the same basic human and legal rights as citizens, which is often due to discrimination against certain ethnic or religious groups (United Nations, n.d.).

It has been concluded that the world is experiencing one of the highest levels of displacement on record (United Nations, 2015). It is estimated that 34,000 people are forcibly displaced each day and that more than 1.6 million applications for asylum or refugee status were filed in 157 countries in 2014 (United Nations, n.d.). By mid-2015, the number of new refugees and asylum seekers was estimated at 15.1 million worldwide (Riveria, Lynch, Li, & Obamehinti, 2016). Of the more recent movements, the Syrian refugee crisis is considered one of the most significant in modern times, with additional large-scale movements from Iraq, Central African Republic, and South Sudan (United Nations, n.d.).

Women and girls comprise 50% of the forcibly displaced population, as well as 50% of the refugee population (UNHCR, n.d.). Hardship associated with the refugee experience can be particularly pronounced for females, especially those who must flee alone, are pregnant, elderly, disabled, or are heads of household (UNHCR, n.d.). Female refugees may face the threat of discrimination, physical, and/or sexual violence throughout the resettlement process, experiences that can further compound past traumas that were incurred in the country of origin (UNHCR, n.d.).

**Differentiating Between Refugees and Immigrants**

What distinguishes refugees from immigrants is the nature of their migration. Immigrants typically migrate either within their own countries or across borders voluntarily, often to improve their life, gain access to employment and education, or to reunite with family (Edwards, 2015).
Refugees, on the other hand, are forced to flee due to intolerable living conditions that pose a direct threat to their lives and well-being. In studies that compared refugee health outcomes to other immigrants, it was found that while the nature of the migration itself may not be heavily associated with subsequent health outcomes, refugees were more likely to report exposure to violence that could later impact health outcomes compared to other immigrant groups (Jamil et al., 2016). Previous experiences in the country of origin may exert a powerful influence on the quality of life reported by refugees and can play an important role in shaping their lived experience while they are fleeing, upon resettlement, and beyond.

**Refugee Resettlement**

The resettlement process is defined by UNHCR as the “selection and transfer of refugees from a State in which they have sought protection to a third State that has agreed to admit them – as refugees – with permanent residence status” (United Nations, n.d.). Resettlement affords refugees the “civil, political, economic, social, and cultural rights similar to those enjoyed by nationals” and may potentially lead to naturalization as a citizen of the host country (United Nations, 2016, p. 46). Refugees who are selected for resettlement are often those who are considered at highest risk, and whose “life, liberty, safety, health, or other human rights are at risk in the country where they sought refuge” (United Nations, 2015, p. 1). Many refugees will remain in the countries to which they fled or in camps sponsored by UNHCR, and less than 1% are resettled in host countries (United States Department of State, n.d.). It is not a requirement for host countries to accept refugees and of those that do, specific criteria are put in place by the host country’s government to determine how many refugees will be resettled and under what circumstances (United Nations, 2012). Of the countries that have mechanisms in place to accept
refugees, those most likely to be selected for resettlement include Australia, Canada, New Zealand, the Netherlands, Denmark, Finland, Norway, Sweden, and the U.S. (United Nations, 2012). Among host countries, the U.S., Canada, and Australia are responsible for 90% of the resettlement space, with the U.S. reported to have one of the oldest refugee resettlement programs in the world (Capps & Newland, 2015).

Since 1975, over 3 million refugees have resettled in all 50 states in the U.S. (United States Department of State, n.d.). Annually, an estimated 70,000 – 80,000 refugees are resettled from across the globe (Capps & Newland, 2015). As of 2015, UNHCR reported there are 559,370 “persons of concern” living in the U.S., who are classified as either refugees or asylum seekers (UNHCR, 2015). It has been noted that the refugee population within the U.S. is becoming increasingly diverse, where the nationalities represented among refugees has grown from 11 countries in the 1980s to 113 in 2013 (Capps & Newland, 2015). In Fiscal Year 2016, the U.S. is projected to resettle 85,000 refugees, with 34,000 coming from the Near East and South Asia (10,000 of which will be from Syria), 25,000 from Africa, 13,000 from East Asia, 4,000 from Europe, 3,000 from Latin America and the Caribbean, and 6,000 unallocated reserves which will allow flexibility in admitting refugees in emergent situations (United States Department of State, n.d.). Recent decisions by the U.S. federal government pertaining to refugee resettlement, however, may dramatically change the number of refugees who are resettled in the U.S. in the future (White House Office of the Press Secretary, 2017).

The refugee experience can be studied in terms of its pre-migration, flight, and resettlement impact on an individual’s well-being (Beiser, 1990; Benson et al, 2012; Wachter, Cook Heffron, Snyder, Busch Nsonwu, & Busch-Armendariz, 2016). Each stage of the refugee experience can be marked by specific challenges and in some cases, trauma, which can have
long-term implications for the quality of life a refugee experiences (Beiser, 1990; Benson et al., 2012; Wachter, Cook-Heffron, Snyder, Busch Nsonwu, & Busch-Armendariz, 2016). From a resettlement perspective, experiences in the refugee’s country of origin and during flight have been shown to exert an impact on their ability to integrate within the host country (Kirmayer et al, 2011). Previous research has found that stress related to resettlement includes a fragmentation of social support structures, learning to navigate a new culture, loss of social status previously held in the country of origin, unfamiliarity with the host country language, and limited access to and/or unfamiliarity with available resources (Walker, Koh, Wollershelm, & Liamputtong, 2015). These experiences can be further compounded by pre-migration trauma that can add to the mental distress associated with resettlement (Walker, Koh, Wollershelm, & Liamputtong, 2015).

**Refugee Resettlement in the United States**

Resettlement in the U.S. is a lengthy process that often lasts 18-24 months from the initial referral for resettlement to arrival (United States Department of State, n.d.). When resettling in the U.S., a refugee applicant is first referred by UNHCR or in some cases, another designated body such as an embassy or nongovernmental organization (NGO), to the U.S. and the case is reviewed by a Resettlement Support Center (RSC) (United States Department of State, n.d.). There are nine RSCs in the U.S., which are managed by the United States Department of State Bureau of Population, Refugees, and Migration (PRM). It is the responsibility of the RSC to prepare refugee applications for consideration for resettlement (United States Department of State, n.d.). The RSCs collect necessary biographical and background information to be utilized in an adjudication interview with the applicant for the purposes of security screening by the
Approval for resettlement is granted after the applicant is interviewed and passes a security screening. Refugees who are cleared for resettlement receive a health screening in the country of asylum to determine the presence of infectious disease. Following the health screening, approved refugees are referred for “sponsorship assurance” from one of nine U.S. resettlement agencies (United States Department of State, n.d.). The resettlement agency will review the refugee applicant’s information, assess their needs, and will select a local community in which to resettle. Individuals who are seeking resettlement are often placed near or with relatives if possible (United States Department of State, n.d.).

The placement of refugees near family is shown to improve the resettlement experience for many individuals (Riveria, Lynch, & Obamehinti, 2016). In a systematic review of 45 studies that considered the migration experiences of refugees and their integration within host countries, it was reported that refugees demonstrate higher levels of resilience when they are embedded within strong community networks, have access to positive peer relations, and have a sense of cohesion within their families and communities (Riveria, Lynch, & Obamehinti, 2016). It is through social connections that many refugees are able to make a positive adaptation within their host countries, which may serve as a buffer from acculturative stress that can lead to social isolation within the new community (Riveria, Lynch, & Obamehinti, 2016). Through interviews with secondary migrants to Ontario (i.e., refugees who resettle in one area of a host country and then move to another for new opportunities or to reunite with family), it is reported that settling with friends and family who share a cultural background can help refugees more effectively bridge the gap between their country of origin and their country of resettlement (Simich, 2003). This is particularly true if these friends and family are settled for a longer period of time than the
secondary migrant (Simich, 2003). Refugees will often rely on these social connections to provide assistance in navigating their new communities (Simich, 2003).

**Bhutanese Refugees of Nepali Descent**

The refugee population of interest in the present study are Bhutanese refugees of Nepali descent who have resettled in the U.S., specifically, Akron, Ohio. The origins of the Bhutanese refugee movement began many generations ago, when native Nepali people migrated and settled in the lowlands of neighboring Southern Bhutan (Maxym, 2010). Due to this migration, individuals retained their Nepali ethnicity, language, and cultural background, but were considered Bhutanese citizens. Referred to as “Lhotshampas” (“People of the South”), this group experienced little integration with the larger Bhutanese population in the North, and while they were considered Bhutanese citizens, retained much of their Nepali identity. While the Lhotshampas experienced many years of peaceful living in Bhutan, it was in the 1980s that the Bhutanese government became concerned about migration from Nepal to Bhutan and the growing Lhotshampa population. This led to the development of the “one country, one people” movement which sought to create a strictly Bhutanese national identity (Maxym, 2010). This policy included a mandate that all Bhutanese citizens wear traditional Bhutanese dress, practice the same religion, and speak the same language, regardless of their previous practices (Maxym, 2010). This policy eventually led to a variety of human rights violations that included imprisonment, torture, illegal seizure of land and homes, and strict citizenship requirements directed primarily toward the Lhotshampa people (Maxym, 2010). Large migration movements back to Nepal began in the 1990s where asylum was granted and many Bhutanese refugees settled into camps in eastern Nepal, where several thousand remain today (Maxym, 2010). Since
the 1990s, seven refugee camps have been established to accommodate Bhutanese refugees. In
2006, UNHCR established a resettlement program to move Bhutanese refugees from Nepali
camps to third countries, many of whom have been living in refugee camps for as long as 20
years (CDC, 2014). This movement led to the resettlement of thousands of Bhutanese refugees
worldwide. The acceptance rate of Bhutanese refugees is considered the highest in the world,
where 99.4% of the total submissions for resettlement have been accepted (United Nations,
2013). Of the countries who have accepted Bhutanese refugees, the U.S. has resettled the most,
over 83,000 (as of 2016), followed by Canada with 5,376, and Australia with 4,190 (United
Nations, 2013; Yun et al., 2016). Other host countries that have resettled Bhutanese refugees
include New Zealand, Denmark, Norway, the Netherlands, and the United Kingdom (United
Nations, n.d.). Of the original seven Nepali camps established to accommodate Bhutanese
refugees, two have been closed due to a declining population and the remaining camps will be
consolidated to house the nearly 40,000 refugees who still remain (CDC, 2014). In Akron, Ohio,
the geographic area of interest in this study, over 1,500 refugees from Bhutan have resettled and
they currently comprise the largest share of Akron’s refugee population (International Institute of

According to the Centers for Disease Control and Prevention (CDC), the Bhutanese
refugee population resettled within the U.S. is relatively young, where 60% of the population is
15-44 years old, 15% are 45-64, and 5% are over the age of 65 (CDC, 2014). In considering the
unique health needs of resettled Bhutanese refugees, of particular concern are poor nutritional
status, poor self-rating of health, and prevalence of mental health disorders, which includes a
disproportionate incidence of suicide (Kumar et al., 2014). According to the United States
Department of Health and Human Service’s Office of Refugee Resettlement, from the year 2009-
2012, the suicide rate of resettled Bhutanese refugees was 20.3 per 100,000 people, which was twice the suicide rate of the U.S. population as a whole (CDC, 2013; Hagaman et al., 2016). Risk factors for suicide identified within this population include mental health disorders, such as post-traumatic stress disorder (PTSD) and social stressors, particularly those associated with providing for the family, finding employment, integrating within the host culture, and feelings of being a burden on the family (Ao et al., 2012; Ellis et al., 2015).

The Refugee Experience

Previous research has shown that as a group, resettled refugees may experience poorer health than other immigrants, as well as poorer health than native-born individuals within the host country (Var, Poyrazli, & Maraj Grahame, 2013; Walker, Koh, Wollersheim, & Liamputtong, 2015). Refugees show high rates of oral health problems, chronic disease (such as diabetes and heart disease), and nutritional deficiencies (Asgary & Segar, 2011). Refugees are also more likely to rate their own health as ‘fair to poor’ when compared to other immigrants (Jamil et al., 2015). In the U.S., resettled refugees tend to experience higher rates of mental health distress when compared to other immigrants and the general population (Goodkind, 2006). The mental health distress that resettled refugees experience tends to be the result of past traumas, which often contributes to PTSD. The inability to access resources to cope with psychological distress, loss of community and social support, poverty, difficulties with integrating into a new country, social isolation, discrimination, and lack of opportunities for personal, professional, and/or economic growth are also shown to impact quality of life and well-being of resettled refugee groups (Goodkind, 2006).
The refugee experience is described as a “non-normative, critical life event,” with great potential to impact physical and mental wellness, as well as overall quality of life (Schwarzer, Jerusalem, & Hahn, 1994, p.31). The stress of involuntary migration is shown to be further compounded by concerns of acculturation following resettlement (Gurgue, Thomson, George, & Chaze, 2015). In a scoping literature review of 34 articles considering the association between social support and social conflict on the mental health of female refugees and immigrants (Gurgue, Thomson, George, & Chaze, 2015), it was found that instances of mental and physical illness among refugees were partially the result of stress related to social isolation. Navigating new communities, cultures, languages, and ways of living often leave resettled refugees with a sense of isolation within the host country that can continue impacting their quality of life after resettlement (Renner, Laireiter, & Maier, 2012). This relationship can be especially pronounced for refugees who report a history of trauma compared to those who do not (Renner, Laireiter, & Maier, 2012).

The Health and Well-Being of Female Refugees Globally and Nationally

For female refugees, disparities in health outcomes compared to the general population, as well as other immigrant groups, have been observed (Allotey, 1998). Research that examined health behaviors among resettled female refugees in the U.S. reported that 86% of refugee women 40 years of age and older had never received a mammogram (in comparison to 33% of American women) and that in the previous three years, only 24% of refugee women had received a screening for cervical cancer (Redwood-Campbell et al., 2007). In a study that examined the knowledge, attitudes, and practices toward cervical cancer screening among 42 Bhutanese refugee women in Nebraska, it was found that only 22.2% of women had ever heard of a Pap test
and 13.9% reported having received one (Haworth, Margalit, Ross, Nepal, & Soliman, 2014). An additional study among a sample of 108 Bhutanese refugee women between the ages of 18-65 living in Northeast Ohio, found that 64.8% were reported to have excess body weight and 69.4% experienced abdominal obesity, a known risk factor for heart disease, diabetes, and metabolic syndrome (Bhatta, Assad, & Shakya, 2014). When asked to self-report their own feelings about their health, 50 out of 67 refugee women from Chile, El Salvador, Nicaragua, and Guatemala who resettled in Australia reported they did not feel they were healthy and felt their health was worse now than it had been when they arrived (Allotey, 1999). Among middle-aged female Bosnian refugees resettled in Sweden, Sundquist, Johansson, DeMarinis, Johansson, & Sundquist (2004) found that 38.3% of the women reported they had poor general health compared to 23.3% of Swedish women. Additionally, refugee women were also more likely to report symptoms of somatic and psychological distress than Swedish women. While refugee women may not have personally experienced past traumas, many report feelings of marginalization within their new communities (Allotey, 1998).

In considering the health needs of refugee women resettled in the U.S., of particular concern are those related to pregnancy and the delivery of healthy infants (Carballo, Grocutt, & Hadzihanasovic, 1996; Jentsch, Durham, Hudley, & Hussein, 2007; Kabakian-Kasholian, Shayboub, & El-kak, 2013). Challenges experienced by refugees upon resettlement include those related to accessing the healthcare system and being adequately prepared to follow clinical regimens as prescribed by healthcare providers (Palinkas et al, 2003). In a study that examined pregnancy outcomes of Cambodian refugee women resettled in Massachusetts, it was found that the maternal risk factors experienced within this population were anemia and inadequate utilization of prenatal care, with 32.3% of pregnancies studied including reports of a first visit to
the physician during the third trimester (Gann, Ngheim, & Warner, 1989). In studying health needs during pregnancy, labor, and after delivery, previous research has found that for refugee women, inadequate access and utilization of prenatal care, lack of adequate interpretation services, incongruent cultural understanding, and postpartum depression (PPD) were among the most prevalent unmet needs (Correa-Velez & Ryan, 2011; Gagnon et al., 2007). For PPD in particular, rates among refugee and immigrant women are higher than that of the general population. It is estimated that 19% of women in the U.S. suffer from PPD at some point following their pregnancies, while the percentage may be as high as 42% for refugee and immigrant women (Tobin, DiNapoli, & Wood-Gauthier, 2015). Risk factors associated with the development of PPD include a history of depressive illness, low levels of perceived and received social support, race and ethnicity, poverty, exposure to high levels of life and marital stress, violence, and trauma (Tobin, DiNapoli, & Wood-Gauthier, 2015). Among refugee women, the experience of hardship in their home countries, along with the stress of migration and resettlement, combined with potential feelings of isolation and loneliness in the host country, may place them at increased risk for developing PPD (Collins, Zimmerman, & Howard, 2011; Tobin, DiNapoli, & Wood-Gauthier, 2015). In a series of interviews conducted among refugee and immigrant women by Tobin, DiNapoli, & Wood-Gauthier (2015), it was found that all 22 participants reported feelings of isolation, loss, and loneliness during their pregnancies following resettlement in the U.S. An additional study of 126 refugee and immigrant women found that 28% were considered at risk for developing PPD, compared to 20% of the general population during the same period. Forty-two percent of the women reported experiencing some level of life stress, 51% described a lack of social support from partners, family, and friends, and 60% were of low socioeconomic status (SES) (Tobin, DiNapoli, & Wood-Gauthier, 2015).
Of the risk factors associated with PPD, of particular concern to the present research study is the provision of social support. Social support from multiple sources that is provided to women during the entire gestational period and after childbirth may exert a protective effect on the mental health and well-being of the mother (Xie et al., 2010). In research conducted by Xie et al. (2010), it was found that women who reported receiving low levels of support from their social networks were at increased risk of developing PPD compared with women who received high levels of support. Examining these results in light of the increased risk refugee women experience for PPD presents an opportunity to consider the role social support plays in influencing the pregnancy experiences of refugee women (Xie et al., 2010).

While previous research has shown a relationship between refugee status and risk factors for a variety of adverse maternal health outcomes, refugee and immigrant status is also shown to have a favorable effect on health. A large body of research illustrated what is known as “the healthy migrant effect,” where foreign-born women are shown to experience improved health outcomes compared to their U.S.-born counterparts. A 2016 analysis of 6,354 electronic birth records of refugee women resettled in Syracuse, New York found that 5.2% of infants born to refugee women were born prematurely, compared with 8.4% of infants born to women from the U.S. (Miller, Robinson, & Cibula, 2016). Possible explanations for this phenomenon included the fact that Syracuse has become a designated city for refugee resettlement that contains a variety of services for pregnant refugee women that makes the city better equipped to meet the needs of resettled refugees.
Theoretical Framework

The theoretical framework that guided the research described in this paper was Social Network Theory (SNT) (Glanz, Rimer, & Viswanath, 2008). Conceptually, SNT describes the connections between people, the support that is provided, and how these connections influence physical, mental, emotional, and social well-being (Glanz, Rimer, & Viswanath, 2008; Valente, 2010). SNT asserts that social relationships play an important role in both directly and indirectly influencing health. Direct support may come in the form of sharing resources necessary for good health and indirect support may be intangible support offered by sharing companionship with another. From a health perspective, examining the networks that surround individuals can play an important role in understanding how health behaviors, norms, influences, and resources are transmitted through groups. Further, SNT also posits that social connections form structures in which individuals are embedded, and the structure the networks take, along with where the individual is positioned within them, can be influential in shaping behavior, access to resources, and health-related outcomes.

Public Health Significance

While many of the challenges experienced by female refugees during pregnancy following resettlement have been identified both in the U.S. and globally, a gap exists in the current literature in understanding how the presence of strong social networks within the country of resettlement may impact pregnancy experiences. Further, there is limited research available that considers how the personal networks of refugee women provide social support during their pregnancies. A review of the literature yielded limited results in the application of social network analysis (SNA) to understanding the pregnancy outcomes of refugee women. In particular, there
is limited understanding of how social networks may improve the pregnancy experience for female refugees resettled in the U.S. Refugee women represent a vulnerable population within their country of resettlement. Owing to difficulties associated with the refugee experience, in addition to stressors in the resettlement process, female refugees are often left without the support that is necessary to effectively reestablish themselves. For pregnant refugees, additional concerns may emerge, particularly related to the delivery of their child and the ability to achieve a healthy pregnancy (Ameresekere et al., 2011; Bokore, 2013; Carballo, Grocutt, & Hadzihasanovic, 1996; Carolan & Cassar, 2007; Collins, Zimmerman, & Howard, 2011; Edwards, Rautio, & Hakanson, 1987; Flynn, Foster, & Brost, 2011; Gagnon et al., 2007; Gann, Ngheim, & Warner, 1989; Hynes, Sakani, Spiegel, & Cornier, 2012). The present study utilized a social network approach to define and describe the personal social networks of resettled Bhutanese refugee women during their pregnancies in the U.S., quantify the provision of social support provided to them via their networks using the Norbeck Social Support Questionnaire (NSSQ), and create a profile of the various network types that could be identified within the sample.

**Research Questions and Specific Aims**

Since 2008, the widespread resettlement of Bhutanese refugees of Nepali descent has been considered one of the world’s largest resettlement efforts. Due to government-sponsored policies that motivated ethnic discrimination and violence, many refugees were forced to flee Bhutan and settle in refugee camps in neighboring Nepal (UNHCR, 2008). Efforts to move Bhutanese refugees from camps to secondary resettlement sites has resulted in in over 100,000 refugees finding homes in eight different countries, including the U.S. (UNHCR, 2013). Since
2012, nearly 49,000 Bhutanese refugees have been resettled in the U.S., over 2,335 of whom are resettled in Ohio (CDC, 2014; United States Department of Health and Human Services, 2014).

In Ohio, the city of Akron has become home to 1,583 Bhutanese refugees since 2009 (International Institute of Akron, 2014). Considering the widespread resettlement of Bhutanese refugees nationally, statewide, and locally, there is an opportunity to assess the potential impact the refugee experience has on personal health, particularly for female refugees during their pregnancies in the U.S.

The research questions and corresponding specific aims that guided this study were:

**RQ1**: How are the personal social networks of resettled female Bhutanese refugees structured during their pregnancies in the U.S.?

**Specific Aim #1**: To describe the personal social network structure of resettled female Bhutanese refugees who have given birth in the U.S.

**RQ2**: How supportive are the personal social networks of resettled female Bhutanese refugees during their pregnancies in the U.S.?

**Specific Aim #2**: To describe the provision of social support during pregnancy through the personal social networks of resettled female Bhutanese refugees who have given birth in the U.S.

**RQ3**: What differences can be observed in the personal social networks of female Bhutanese refugees during their pregnancies in the U.S.?

**Specific Aim #3**: To compare the personal social network structure and provision of social support across the personal networks of resettled female Bhutanese refugees who have given birth in the U.S.
Assumptions

In order to conduct this research, several assumptions were made about the topic area, the population of interest, and the methods that were utilized. First, it was assumed that participants were embedded within personal networks during their pregnancies, through which social support was provided. It was assumed that women who participated had at least one support person available to them during their pregnancies that would make them eligible to report on their perception of the social support provided to them. It was also assumed that the process of resettlement left participants with some degree of fragmentation in their social networks that may play a role in influencing the social support that was provided to them and by whom. An additional assumption was that participants gave birth at least once within institutional settings in the city of resettlement in the U.S. and not in the home or other private location in the community. Data for this study was collected via semi-structured interviews. It was assumed that the information provided by participants was accurate, honest, and a reflection of their experiences. It was also assumed that participants knew at least some of the general demographic information about each support person they named. Finally, it was assumed that participants had spent some time living in a refugee camp before resettling in the U.S.

Delimitations

This study considers perceived social support that is provided via the personal social networks of resettled female Bhutanese refugees during their pregnancies in the U.S. This study does not measure received social support (i.e. provision of support that can be directly observed) (Helgeson, 1993). This is because participants were recruited who had already given birth within the past two years. This would limit the ability to observe the provision of tangible support.
While this study utilized a personal social network analysis, the option to interview alters was not employed. The rationale for this decision was that alters may not be readily available for interview and that adequate information about the social networks of resettled refugee women during their pregnancies could be obtained by interviewing the ego only (that is, the participant herself).

This study selected participants based on whether they had given birth in the U.S. in the past two years. The decision to interview women who had given birth previously (rather than those who were currently pregnant) was made based on potential sample size projections. It was determined that a larger sample could be obtained by including women who had given birth previously, rather than women who were currently pregnant. Additionally, the study sample was limited to women who were between the ages of 18-44, which would include women who are traditionally considered of childbearing age. The study sample was also limited to women who had given birth strictly in the U.S., not other third countries of resettlement. This decision was made because it limited the exploration of the personal networks of resettled refugee women to strictly those that were reported in the U.S. This study was concerned primarily with the social networks women recalled during their pregnancies (operationalized as “Looking back, who are the people you talked to most about important matters related to your pregnancy?”) This excluded the report of other types of ties who were not identified as important sources of support during pregnancy, but who may be supportive ties in general.

It should also be noted that the Norbeck Social Support Questionnaire (NSSQ) (1980), which was utilized in this study to measure social support, can be self-administered (that is, it is designed such that participants can complete the questionnaire on their own). For the purposes of this study, the NSSQ was included within a larger interview guide that included additional
questions about the participant’s demographic characteristics and their impressions of their communities of resettlement. The interview was thus conducted by a trained, Nepali-speaking, member of the research team who could then clarify questions should they not be understood by the participant, as well as to ensure adequate and complete information was provided in order to conduct data analysis. It is also important to note that among the potential definitions of social support that can be found in the literature, the definition of social support that is utilized in the NSSQ considers social support in three categories – affective, informational, and instrumental support (House & Kahn, 1985). The NSSQ also takes into consideration social network size and structure as important components in the delivery of social support. This approach is not universal in all social support research and multiple methods of measuring social support have been reported (House, 1987).

Additionally, rigorous hypothesis testing was not employed within this study, primarily due to the descriptive nature of the work. The social network data reported in this study did not lend itself well to hypothesis testing methods commonly utilized within SNA (such as permutation tests, QAP regression, and exponential random graph models) (Borgatti, Everett, & Johnson, 2013).

**Chapter Summary**

Refugees are individuals who are forced to flee their countries of origin due to intolerable living conditions. The experiences of refugees in their country of origin, as well as during the resettlement process, represent an important area of study. Female refugees are often at risk for experiencing discrimination and physical and/or sexual violence while in their countries of origin, as well as during resettlement (UNHCR, n.d.). When comparing refugees to immigrants,
the nature of their migration is more likely to be involuntary, and they are also more likely to
have experienced traumatic events prior to resettlement, which has been associated with poorer
health outcomes in previous research (Jamil et al, 2016). Annually, an estimated 70,000 – 80,000
refugees are resettled in the U.S. from across the globe (Capps & Newland, 2015). Of particular
interest to this study are female Bhutanese refugees of Nepali descent. It is estimated that over
83,000 Bhutanese refugees have been resettled in the U.S. (United Nations, 2013; Yun et al.,
2016). Over 1,500 Bhutanese refugees have been resettled in Akron, Ohio, making them the
largest refugee population group in the city.

Among female refugees who resettle in the U.S., health concerns include limited
knowledge of and access to preventive screenings for breast and cervical cancer, increased risk
for PPD, poor self-rated health, and feelings of social isolation (Allotey, 1998; Collins,
Zimmerman, & Howard, 2011; Redwood-Campbell et al., 2007; Tobin, DiNapoli, & Wood-
Gauthier, 2015). The resettlement process can influence refugee health and well-being and the
presence of strong social support networks within the country of resettlement can provide a
protective effect (Riveria, Lynch, & Obamehinti, 2016; Simich, 2003). For female refugees, the
presence of strong social support systems can improve their pregnancy experiences, as well as
their own health and well-being, along with their child’s (Collins, Zimmerman, & Howard,
2011).

The present study utilizes a social network approach to describe the network structure
and composition, as well as the provision of social support, in the personal networks of resettled
female Bhutanese refugees during their pregnancies in the U.S. There is currently a limited
understanding of how the personal networks of resettled refugee women are structured,
particularly during their pregnancies. The significance of this research is that it is an opportunity
to better understand how network approaches can be utilized to improve the health and well-being of resettled refugee women during their pregnancies, a population who has been identified as vulnerable within the U.S.
CHAPTER TWO

LITERATURE REVIEW

Introduction

The following chapter provides an overview of the literature pertaining to SNA (the primary method of analysis used in this study), as well as its application to health research. Specific attention is given to how social networks shape the refugee experience from a migratory and resettlement perspective. An overview is also provided about the influence of social support on health, specifically the role social support plays in influencing pregnancy-related outcomes, as well as how the provision of social support can impact refugee health and well-being. A description of SNT and its use in health research is also provided.

Social Networks

Social networks have been defined as “a network of individuals and organizations, often called ‘nodes,’ which are tied together by different sorts of relationships, such as friendship, economic exchange, influence, and common interests” (Bartram, Poros, & Monforte, 2014, p. 95). As a research methodology, SNA considers individuals as “embedded” within a “thick web of social relations and interactions” (Borgatti, Mehra, Brass, & Labianca, 2009, p. 892). SNA first examines the relationships between people, rather than characteristics of the individual, and the impact it has on the outcome of interest (Balaji et al., 2007). It is through these relationships
and interactions with others that norms, behaviors, information, and trends are believed to be transmitted (Valente, 2010).

The early roots of SNA can be traced back to the 1930s, when Jacob Moreno and Helen Jennings mapped the social networks of adolescent girls to determine how positioning within the network impacted decisions to become “runaways” (Borgatti, Mehra, Brass, & Labianca, 2009; Moreno, 1934). Since the 1930s, the field has expanded to include matrix algebra and graph theory, which provide methods to measure and map the ties between individuals and the role these ties play in transmitting behaviors (Borgatti, Mehra, Brass, & Labianca, 2009). Over the past several decades, leading concepts within SNA have included Kochen and de Sola Pool’s (1978) “small world theory” (where the connections between two strangers can be traced back to only 6 shared ties, commonly referred to as “six degrees of separation”) and Granovetter’s (1973) “strength of weak ties” (where it is through weak, rather than strong ties, that information can be disseminated). Since then, the field has continued to evolve to determine how more rigorous statistical analyses may be applied to test hypotheses from a network perspective (Hanneman & Riddle, 2005). SNA can be applied within a variety of fields, including information technology, the social sciences, biology, and medicine.

The role of social networks in influencing health has been previously studied for a variety of behaviors (Christakis & Fowler, 2007; Marquez, Elder, Arredondo, & Ayala, 2014; Valente, 2005; Valente, 2004). Social networks are shown to influence health behaviors by transmitting norms and information, offering support for or against a particular behavior, and being the means through which diseases are spread (Centola, 2010). It was noted by Balaji et al. (2007, p. 1388) that “larger and more supportive networks have been associated with lower stress, increased personal well-being, and greater personal self-efficacy” and that smaller networks have been
associated with depression in previous research (Barnett & Gotlib, 1988). The relevance of social networks in influencing health outcomes and behaviors should not be underestimated. It has been described that social networks influence health through a variety of means, particularly through the availability of social support (both perceived and received), social influence (what is considered “normal” in terms of health), social engagement, person-to-person contact (particularly in terms of disease transmission and the transfer of negative health outcomes, such as second-hand tobacco smoke) and access to resources (both individual and community-level) (O’Mahony & Donnelly, 2010). In a study conducted by Marquez et al. (2014), an association was found between large social networks and meeting recommendations for leisure-time physical activity among Latinos. A study by Christakis & Fowler (2007) found an association between the spread of obesity in a network of 12,067 egos and alters over the course of 32 years using data from the Framingham Offspring Study, where direct connections to alters who reported a BMI of 30 or higher appeared to be associated with subsequent weight gain in the ego. From a mental health perspective, strong social networks are shown to be an important source through which social support is provided (Willcox, Willcox, Sokolovsky, & Sakihara, 2007). In addition to considering the structural support a network may provide in transmitting health behaviors, affective dimensions play an important role in the practices an individual may engage in (MacPhee, Fritz, & Miller-Heyl, 1996). In a study that considered the influence of social networks on parenting in light of ethnic variations in approaches to parenting, affective support from networks in the form of personal relationships were more consistently linked to parenting styles than structural support (for example, child care), where emotionally supportive relationships with social connections were associated with more effective parenting styles than any other type of support (MacPhee, Fritz, & Miller-Heyl, 1996). While positive examples of
how social networks impact health have been found, potential negative associations have also been revealed (Balaji et al., 2007). Examples can be seen when one considers the transmission of anti-social behaviors, such as gang activity and crime, as well as negative health behaviors such as adolescent substance use among peers and the transmission of sexually transmitted diseases (Christakis & Fowler, 2009; Valente, 2003).

It was identified that the support a social network provides is important for the adoption of behaviors (Ell, 1984). During pregnancy, the role of social support in influencing maternal and child health outcomes has been examined. In a study conducted by Nuckolls, Cassell, & Kaplan (1982) among army wives who had experienced increased levels of change-related stress, women who reported strong social support also reported fewer pregnancy complications. Social support during pregnancy has been described as “protective” and has been shown to influence pregnancy outcomes, in addition to health behaviors (Edmonds, Paul, & Sibley, 2011). Social support has also been shown to have a protective effect on health among individuals who report low socioeconomic status (SES), where social support can “buffer” against adverse health outcomes (Almeida, Mulready-Ward, Bettegowda, & Ahulwalia, 2014). In a study of households of pregnant women in urban Nepal, among women who were randomized to health promotion groups that utilized their partners to assist in making pregnancy-related decisions, women in “couples groups” were nearly twice as likely to report making more than 3 birth preparations compared to women in the control group (where birth preparations are classified as making prenatal care appointments, choosing an institutional delivery, and/or having a skilled attendant present at birth) (Mullany, Becker, & Hindin, 2007). The impact of poor social support during pregnancy can be seen in poor health outcomes, including low birthweight, preterm birth, neural tube defects, depression, anxiety, and complicated labor (Edmonds, Paul, & Sibley, 2011).
Social Networks and Refugees

The role of social networks can also be studied in relation to the refugee experience, where attention has been given to the role networks play in encouraging migration, as well as in determining where refugees may resettle (Klavnova, 2009). Social network approaches have been used to describe migration processes and to explain the role social connections play in influencing migration experiences (Alfadhli & Drury, 2016; Klavnova, 2009; Pittaway, Bartolomei, & Doney, 2016).

The vulnerability of resettlement for refugees represents an opportunity to consider the role social networks play in influencing health status. For pregnant refugees in particular, additional concerns may emerge, particularly related to the delivery of their child and the ability to achieve a healthy pregnancy (Ameresekere, 2011; Bokore, 2013; Carballo, Grocutt, & Hadzihhasanovic, 1996; Carolan & Cassar, 2007; Collins, Zimmerman, & Howard, 2011; Edwards, Rautio, & Hakanson, 1987; Flynn, Foster, & Borst, 2011; Gagnon et al, 2013; Gann, Nghiem, & Warner, 1989). According to Ell (1984, p. 138), the “need for social support is assumed to be heightened when the individual undergoes change, especially unwanted or unpredicted change, and that under these conditions, the buffering effect of support is greatest.”

From a migratory perspective, social networks become increasingly relevant. For many individuals who have resettled outside of their countries of origin, the social networks available to them can be important sources for the sharing of everyday information, the sustained transmission of cultural values, and can also serve as a link for language acquisition (Curran & Saguy, 2001; Goodall, Newman, & Ward, 2014). However, a byproduct of the resettlement experience may be the fragmentation of social networks that existed in the country of origin (Gurgue, Thomson, George, & Chaze, 2015). This fragmentation may then lead to a decrease in
the amount and type of social support that was previously provided to the individual prior to resettlement (Gurgue, Thomson, George, & Chaze, 2015). Research that considered the experiences of resettled refugee mothers found increased rates of depression among mothers of young children who experienced a lack of support, social isolation, and limited help with childcare (Morantz, Rousseau, Banerji, Martin, & Heyman, 2013). In a study conducted by Stuchbery, Matthey, & Barnett (1998), it was found that the support of extended family is important during the postnatal period for many ethnicities and that among immigrant women in their sample, 64% of Vietnamese and 61% of Arabic women did not have their mothers with them at the time of their infant’s birth, an important source of personal support that can influence maternal health outcomes during birth. In terms of network structure, among women who have resettled in new countries either through forced migration (refugees) or as immigrants, a sense of social isolation can contribute to poor health outcomes. In a study conducted by Eastwood et al. (2013), among immigrant women living in South Western Sydney, those who settled in communities with a larger proportion of Australian-born women (i.e., communities characterized by greater homogeneity) tended to report higher levels of depression during pregnancy than those who settled in more diverse communities. This suggests that community network structure may be important in facilitating women’s access to the social ties and social support that are necessary for holistic health, particularly during pregnancy.

A unique characteristic of refugee social networks that is important to take into consideration is the potential presence of cross-border connections (Afulani, Torres, Sudhinaraset, & Asunka, 2016). Previous research among sub-Saharan migrants in France considered the relationship between cross-border connections (i.e., connections that are maintained between an individual and their ties across distances, typically between the country
of origin and country of resettlement) and found that maintaining cross-border connections may impact mental health, health behaviors, and self-rated health (Afulani, Torres, Sudhinaraset, & Asunka, 2016). It has been described that cross-border connections can provide a protective effect on mental health for migrants by maintaining cohesion with close personal ties (such as family members). These relationships may also facilitate greater material stability, as ties that provide financial resources may be maintained, even across borders (Afulani, Torres, Sudhinaraset, & Asunka, 2016). In considering the impact of cross-border ties on the health and well-being of female refugees, however, it has been found that females may experience greater strain as a result of cross-border connections, particularly due to the pressure they may experience to provide financial assistance to their ties who remain in the country of origin (Afulani, Torres, Sudhinaraset, & Asunka, 2016). In fact, it has been shown that female refugees are more likely to experience negative health outcomes as a result of cross-border connections compared to male refugees (Afulani, Torres, Sudhinaraset, & Asunka, 2016).

Social Support

Social support plays an important role in achieving and maintaining good health. Typically, social support is divided into four categories: informational, emotional, appraisal, and instrumental (Guruge, Thomson, George, & Chaze, 2015). Each category has the potential to fulfill an important role in the functioning and well-being of an individual. Social support can be provided via formal and informal networks that are comprised of family members, friends, neighbors, colleagues, community members, and others (Guruge, Thomson, George, & Chaze, 2015). Social support has been defined as “perceptions of interpersonal transactions that include one or more of the following: the expression of positive affect of one person toward another, the
affirmation or endorsement of another person’s behaviors, perceptions or expressed views and/or the giving of symbolic or material aid to another” (Kahn, 1979, p. 85).

Previous research demonstrates that the strength of social networks improves pregnancy-related outcomes among refugee women in terms of coping with PPD (O’Mahony & Donnelly, 2010). Refugee women who reported having the support of relatives, friends, and partners during the postpartum period were more likely to access the help they needed to manage their condition. Additional research has also considered the role of support for pregnant women (both foreign- and native-born) while giving birth. Among women who had a supportive person present while delivering their child (either a spouse/partner, family member, friend, or healthcare professional), their labors were shorter, they were more likely to deliver their baby without the assistance of pain medications, and were more likely to report a positive labor experience than those who did not have a supportive person present (Essex & Pickett, 2008; Yuenyong, O’Brian, & Jirapeet, 2012).

For refugees, strong social support can assist in the fulfillment of a variety of needs. Specific challenges experienced by refugees that can be alleviated via social support include: difficulties with the host country’s language, accessing employment, navigating the health care system, child care, matters related to immigration status, and bridging disrupted family dynamics (Stewart et al., 2008). For refugees, particularly those who have experienced trauma and are in the early stages of resettlement, emotional support may diminish feelings of mental anguish and isolation (Simich, 2003). Emotional support, particularly from what are considered primary relationships (such as family members), as well as within religious communities, may assist resettled refugees in making positive adaptations to their host country (Riveria, Lynch, Li, & Obamehinti, 2016). In a series of interviews with Burmese, Bhutanese, and Iraqi refugees
resettled in Virginia, it was found that refugees who reported higher levels of support from their family, communities, and/or programs throughout the process of their resettlement and integration in the host country reported less stress than refugees who did not report high levels of support (Hauck, Lo, Maxwell, & Reynolds, 2014). In considering the impact of social support on the experiences of resettled refugees during parenthood, it was found that among refugees from Zimbabwe and Sudan, social support assisted them in coping with stressful situations, as well as diminished feelings of loneliness and social isolation (Stewart et al., 2015). Previous research has also shown that newly resettled refugees will often seek out the support and assistance of refugees who have been resettled for longer periods of time and that refugees who have lived in the host country for longer are considered to be knowledgeable and useful sources of support (Stewart et al., 2008).

In a series of interviews with 60 healthcare providers and policymakers and 120 refugees and immigrants to Canada, it was found that newcomers to a host country may face challenges in acquiring necessary social support, which can contribute to resettlement and integration challenges (Stewart et al., 2008). In particular, it has been noted that the act of migrating can lead to disruption in social networks which may then lead to limited access to social support that would have otherwise been available (Stewart et al., 2008). Refugees who struggle to access social support in their country of resettlement may also find that challenges associated with integration are intensified (Stewart et al., 2008). For refugees who report strong social support networks, there is an association with positive health outcomes (Warner, 2007). This effect can be particularly pronounced when considering the effect of trauma on the health and well-being of refugees. In an ethnographic study of 121 Q’eqchi’ refugee women in Mexico, women who reported weak social support networks experienced greater mental distress and symptoms of
trauma than women who reported strong networks (Warner, 2007). When comparing access to social support for refugee women resettled in Canada to women living in the host country, refugee women had lower levels of social support, lower family incomes, unmet health literacy needs, and a greater need for financial assistance (Guruge, Thomson, George, & Chaze, 2015). In a scoping review of 24 years of literature assessing social support, social conflict, and mental health outcomes among immigrant women living in Canada, poor access to social support was associated with PPD and mental distress (Guruge, Thomson, George, & Chaze, 2015).

**Social Network Theory**

Social Network Theory (SNT) considers the influence that connections with others have on behaviors, access to information, and the provision of social support (Heaney & Israel, 2008). Closely related to SNT is Network Theory (NT), which is the theoretical underpinning of social network analysis (SNA). As a theoretical framework, NT operates under the concept that not only human beings, but also animal groups, organizations, computer systems, flows of knowledge and information, and other processes can be organized according to an underlying structure that maps connections between two or more entities (Borgatti, Mehra, Brass, & Labianca, 2009). From a research perspective, NT guides studies that hypothesize that the structure of networks are important and that the exchange of resources within networks, such as information, goods, services and other objects of interest (both tangible and intangible) matter. Additionally, a network perspective also hypothesizes that the structure of a network can influence how nodes become connected in the first place (Borgatti, Mehra, Brass, & Labianca, 2009). Network studies can be either ego-centric, where network structure is considered by the perspective of a focal node or nodes and the social relations around them, or whole network,
where network structure is considered by the patterns of relationships that develop within a defined group (McCarty, 2005).

This study describes the personal social network structure and composition of resettled female refugees (primarily in terms of network size, network strength, frequency of communication, and demographic characteristics of ties) using an ego-centric network approach, as well as considering the provision of social support within each participant’s network. This study is guided by concepts found both within SNT and traditional NT in that it considers relationships both from a structural perspective (found within NT), as well as from the role these relationships play in the provision of support (SNT).

Chapter Summary

A social network perspective considers the “thick web of social relations and interactions” that fulfill an influential function in shaping behaviors, sharing information and knowledge, and transmitting norms (Borgatti, Mehra, Brass, & Labianca, 2009, p. 892; Valente, 2010). Social network analysis (SNA), a research methodology that is guided by the network perspective, has evolved over the past several years to further develop this understanding of how social relationships are structured (Borgatti, Mehra, Brass, & Labianca, 2009). SNA has grown in its use in health research, where social networks have been shown to influence health behaviors by transmitting norms and information, offering support for or against a particular behavior, and being the means through which diseases are spread (Centola, 2010). SNA has been applied to research topics such as mental health, HIV/AIDS transmission, physical activity, obesity, bullying, and substance use (Christakis & Fowler, 2007; Fujimoto, & Valente, 2012; Latkin et al., 2013; Marquez, Elder, Arredondo, Ji, & Ayala, 2014; Mouttapa, Valente, Gallaher,
In applying SNA methods to health topics, the relevance of social relations in both positively and negatively influencing health outcomes can be more readily understood.

In regard to social relations and their potential influence on refugee health and well-being, there is limited research available that considers this link. However, much of the social network research within refugee populations has considered how strong social ties can prevent feelings of isolation during resettlement, and shows that refugees who resettle with access to strong social ties tend to experience less isolation than those who do not (Eastwood, Jalaludin, Kemp, Pung, & Barnett, 2013; Gurgue, Thomson, George, & Chaze, 2015).

Social networks play an important role in the provision of social support (Gurgue, Thomson, George, & Chaze, 2015; Norbeck, 1980). Social support has been defined as “perceptions of interpersonal transactions that include one or more of the following: the expression of positive affect of one person toward another, the affirmation or endorsement of another person’s behaviors, perceptions or expressed views and/or the giving of symbolic or material aid to another (Kahn, 1979, p. 85). For refugees, this provision of strong social support can assist in the fulfillment of a variety of needs. Challenges experienced by refugees that can be alleviated through social support include difficulties with the host country’s language, accessing employment, navigating the health care system, child care, matters related to immigration status, and bridging disrupted family dynamics (Stewart et al., 2008). During pregnancy, social support has been shown to improve maternal well-being (Essex & Pickett, 2008; O’Mahony & Donnelly, 2010; Yuenyong, O’Brian, & Jirapeet, 2012). Strong social support can improve the outcomes of women who experience PPD, as well as improve labor and delivery experiences (Essex & Pickett, 2008; Yuenyong, O’Brian, & Jirapeet, 2012).
CHAPTER THREE

METHODOLOGY

Introduction

The following chapter provides an overview of the methodology utilized in this study. The primary research method was a personal social network analysis that describes the size and structure of the personal networks of resettled Bhutanese refugee women during their pregnancies. This study also utilized a qualitative data analysis to highlight the types of information communicated within the participants’ networks, as well as to develop case studies that described the personal networks of participants who reported two, three, four and five tie networks.

Human Subject Research Ethical Considerations

The study was approved by the Kent State University Institutional Review Board (Appendix A and Appendix B). Informed consent and consent to be audio-recorded were obtained for each participant (Appendix C, Appendix D, Appendix E, and Appendix F). Both the informed consent and consent to be audio-recorded forms were translated from English to Nepali, and then back translated to English to ensure consistency. Because Nepali was the first language for each participant, the Nepali language forms were provided during the consent process. Participants were provided with a $15 gift card incentive for taking part in the study.
Design, Setting, Sample

Data were collected via semi-structured interviews (Appendix G and Appendix H) designed to elicit demographic information about each participant, demographic information about individuals who were identified as important sources of support during pregnancy, perceptions of the social support received from each support person named, as well as information about the content and frequency of pregnancy-related communication with each support person. Data were collected via in-person interviews conducted in private rooms within the participant’s home, free of interruption. The interview guide was written at 5.5 grade reading level (Flesch-Kincaid) in English, translated into Nepali, and then back translated to English to ensure consistency with the original question wording. The interviews were conducted in Nepali by a trained member of the research team. Each of the 45 interviews were audio-recorded with consent from the participant. The interviews were later transcribed from Nepali into English for the purpose of data analysis. The interviews were conducted over a six-month period (May – October, 2016).

Sample Size

A total sample of 45 participants was needed to achieve the study’s specific aims. Within social network research, there are no strict rules for “bounding” a network and studying its attributes (Borgatti, Everett, & Johnson, 2013). In social network research, it is recommended that, particularly for personal (or ego-centric) network research, the researcher seek a sample that is estimated to be appropriate for answering the research question, or an appropriate reflection of the number of network members who meet the study’s inclusion criteria.
Eligible participants were ethnic Nepali women between the ages of 18 – 44 who were resettled refugees from Bhutan and had given birth in the U.S. during the past 2 years. Participants were recruited using study fliers (Appendix I and Appendix J) posted in two local Nepali grocery stores and through word of mouth (via four community contacts and study participants, who were encouraged to identify individuals whom they knew that met inclusion criteria). After reviewing the flier, three participants expressed interest in participating in the study, only one of whom completed an interview. A remaining total of 59 women were identified as potential participants via community contacts and other study participants, one of whom was deemed not eligible to participate due to her children’s ages. Of the 58 remaining potential participants, four cancelled their interviews and nine did not respond to telephone calls to schedule interviews. A total of 45 participants were recruited and completed their scheduled in-person interviews.

Materials

The NSSQ was utilized to measure the amount of perceived social support provided via the personal networks of the women during their pregnancies in the U.S. The NSSQ is designed to measure three dimensions of social support, including quantity (i.e., number of people identified as providing support), source (i.e., the type of relation, such as spouse or partner, relative, etc.), and support type (i.e., affect, affirmation, and aid) (Gigliotti, 2002). The NSSQ is considered a valid and reliable measure of total network support (Gigliotti, 2002). The NSSQ was originally validated within two groups, a sample of first-year graduate students in nursing (n = 75) and a sample of senior undergraduate nursing students (n = 60) (Heitzmann & Kaplan, 1988; Norbeck, 1981). Pearson correlations among individual items and subscales included in
the NSSQ were utilized to calculate the scale’s internal consistency reliability. The subscales were found to be highly correlated (Affect, .97, Affirmation, .96, and Aid .89). Among the four questions that measured Affect and Affirmation, the correlations ranged from .95 to .98. The correlations between the two questions that measured Aid and the four Affect and Affirmation questions ranged from .72 to .78 (Norbeck, Lindsey, & Carrieri, 1981). Correlations among three network properties that are included in the scale (number in network, duration of relationships, and frequency of contact) ranged from .88 to .96, which also highly correlated with Affect and Affirmation (.88 to .97) and moderately correlated with Aid (.69 to .80). In terms of test-retest reliability, the correlations were Affect, .89, Affirmation, .88, and Aid, .86. For the three network properties, the correlations were each .92. Concurrent validity was also measured using constructs found in Cohen and Lazarus’ exploratory social support measure (Norbeck, Lindsey, & Carrieri, 1981). Affect (.51), Affirmation (.56), and Aid (.44) were correlated with Cohen and Lazarus’ Emotional Support component. Affirmation also correlated with the Informational Support measure in Cohen and Lazarus’ scale at .33. Aid was correlated with Cohen and Lazarus’ Tangible Support measure at .03. Construct validity was not established in the first psychometric test of the NSSQ in the sample of nursing students (Norbeck, Lindsey, & Carrieri, 1981).

A second phase of psychometric testing was also completed using the NSSQ (Norbeck, Lindsey, & Carrieri, 1983). This study utilized a sample of 136 adults between the ages of 22-67. Construct validity was measured using the Fundamental Interpersonal Relations Orientation-Behavior (FIRO-B) scale, a 54-item assessment tool that measures interpersonal needs on three scales, which include: Inclusion, Control, and Affection (Schultz, 1958). Some correlation was shown between NSSQ measures of Affect, Affirmation, Aid, Number in Network, Duration of
Relationships, and Frequency of Contact and the FIRO-B construct of Need for Inclusion, which ranged from .17 to .26. These same NSSQ measures, with the exception of Frequency of Contact, were related to the FIRO-B construct of Need for Affection, .21-.27. In terms of sensitivity of the NSSQ instrument, 75 of the students who participated in the original study were given the NSSQ seven months later. Each subscale of the NSSQ (Affect, Affirmation, and Aid) was found to be highly correlated after several months (ranging from .58 to .78).

Concurrent and predictive validity were also measured in a sample of 55 female graduate-level nursing students. The NSSQ was administered along with the Personal Resources Questionnaire (PRQ), which measures support using five dimensions: Worth, Social Integration, Intimacy, Nurturance, and Assistance, along with Sarason’s Life Experiences Survey, which measures life experiences based on number of major life events, number of negative life events, and number of positive life events, and the Profile of Mood States, which measures six dimensions of mood swings over time, including Tension or Anxiety, Anger or Hostility, Vigor or Activity, Fatigue or Inertia, Depression or Dejection, and Confusion or Bewilderment (Brandt & Weinert, 1981; McNair, Lorr, & Droppleman, 1981; Sarason, Johnson, & Siegel, 1978). Moderate concurrent validity was found between the Affect, Affirmation, and Aid subscales of the NSSQ and two parts of the PRQ, with correlations that ranged from .35 to .41. A regression analysis was conducted to measure predictive validity between Affect, Affirmation, Aid, Negative Mood, and Negative Life Events (Norbeck, Lindsey, & Carrieri, 1983). The multiple regression was shown to be significant, where 35.1% of the variance associated with Negative Mood accounted for Negative Life Events, 16.1% (p < .01); Affect, 2.5% (not significant); Affirmation, 0.5% (not significant); Aid, 2.8% (not significant); and an interaction term (Negative Life Events x Aid), 13.2% (p < .01) (Norbeck, Lindsey, & Carrieri, 1983).
The NSSQ was also tested for internal consistency in a Namibian refugee population (n = 88) (Shisana & Celetano, 1987). The NSSQ was found to have good internal consistency (0.83), however, it has been noted that no further reliability testing has been completed among refugee populations (Hollifield et al., 2002).

Definitions of Variables

The variables that were derived from responses to the interview guide and included in the analysis were:

**ID number.** A unique identifier provided to each participant.

**Age.** The participant’s self-reported age in years.

**Birthplace.** Where the participant was born.

**Length of time in Akron (years).** The length of time the participant has lived in Akron in years.

**Length of time in Akron (months).** An additional variable of length of time lived in Akron was calculated due to the fact that several participants had either lived in Akron for less than one full year, had reported their length of time living in Akron in total number of months, or had reported their length of time living in Akron in total number of years and months. This variable was calculated by taking all responses reported in years and multiplying that value by 12. In cases where the participant reported their length of time living in Akron in years and months, the variable was calculated by taking the number of years reported, multiplying it by 12, and then adding the additional months to the new value.

**Previous home.** The previous place of settlement before coming to the U.S.

**Length of time in the U.S. (years).** The length of time the participant has lived in the U.S. in years.
**Length of time in the U.S. (months).** An additional variable of length of time lived in the U.S. was calculated due to the fact that several participants had either lived in the U.S. for less than one full year, had reported their length of time living in the U.S. in total number of months, or had reported their length of time living in the U.S. in total number of years and months (i.e., three and a half years). This variable was calculated by taking all responses reported in years and multiplying that value by 12. In cases where the participant reported their length of time living in the U.S. in years and months, the variable was calculated by taking the number of years reported, multiplying it by 12, and then adding the additional months reported to the new value.

**Number of children.** The number of children the participant currently has, though the interview guide pertained directly to the most recent pregnancy the woman had in the U.S.

**Currently pregnant.** Whether the participant was currently expecting.

**Number of children born outside the U.S.** Number of children born outside the U.S.

**Birthplace of children outside the U.S.** The birthplace of each child born outside the U.S.

**Number of children born inside the U.S.** Number of children born inside the U.S.

**Birthplace of children inside the U.S.** The birthplace of each child born inside the U.S.

**Age of children in years.** The age of each child in years.

**Age of children in months.** An additional variable of children’s ages was also calculated due to the fact that participants either had children who were under one year old, they reported their child’s age strictly in months, or they reported the child’s age in years and months (i.e., one and a half years old). This variable was calculated by taking the number of years reported and multiplying the value by 12. In cases where the participant reported the child’s age in years and months, the variable was calculated by taking the number of years reported, multiplying it by 12, and then adding the additional months reported to the new value.
**Employment status.** Participant’s employment status, reported as “yes” or “no”

**Education level.** Education level was self-reported by each participant. Participants reported their highest level of education completed in number of years or by grade level. This variable was recoded as discrete into four categories: none, less than high school, high school, and college.

**Number of ties named.** Number of individuals identified as supportive during the participant’s pregnancy.

**Type of tie.** Participants were asked to name the type of relationship they had with each tie. This variable was later recoded to fit relationship classifications with the NSSQ, listed as: spouse or partner, family or relatives, friends, healthcare providers, or neighbors.

**Length of relationship.** Length of time participant has known the tie in years.

**Age of tie.** Age of tie in years.

**Gender of tie.** Tie’s gender.

**How tie was established.** Open-ended description of how the participant met each tie that was named.

**Tie formed before resettlement.** Whether or not the connection with the tie was established outside of the U.S., reported as “yes” or “no”.

**Tie’s birthplace.** Where the tie was born.

**Tie’s current home.** Where the tie currently lives.

**Tie’s employment status.** Whether or not the tie works outside the home.

**Tie’s education level.** Education level was self-reported by each participant. Participants reported the highest level of education completed in number of years or in grade level. This
variable was recoded as discrete into six categories: none, less than high school, high school, some college, college degree, and unknown.

**Strength of tie.** How close the participant feels the connection is with each tie, coded as: not at all close, somewhat close, and very close.

**Content of pregnancy related communication.** Open-ended description of what types of pregnancy-related matters were discussed between the participant and each tie.

**Norbeck Social Support Questionnaire measures.** The NSSQ reports the following variables measures:

- **NOLISTED.** The number of ties listed by each participant.
- **EMO1.** The sum of responses to Emotional Support Question 1 by each tie named per participant.
- **EMO2.** The sum of responses to Emotional Support Question 2 by each tie named per participant.
- **EMO3.** The sum of responses to Emotional Support Question 3 by each tie named per participant.
- **EMO4.** The sum of responses to Emotional Support Question 4 by each tie named per participant.
- **AID5.** The sum of responses to Aid Support Question 1 by each tie named per participant.
- **AID6.** The sum of responses to Aid Support Question 2 by each tie named per participant.
- **DURATION.** Sum total of the number of years the participant has known each tie.
**FREQCON.** Sum total of the frequency with which the participant communicated with each tie. Calculated by adding the discrete response provided for each participant, reported as 1 = once during pregnancy or less, 2 = a few times during pregnancy, 3 = monthly, 4 = weekly, or 5 = daily.

**SOU1 to SOU7.** The “source category” reported for each tie, i.e., the type of relationship reported (none, spouse or partner, family or relatives, friends, work or school associates, neighbors, health care providers, counselor or therapist, minister/priest/rabbi, other).

**LOSS.** Yes or no response to whether the participant lost a person close to them due to their resettlement.

**LOSS1.** Whether or not the person who was lost was a spouse or partner.

**LOSS2.** Whether or not the person who was lost was a family member or relative.

**LOSS3.** Whether the person who was lost was a friend.

**LOSS4.** Whether the person who was lost was a work or school associate.

**LOSS5.** Whether the person who was lost was a neighbor.

**LOSS6.** Whether the person who was lost was a healthcare provider.

**LOSS7.** Whether the person who was lost was a counselor or therapist.

**LOSS8.** Whether the person who was lost was a minister, priest, or rabbi.

**LOSS9.** Whether the person who was lost was classified as “other.”

**LOSSNO.** Number of persons lost.

**LOSSAMT.** Amount of support lost for each person named, rated as: 0 = none, 1 = a little bit, 2 = moderate, 3 = quite a bit, or 4 = a great deal.

**EMOSUP.** Calculated by adding EMO1 + EMO2 + EMO3 + EMO4

**AID.** Calculated by adding AID5 + AID6
TLFUNCT (TOTAL FUNCTIONAL SUPPORT). Calculated by adding EMOSUP + AID

Aspects of the community of resettlement. Open-ended questions pertaining to the participants’ experiences in their new communities and during their pregnancies were also included:

Aspects of social networks that made pregnancy easier. Aspects of the participant’s network that made their pregnancy experience easier.

Aspects of social networks that made pregnancy harder. Aspects of the participant’s network that made their pregnancy experience harder.

Community hubs for general information and resources. Whether there was someone in the participant’s new community that people go to for information and resources.

Community hubs for pregnancy-related information and resources. Whether there was someone in the participant’s new community that people go to for pregnancy-related information and resources.

Comparison of previous home to community of resettlement. How the participant perceives their new community compared to their previous community.

Perception of the ability to connect with others in the community of resettlement. How the participant perceived their ability to connect with others in their new community.

Perception of connectedness in the community of resettlement. How connected the participant perceived their new community to be.

Perception of help available in the community of resettlement. How helpful the participant perceived their new community to be during their pregnancy.
Other. Another other aspects of pregnancy the participant would like to share about their experiences in their new community.

Measures

Social Network Size, Tie Type, and Frequency of Communication

The interview guide included questions that assessed social network structure and characteristics, as well as the provision of social support through the networks reported for each participant. To elicit information about personal social networks, the convention within SNA is to use a ‘name generator,’ where a participant is asked a series of open-ended questions designed to create a list of ‘alters’ or ‘ties’ (connections) that are important in the participant’s life or who fulfill a specific function that is of interest to the research (Borgatti, Everett, & Johnson, 2013; Hanneman & Riddle, 2005; McCarty, 2005; Valente, 2010). The participant is then asked a series of questions that are considered ‘name interpreters,’ where attribute information about each alter is collected (such as age, gender, etc.), as well as information about the type of relationship (i.e., spouse, relative, co-worker, etc.) and its quality (i.e., the strength of the connection). A third optional step, which was not utilized in the present study, is to include a ‘name interrelater,’ which asks the participant to identify which alters know and are connected with each other.

As a name generator for the present study, participants were asked to name alters in response to the question “Looking back on your pregnancy, who are the people you talked to most about important matters related to your pregnancy?” This question was modeled after traditional name generators, which may ask “Who are people you talk to about important matters in your life?” This question is also a modification to the name generator included in the NSSQ
(1980) which asks “Please list each significant person in your life. Consider all the persons who provide personal support for you or who are important to you.” Participants were then guided to name the type of relationship they had with each tie (coded as 0 = spouse or partner, 1 = family member or relative (specify), 2 = friend, 3 = neighbor, 4 = work or school associates, 5 = health care worker, 6 = counselor or therapist, 7 = minister/priest/rabbi/or other spiritual advisor, or 8 = someone else (specify). Participants also shared how long they knew each tie, their age, their gender, how they met the tie, if they knew them before resettling in the U.S., where they were born, where they currently live, how long they have lived there, if they work outside the home and where, and the level of schooling they completed. Participants then answered the question “On a scale of 0 to 2 (0 = not at all close, 1 = somewhat close, and 2 = very close), how close do you feel to [name]?” Participants were also asked to describe how frequently they communicated with the tie (derived from the NSSQ), which asked “On a scale of 0 to 5 (0 = once during my pregnancy, 1 = a few times during my pregnancy, 2 = monthly, 3 = weekly, 4 = daily, and 5 = multiple times a day). Finally, participants were asked an open-ended question pertaining to the nature of their communication with the tie which said “What aspects of your pregnancy did you discuss with [name]?”

Norbeck Social Support Questionnaire (NSSQ)

The NSSQ was selected for use because it takes into consideration social network size and structure as important components in the provision of social support. The NSSQ asks respondents to rate the quantity of support they perceive as provided to them from up to 24 individuals whom they name as significant within their lives (Gigliotti, 2002). The individuals named are then rated on a scale from 0 to 4 (not at all, a little, moderately, quite a bit, and a great
deal) on a series of six questions, four of which measure affect and affirmation support (i.e., “How much did this person make you feel liked or loved?”; “How much did this person make you feel respected or admired?”; “How much can you confide in this person?”; and “How much does this person agree with or support your actions or thoughts?”, and two which measure aid support (i.e., “If you needed to borrow $10, a ride to the doctor, or some other immediate help, how much could this person usually help?” and “If you were confined to bed for several weeks, how much could this person help you?” ) (Gigliotti, 2002).

A modified version of the NSSQ was used in this study to elicit information about support provided to refugee women specifically during their pregnancies after resettlement in the U.S. The modified version of the NSSQ limited the number of ties a participant could name to seven and the prompt used to generate tie names was rephrased to say “Looking back, who are the people you talked to most about important matters related to your pregnancy?” The questionnaire was also modified to ask demographic information about each tie (such as age, gender, education level, occupational status, country of origin, current home, etc.) to better understand the demographic composition of the network.

**Aspects of Community Connection in the United States**

Finally, the interview guide concluded with open-ended questions to assess participants’ experiences during their pregnancies, as well as in their community of resettlement in general. Participants were asked “Can you think of anything specific about your relationships during pregnancy that made your experience easier [and more difficult] in the United States?,” “Is there someone in your community that everyone goes to for information in general? Who?,” “Is there someone in your community that everyone goes to for information about pregnancy? Who?,”
“How would you compare your current community to your previous community?,” “After you moved to the United States, how easy was it to make connections with others?,” “Do you think people feel connected to each other in your community? If not, why not?,” “Did you find your community helpful to you during pregnancy?,” and “Is there anything else you would like to tell us about your pregnancy experience in the United States?”

**Procedures**

**Translation and Back Translation**

The interview guide utilized in this study was originally written in English and then translated in Nepali. The interview guide was then back translated from Nepali to English to ensure consistency in question wording. The interviews were conducted in Nepali and responses were audio-recorded. The responses were then translated from Nepali to English for the purpose of data analysis.

**Recruitment**

Participants were recruited via two methods. First, Nepali-language recruitment fliers were posted in two local Nepali grocery stores. Participants who met eligibility criteria were asked to contact the study translator if they were interested in participating. Second, participants were recruited via four community contacts who were members of the Nepali community. The names and contact phone numbers of potential participants were collected by the community contacts and then provided to the study translator. The study translator contacted each potential participant, who was then screened for eligibility. Of these recruitment methods, three potential
participants contacted the study translator, only one of whom completed an interview. An additional 59 participants were identified by community contacts, one of whom was determined ineligible because she had given birth more than two years prior. Of the remaining 58 participants, four cancelled their interviews and nine did not answer the initial phone call from the study translator to schedule an interview. A total of 45 participants were recruited who met the inclusion criteria. Of these 45, three did not complete the social support questions in their entirety, and were thus excluded from the social support data analyses.

**Data Collection**

Participants were provided with Nepali-language informed consent and consent to be audio-recorded forms at the beginning of each interview. Interviews were conducted in private rooms in the participant’s homes from May to October, 2016. The interviews lasted between 40 to 90 minutes. The interview was conducted in Nepali and began with questions about the participant’s demographics. Next, participants were asked questions about their social networks – the number of supportive ties they identified during their pregnancies and their demographic characteristics. Next, participants answered questions from the NSSQ. Finally, participants were asked open-ended questions about their experiences in their new communities. At the conclusion of the interview, participants were given the option to share any additional information that was not asked in the interview. Finally, participants were provided with their $15 gift card and completed associated paperwork to receive the incentive.
Data Management

Each participant was assigned an ID number for their data. No identifiers were included in assigning the ID number. Additionally, the names of identifying support ties were not included in interview transcriptions, as it was not necessary for data analysis. Informed consent, consent to be audio-recorded, gift card reporting forms, and interview transcripts were kept in a locked cabinet only accessible to the lead investigator.

Data were entered into Excel from hard copies of the interview guide. The data of 10 randomly selected participants were cross-checked with the interview guide by a doctoral student in the College of Public Health not associated with the study. Data entry errors that were identified in this process were verified by cross-checking hard copy files of the interviews with the electronic database. Edits were made to the electronic database when necessary. Data were then imported into IBM SPSS® Statistics version 24.0 for analysis.

Data Analysis Plan

Data Cleaning

Data were reviewed for completeness prior to analysis. It was determined that three participants did not have complete social support data, so they were not included in social support data analysis. Prior to analysis, the “Length of time in Akron,” “Length of time in U.S.,” and “Age of children” variables were recoded from years to months. Education level and type of relationship with tie data were also recoded into discrete categories.

To compute NSSQ variables (EMO1, EMO2, EMO3, EMO4, AID 5, AID6, FREQCON, DURATION, EMOSUP, AID, and TLFUNCT) SPSS® syntax was provided with the
instrument. Prior to completing data analyses the syntax was run, which added the variables described above into the dataset.

During the data cleaning process, it was determined that the open-ended qualitative responses did not lend themselves to complete qualitative analysis, due primarily to “thin” responses (i.e., one line, non-descript responses) that did not carry the necessary substance to truly describe the meaning of the data (Miles & Huberman, 1994, p. 242). A decision was then made to describe the qualitative data in the form of case studies. This approach has been employed in previous social network studies as a viable option to create a “profile” of individuals based on their social network characteristics (Buckwalter et al., 2016; Castellani, Rajaram, Buckwalter, Ball, & Hafferty, 2015).

**Data Analysis**

A personal social network analysis was conducted to assess the size, demographic makeup, and strength of ties present within the networks of resettled Bhutanese refugee women (n = 45) during their pregnancies in the U.S. Demographic characteristics of the sample were also collected. Frequencies and means, along with their corresponding p-values (p = 0.05) are reported for participant demographics overall and stratified by number of ties (2-3 ties vs. 4-5 ties) and by social support category (low support vs. high support). Frequencies and means are also reported for the demographic characteristics of ties (n = 139). Proportions of select tie characteristics are also presented by number of ties and by social support category. Crude odds ratios and their corresponding 95% confidence intervals were also reported for select maternal demographics and their association with whether a participant reported a 2-3 tie vs. 4-5 tie network and a low support network vs. high support network.
Social support scores were calculated using responses from the six Norbeck Social Support questions found in the interview guide. A Total Functional Support score is reported, along with Emotional Support and Aid Support scores. The Emotional Support score is calculated by adding the individual scores provided (on a scale of 0 to 4) to four emotional support questions for each tie named as an important source of support during the participant’s pregnancy. The Aid Support score is calculated by adding the individual scores provided (on a scale of 0 to 4) to two aid support questions for each tie named. The Total Functional Support score is calculated by adding the Emotional Support and Aid Support scores for each participant, which then creates an overall Total Functional Support score for each participant’s social network. Raw Emotional, Aid, and Total Functional Support scores are reported in this manuscript, along with averaged Emotional, Aid, and Total Functional Support scores.

Because the social support scores derived from the NSSQ are heavily dependent on the number of ties named by the participant, an approach used in previous research is to average the Total Functional Support scores by dividing the Total Functional Support score by the number of ties named. While this approach is argued to artificially decrease scores as network size increases, it continues to be used as a possible approach to reporting social support scores using the NSSQ (Gigliotti & Ellery Samuels, 2011; Norbeck, 1995). Averaged Total Functional Support scores were further classified as “low” support and “high” support by examining the distribution of scores and finding a cut-off point that divided the top scores from the bottom scores. Low support networks were networks with reported scores inclusive of 0 to 19.4 and high support networks were networks with reported scores inclusive of 19.5 – 25.0.

Qualitative data about the content of pregnancy related communication within each participant’s network were analyzed using descriptive open coding and then assessed for
emerging themes. First cycle codes were then categorized to create the basis for the final themes.

The themes described below pertain primarily to the content of pregnancy related communication shared within the participant’s personal networks. To develop the qualitative case studies for two, three, four, and five tie networks, participant demographic characteristics were assessed by number of ties named. Participants who represented the average age, length of time since resettlement, place of settlement before the U.S., employment status, educational level, and number of children were selected from each type of network (i.e., two tie network, three tie network, and so on) and their experiences were written into a case study format.
CHAPTER FOUR

RESULTS

Introduction

This chapter describes study findings and reports sample demographic characteristics overall, as well as stratified by number of ties reported (2-3 ties vs. 4-5 ties). The demographic characteristics of social support ties, qualitative themes pertaining to the type of information communicated within participants’ networks, demographic characteristics of participants overall, as well as stratified by social support category (low support network vs. high support network) are also reported. This chapter also provides results of an odds ratios of number of ties by maternal demographic characteristics, an odds ratios of social support category by maternal demographic characteristics, as well as non-averaged and averaged social support scores for the personal networks of the study sample, averaged social support scores and percentage of support provided by tie type. The mean social support scores by number of ties, proportion of demographic characteristics by number of ties, averaged social support scores by support type, mean of averaged social support scores by number of ties, and proportion of demographic characteristics by number of ties and category of support using averaged social support scores are also provided.
Sample Description

Demographic information is reported in Table 1 for the overall sample (n = 45), as well as stratified by the number of ties reported by the participant (2-3 ties, n = 35 and 4-5 ties, n = 10).

Table 1. Demographic Characteristics of Bhutanese Refugee Mothers Resettled in Akron, Ohio, United States (U.S.) by Number of Social Network Ties (n = 45)

<table>
<thead>
<tr>
<th></th>
<th>Overall (n = 45)</th>
<th>2-3 Ties (n = 35)</th>
<th>4-5 Ties (n = 10)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age in years (standard deviation[SD])</td>
<td>28.43 (5.88)</td>
<td>27.99 (5.91)</td>
<td>30.00 (5.75)</td>
<td>0.347</td>
</tr>
<tr>
<td>Birthplace (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepal/Other</td>
<td>33.3</td>
<td>86.7</td>
<td>13.3</td>
<td>0.310</td>
</tr>
<tr>
<td>Bhutan</td>
<td>66.7</td>
<td>73.3</td>
<td>26.7</td>
<td></td>
</tr>
<tr>
<td>Education Level (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>4.4</td>
<td>100.0</td>
<td>0.0</td>
<td>0.702</td>
</tr>
<tr>
<td>Less than High School</td>
<td>26.7</td>
<td>83.3</td>
<td>16.7</td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>66.7</td>
<td>73.3</td>
<td>26.7</td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>2.2</td>
<td>100.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Works Outside the Home (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>75.6</td>
<td>79.4</td>
<td>20.6</td>
<td>0.632</td>
</tr>
<tr>
<td>Yes</td>
<td>24.4</td>
<td>72.7</td>
<td>27.3</td>
<td></td>
</tr>
<tr>
<td>Currently Pregnant (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>93.3</td>
<td>76.2</td>
<td>23.8</td>
<td>0.338</td>
</tr>
<tr>
<td>Yes</td>
<td>6.7</td>
<td>100.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Length of Resettlement in U.S. in months (mean, s.d.)</td>
<td>55.00 (20.40)</td>
<td>53.06 (20.79)</td>
<td>61.80 (18.34)</td>
<td>0.215</td>
</tr>
<tr>
<td>Length of Time Living in Northeast Ohio in months (mean, s.d.)</td>
<td>35.89 (18.10)</td>
<td>36.51 (18.06)</td>
<td>33.70 (19.03)</td>
<td>0.683</td>
</tr>
<tr>
<td>Place of Settlement Before Northeast Ohio (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepal</td>
<td>44.4</td>
<td>90.0</td>
<td>10.0</td>
<td>0.078</td>
</tr>
<tr>
<td>Other city/state in the U.S.</td>
<td>55.6</td>
<td>68.0</td>
<td>32.0</td>
<td></td>
</tr>
<tr>
<td>Number of Children (mean, s.d.)</td>
<td>1.78 (0.76)</td>
<td>1.74 (0.82)</td>
<td>1.90 (0.57)</td>
<td>0.573</td>
</tr>
<tr>
<td>Number of Children Born in the U.S. (mean, s.d.)</td>
<td>1.16 (0.37)</td>
<td>1.11 (0.32)</td>
<td>1.30 (0.48)</td>
<td>0.160</td>
</tr>
<tr>
<td>Birthplace of Children in the U.S. (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast Ohio</td>
<td>82.2</td>
<td>79.5</td>
<td>20.5</td>
<td>0.482</td>
</tr>
<tr>
<td>Other city/state in the U.S.</td>
<td>17.8</td>
<td>66.7</td>
<td>33.3</td>
<td></td>
</tr>
<tr>
<td>Age of Youngest Child in Months (mean, s.d.)</td>
<td>15.18 (8.99)</td>
<td>16.26 (9.43)</td>
<td>12.30 (7.35)</td>
<td>0.229</td>
</tr>
</tbody>
</table>

*Note: p-value (α = 0.05)
The mean age of participants was 28.43 years old (standard deviation [SD] = 5.88). Participants with 4-5 ties were slightly older, 30.00 years old (SD = 5.75), than participants with 2-3 ties, 27.99 years old (SD = 5.91), though this difference was not statistically significant (p = 0.347). Overall, the majority of participants (66.7%) were born in Bhutan, however, the percentage of women with 2-3 ties who were born in Nepal was 86.7%. The majority of women (66.7%) in the sample received at least some high school education. Women with 2-3 ties reported higher levels of education compared to women with 4-5 ties. Most participants did not work outside the home (75.6%). The percentage of women with 2-3 ties who worked outside the home was 72.7%, while the percentage of women with 4-5 ties who worked outside the home was 27.3%, though there was no statistically significant difference between groups (p = 0.632). On average, participants had been resettled in the U.S. for slightly over 4.5 years (55.00 months, SD = 20.40). Women who reported 4-5 ties lived, on average, 8 months longer in the U.S. compared to women who reported 2-3 ties (53.06 months, SD = 20.79 vs. 61.80 months, SD = 18.34), however, this difference was also not statistically significant (p = 0.215). Prior to resettling in Northeast Ohio, 55.6% of participants lived in another city/state in the U.S., while 44.4% resettled directly from Nepal. In considering where participants resettled from, 90.0% of women with 2-3 ties resettled directly from Nepal, as well as 10.0% of women with 4-5 ties (p = 0.078). On average, participants lived in Northeast Ohio for nearly 3 years (35.89 months, SD = 18.10). Women with 2-3 ties reported living in Northeast Ohio for 36.51 months (SD = 18.06). Women with 4-5 ties reported living in Northeast Ohio for 33.70 months (SD = 19.03) (p = 0.683). Previous cities/states of resettlement included Buffalo, New York, Portland, Oregon, Kentucky, Texas, Utah, Arizona, Baltimore, Maryland, California, Rhode Island, and Alaska.
Results

In total, participants named 139 ties in response to the interview question “Looking back, who are the people you talked to most about important matters related to your pregnancy?” (Table 2). Participants were given the option to name up to seven people, however, none of the participants named more than five people (ranging from two to five ties). The average size of the social networks named by participants was 3.09 (SD = 0.90).

| Table 2. Demographic Characteristics of Social Network Ties during Pregnancy for Bhutanese Refugee Mothers Resettled in Akron, Ohio, United States (U.S.) (n = 139) |
|-------------------------------------------------|------------------|
| **Total**                                       |                  |
| **Average Network Size (standard deviation [SD])** | 3.09 (0.90)     |
| **Percentage Tie Type**                         |                  |
| Husband                                         | 27.3             |
| Sister-in-law                                   | 16.6             |
| Sister                                          | 13.0             |
| Friend                                          | 11.5             |
| Other relative                                  | 8.6              |
| Mother                                          | 7.9              |
| Mother-in-law                                   | 7.2              |
| Healthcare provider                             | 7.2              |
| Neighbor                                        | 0.7              |
| **Percentage Tie Gender**                       |                  |
| Female                                          | 68.4             |
| Male                                            | 31.6             |
| **Percentage Tie Birthplace**                   |                  |
| Bhutan                                          | 79.1             |
| Nepal                                           | 13.0             |
| United States                                   | 6.5              |
| Unknown                                         | 1.4              |
| **Percentage Tie Education Level**              |                  |
| None                                            | 22.3             |
| Less than high school                           | 20.9             |
| High school                                     | 43.1             |
| Some college                                    | 6.5              |
| College degree                                  | 1.4              |
| Unknown                                         | 5.8              |
| **Percentage Tie Works Outside the Home**       |                  |
| No                                              | 47.5             |
| Yes                                             | 52.5             |
| **Percentage Tie Formed Before Resettlement in the U.S.** |      |
| No                                              | 28.6             |
| Yes                                             | 71.9             |
Table 2. Continued

<table>
<thead>
<tr>
<th>Strength of Tie (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all close</td>
<td>0.0</td>
</tr>
<tr>
<td>Somewhat close</td>
<td>22.3</td>
</tr>
<tr>
<td>Very close</td>
<td>77.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency of Communication During Pregnancy (%)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Once</td>
<td>0.7</td>
</tr>
<tr>
<td>A few times</td>
<td>3.6</td>
</tr>
<tr>
<td>Monthly</td>
<td>13.7</td>
</tr>
<tr>
<td>Weekly</td>
<td>28.8</td>
</tr>
<tr>
<td>Daily</td>
<td>53.2</td>
</tr>
</tbody>
</table>

Note: Strength of tie defined as “On a scale of 0 to 2, how close do you feel to (person named)?”; Frequency of communication defined as “On a scale of 0 to 5, how frequently did you interact with (person named) during your pregnancy?”

Table 2 shows the number and percentage of tie types, which included husbands (27.3%), sisters-in-law (16.6%), sisters (13.0%), friends (11.5%), other relatives (such as aunts, nieces, and older daughters) (8.6%), mothers (7.9%), mothers-in-law (7.2%), healthcare providers (7.2%), and neighbors (0.7%). The majority of ties were female (68.4%), born in Bhutan (79.1%), had at least some high school education (43.1%), and worked outside the home (52.5%). When asked whether the tie was formed before or after resettlement, it was found that the majority of ties (71.9%) were formed outside of the U.S. When asked how frequently they communicated with the tie during their pregnancy, the majority of communication took place “daily” (53.2%). When asked “how close do you feel to [name]?,” the majority of participants reported feeling “very close” (77.7%). In terms of the content of communication participant’s reported, women most often named matters related to their personal health, matters related to their child’s health, anxieties related to pregnancy, and finally, functional matters related to the household (Table 3).
### Table 3. Themes of Pregnancy-Related Communication within the Social Networks of Bhutanese Refugee Mothers Resettled in Akron, Ohio

<table>
<thead>
<tr>
<th>Theme</th>
<th>Participant Quote</th>
</tr>
</thead>
</table>
| **Matters Related to Personal Health**     | “I had lot of swelling of hands, foot, and face and had lot of body aches, had ligament pain during pregnancy, so I talked about it with her. Also other symptoms of pregnancy. I had good appetite throughout pregnancy, food smelled much during first trimester.”  
“I mostly talked about health issues of pregnancy as for example, cramping pain which I felt most often and my loss of appetite during pregnancy with my husband.” |
| **Matters Related to Child’s Health**      | “I discussed about the health of my child. My child was suspected to have some water in the brain, so I was very scared and talked about it with her. Later the issue subsided and baby was normal. She took me to children’s hospital for further investigation.”  
“My previous child had cleft lip, so I was worried if this child also has clefts. My sister would help me ease my anxieties and talk how ultrasound does not reveal any defect in my unborn child.” |
| **Anxieties Related to Pregnancy**         | “Health issues during pregnancy was worrisome to me, as I worried how it would impact my child.”  
“My previous delivery was c-section, so I was worried if this turns out to be c-section, too. I wanted to have normal delivery. So we talked about that a lot.”                                                                                                                                         |
| **Functional Matters Related to the Household** | “My mother-in-law always helped me in the kitchen. She cooked food for me and also helped with cleaning and looking after my elder kid.”  
“He did cooking, he looked after his parents who are old. I could not go to kitchen because food smelled badly. He handled all these stuffs.”                                                                                                                                  |

To quantify the social support scores for each participant’s network, three women were excluded from the analysis due to incomplete social support data. Demographic information for the sample (n = 42) is reported overall, as well as stratified by network category based on the averaged social support score that was calculated as previously described (low support, n = 16
and high support, n = 26). Participants who responded to the social support questions were, on average, 28.43 years old (SD = 5.88). The majority of participants (66.7%) were born in Bhutan, however, among women who fell in the “low support” category, 57.1% were born in Nepal. For women in the “high support” category, 42.9% were born in Nepal (p = 0.07). Among participants who were born in Bhutan, 28.6% were in the “low support” category and 71.4% were in the “high support” category (p = 0.07). The majority of women (64.3%) in the sample received at least some high school education. Most participants did not work outside the home (76.2%). However, 70.0% of women who fell in the “high support” category worked outside the home.

For women in the “low support” category, 30.0% worked outside the home (p = 0.55).

Table 4. Demographic Characteristics of Bhutanese Refugee Mothers Resettled in Akron, Ohio, United States (U.S.) by Social Support Category (n = 42)

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>Low Support (n = 16)</th>
<th>High Support (n = 26)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years (mean, standard deviation [SD])</td>
<td>28.43 (5.88)</td>
<td>28.22 (5.88)</td>
<td>28.31 (5.90)</td>
<td>0.57</td>
</tr>
<tr>
<td>Birthplace (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepal/Other</td>
<td>33.3</td>
<td>57.1</td>
<td>42.9</td>
<td>0.07</td>
</tr>
<tr>
<td>Bhutan</td>
<td>66.7</td>
<td>28.6</td>
<td>71.4</td>
<td></td>
</tr>
<tr>
<td>Education Level (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>4.8</td>
<td>50.0</td>
<td>50.0</td>
<td>0.35</td>
</tr>
<tr>
<td>Less than high school</td>
<td>28.6</td>
<td>50.0</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>64.3</td>
<td>29.6</td>
<td>70.4</td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>2.4</td>
<td>100.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Works Outside the Home (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>76.2</td>
<td>40.6</td>
<td>59.4</td>
<td>0.55</td>
</tr>
<tr>
<td>Yes</td>
<td>23.8</td>
<td>30.0</td>
<td>70.0</td>
<td></td>
</tr>
<tr>
<td>Currently Pregnant (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>92.9</td>
<td>38.5</td>
<td>61.5</td>
<td>0.86</td>
</tr>
<tr>
<td>Yes</td>
<td>7.1</td>
<td>33.3</td>
<td>36.7</td>
<td></td>
</tr>
<tr>
<td>Length of Resettlement in the U.S. in Months (mean, s.d.)</td>
<td>55.00 (20.40)</td>
<td>51.00 (17.22)</td>
<td>57.35 (21.04)</td>
<td>0.28</td>
</tr>
<tr>
<td>Length of Time Living in Northeast Ohio in Months (mean, s.d.)</td>
<td>35.89 (18.10)</td>
<td>41.25 (14.31)</td>
<td>30.27 (16.06)</td>
<td>0.78</td>
</tr>
<tr>
<td>Place of Settlement Before Northeast Ohio (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other city/state in the U.S.</td>
<td>40.5</td>
<td>58.8</td>
<td>41.2</td>
<td>*0.02</td>
</tr>
<tr>
<td></td>
<td>59.5</td>
<td>24.0</td>
<td>76.0</td>
<td></td>
</tr>
<tr>
<td>Number of Children (mean, s.d.)</td>
<td>1.78 (0.76)</td>
<td>1.75 (0.68)</td>
<td>1.81 (0.80)</td>
<td>0.68</td>
</tr>
</tbody>
</table>
Table 4. Continued

<table>
<thead>
<tr>
<th>Number of Children Born within the U.S. (mean, s.d.)</th>
<th>Overall</th>
<th>Low Support (n = 16)</th>
<th>High Support (n = 26)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.16 (0.37)</td>
<td>1.13 (0.34)</td>
<td>1.19 (0.40)</td>
<td>0.26</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Birthplace of Children within the U.S. (%)</th>
<th>Northeast Ohio</th>
<th>Other city/state in the U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>83.3</td>
<td>43.2</td>
<td>16.7</td>
</tr>
<tr>
<td>16.7</td>
<td>0.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age of Youngest Child in Months (mean, s.d.)</th>
<th>Overall</th>
<th>Low Support (n = 16)</th>
<th>High Support (n = 26)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.21 (8.98)</td>
<td>13.81 (10.30)</td>
<td>16.08 (8.15)</td>
<td>0.17</td>
<td></td>
</tr>
</tbody>
</table>

Note: Low support classified as having a social support score inclusive of 0 – 19.4; High support classified as having a social support score inclusive of 19.5 – 24.0.
p-value (α = 0.05)
*Denotes statistical significance at the α = 0.05 level

On average, participants had been resettled in the U.S. for slightly over 4.5 years (55.00 months, SD = 20.40). Women classified as “high support” lived nearly 6 and a half months longer in the U.S. (57.35 months, SD = 21.04). Prior to resettling in Northeast Ohio, 59.5% of participants lived in another city/state in the U.S., while 40.5% resettled directly from Nepal. Among women classified as “low support,” 58.8% resettled directly from Nepal compared to 41.2% of women classified as “high support” (p = 0.02). Participants lived in Northeast Ohio for nearly 3 years (35.89 months, SD = 18.10). Women classified as “low support” lived in Northeast Ohio for 41.25 months (SD = 14.31) and women classified as “high support” reported living in Northeast Ohio for 30.27 months, SD = 16.06) (p = 0.78).

Odds ratio and their corresponding 95% confidence intervals were calculated to assess the relationship between select maternal demographic characteristics and the outcome of number of ties reported (2-3 ties vs. 4-5 ties) (Table 5) and network category (low support vs. high support) (Table 6).
Table 5. Odds Ratio of Number of Ties by Demographic Characteristics of Bhutanese Refugee Mothers Resettled in Akron, Ohio, United States (U.S.) (n = 42)

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>4-5 Ties (Comparison 2-3 Ties)</th>
<th>Odds Ratio (95% Confidence Interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td>1.07 (0.95 - 1.21)</td>
</tr>
<tr>
<td>Birthplace</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepal/Other (Ref)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Bhutan</td>
<td>2.40 (0.44 – 13.23)</td>
<td></td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None to less than high school (Ref)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>High school or more</td>
<td>2.40 (0.44 – 13.23)</td>
<td></td>
</tr>
<tr>
<td>Works Outside the Home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (Ref)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1.53 (0.31 – 7.51)</td>
<td></td>
</tr>
<tr>
<td>Length of Resettlement in the U.S. (months)</td>
<td>1.03 (0.99 – 1.06)</td>
<td></td>
</tr>
<tr>
<td>Length of Resettlement in Northeast Ohio (months)</td>
<td>1.00 (0.95 – 1.04)</td>
<td></td>
</tr>
<tr>
<td>Place of Settlement Before Northeast Ohio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepal (Ref)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Other city/state in the U.S.</td>
<td>3.53 (0.65 – 19.28)</td>
<td></td>
</tr>
<tr>
<td>Birthplace of Children Within the U.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast Ohio (Ref)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Other city/state in the U.S.</td>
<td>0.79 (0.77 – 7.89)</td>
<td></td>
</tr>
<tr>
<td>Age of Youngest Child (months)</td>
<td>0.95 (0.88 – 1.03)</td>
<td></td>
</tr>
</tbody>
</table>
Table 6. Odds Ratio of Support Category by Demographic Characteristics of Bhutanese Refugee Mothers Resettled in Akron, Ohio, United States (U.S.) (n = 42)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>High Support (Comparison Low Support)</th>
<th>Odds Ratio (95% Confidence Interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td>1.00 (0.90 – 1.12)</td>
</tr>
<tr>
<td><strong>Birthplace</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepal/Other (Ref)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Bhutan</td>
<td>3.33 (0.87 – 12.72)</td>
<td></td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None to less than high school (Ref)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>High school or more</td>
<td>2.11 (0.57 – 7.86)</td>
<td></td>
</tr>
<tr>
<td><strong>Works Outside the Home</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (Ref)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1.60 (0.35 – 7.34)</td>
<td></td>
</tr>
<tr>
<td><strong>Length of Resettlement in the U.S. (months)</strong></td>
<td>1.02 (0.98 – 1.05)</td>
<td></td>
</tr>
<tr>
<td><strong>Length of Resettlement in Northeast Ohio (months)</strong></td>
<td>0.95 (0.91 – 1.00)</td>
<td></td>
</tr>
<tr>
<td><strong>Place of Settlement Before Northeast Ohio</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepal (Ref)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Other city/state in the U.S.</td>
<td>*4.52 (1.19 – 17.15)</td>
<td></td>
</tr>
<tr>
<td><strong>Birthplace of Children Within the U.S.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast Ohio (Ref)</td>
<td>Undefined</td>
<td></td>
</tr>
<tr>
<td>Other city/state in the U.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age of Youngest Child in Months</strong></td>
<td>1.03 (0.96 – 1.11)</td>
<td></td>
</tr>
</tbody>
</table>

*Denotes statistical significance at α = 0.05 level.

Note: Low support classified as having a social support score inclusive of 0 – 19.4; High support classified as having a social support score inclusive of 19.5 – 24.0.

Participants who have resettled in Northeast Ohio from another city/state in the U.S. were 4.52 (95% CI: 1.19 – 17.15) as likely to report a “high support” network compared to participants who resettled directly from Nepal.
In considering the social support scores that were derived for each participant's personal networks (n = 42), the average Total Functional Support score was 58.7 (SD = 20.9) (Table 7).

Table 7. Social Support Scores for the Social Networks of Resettled Bhutanese Refugee Mothers during their Pregnancies in the United States (U.S.) (n = 42)

<table>
<thead>
<tr>
<th></th>
<th>Mean (Standard Deviation)</th>
<th>Reported Minimum Score to Maximum Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Support</td>
<td>40.3 (15.0)</td>
<td>13.0 – 76.0</td>
</tr>
<tr>
<td>Aid Support</td>
<td>18.5 (6.7)</td>
<td>7.0 – 36.0</td>
</tr>
<tr>
<td>Total Functional Support</td>
<td>58.7 (20.9)</td>
<td>23.0 – 107.0</td>
</tr>
</tbody>
</table>

Note: Minimum score possible = 0, Maximum score possible = 112. Calculated by adding the individual scores provided by each tie named for 4 emotional support questions included in the Norbeck Social Support Questionnaire. Minimum score possible = 0, Maximum score possible = 56, Calculated by adding the individual scores provided for each tie named for 2 aid support questions included in the Norbeck Social Support Questionnaire; Total Functional Support was calculated by adding individual item scores for Emotional Support subscale with individual item scores of Aid Support subscale.

Scores ranged from 23.0 to 107.0 and the maximum score possible was 168.0. The total number of ties named were 130, 68 of whom were family or relatives, 35 were spouses, 16 were friends, 10 were healthcare providers, and 1 was a neighbor. The average Total Functional Support score for family or relatives was 30.7 (SD = 20.7), 17.9 (SD = 8.6) for spouses, 6.0 (SD = 9.8) for friends, 3.8 (SD = 7.2) for healthcare providers, and 0.4 (SD = 2.3) for friends. The percentage of Total Functional Support provided by tie type was also reported, where family or relatives comprised the largest share of support provided at 50.9%, followed by spouses at 29.0%, friends at 13.1%, healthcare providers at 7.0%, and neighbors at 0.8% (Table 8).

Table 8: Average Total Functional Support Scores and Percentage of Support Provided by Tie Type (n = 130)

<table>
<thead>
<tr>
<th>Tie Type</th>
<th>Mean (Standard Deviation)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spouse or Partner</td>
<td>17.9 (8.6)</td>
<td>29.0</td>
</tr>
<tr>
<td>Family or Relatives</td>
<td>30.7 (20.7)</td>
<td>50.9</td>
</tr>
<tr>
<td>Friends</td>
<td>6.0 (9.8)</td>
<td>13.1</td>
</tr>
<tr>
<td>Healthcare Providers</td>
<td>3.8 (7.2)</td>
<td>7.0</td>
</tr>
<tr>
<td>Neighbors</td>
<td>0.4 (2.3)</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Note: Minimum score possible = 0; Maximum score possible = 168
When taking into consideration the Total Functional Support Score by number of ties, the average Total Functional Support scores for two tie networks (n = 11) was 35.6 (SD = 8.6), 58.8 (SD = 10.2), for three tie networks (n = 21), 70.6 (SD = 14.9), for four tie networks (n = 5), and 97.4 (SD = 7.9) for five tie networks (Table 9).

Table 9. Mean and Reported Minimum and Maximum Scores by Number of Ties

<table>
<thead>
<tr>
<th></th>
<th>2 Ties (n = 11)</th>
<th>3 Ties (n = 21)</th>
<th>4 Ties (n = 5)</th>
<th>5 Ties (n = 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Social Support Score (Standard Deviation [SD])</td>
<td>35.6 (8.6)</td>
<td>58.8 (10.2)</td>
<td>70.6 (14.9)</td>
<td>97.4 (7.9)</td>
</tr>
<tr>
<td>Reported Minimum Score to Maximum Score</td>
<td>23.0 – 48.0</td>
<td>36.0 – 72.0</td>
<td>54.0 – 85.0</td>
<td>89.0 – 107.0</td>
</tr>
</tbody>
</table>

Social support networks were further analyzed to determine the proportion of select demographic characteristics that were present in two tie, three tie, four tie, and five tie networks (Table 10).

Table 10. Proportion of Demographic Characteristics by Number of Ties

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>2 Ties (n = 11)</th>
<th>3 Ties (n = 21)</th>
<th>4 Ties (n = 5)</th>
<th>5 Ties (n = 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family member</td>
<td>0.79</td>
<td>0.77</td>
<td>0.80</td>
<td>0.80</td>
<td>0.76</td>
</tr>
<tr>
<td>Female</td>
<td>0.68</td>
<td>0.54</td>
<td>0.71</td>
<td>0.70</td>
<td>0.72</td>
</tr>
<tr>
<td>Works outside the home</td>
<td>0.53</td>
<td>0.50</td>
<td>0.50</td>
<td>0.65</td>
<td>0.52</td>
</tr>
<tr>
<td>High school education or higher</td>
<td>0.50</td>
<td>0.59</td>
<td>0.55</td>
<td>0.35</td>
<td>0.48</td>
</tr>
<tr>
<td>Daily communication about pregnancy</td>
<td>0.51</td>
<td>0.59</td>
<td>0.47</td>
<td>0.35</td>
<td>0.64</td>
</tr>
<tr>
<td>“Very close” connection</td>
<td>0.76</td>
<td>0.77</td>
<td>0.82</td>
<td>0.65</td>
<td>0.72</td>
</tr>
<tr>
<td>Connection formed outside the U.S.</td>
<td>0.70</td>
<td>0.72</td>
<td>0.69</td>
<td>0.80</td>
<td>0.64</td>
</tr>
</tbody>
</table>

Overall, the composition of the 42 networks named were 79% family or relatives, 68% female, 53% employed, 50% high school educated or higher, 51% were in daily communication with the participant about her pregnancy, 76% were reported as “very close” with the participant, and 70% were connections formed outside of the U.S.. In regard to two tie networks (n = 11), 77% were family or relatives, 54% were female, 50% were employed, 59% were high school educated or higher, 59% communicated daily with the participant about her pregnancy, 77% were reported to have a “very close” connection with the participant, and 72% of the connections
were formed before resettlement. In three tie networks, the network was 80% family or relatives, 71% female, 50% employed, 55% high school educated or higher, 47% communicated daily with the participant about her pregnancy, 82% were reported to have a “very close” connection, and 69% of the connections were formed before resettlement. Four tie networks were 80% family or relatives, 70% were female, 65% were employed, 35% were high school educated or higher, 35% communicated daily with the participant about her pregnancy, 65% had a “very close” connection, and 80% of the connections were formed outside of the U.S. Five tie networks were 76% family or relatives, 72% female, 52% employed, 48% high school educated or higher, 64% communicated daily with the participant about her pregnancy, 72% were reported to have a “very close” connection, and 64% of the connections were formed outside the U.S.

Averaged social support scores were also calculated to assess social support uniformly across networks, without the potential score deflation or inflation caused by the number of ties named. The averaged Total Functional Support score was 18.9 (SD = 3.5) (calculated by taking the raw Total Functional Support score and dividing it by the number of ties named), the averaged Emotional Support score was 12.9 (SD = 2.5), and the averaged Aid Support score was 6.0 (SD = 1.3) (Table 11).

Table 11. Averaged Social Support Score by Support Type

<table>
<thead>
<tr>
<th></th>
<th>Mean (Standard Deviation)</th>
<th>Reported Minimum to Maximum Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Support</td>
<td>12.91 (2.51)</td>
<td>7.0 – 16.0</td>
</tr>
<tr>
<td>Aid Support</td>
<td>5.99 (1.34)</td>
<td>2.25 – 8.0</td>
</tr>
<tr>
<td>Total Functional Support</td>
<td>18.86 (3.53)</td>
<td>11.5 – 24.0</td>
</tr>
</tbody>
</table>

Note: Minimum score possible = 0, Maximum score possible = 16. Calculated by adding the individual scores provided by each tie named for 4 emotional support questions included in the NSSQ and dividing by the number of ties named; Minimum score possible = 0, Maximum score possible = 8, Calculated by adding the individual scores provided for each tie named for 2 aid support questions included in the NSSQ and dividing by the number of ties named; Total Functional Support was calculated by adding individual item scores for Emotional Support subscale with individual item scores of Aid Support subscale and dividing by the number of ties.
Averaged Total Functional Support scores were further classified as “low” support and “high” support by examining the distribution of scores and finding a cut-off point that divided the top scores from the bottom scores. Low support networks were networks with reported scores inclusive of 0 to 19.4 and high support networks were networks with reported scores inclusive of 19.5 to 25.0 (see Table 12).

Table 12. Mean and Reported Minimum and Maximum of Averaged Scores by Number of Ties and Support Category

<table>
<thead>
<tr>
<th></th>
<th>Low Support</th>
<th></th>
<th>High Support</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 Ties (n = 7)</td>
<td>3 Ties (n = 10)</td>
<td>4 Ties (n = 2)</td>
<td>5 Ties (n = 3)</td>
</tr>
<tr>
<td>Mean Score (Standard Deviation)</td>
<td>15.2 (2.8)</td>
<td>16.7 (2.5)</td>
<td>13.6 (0.2)</td>
<td>18.3 (0.5)</td>
</tr>
<tr>
<td>Reported Minimum to Maximum Score</td>
<td>11.5 – 19.0</td>
<td>12.0 – 19.3</td>
<td>13.5 – 13.7</td>
<td>17.8 – 18.8</td>
</tr>
</tbody>
</table>

Note: Low support was classified as having an averaged social support score inclusive of 0 – 19.4; High support was classified as having an averaged social support score inclusive of 19.5 – 25.0

The averaged Total Functional Support score was 15.2 (SD = 2.8) for low support 2 tie networks, 16.7 (SD = 2.6) for low support 3 tie networks, 13.6 (SD = 0.2) for low support 4 tie networks, and 18.3 (SD = 0.5) for low support 5 tie networks.
The averaged Total Functional Support score was 22.4 (SD = 1.7) for high support 2 tie networks, 22.2 (SD = 1.3) for high support 3 tie networks, 20.3 (SD = 0.9) for high support 4 tie networks, and 21.1 (SD = 0.4) for high support 5 tie networks.

Demographic proportions are also reported for social support networks using averaged scores (Table 13).

<table>
<thead>
<tr>
<th>Table 13. Network Proportions by Number of Ties and Categories of Support Using Averaged Social Support Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Support</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>(n = 7)</td>
</tr>
<tr>
<td>Family member</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Works outside the home</td>
</tr>
<tr>
<td>High school education or higher</td>
</tr>
<tr>
<td>Daily communication about pregnancy</td>
</tr>
<tr>
<td>“Very close” connection</td>
</tr>
<tr>
<td>Connection formed outside the U.S.</td>
</tr>
</tbody>
</table>

Note: Low support classified as having a social support score inclusive of 0 – 19.4; High support classified as having a social support inclusive of 19.5 – 25.0

For two tie networks classified as low support, 85% were family members, 64% were females, 42% worked outside the home, 57% had a high school education or higher, 50% communicated daily with the participant about her pregnancy, 71% were reported to have a “very close” connection, and 85% of the connections were formed outside the U.S., prior to resettlement. In three tie networks classified as low support, 76% were family members, 70% were female, 50% worked outside the home, 66% had a high school education or higher, 36% communicated daily with the participant about her pregnancy, 70% were reported to have a “very close” connection, and 80% of the connections were formed outside the U.S. In four tie networks classified as low support, 62% were family members, 62% were female, 62% worked outside the home, 50% had a high school education or higher, 37% communicated daily
with the participant about her pregnancy, 50% were reported to have a “very close” connection, and 75% of the connections were formed outside the U.S. In five tie networks classified as “low support,” 73% were family members, 66% were female, 60% worked outside the home, 46% had a high school education or higher, 53% communicated daily with the participant about her pregnancy, 80% were reported to have a “very close” connection, and 60% of the connections were formed outside the U.S. Among networks classified as “high support,” two tie networks were 87% family members, 37% female, 62% worked outside the home, 62% had a high school education or higher, 75% communicated daily with the participant about her pregnancy, 87% were reported to have a “very close” connection with the participant, and 50% of the connections were formed outside the U.S. Among three tie networks, 84% were family members, 72% were female, 51% worked outside the home, 45% had a high school education or higher, 57% communicated daily with the participant about her pregnancy, 93% were reported to have a “very close” connection with the participant, and 60% of the connections were formed outside the U.S. In four tie networks, 91% were family members, 75% were female, 66% worked outside the home, 25% had a high school education or higher, 41% communicated daily with the participant about her pregnancy, 75% were reported to have a “very close” connection with the participant, and 83% of the connections were formed outside the U.S. Five tie networks were 80% family members, 80% were female, 40% worked outside the home, 40% had a high school education or higher, 70% communicated daily with the participant about her pregnancy, 70% were reported to have a “very close” connection with the participant, and 70% of the connections were formed outside the U.S.

In addition to determining the structure and composition of the personal social networks of resettled Bhutanese refugee women during their pregnancies in the U.S., qualitative
information was also elicited to determine the types of pregnancy-related information that were shared within each participant’s network, as well as a personal assessment of the nature and strength of the social support provided. Profiles were created that describe the characteristics and experiences of select participants who were determined to be adequate representations of each network type (as determined by average age, demographic characteristics, and demographic characteristics of ties). Case studies were written that describe the networks and experiences of women in two to five tie networks, which also include the support scores that were derived for their networks, both averaged and non-averaged.

**Results by Research Question**

It is important to review these results in light of the research questions described previously:

**RQ1:** How are the personal social networks of resettled female Bhutanese refugees structured during their pregnancies in the U.S.?

This research reports the average social network size for resettled Bhutanese refugees during their pregnancies to be 3.09 (SD = 0.90), with the total number of ties reported at n = 139. The networks were primarily comprised of husbands (27.3%), sisters-in-law (16.6%), sisters (13.0%), and friends (11.5%). A large percentage of ties were female (68.4%) and born in Bhutan (79.1%). A large percentage of ties had less than a high school education (20.9%) to completed a high school education (43.1%). Most connections were forged prior to resettlement (71.9%) and were reported to be “very close” connections (77.7%). Most ties communicated with the participant daily during their pregnancies (53.2%). In considering the percentage of support provided by tie type (n = 130), 50.9% of the Total Functional Support was provided by
family or relatives, 29.0% was provided by spouses, 13.1% was provided by friends, 7.0% was provided by healthcare providers, and 0.8% was provided by neighbors. This suggests that spouses and family members (particularly, female relatives) contribute a large share of support during pregnancy for resettled Bhutanese refugee women. Additionally, ties that were maintained after resettlement appear to be important to the provision of support during pregnancy. Finally, ties who are viewed as “very close” connections, as well as those who communicated daily with the participant during her pregnancy, are also contributing a large share of support.

**RQ2**: How supportive are the personal social networks of resettled female Bhutanese refugees during their pregnancies in the U.S.?

Study results report that on average, the Total Functional Support score calculated for each participants’ network is 58.7 (SD = 20.9), the average Emotional Support Score is 40.3 (SD = 15.0), and the average Aid Support Score is 18.5 (SD = 6.7). When considering averaged social support scores, the Total Functional Support score calculated for each participants’ network is 18.9 (SD = 3.5), the Emotional Support Score is 12.9 (SD = 2.5), and the Aid Support Score is 6.0 (SD = 1.3). Reported minimum and maximum non-averaged Total Functional Support scores ranged from 23.0 to 107.0 and for averaged scores, ranged from 11.5 to 24.0.

While this is the first known research study that utilized the NSSQ to measure the provision of social support among refugee women during their pregnancies in the U.S. (Shisana & Celetano, 2002), these scores will be compared to other studies that have used this scale in maternal health research. One study that examined the social support scores of n = 101 low-income women and its association with their prenatal care and health behaviors reported a mean score of 140.8 (SD =
In a study of health-related functional status during pregnancy and its relationship to depression and social support within a sample of \( n = 114 \) Hispanic and black women, the average Total Functional Support score of depressed women was reported to be 89.9 (SD = 49.2) and for non-depressed women, the score was 102.0 (SD = 48.8), though the differences were not statistically significant (McKee, Cunningham, Jankowski, & Zayas, 2001). In a study that considered social support, life stress, and anxiety and its relationship to pregnancy complications within a sample of \( n = 111 \) low-income women, the mean Affect score reported was 62.60 (SD = 39.01), the mean Affirmation score reported was 58.28 (SD = 35.45), and the mean Aid support score reported was 57.60 (SD = 37.65) (Zachariah, 2009).

While not pregnancy-related, in a study of foreign-born and native-born adults living with Type 2 diabetes in Sweden, it was found that in the sample of \( n = 21 \) foreign-born men, the Total Functional Support score reported was 125.52 (SD = 77.74) and for a sample of foreign-born women (\( n = 10 \)), the Total Functional Support score was 154.80 (SD = 68.65) (Hjelm & Bertero, 2014). It is important to note, however, that the calculation of the NSSQ (as stated previously) is dependent on the number of ties named (that is, the more ties a person names, the higher their Total Functional Support score will reportedly be). The total number of ties reported in the study of foreign-born vs. native-born adults living with Type 2 diabetes was \( n = 178 \).

These results can be considered in terms of previous research findings that measured social support using the NSSQ. While the populations are not similar and the sample sizes that were reported were larger, it is important to note the differences in scores (though there is no statistical confirmation that there is a meaningful difference).
The present study also considers the social support score that is reported for specific tie types, where the average support score for spouses is 17.93 (SD = 8.60), for family or relatives is 30.67 (SD = 20.71), for friends is 5.98 (SD = 9.80), for healthcare providers is 3.79 (SD = 7.23), and for neighbors is 0.36 (SD = 2.31). In a study of the social support provided to n = 200 women during pregnancy and childbirth in Finland, it was found that spouses/partners (n = 141) received Total Functional Support scores of 4.75 (SD = 0.31), friends (n = 116) received a score of 3.84 (SD = 0.45), neighbors (n = 12) received a score of 3.38 (SD = 0.68), and healthcare providers (n = 27) received a score of 2.88 (SD = 0.65). Among family/relatives, scores were reported for parents (n = 125) at 4.23 (SD = 0.58), siblings (n = 77) at 3.99 (n = 0.63), and other relatives (n = 86) at 3.83 (SD = 0.53) (Tarkka & Paunonen, 1996).

**RQ3:** What differences can be observed in the personal social networks of female Bhutanese refugees during their pregnancies in the U.S.?

One of the primary differences between the social networks that were reported by participants were the size of the networks (number of ties named). In reviewing Table 10, the number of ties reported can also be examined in light of the proportion of demographic characteristics found within the network. The study results show that two tie networks (n = 11) had a high proportion of high school educated or higher ties (0.59). Three tie networks had a high proportion of family members (0.80) and connections reported to be “very close” (0.82). Four ties networks had a high proportion of family members (0.80), along with a high proportion of ties who work outside the home (0.65), and a high proportion of ties that were established outside of the U.S. (0.80). Five tie networks had a high proportion of female ties (0.72) and a high proportion of ties who communicated daily with the participant (0.64). It is important to
note that within the literature, an association between the type of tie providing support and reports of social support has been identified as potentially more impactful than the total support score reported (Norbeck & Anderson, 1989). This represents a potential area for further research that seeks to understand the impact the type of tie has on the provision of social support to female refugees during their pregnancies following resettlement.

An additional difference that can be observed is the categories of support that were reported (low support networks vs. high support networks) using averaged social support scores. In considering categories of support by number of ties (See Table 12), n = 7 two tie networks were reported as low support (social support score = 15.21, SD = 2.75) and n = 4 were classified as high support (social support score = 22.37, SD = 1.65). Among three tie networks, n = 11 were reported as high support (social support score = 22.15, SD = 1.26), and n = 10 were classified as low support (social support score = 16.70, SD = 2.54). Among four tie networks, n = 3 were reported as high support (social support score = 20.33, SD = 0.87) and n = 2 were classified as low support (social support score = 13.62, SD = 0.17). Finally, among five tie networks, n = 3 were reported as low support (social support score = 18.26, SD = 0.50) and n = 2 were classified as high support (21.10, SD = 0.42). These results suggest that while the number of ties a person names has been associated with opportunities for better health outcomes, it is not necessarily resulting in higher social support scores based on the present research, particularly in noting the fact that none of the five tie networks were classified as “high support” using the averaged social support scores (Umberson & Monetz, 2010).

Finally, differences can be observed between the proportions of demographic characteristics found in low support networks vs. high support networks based on number of ties. Among high support two tie networks, there was a high proportion of family members (0.87), a
high proportion of ties who work outside the home (0.62), a high proportion of high school educated or higher ties (0.62), a high proportion of ties who communicated daily with the participant (0.75), and a high proportion of ties that were reported as “very close” connections (0.87). Looking to two tie networks classified as low support, there was a high proportion of ties that were connections that were formed outside of the U.S. (0.85). Among three tie networks classified as high support, there was a high proportion of ties who were family members (0.84), a high proportion of ties who were female (0.72), a high proportion of ties who worked outside the home (0.51), a high proportion of ties who communicated daily with the participant (0.57), and a high proportion of connections who were “very close” (0.93). Among three tie networks classified as “low support,” there was a high proportion of ties who were connections formed outside the U.S. (0.80). In considering four tie networks classified as high support, there was a high proportion of family members (0.91), a high proportion of female ties (0.75), a high proportion of ties who work outside the home (0.66), a somewhat high proportion of ties who communicated daily (0.41), a high proportion of “very close” connections (0.75), and a high proportion of connections that were formed outside the U.S. (0.83). Among four tie networks classified as “low support,” there was a high proportion of high school educated ties (0.50).

Finally, in looking at five tie networks classified as “low support,” there was a high proportion of family members (0.73), a high proportion of ties who communicated daily with the participant (0.53), and a high proportion of “very close” connections (0.80).

An additional difference that is important to note is the fact that women who have resettled directly from Nepal are more likely to report a low support network. There is potential to examine the role that this factor plays in shaping the social networks of resettled refugee women.
Case Studies

While the structure and composition of participants’ social networks were described from a quantitative perspective, there was also the opportunity to better understand potential qualitative differences across networks. A series of case studies were developed that provide an overview of participant demographics, the demographic characteristics of the ties they named, as well as their experiences in their resettlement communities, both during their pregnancies and in general. These case studies provide a context for understanding how participants perceived their networks and assist in identifying potential differences that may be present across network types (i.e., two tie, three tie, four tie, and five tie networks). Case studies such as these have been utilized in other network studies as a means to create a profile of sorts that depict potential qualitative differences that can be observed across networks (Buckwalter et al., 2015; Castellani, Rajaram, Buckwalter, Ball, Hafferty, 2015).

Two Tie Case Study

Participant A is a 24-year-old born in Nepal. She has been resettled in the U.S. for three years. Prior to resettling in Akron, she lived in a refugee camp in Nepal. She has one child who is four months old. She is not employed and has a 9th grade education. She named her mother-in-law and her husband as two important sources of support during her pregnancy in the U.S., both of whom she met after resettlement. She describes her relationship with both ties as “very close.”

Her mother-in-law is 60 years old. She was born in Bhutan and has lived in the U.S. for five years. Her mother-in-law does not work outside the home and has not received a formal education. Participant A remarks that she communicated daily with her mother-in-law about her pregnancy. Her husband is 27 years old. He was born in Bhutan and has lived in the U.S. for five
years. Her husband works outside the home and has a 12th grade education. Participant A also reports communicating with her husband daily about her pregnancy.

Participant A remarked that she met her husband while they worked at a hotel. She met her mother-in-law “after marriage.” In terms of the types of things Participant A communicated with her mother-in-law and husband about during her pregnancy, she remarked that they discussed aspects of her child’s development, namely, the baby’s “movement,” instructions she received from her healthcare provider during appointments, and about food she liked to eat. In terms of how her mother-in-law and husband helped her during her pregnancy, Participant A remarked that her mother-in-law assisted with cooking and would ask her how she is feeling. Her husband would take her to her doctor’s appointments and ask what food she wanted to eat.

Participant A did not report that she lost contact with other potential ties that she would have communicated with about her pregnancy before resettlement. Participant A said that her family members were “very helpful” during her pregnancy and that her family was “very happy” that she was having a girl.

When asked to comment about differences between the U.S. and her community in Nepal, Participant A remarked “It was very hard in the beginning. People didn’t come out of house or were very busy with works but later after some months, we started talking.” Participant A also remarked that within her new community, there were quite a few Nepali people nearby (“Everyone around here are Nepali people. They help us when needed. Same was situation back in Nepal, so I don’t see much difference.”) When asked if she felt connected with her new community, Participant A said “Yes, we feel like family.” When asked about her pregnancy experience, Participant A commented that there were “good facility of health care, child care” and that “even though I had c-section, it was lot easy for me.”
Non-Averaged Social Support Score: 48.0;
Averaged Social Support Score: 24 (classified as “high” based on a range of scores inclusive of 19.5 – 25).

Three Tie Case Study

Participant B is a 27-year-old who was born in Bhutan. She has been resettled in the U.S. for 6 years. Prior to resettling in Akron, she lived in Portland, Oregon. She has two children, one who is seven years old and was born in Nepal and one who is two and a half years old and was born in Akron, Ohio. She is employed and has a 10th grade education. She named her sister-in-law, husband, and aunt as three important sources of support during her pregnancy. She knew her husband and aunt prior to arriving in the U.S. and met her sister-in-law after resettlement. She described her relationship with each tie as “very close.”

Her sister-in-law is 41 years old. She was born in Bhutan and has lived in the U.S. for three years. Her sister-in-law does not work outside the home and has a 10th grade education. Participant B remarks that she communicated daily with her sister-in-law about her pregnancy. Her husband is 29 years old. He was also born in Bhutan and has lived in the U.S. for three years. Her husband works outside the home and has a 12th grade education. Participant B also reports communicating with her husband daily about her pregnancy. Her aunt is 30 years old. She was also born in Bhutan and has lived in the U.S. for seven years. She does not work outside of the home and has no formal education. Participant B communicated weekly with her aunt.

Participant B remarked that she met her sister-in-law “after marriage” and that she met her husband because “his relatives were my neighbors. We saw each other when we visited them.” She remarked that she met her aunt as “her mother’s sister.” In terms of the types of
things Participant B communicated about within her network about her pregnancy, she stated that she mainly talked about her pregnancy symptoms, food she liked to eat, about her personal health, and her child’s health. She remarked that with her husband, she communicated “everything what doctor had advised me” and that “we share almost everything.” In terms of how her network assisted her during pregnancy, Participant B remarked that they assisted by cooking food she liked, doing laundry, and looking after her older child.

Participant B reported that she lost contact with her family due to her resettlement and that their “process is delayed” in coming to the U.S. As an alternative to communicating in person, Participant B kept in contact with them via the telephone. When asked to share with whom she goes to for general information in her community, she mentioned a local resettlement agency as the place she went that “helped us in the beginning.” When it came to finding information about pregnancy, Participant B remarked that her “aunty gave me info about the hospital.”

When asked to comment about differences between the U.S. and her community in Nepal, Participant B remarked “I found a lot of differences between here and in Nepal. We were very much free all the time there, had no works to do. Here we are busy so we do not have time to meet each other. We have a very good relation though. We meet in free time.” Participant B also remarked that within her new community, there were many Nepali people nearby, along with her relatives, which makes things “easy.”

When asked about things she finds difficult about her new community, Participant B remarked that a “language barrier” prohibits her from becoming connected with her English-speaking neighbors, but that she has “good relation among Nepali people.” In one anecdote,
however, Participant B mentioned that “one of the neighbor came and helped us clean the house.”

*Non-averaged Social Support Score: 53.0*

*Averaged Social Support Score: 17.6 (classified as “low”, based on a range of scores inclusive of 0 – 19.4).*

**Four Tie Case Study**

Participant C is a 32-year-old who was born in Bhutan. She has been resettled in the U.S. for four years. Prior to resettling in Akron, she lived in Buffalo, New York. She has two children, one who is nine years old and was born in Nepal and one who is three months old and was born in Akron, Ohio. She is not employed and has a high school education. She named her husband, mother, friend, and health care provider as four important sources of support during her pregnancy in the U.S. She knew each tie prior to resettlement, except for her health care provider, whom she met during her pregnancy in the U.S. She described her relationship with her mother, husband, and friend as “very close” and her relationship with her health care provider as “somewhat close.”

Her husband is 33 years old. He was born in Bhutan and has lived in the U.S. for four years. Her husband works outside the home and has a high school education. Participant C remarks that she communicated daily with her husband about her pregnancy. Her mother is of unknown age and was born in Bhutan. She has lived in the U.S. for four years. Her mother does not work outside the home and received no formal education. Participant C reports communicating with her mother weekly about her pregnancy. Her friend is 25 years old. She was born in Bhutan and has lived in the U.S. for two years. She does not work outside of the home.
and has a high school education. Participant C communicated daily with her friend about her pregnancy. The age and birthplace of Participant C’s health care provider is unknown however, she is female and Participant C reported that she spoke with her health care provider monthly during her pregnancy.

Participant C commented that she met her husband “at school in Nepal.” She remarked that she met her friend as her “neighbor” and her health care provider during her pregnancy. In terms of the types of things Participant C communicated about within her network about her pregnancy, she remarked that she mainly talked about the baby’s health, whether the baby would be a boy or girl, and about her own health. In terms of how her network assisted her during pregnancy, Participant C remarked that they assisted her with household duties (i.e. “maintaining the house” and “cooking, laundry, and shopping.”) She reported that her health care provider “checked my health status and suggested what to follow and what not to.”

Participant C reported that she had not lost contact with any connections due to her resettlement that she would have communicated with regularly about her pregnancy. When asked to share what aspects of her network made her pregnancy experience easier, Participant C reported that “everyone was helpful. That made me happy. Also, I was having a baby girl which increased my happiness.”

When asked to comment about differences between the U.S. and her community in Nepal, Participant C remarked “My previous community was not much good because they did not have good education. My current community is good as they are educated.” Participant C also remarked that in her current community, “there are many Nepali people around so it was easy to connect with them. We meet to talk and share things.”

*Non-averaged Social Support Score: 78.0*
Averaged Social Support Score: 13.75 (classified as “low”, based on a range of scores inclusive of 0 – 19.4).

Five Tie Case Study

Participant D is a 30-year-old who was born in Bhutan. She has been resettled in the U.S. for 3 years. Prior to resettling in Akron, she lived in Kentucky. She has two children, one who is 10 years old and was born in Nepal and one who is two years old and was born in Akron, Ohio. She is not employed and has a 5th grade education. She named her husband, younger sister, elder sister, sister-in-law, and aunt as five important sources of support during her pregnancy in the U.S. She knew each tie prior to arriving in the U.S. She described her relationship with her husband, sisters, and sister-in-law as “very close” and her relationship with her aunt as “somewhat close.”

Her husband is 30 years old. He was born in Bhutan and has lived in the U.S. for three years. Her husband does not work and has a 6th grade education. Participant D remarks that she communicated daily with her husband about her pregnancy. Her younger sister is 26 years old. She was born in Bhutan. She has lived in the U.S. for three years. She does not work outside the home and has a 10th grade education. Participant D reports communicating with her younger sister weekly about her pregnancy. Her elder sister is 40 years old. She was born in Bhutan, and has lived in the U.S. for two years. She works outside of the home and did not receive a formal education. Participant D communicated daily with her elder sister about her pregnancy.

Participant D’s sister-in-law is 31 years old. She was born in Bhutan. She has lived in the U.S. for two years and does not work outside the home. She has a 4th grade education and Participant D communicated with her daily about her pregnancy. Participant D’s aunt is 40 years old. She
was born in Bhutan. She has lived in the U.S. for 2 and a half years and does not work outside
the home. She has a 3rd grade education and Participant D communicated with her daily about
her pregnancy.

Participant D commented that she met her husband as “school mates.” She remarked that
she met her sister-in-law “after marriage” and that her aunt “lived in the same house” with her. In
terms of the types of things Participant D communicated about within her network, she remarked
that she mainly talked about how her appetite was not good and what foods she should eat and
her baby’s health. She remarked that with her younger sister, they “shared their feelings with
each other as we both were pregnant.” She also remarked that with her elder sister, “we shared
each other’s experience and she especially told me how she gave birth to her child in Nepal.”
From her aunt, she received “information about hospital” and that “she helped taking
appointments and also took me to hospital.”

In terms of how her network assisted her during pregnancy, Participant D remarked that
they assisted her with cooking food, laundry, and taking care of her elder child. She also reported
that her aunt “used to suggest not to work if I am not feeling good.”

Participant D reported that she had not lost contact with any connections due to her
resettlement that she would have communicated with regularly about her pregnancy. When asked
about what she found different about her new community, she said “I found a lot of difference.
We lived very close to each other as houses were built close there, so we had lot of talks. But
here, we live in distance as houses are in some distance so we meet sometimes only and had less
talks. We are not very close with other people around due to language problem.” She also
commented “It was easy to make connection with Nepali people but it is difficult with other
people because of cultural difference, language problems, and our talks are also different.”
When comparing her pregnancy experience in the U.S. to her experience in Nepal, she said “I had my previous baby in Nepal and I had to bear labor pain which was unbearable but here, I did not feel pain at all. All the procedures carried out felt easy and comfortable here.”

*Non-averaged Social Support Score: 104.0
Averaged Social Support Score: 20.8 (classified as “low”, based on a range of scores inclusive of 0 – 19.4)*

**Chapter Summary**

The average social network size reported by participants during their pregnancies in the U.S. was 3.09 (SD = 0.90). Participants reported networks that were comprised primarily of spouses (27.34%), sisters-in-law (16.55%), sisters (12.95%), and friends (11.51%). Participants primarily communicated about matters related to personal health, matters related to their child’s health, anxieties related to pregnancy, and functional matters related to the household within their networks. The social support scores for each participants’ network were reported and the average Total Functional Support score was 58.7 (SD = 20.9), the average Emotional Support score was 40.3 (SD = 15.0), and the average Aid Support score was 18.5 (SD = 6.7). Averaged scores were also calculated; a technique that is often used when reported NSSQ scores (Gigliotti, 2002). Scores were averaged by taking the Total Functional Support score, the Emotional Support score, and the Aid Support score and dividing each value by the number of ties reported by the participant. The averaged Total Functional Support score reported was 18.9 (SD = 3.5), the averaged Emotional Support score was 12.9 (SD = 2.5), and the averaged Aid Support score was 6.0 (SD = 1.3). A significant finding was that among participants who reported resettling in
the U.S. directly from Nepal (n = 20), the odds of having a network classified as “low support” was 4.52 (95% CI: 1.19 – 17.15) times higher than participants who resettled from another city/state in the U.S.

When comparing the averaged social support scores of networks by the number of ties reported and the category of support (low support vs. high support) among low support networks, those with two ties had a score of 15.2 (SD = 2.8), three tie networks had a score of 16.7 (SD = 2.5), four tie networks had a score of 13.6 (SD = 0.2), and five tie networks had a score of 18.3 (SD = 0.5). Among networks classified as high support, those with two ties had a mean score of 22.4 (SD = 1.7), those with three ties had a mean score of 22.2 (SD = 1.3), those with four ties had a mean score of 20.3 (SD = 0.9), and those with five ties had a score of 21.1 (SD = 0.4). Across networks, there were large proportions of family members, female ties, connections that were formed outside the U.S., ties that were reported to be “very close connections,” and ties that communicated daily with participants during their pregnancies. When considering qualitative differences between networks based on the number of ties reported, there was little indication that the networks had meaningful differences. When reporting the aspects of the community of resettlement that inhibited the building of connections with others, participants reported that language barriers and lack of time to interact outside the home as challenges. Participants also reported that living near other Nepali people enhanced their connection to their new communities.
CHAPTER 5

DISCUSSION

Introduction

This research describes the size and composition of the personal networks of resettled Bhutanese refugee women during their pregnancies in the U.S., as well as quantified the amount of social support provided using the Norbeck Social Support Questionnaire (NSSQ). Study results showed a relationship between the number of ties named and social support scores, where the Total Functional Support score increased alongside the number of ties that were named. However, in using averaged scores, differences could be seen in scores across number of ties. In considering the averaged social support scores, individuals who fell in the “low support” category with four ties had the lowest Total Functional Support score (13.6, SD = 0.2) compared to two, three, and five tie networks (15.2, SD = 2.8; 16.7, SD = 2.5; and 18.3, SD = 0.5, respectively). Looking in more depth at the demographic proportions within four tie networks classified as “low support,” these networks had a smaller proportion of family members and female ties compared to two, three, and five tie networks classified as “low support.” Four tie networks classified as “low support” had a higher proportion of ties that worked outside the home, a higher proportion of ties classified as “very close,” and a lower proportion of ties that communicated daily with the participant during her pregnancy. This may suggest that connections that are family members, female, and those that communicated daily
with the participant are perceived as more supportive connections than those that are not. In considering connections that work outside the home, additional exploration could be conducted to determine the potential association between employment and the ability to provide daily support, particularly for refugees, many of whom were reported to work in factories, housekeeping, and other jobs that may not keep traditional work hours.

For individuals in the “high support” category, networks with four and five ties had lower scores (20.3, SD = 0.9 and 21.1, SD = 0.4, respectively), compared to two tie (22.4, SD = 1.7) and three tie (22.2, SD = 1.3) networks, a phenomenon that seems counter to the perception that a high number of ties translates to greater support. In looking at demographic proportions in these networks, four tie “high support” networks had the highest proportion of family members and employed ties compared to other “high support” networks. Individuals within the four tie “high support” networks were also less likely to be high school educated or higher, less likely to communicate daily with the participant, and more likely to have been a connection formed outside the U.S. compared to two and three tie “high support” networks. In five tie “high support” networks, there was the lowest proportion of family members, the highest proportion of females, and the lowest proportion of employed ties. While a high proportion of female ties were reported in most networks with higher social support scores, perhaps female family connections play a stronger role in influencing social support than non-family female connections.

While family connections may be viewed as influential in the provision of social support, it is interesting to note that four tie “high support” networks had the highest proportion of family connections, but a lower social support score than two and three tie “high support” networks. What may be influencing lower social support scores in this case is the lower proportion of daily communication with the participant. When looking at network proportions of two and three tie
networks classified as “high support,” which again had higher averaged social support scores than four and five tie networks, two tie networks had the highest proportion of ties that communicated daily with the participant and three tie networks had the highest proportion of ties that were classified as “very close.” Additional exploration into the role regular communication plays in influencing perception of social support during pregnancy, as well as the relevance of “very close” connections to maternal health and well-being would be important.

These results suggest that first, the quality and nature of support plays a more relevant role during the pregnancies of resettled refugee women than quantity of ties and that combinations of demographic characteristics within the network, taken with qualitative descriptions of the quality of relationships, can play a role in influencing the perception of support that is provided. It is also interesting to note how proportions of family, female, daily communication, “very close” connections, and to a lesser degree, employed/unemployed ties appear to be relevant to the perception of support provided.

Further, family members and spouses were identified as important sources of support in the majority of networks, regardless of number of ties (two to five) or category of support (low vs. high). This may suggest that family and spousal relationships, though different in the nature of the relationship itself, play an important role in providing support to female refugees who give birth upon resettlement. However, not all relationships with family were reported as “very close,” that the participant communicated daily with the family ties they named, or that every participant named a spouse as an important support person. A more nuanced look at the role of family networks within this refugee population could provide insight into potential barriers to tie formation outside of kinship (family) networks that refugee women may experience following resettlement, a quality to social networks that was difficult to ascertain in the present research.
Additionally, further exploration into the effect the quality of spousal connections has on pregnancy experience would be very beneficial, as strong spousal connections have been shown to influence strong social support in past research (Cheng et al., 2016; Rini, Schetter, Hobel, Glynn, & Sandman, 2006; Stapleton et al., 2012). Additionally, among family ties that were named, sisters and sisters-in-law played an important role in the provision of social support. Close ties with female relatives, particularly those who are within a similar age range, may be particularly important during the pregnancies of resettled refugee women and may not only fulfill the role of close family member, but also friend.

The results also showed that where participants resettled from (directly from Nepal or a secondary resettlement from another city/state in the U.S.) played a statistically significant role in determining number of ties that were named, as well as whether the participant had a “low support” or “high support” personal network (however, length of time since resettling was not statistically significant). It was found that participants who resettled to Northeast Ohio from another city/state in the U.S. were 4.52 times as likely to report a “high support” network compared to a “low support” network. This could possibly suggest that once resettled, refugees who migrate from other states within the U.S. may either be moving to reconnect with supportive ties, are more adept at forming ties within their new communities, or are more likely to report favorable perceptions of their social networks.

It is important to note, however, that when examining the experiences of participants using case studies, few differences can be seen between two to five tie networks. This could be due to the fact that there are few truly qualitative differences between networks based on number of ties, or could also be the result of a response bias where participants were not willing to share negative aspects of their personal social networks. One important result to note, however, are
participants’ perceptions of their new communities. While the women reported favorable experiences with the healthcare system during their pregnancies, it was commonly noted across each case study that there were some difficulties in making connections with community members who were native to the host country. Common responses for this were language barriers, the fact that both neighbors and the community members themselves were busy and not able to spend the time to build connections, and the fact that they lived in more spread out neighborhoods than they were used to. Participants did note feeling like “family” with other Nepali members of the community and that having other Nepali people around appeared to be a positive aspect of their resettlement experience.

Limitations

It is important to highlight potential limitations of this research. First, participants were recruited who had given birth in the U.S. in the past two years. This invites the potential for recall bias, where women were not able to accurately recall challenges and strengths within their own networks during their pregnancies due to the passage of time. Second, participants may have been unwilling to share negative aspects of their social networks and rated them as more favorable, thus resulting in a response bias. Third, while the interview guide was translated and then back translated to ensure consistency of language, there is the potential that questions did not resonate culturally with participants. This may have led to misunderstandings associated with the questions themselves that may have influenced responses. Fourth, while there was a qualitative component to the present study, the data that were reported did not lend themselves to rigorous qualitative analysis and thus were not included as a standalone component to the study. This may have yielded a better understanding of the resettlement experiences of the participants.
Fifth, this study relied on a convenience sample of Bhutanese refugee women and not a probability sample to recruit participants. While this is an adequate method for personal network research, it may be difficult to generalize these findings to the female Bhutanese refugee population as a whole. Finally, this research examined social support and social network structure in the context of a point in time event, pregnancy. This event may have changed the social network structure the women reported that cannot be generalized to their experiences before and after pregnancy.

Implications for Public Health Research

As previously noted, the world is experiencing one of the highest levels of displacement on record (United Nations, 2015). With growing numbers of the forcibly displaced, there are many reasons to believe that these record levels of displacement can have significant implications for global health and well-being (World Health Organization, 2017). Countries that accept the forcibly displaced, including refugees and asylum seekers, must be mobilized and well-positioned to offer residence within their communities that allows for effective integration into society and ensures that challenges associated with resettlement are managed so as not to contribute to the potential traumas that were incurred during instances of persecution in the host country, as well as during migration.

The present study offers an opportunity to consider the resettlement experience of refugees from a social network perspective. Upon resettlement, refugees become embedded within a network structure in their community of resettlement, while also maintaining their own network ties that carry implications for how they perceive the support provided to them. A network perspective adds a dimension to current research that considers the resettlement
experience in the context of social connections, a potential determinant of health that could be leveraged in future work to improve the resettlement experiences of refugees. This additional level of understanding about the resettlement experience enhances current research on refugee health by acknowledging that human beings are social creatures, and often individual health can be impacted through the health and well-being of social structures.

When considering the social network composition of the refugee women included in this study, it is important to consider their experiences in light of the social network structure they reported during their pregnancies. The types of connections women report may reflect aspects of the resettlement experience that are relevant to the formation of public health programs and policies at not only the local level, but nationally and globally as well. Family connections were important aspects of the social networks reported in this study. It was mentioned previously that refugees who resettle near or with family tend to experience improved integration in the community of resettlement compared to individuals who do not resettle near family (Riveria, Lynch, & Obamehinti, 2016). From a public health perspective, family connections within the community of resettlement may be important sources of support that could be leveraged to improve the flow of information, resources, and support to ensure refugee women may achieve healthy pregnancies. This can also be viewed from the opposite perspective, where the opportunity to build non-family connections with others, perhaps even those outside of the refugee community, should be improved to ensure refugee women can become fully integrated within the community of resettlement, and outside of what can be considered homophilous social networks. A study conducted among women in rural Matlab, Bangladesh that considered the influence social networks have on the decision to use a skilled birth attendant during pregnancy also reported networks that were comprised of primarily “dense, strong-tie, kinship-based
relations” (Edmonds, Hruschka, Bernard, & Sibley, 2012, p. 456). This was contrasted with what were described as networks within “contemporary society,” which are characterized as networks that are “socially diverse, spatially diverse, and comprise a low-density mixture of friends and relatives” (Edmonds, Hruschka, Bernard, & Sibley, 2012, p. 456; Wellman & Wortley, 1990). While the goal should not be to disrupt the existing social networks of refugee women during pregnancy following resettlement, improving their capacity to develop diverse connections in concert with their existing connections may vastly improve their pregnancies and their resettlement experience in general.

It is also important to consider the role that secondary resettlement to Northeast Ohio from other city/states in the U.S. plays in shaping social networks and social support. Women who moved to Northeast Ohio from other parts of the U.S. were more likely to report networks of high support compared to women who resettled directly from Nepal. It was noted previously that refugees will often rely on connections who have been settled for a longer period of time in the U.S. for information, resources, and support (Simich, 2003). It can be assumed that refugees who have lived longer in the country of resettlement have had the opportunity to learn more about how to access resources, where to go for information, and how to navigate the culture of the host country more so than newly arrived refugees. This relationship may also be seen in the ability of refugee women to utilize their networks for support during their pregnancies if they have already experienced life elsewhere in the U.S. From a public health perspective, perhaps refugees who have experienced secondary resettlement may be utilized as important resources for newly arrived refugees in the resettlement community. Empowering refugees with experience in the host country to bridge gaps that newly arrived refugees may confront may be a useful intervention technique to ensure refugees are able to integrate as seamlessly as possible.
Recommendations for Future Public Health Research

There are several directions for future research that can build upon this study. First, a more complete ego-centric analysis can be conducted by interviewing the alters that are named so that additional social network measures can be calculated. Second, a longitudinal assessment of social network structure within refugee populations in their community of resettlement could provide insight into the development and changes of network structure over time, particularly as length of time since resettlement increases. Third, a more causal understanding of the impact of the provision of social support via social networks on pregnancy outcomes could be pursued to more effectively understand how support provided to refugee women helps them achieve healthy pregnancies. Finally, further research could be conducted that compares the structure and provision of social support across refugee groups to better understand potential differences that might be present in how social networks are formed and structured across cultural groups.

Conclusions

The experiences of refugees during resettlement play an important role in ensuring health and well-being well into the future. The purpose of this research was to consider how social networks and the provision of social support can play a role in buffering the negative effects of resettlement by considering how the refugee themselves are embedded within a web of social connections that can play important roles in shaping their resettlement experience. In considering this relationship in the context of pregnancy, it becomes even more relevant, as supportive connections are an important determinant in shaping both maternal and child health. The results of this research can assist in shaping programs and interventions that seek to either build up the social networks of resettled female refugees as a tool to improve pregnancy experiences, or to
mobilize existing social networks to provide social support in a way that will be positive for both the mother and the baby. This research also suggests that social connections are important aspects of a refugee’s lived experience and that seeking to understand their structure and composition can be useful in crafting sound programs and policies.
References


Centers for Disease Control and Prevention. (2014). *Bhutanese Refugee Health Profile*. Available at: https://www.cdc.gov/immigrantrefugeehealth/profiles/bhutanese/.

Centers for Disease Control and Prevention. (July 5, 2013). *MMWR: Suicide and suicidal ideation among Bhutanese refugees – United States, 2009-2012*. Available at: https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6226a2.htm.


APPENDIX A

RE: IRB # 16-218 entitled “The Role of Social Networks in Providing Social Support to Resettled Female Refugees During Pregnancy in the United States”

I am pleased to inform you that the Kent State University Institutional Review Board reviewed and approved your Application for Approval to Use Human Research Participants. This protocol was reviewed at a fully convened board meeting on April 13, 2016. **Approval is effective for a twelve-month period:**

April 13, 2016 through April 12, 2017

*A copy of the IRB approved consent form is attached to this email. This “stamped” copy is the consent form that you must use for your research participants. It is important for you to also keep an unstamped text copy (i.e., Microsoft Word version) of your consent form for subsequent submissions.*

Federal regulations and Kent State University IRB policy require that research be reviewed at intervals appropriate to the degree of risk, but not less than once per year. The IRB has determined that this protocol requires an annual review and progress report. The IRB tries to send you annual review reminder notice by email as a courtesy. **However, please note that it is the responsibility of the principal investigator to be aware of the study expiration date and submit the required materials.** Please submit review materials (annual review form and copy of current consent form) one month prior to the expiration date.

HHS regulations and Kent State University Institutional Review Board guidelines require that any changes in research methodology, protocol design, or principal investigator have the prior approval of the IRB before implementation and continuation of the protocol. The IRB must also be informed of any adverse events associated with the study. The IRB further requests a final report at the conclusion of the study.

Kent State University has a Federal Wide Assurance on file with the Office for Human Research Protections (OHRP); FWA Number 00001853.

If you have any questions or concerns, please contact the Office of Research Compliance at Researchcompliance@kent.edu or 330-672-2704 or 330-672-8058.

Kent State University Office of Research Compliance
224 Cartwright Hall | Fax 330.672.2658
APPENDIX B

Use of Human Subjects in Research Application
(LEVEL II or LEVEL III projects)

THIS SECTION FOR USE BY IRB

<table>
<thead>
<tr>
<th>Name of discipline-specific reviewer:</th>
<th>Date Received by Office of Research Compliance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level II – Expedited Review</td>
<td>Agenda date:</td>
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<tr>
<td>Please specify one or more category:</td>
<td>Date of Log # notification email:</td>
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<tr>
<td>- #1 - Clinical Studies</td>
<td>Date of Final Approval:</td>
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<tr>
<td>- #2 - Collection of Blood Samples</td>
<td>Reminder of Annual review email:</td>
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<td>- #3 - Pros collection of Bio Specimens</td>
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<td>- #4 - Data through non-invasive procedures.</td>
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<tr>
<td>- #5 - Materials (Data, documents, records or specimens collected for non-research purposes)</td>
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<tr>
<td>- #6 - Data from voice, video, digital or image recordings</td>
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<td>- #7 - Individual or group characteristics</td>
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<tr>
<td>Level III – Full Board Review</td>
<td>Reason:</td>
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<tr>
<td>Signature of IRB Chairperson:</td>
<td>Date</td>
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</table>

INSTRUCTIONS FOR INVESTIGATORS:
1. Submit this completed document with any needed attachments via email attachment to an IRB discipline specific reviewer.
   To submit the form with a typed signature, the form must be submitted from the investigator's @kent.edu email account. If completed form is signed and then scanned as a PDF attachment, the @kent.edu email requirement does not apply.
   Submission of incomplete forms or failure to include all of the needed attachments will most likely result in delays for IRB review/approval. Handwritten forms are not accepted.
   **Single left-click to complete text fields.**
   **To check a box, double left-click on the box, then click "checked". Click OK.**
2. Do NOT begin data collection prior to receiving notification from the KSU IRB that the study has received final approval.

Section 1 – TITLE & PRINCIPAL INVESTIGATOR (PI) INFORMATION

Title of Study: The Role of Social Networks in Providing Social Support to Resettled Female Refugees During Pregnancy in the United States

Estimated begin and end dates for the project: April 2016 to October 2017

Name: Jeffrey S. Hallam, PhD, CHES

Phone: (330) - 672 - 0679 or extension

Department: Social and Behavioral Sciences

Purpose of Research:
- Faculty Research
- Student Thesis/Dissertation
- Complete Appendix A

 PI Email: jhallams@kent.edu

Only faculty members and professional staff who are full-time university employees are eligible for PI status. Students conducting research for their dissertation or master's thesis research can still have primary responsibility for the intellectual content, conduct of the research, or primary authorship in publications by serving as co-investigators or key personnel on IRB applications. If you are a
KSU employee conducting research involving human subjects as part of your graduate or undergraduate program, your faculty advisor must serve as the PI of record for IRB protocols. Please review IRB policy for PI eligibility and responsibilities.

Email address(es) for others that should be notified regarding the status of this application (i.e., student(s) conducting research, program administrators, etc.):

- mbhatta@kent.edu
- dkingsbz@kent.edu
- akhanal@kent.edu

1a. Are there any Kent State University affiliated co-investigators or key personnel on this protocol?

- Yes □ Complete Appendix A
- No □

“Key personnel” are defined as individuals who participate in the design, conduct, or reporting of human subjects research. At a minimum, include individuals who recruit participants, obtain consent or, who collect study data. Students conducting research for their dissertation or master’s thesis research can still have primary responsibility for the intellectual content, conduct of the research, or primary authorship in publications by serving as co-investigators or key personnel on IRB applications.

1b. Are there any external (non-Kent State University affiliated) co-investigators or key personnel engaged in the research?

- Yes □ Complete Appendix B
- No □

“Engaged” individuals are those who intervene or interact with participants in the context of the research or who will obtain individually identifiable private information for research funded, supervised, or coordinated by Kent State University. See OHRP Engagement Guidance or contact ORC for more information.

1c. Has the Principal Investigator (PI) completed the required web-based course years (CITI, or equivalent) in the protection of human research subjects?

- Yes □ Attach Copy of completion certificate
- No □

Educational requirements (initial and continuing) should be satisfied prior to submitting the application for IRB review. See Human Subjects Protection Training policy for more information. Final approval from the IRB will not be obtained until all requirements are fulfilled.

### Section 2 – FUNDING INFORMATION

2a. Does this research have external funding or have you requested external funding for this research?

- Yes □
- No □

If Yes □ Specify sponsor: □

Protocol/Proposal #: □

Institution (if not KSU): □

Have all Kent State University investigators and key personnel completed the required COI disclosure for externally funded research for the purposes of this research project?

- Yes □
- No □

2b. Is any support other than monetary (e.g., drugs, equipment, supplies, etc.) being provided for the study?

- Yes □
- No □

If Yes □ Specify support and provider: □

Attach a copy of the grant application or funding proposal. □

The university is required to verify that all funding proposals and grants (new or renewals) have been reviewed by the IRB before funds are awarded. If the research funded by a federal agency and involves a subcontract to or from another entity, an IRB Authorization Agreement may be required. Contact the Office of Research Compliance (ORC) for more information.
2c. Does the PI for this research or their immediate family members (i.e., spouse, domestic partner, or dependent children) have a financial interest that would reasonably be affected by the research, or a financial interest in any entity whose financial interest would reasonably appear to be affected by the research?  
Financial interests include (but are not limited to) salary or other payments for services (e.g., consulting fees or honoraria), equity interests (e.g., stocks, stock options, or other ownership interests), and intellectual property rights (e.g., patents, copyrights, and royalties from such rights).

☐ Yes  Complete Appendix Z  ☐ No

2d. Does the PI for this research or their immediate family members (i.e., spouse, domestic partner, or dependent children) have a non-financial conflict of interest that would reasonably be affected by the research?  
A non-financial conflict of interest is an interest, other than monetary, of an individual (or his/her immediate family) in the design, conduct, or reporting of the research or other interest that competes with the obligation to protect research participants and potentially compromises the objectivity and credibility of the research process.

☐ Yes  Complete Appendix Z  ☐ No

Section 3 – RESEARCH DESIGN

3a. Will research activities be conducted at a site where approval from an additional IRB (other than KSU IRB) is needed?  
In some cases research conducted at locations other than Kent State University (i.e., other universities, hospitals, prisons) may require another institution's IRB approval, a letter of support (as in the case of elementary or high schools), or the execution of an IRB Authorization or Individual Investigator Agreement. See QHRP Engagement Guidance or contact ORC for more information.

☐ Yes  Complete Appendix D  ☐ No

3b. Is any of this research being conducted outside of the U.S.A.?  

☐ Yes  Complete Appendix U  ☐ No

3c. Briefly summarize the purpose of the proposed research using non-technical language that can be readily understood by someone outside the discipline. Use complete sentences (limit 500 words).

Each year, millions of men, women, and children flee their homelands to escape humanitarian crises across the globe. The impact of war, genocide, natural disasters, poverty, and religious, social, and political persecution often leave individuals with the imperative to relocate within a neighboring country or across regions. Defined by the United Nations (UN) as 'refugees', these are individuals who ‘owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion, is outside the country of his nationality and is unable or owing to such fear, is unwilling to avail himself of the protection of that country’ (United Nations, n.d.).

In 2014, the number of refugees worldwide totaled 19.5 million, nearly 25% of which were women of reproductive age (United Nations, 2014). Female refugees often face vulnerabilities that may significantly impact their quality of life across the spectrum of their experience – from fleeing their homelands to their resettlement. Addressing trauma, increased risk for sexual and physical violence, receiving adequate pre- and post-natal care, obtaining adequate screenings for breast and cervical cancer, and accessing mental health care are among the most pressing needs identified within this population (Correa-Velez & Ryan, 2012; Saadi, Bond, & Percac-Lima, 2012; Palinkas et al., 2003).

In considering the health needs of refugee women resettled in the United States, of particular concern to the proposed study are those related to pregnancy and the delivery of healthy infants (Kabakian-Kasholian, Shayboub, & El-kak, 2013; Jentsch, Durham, Hundly, & Hussein, 2007; Carballo, Groccutt, & Jadzijahyanovic, 1996). Specifically, the proposed study seeks to understand how the refugee experience impacts pregnancy upon resettlement and the role social support plays in facilitating maternal well-being. More broadly, the
The proposed study also seeks to gain a better understanding of how female refugees restructure their social networks after resettlement in the United States.

Since 2008, the widespread resettlement of Bhutanese refugees of Nepali descent – referred to hereafter as “Bhutanese refugees”, has been considered one of the world's largest resettlement efforts (Mitschke, Aguirre, & Sharma, 2013). Due to government sponsored policies that motivated ethnic discrimination and violence, many refugees were forced to flee from Bhutan and settle in refugee camps in neighboring Nepal (United Nations High Commissioner for Refugees, 2008). Efforts to move Bhutanese refugees from camps to secondary resettlement sites has resulted in over 100,000 refugees finding homes in eight different countries, including the United States (United Nations High Commissioner for Refugees, 2013). Since 2012, nearly 49,000 Bhutanese refugees have been resettled in the U.S., over 2,335 of which have resettled in Ohio (Centers for Disease Control and Prevention, 2014; United States Department of Health and Human Services, 2014). In Ohio, the City of Akron has become home to 1,583 Bhutanese refugees since 2009 (International Institute of Akron, 2014). Considering the widespread resettlement of Bhutanese refugees nationally, statewide, and locally, the focus of the proposed research is to assess the potential impact the refugee experience has on personal health, particularly for female refugees during pregnancy.

3d. List the scientific or scholarly aims of the research study

**Specific Aim #1:** To describe the personal social network structure of resettled female Bhutanese refugees of Nepali descent who have given birth in the United States.

**Specific Aim #2:** To understand the provision of social support during pregnancy through the personal social networks of resettled female Bhutanese refugees of Nepali descent who have given birth in the United States.

**Specific Aim #3:** To assess how social networks are restructured following resettlement among female refugees.

3e. Summarize existing knowledge and previous work that support the expectation of obtaining useful results without undue risk to human subjects. *Use complete sentences (limit 300 words).*

The role of social networks (i.e. our connections to others) in providing social support and influencing health has been previously studied for a variety of health behaviors (Marquez-Elder, Arredondo, Ayala, 2014; Christakis & Fowler, 2007; Valente, 2004; Valente, 2005). Social networks have been shown to influence health behaviors by transmitting norms and information, offering support for or against a particular behavior, and being the means through which diseases spread (Centola, 2010). Of particular interest for the proposed study is the role social networks play in providing social support during a specific life experience (pregnancy) within a group that is largely considered “at-risk” for poor maternal health outcomes (resettled refugees). It has been shown that social support in the form of emotional and informational aid, as well as the provision of tangible resources (i.e., financial assistance, transportation), during pregnancy can improve the pregnancy experience and health outcomes for women (Edmonds, Paul, & Sibley, 2011; Almeida, Mulready-Ward, Bettegowda, & Aklawala, 2014). What is not as well understood is how social network structures (i.e., who we are or are not connected to) influences the provision of social support, and in turn, pregnancy experiences. The proposed study seeks to understand how the personal social network structure of female refugees who give birth in the United States influences the provision of social support, and thus, pregnancy experiences.

3f. Identify and describe the interventions and interactions that are to be performed solely for the research study. *Procedures/interventions should listed sequentially and be separated into paragraphs in the space below.*

In-depth, semi-structured interviews: Through a series of in-depth, semi-structured interviews conducted within the Bhutanese refugee community in the North Hill neighborhood of Akron, Ohio, a number of questions will be asked to determine who comprised the social networks of female Bhutanese refugees during their pregnancy in the U.S. and the types of perceived support the network members provided during this time.
Additional questions will be asked to ascertain how the social networks of resettled female Bhutanese refugees are structured in general to gain a better understanding of how the network is currently structured overall.

Upon recruitment into the study, interviews will be scheduled at a location of the participant’s choosing where the following information will be obtained: demographic information about the participant, a listing of up to 10 people with whom they discussed important matters related to their pregnancy, demographic indicators of the social network members, a series of scaled questions that seek to determine the type and quality of support provided during pregnancy using the Norbeck Social Support Questionnaire (NSSQ), and questions related to how the participant perceives the refugee community network in Akron, Ohio in general (questionnaire attached) (Norbeck, Lindsey, & Carrieri, 1983). All interviews will be conducted by a trained interviewer (Aruna Khanal) who is fluent in both Nepali and English. The interviews are expected to last about 1 to 1.5 hours from start to finish. This includes greeting the participant, conducting the informed consent process, providing the incentive, asking interview questions, answering questions for clarification, and closing the interview. Due to potential limitations in access to transportation for the participants, the interviews will be scheduled at locations and times of the participant’s choosing. Proposed locations may be the participant's home, private meeting spaces in public locations (such as the library), or in private meeting spaces in the International Institute. The interviews will be attended by two members of the research team – Aruna Khanal and Diana Kingsbury.
39. Check all research activities that apply. Attach a copy of materials to be used (e.g., interview/focus group questions, instruments, data collection forms, etc.).

- Anesthesia (general or local) or sedation
- Audio, video, digital, or image recordings
- Biohazards (e.g., rDNA, infectious agents, select agents, toxins)
- Biological sampling (other than blood)
- Blood drawing, injections, surgical procedures (including biopsies) → Complete Appendix G
- Coordinating Center
- Data, not publicly available
- Data, publicly available
- Data/Specimen storage/repository → Complete Appendix C (future unspecified use, including research databases for purposes of sharing data or specimens collected with other researchers/studies in the future)
- Deception → Complete Appendix D & Appendix M
- Devices → Complete Appendix E
- Diet, exercise, or sleep modifications
- Drugs or biologics → Complete Appendix F
- Emergency research
- Focus groups
- Food supplements
- Gene transfer
- Genetic testing → Complete Appendix G
- Internet or e-mail data collection
- Magnetic Resonance Imaging (MRI)
- Materials that may be considered sensitive, offensive, threatening, or degrading
- Non-invasive medical procedures (e.g., EKG, Doppler)
- Observation of participants (including field notes)
- Oral history (does not include medical history)
- Placebo
- Pregnancy testing
- Radiation (e.g., CT or DEXA scans, X-rays, nuclear medicine procedures) → Complete Appendix V
- Record review (which may include PHI)
- Specimen research
- Stem cell research
- Surveys, questionnaires, or interviews (one-on-one)

3h. Estimate the time required from each participant, including individual interactions, total time commitment, and long-term follow-up, if any.

**It is estimated that participants will spend 1.5 to 2 hours in the interview. No additional follow-up will be necessary.**
Section 4 - PARTICIPANT POPULATION

4a. What is the total number of participants (or number of participant records, specimens, etc.) for whom you are seeking Kent State IRB approval?

The number of participants is defined as the number of individuals who agree to participate (i.e., those who provide consent or whose records are accessed, etc.) even if all do not prove eligible or complete the study. The total number of research participants may be increased only with prior IRB approval.

A total sample of 45 participants will be needed to achieve the proposed study's goals.

4b. Explain how this number was derived (e.g., statistical rationale, attrition rate, etc.).

Within social network research, there are no strict rules for “bounding” a network and studying its attributes (Borgatti, Everett, & Johnson, 2013). It is recommended that, particularly for personal network research, the researcher seek a sample that is estimated to be appropriate for answering the research question. For the purposes of the proposed research, it is estimated that a sample of 45 women will be necessary to address the study’s specific aims.

4c. Specify the age(s) of the individuals who may participate in the research:

Age(s): 18 – 44 years of age

4d. Specify the participant population(s) to be included (check all that apply):

- Adults
- Adults with decisional impairment → Complete Appendix W
- Children (<18 years) → Complete Appendix I
- Neonates (uncertain viability/nonviable) → Complete Appendix K
- Non-English speaking → Complete Appendix J
- Pregnant women/fetuses → Complete Appendix K
- (Only if pregnant women are intentionally recruited and/or studied)
- Prisoners → Complete Appendix L
- Student research pools (e.g., psychology, sociology, communication) → Complete Appendix Y
- Unknown (e.g., research using secondary data/specimens, non-targeted surveys)
- Other Specify:

The regulations require that, “When some or all of the subjects are likely to be vulnerable to coercion or undue influence, such as children, prisoners, pregnant women, mentally disabled persons, or economically or educationally disadvantaged persons, additional safeguards have been included in the study to protect the rights and welfare of these subjects.” 45 CFR 46.111(b). There are additional, explicit regulatory requirements regarding pregnant women and fetuses (45 CFR 46 Subpart B), prisoners (45 CFR 46 Subpart C) and children (45 CFR 46 Subpart D and 21 CFR 50 Subpart D). The questions in the applicable appendices address these additional requirements.

4e. Describe the characteristics of the proposed participants, and explain how the nature of the research requires/justifies their inclusion.

Participants will be women between the ages of 18-44 who are Bhutanese refugees of Nepali descent. Women who meet the following inclusion criteria will be eligible to participate:

- At least 18 years of age or older, and no older than 44
- Bhutanese refugee of Nepali descent
• Has given birth in the United States in the past 2 years.

4f. Will any participants be excluded based on age, gender, race/ethnicity, medical conditions, pregnancy status, language, education, or financial status?  
☐ Yes  
☐ No

If Yes → Explain the criteria and reason(s) for each exclusion. Explain who will evaluate and make determinations about subjects that should be excluded from the study. Consider the study’s scientific or scholarly aims and risks.

Women who do not meet the criteria described above (i.e., those who are not yet 18 or over 44, are a refugee from another country or ethnicity, or who have given birth beyond the past 2 years) will not be included. The purpose for excluding women who do not meet these criteria is to maintain homogeneity within the sample and to ensure that the recall of pregnancy related social support is recent. Bhutanese refugees of Nepali descent are of particular interest in the proposed study due to the widespread resettlement of refugees from this region in Akron, Ohio.

Section 5 – RISK/BENEFIT ASSESSMENT

5a. Do you think that the probability and magnitude of harm or discomfort anticipated for the participants are greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests?  
☐ Yes  
☐ No

If Yes → Describe the plan to oversee and monitor data collected to ensure participant safety and data integrity. Include the following:

• The information that will be evaluated (e.g., incidence and severity of actual harm compared to that expected);
• Who will perform the monitoring (e.g., investigator, sponsor, or independent monitoring committee);
• Timing of monitoring (e.g., at specific points in time, after a specific number of participants have been enrolled); and
• Decisions to be made as a result of the monitoring process (e.g., provisions to stop the study early for unanticipated problems).

5b. Describe all reasonably expected risks, harms, and/or discomforts that may apply to the research. Discuss severity and likelihood of occurrence. As applicable, include potential risks to an embryo or fetus if a woman is or may become pregnant. Consider the range of risks, including physical, psychological, social, legal, and economic.

There are some risks associated with personal disclosure in an interview format, particularly for women who are newcomers to the United States. Potential risks associated with the research protocol may be: discomfort in disclosing personal information, discomfort in disclosing refugee status, the potential of describing underlying trauma associated with the refugee experience, or the potential that questions may be misunderstood. All participants will be provided with a list of clinical and community resources they can be referred to if they are in need.
5c. Describe how risks, harms, and/or discomforts will be minimized. If testing will be performed to identify individuals who may be at increased risk (e.g., pregnant women, individuals with HIV/AIDS, depressive disorders, etc.), address timing and method of testing; include how positive test results will be handled.

Risk will be minimized by: conducting the interview in the participant’s native language, identifying the appropriate referral services if sensitive information is disclosed, the opportunity for participant’s to ask for clarification if the questions are unclear, and the opportunity for participant’s to skip question in the interview they are not comfortable with or unwilling to answer.

5d. List the potential benefits that individual participants, society or both may expect as a result of this research study. State if there are no direct benefits to individual participants. Compensation is not to be considered a benefit.

The benefit of the proposed research is the opportunity to better understand the pregnancy experiences of resettled refugees from a social perspective. By learning how social networks are structured, activated, and utilized as a source of support, we might better understand how to meet the needs of refugee women who are resettled and become pregnant. There are opportunities to design social network interventions and to advocate that the findings be used to improve the pregnancy experience of refugee women in the United States.

5e. Discuss how risks to participants are reasonable when compared to the anticipated benefits to participants (if any) and the importance of the knowledge that may reasonably be expected to result.

The potential risks associated with participation are reasonable when considering the potential benefits of the information provided. Understanding how social networks can be used to provide stronger support for women who might otherwise be considered at-risk for poor pregnancy outcomes is a strong benefit in comparison to potential risks.

5f. Is it possible that this study will discover a previously unknown condition such as a disease, suicidal intentions or genetic predisposition in a participant as a result of the study procedures?

☐ Yes
☒ No

If Yes → Explain how you will manage the situation.

☐ □ □

5g. Will this study collect information about research participants’ family history that includes personal identifiers (e.g., secondary subjects)?

☐ Yes → Complete Appendix P
☒ No

5h. Is this a double blind randomized study in which neither the participants nor the research team knows the assignment to the study drug or placebo?

☐ Yes
☒ No

If Yes → Describe the unblinding plan

☐ □ □
**Section 6 - PARTICIPANT IDENTIFICATION, RECRUITMENT, & SELECTION**

6a. Specify the recruitment methods for this study and attach a copy of recruitment material(s):

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<tr>
<td>Personal contact</td>
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<tr>
<td>Contact or approach letters</td>
<td></td>
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<tr>
<td>Telephone calls (include script)</td>
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<td>Home visits</td>
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<td>Radio or TV (include written text of the advertisement and brief layout of images)</td>
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<td>Specify frequency:</td>
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<tr>
<td>Other Specify:</td>
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</table>

6b. Who will approach or recruit potential participants?

- Principal Investigator and/or Co-Investigator
- Research Staff
- Other → please describe: Community members who are familiar with the refugee population in Akron, Ohio will be utilized to recruit potential participants through word of mouth.

6c. Does the person recruiting have what could be perceived as a supervisory role or position of authority (e.g., teacher, counselor, doctor) by the potential participant(s)?

- Yes
- No

If Yes → Describe how you will minimize risks for participants to feel obligated to participate in the research (e.g., will the potential participants be afforded the opportunity to take material home and discuss the study with family members and/or primary care providers? Will the person recruiting emphasize the voluntariness of participation? If so, explain how.)

6d. When/how often will participants be recruited? (e.g., before/after a counseling visit, via email with 3 reminders sent at specific intervals).

Participants will be recruited over the course of three months, or until the necessary sample has been obtained. Eligible women will be recruited from within the community through word of mouth, as well as through postings at local community organizations that work with the refugee population in Akron, Ohio.

6e. Where will participants be recruited? (e.g., doctor’s office, classroom, online)

Participants will be recruited from within the refugee community in Akron, Ohio, through word of mouth and through postings at community organizations that work with the refugee population.

6f. What steps will be taken to avoid coercion or undue influence in the recruitment of research participants? (e.g., will the potential participants be afforded the opportunity to take material home and discuss the study with family members and/or primary care providers?)

All potential participants will be asked to contact Nepali-speaking research personnel (Aruna Khanal) upon learning about the study. Here, potential participants will have the opportunity to ask questions and learn more about the study. Participants will be provided with information about the study before agreeing to partake. Information related to the research protocol will be made available and disclosed to potential participants and if needed, their family members, healthcare providers, or others who may need to be consulted prior to their involvement.
Section 7 - INCENTIVES or COMPENSATION TO PARTICIPATE

7a. Will participants receive compensation or other incentives (e.g., free services, cash payments, gift certificates, parking, classroom credit, travel reimbursement) to participate in the research study? □ Yes □ No

*Compensation plans should be pro-rated (not contingent upon study completion) and should consider participation withdrawals, as applicable.*

If Yes → Describe the compensation/incentive. Include the amount and timing of all payments.

Participants who are recruited into the study and agree to participate will be provided with a $15 Visa gift card. Participants will be provided with the incentive even if they decide to drop out of the study after it begins.

7b. Have you reviewed and complied with the Procedures for Compensating Research Participants policy that is available on our website at: https://sites.google.com/a/kent.edu/division-of-research-and-sponsored-programs-intranet/home/office-of-research-compliance.irb/forms

Section 8 - INFORMED CONSENT PROCESS

The human subject protection regulations at 45 CFR 46:

- List ten basic elements of information that must be provided to subjects when investigators are seeking informed consent from subjects to participate in research (unless the IRB approves a request for a waiver/alteration of any/all of the basic elements for consent.) The basic elements of consent are:

  - Purpose, procedures and expected duration of the research
  - Risks and discomforts
  - Potential benefits
  - Alternative procedures or treatments (if any)
  - Compensation for participation in the research (if any)
  - Provisions for confidentiality
  - Management of research related injury
  - Contacts for additional information
  - Voluntary participation and the right to discontinue participation without penalty

- Require that participants sign a consent form (unless the IRB approves a request for a waiver of documented consent.) If participants cannot give informed consent, it must be obtained from their legal representatives. For example, when subjects are minors (under 18) or when they are mentally incapacitated, consent from a legal representative (such as a parent or legal guardian) is required. To develop a consent form, begin by using the consent form template that is available from our website.

8a. Who will discuss and obtain consent from participants? □ Principal Investigator □ Research key personnel □ Other: Specify

8b. Are you requesting approval for a waiver/alteration of any/all of the basic elements of consent (see information above) for any part of the research? (e.g., investigators conducting research that involves deception might request a waiver/alteration of the basic elements of consent so that the true purpose of the research is not disclosed in the consent form.) □ Yes → Complete Appendix Ma □ No

8c. Are you requesting a waiver of the requirement for participants to sign a consent document? (e.g., an investigator conducting research that only involves the use of anonymous surveys might request a waiver of signed consent.) □ Yes → Complete Appendix Ma □ No

8d. Describe who will provide consent or permission (i.e. participant, legally authorized representative, parent and/or guardian)? □ N/A

Because participants will be 18 years of age or older, they will be asked
to provide their own consent.

8e. Check all that apply:

☒ Informed Consent – Signed Form → Provide copies of document. Please use website template.
☐ Parental Permission – Form

☐ Parental Permission – Verbal Script/Online/Unsigned

☐ Assent – Form

☐ Assent – Verbal/Online/Unsigned

☐ Not Applicable (existing data or specimens)

☐ Other (Specify):

8f. Describe the consent process. Explain when and where (e.g., in a private room, in a group setting) consent will be obtained and how subjects and/or their legally authorized representatives will be provided sufficient opportunity (e.g., waiting period, if any) to consider participation. If the person consenting subjects into the study has what could be perceived as a supervisory role (professor, teacher, doctor, counselor, etc...) in the eyes of the subjects, explain how risks will be minimized for participants to feel obligated to participate in the research.

Prior to the start of the study, potential participants will be provided with the informed consent document. They will be given the opportunity to review the research protocol and ask questions before arriving at the interview. Consent will be obtained at the start of the interview. The interviews will be conducted in a private room in a location of the participant’s choosing, free of distraction and interference. The informed consent process will be explained by Nepali-speaking research personnel (Aruna Khanal). Participants will be provided with time to determine whether they still wish to participate on site. Any questions related to the study protocol will be answered at the time of consent.

8g. Will any other tools (e.g., quizzes, visual aids, information sheets) be used during the consent process to assist participant comprehension?

☐ Yes → Provide copies of these tools
☒ No

Section 9 - HIPAA RESEARCH AUTHORIZATION

9a. Will individually identifiable Protected Health Information (PHI) subject to the HIPAA Privacy Rule requirements be accessed, used, or disclosed in the research study?

PHY is individually identifiable health information, held or maintained by a covered entity (healthcare provider, insurance company, health plan, medical center) or its business associates acting for the covered entity. Covered entities may use or disclose health information that is de-identified without restriction under the Privacy Rule. Covered entities seeking to release this health information must determine that the information has been de-identified using either statistical verification of de-identification or by removing certain pieces of information. For more information, see De-identifying PHI Under the Privacy Rule.

☒ No

☐ Yes → Check all that apply. In general, covered entities can use and disclose PHI for research if authorized to do so by the subject in accordance with the Privacy Rule. In addition, in certain circumstances, the Rule permits covered entities to use and disclose PHI without Authorization for certain types of research activities.
Section 10 - PRIVACY OF PARTICIPANTS

10a. Describe the provisions to protect the privacy interests of the participants.

Consider the circumstances and nature of information to be obtained, taking into account factors (e.g., age, gender, ethnicity, education level, etc.) that may influence participants’ expectations of privacy. For example, individuals might not want to participate in a study that involves their being seen entering a building that might stigmatize them, such as a substance abuse counseling center, or to provide personal information during an interview conducted in a crowded place (e.g., a clinic waiting room). Protecting the privacy interests of a young child might mean having a parent present at the session with an investigator, while protecting the privacy interests of a teenager might mean having the parent absent from the session.

Interviews will be conducted in a private room that will not be accessible to others during the duration of the interview. Participants will be notified of their right to anonymity of their responses. While participants will be asked to provide the names of individuals with whom they discussed matters related to their pregnancy, this information will not be disclosed in any study reports. All information provided in the interview will be aggregated and de-identified. This includes the name of the participant and any names that are provided during the interview to explain their social network structure. Participants will have the opportunity to retain their right to privacy by not answering questions they feel will undermine their privacy.

10b. Does the research require access to personally identifiable private information?

☐ Yes
☐ No

If Yes → Describe the personally identifiable private information involved in the research. List the information source(s) (e.g., educational records, surveys, medical records, etc.).

Due to the nature of social network research, individuals are asked to name members of their personal network. In addition to names, perceived personal demographic information about each network member will also be collected. It is important to note that while this data is collected, it is not used in an identifiable way after data analysis.

10c. Explain any circumstances (ethical or legal) where it would be necessary to break confidentiality.

☐ N/A

10d. Will this study obtain IDENTIFIABLE information from students’ educational records?

☐ Yes
☐ No

If Yes → Does the individual obtaining the information have legitimate access (e.g., as the student’s teacher/mentor)?

The FERPA (Family Educational Rights and Privacy Act) applies when student educational records are used for...
Section 11 - CONFIDENTIALITY OF DATA

11a. What format will be used to store participant information? Check all that apply.

- [ ] Hardcopy paper documentation
- [ ] Database system
- [ ] Disk (CD ROM, floppy disk, flash drive)
- [ ] Audio Tapes
- [ ] Video Tapes
- [ ] Other--Specify: Interview transcripts will be kept as word documents and stored on a password protected computer at Kent State University.

11b. How will the participant information be kept secure and confidential? Check all that apply.

- [ ] File cabinets with combination or key lock
- [ ] Locked room with cardkey access
- [ ] Off-site backup vendor
- [ ] Electronic records with user identification/password
- [ ] Biometric authentication (e.g. fingerprints, voice, retinal/iris scan)
- [ ] Freezer with a padlock
- [ ] NIH Certificate of Confidentiality
- [ ] Other--Specify:

11c. Will you be retaining identifying information for purposes of another research project (e.g. keeping participants’ contact information to recruit them for future research)?

- [ ] Yes
- [ ] No

If Yes → Describe what information will be retained. The information must also be described in the consent form.

11d. How will access to participant information be revoked when a staff member leaves the study? (E.g., computer passwords will be changed or key cards will be returned to the P.I.)

All interview data will be stored electronically on a password protected computer. Should a staff member leave the study, the password will be changed. Any paper documents, such as informed consent and consent to be audio-taped forms, will be stored in a locked file cabinet. Only one key will be used for the cabinet and it will be held by the Diana Kingsbury.

11e. Will you be sharing or receiving research data for this project with/from researchers outside of Kent State University?

- [ ] Yes → provide copy of Data Use Agreement
- [ ] No

11f. Will you be sharing or receiving materials or specimens for the purposes of this project with/from researchers outside of Kent State University?

- [ ] Yes → complete a Materials Transfer Agreement
- [ ] No

11g. Indicate what will happen to the identifiable data at the end of the study. Research data should be retained for a minimum of three years after final project closeout (i.e., no further data collection, long term follow-up, re-contact, or analysis of identifiable/coded data.)

- [ ] Identifiers will be permanently removed from the data and destroyed (de-identified)
- [ ] Identifiable/coded (linked) data will be retained and stored confidentially
Identifiable data will be retained and may be made public with participant consent (e.g., ethnographic research)  □
Identifiable data were not collected

Section 12 – COST TO PARTICIPANTS or REIMBURSEMENTS

12a. Are there any potential costs that participants (or their insurers) will incur as a result of study participation (e.g., parking, study drugs, diagnostic tests, etc.). This information should be disclosed in the consent form. □ Yes □ No

If Yes → ______________

12b. Are there any costs to participants that will be covered/reimbursed by the research study. □ Yes □ No

If Yes → ______________

Section 13 - ASSURANCE: PRINCIPAL INVESTIGATOR

I agree to follow all applicable policies and procedures of Kent State University and federal, state, and local laws and guidance regarding the protection of human subjects in research, as well as professional practice standards and generally accepted good research practice guidelines for investigators, including, but not limited to, the following:

- Perform the research as approved by the IRB with appropriately trained and qualified personnel with adequate resources;
- Initiate the research only after written notification of IRB approval has been received;
- Obtain and document (unless waived) informed consent and HIPAA research authorization from human subjects (or their legally authorized representatives) prior to their involvement in the research using the currently IRB-approved consent form(s) and process;
- Promptly report to the IRB events that may represent unanticipated problems involving risks to subjects or others;
- Provide significant new findings that may relate to the subjects willingness to continue to participate;
- Inform the IRB of any proposed changes in the research or informed consent process before changes are implemented, and agree that no changes will be made until approved by the KSU IRB (except where necessary to eliminate apparent immediate hazards to participants);
- Complete and submit a Continuing Review of Human Subjects Research application before the deadline for review at intervals determined by the IRB to be appropriate to the degree of risk (but not less than once per year) to avoid expiration of IRB approval and cessation of all research activities;
- Maintain research-related records (and source documents) in a manner that documents the validity of the research and integrity of the data collected, while protecting the confidentiality of the data and privacy of participants;
- Retain research-related records for audit for a period of at least three years after the research has ended (or longer, according to sponsor or publication requirements) even if I leave the University;
- Contact the Research Compliance for assistance in amending (to request a change in Principal Investigator) or terminating the research if I leave the University or am unavailable to conduct or supervise the research personally (e.g., sabbatical or extended leave);
- Provide a Final Study Report to the IRB when all research activities have ended (including data analysis with individually identifiable or coded private information); and
- Inform all Co-Investigators, research staff, employees, and students assisting in the conduct of the research of their obligations in meeting the above commitments.

I verify that the information provided in this Use of Human Subjects in Research application is accurate and complete.
APPENDIX C

Informed Consent to Participate in a Research Study

Study Title: The Role of Social Networks in Providing Social Support to Resettled Female Refugees During Pregnancy in the United States

Principal Investigator: Jeffrey S. Hallam, PhD; Madhav P. Bhatta, PhD; Diana M. Kingsbury, MA, MPH

You are being asked to take part in a research study. This form tells you about the study, what you will be asked to do, and tells you any risks and benefits for you. Taking part is your choice. Please read this entire form. It is important you ask questions and know what you are being asked to do so you can decide to take part or not. You will get a copy of this form to take with you.

Purpose
This study is about how people close to you helped you and how you felt while you were pregnant in the United States. People who are close to you are important for your health while you are pregnant. Understanding how helpful others were while you were pregnant can help make pregnancy better for women who are resettled in new communities in the United States. We also want to know how close you feel to others in your new community.

Procedures
If you choose to take part, we will ask you questions about yourself, your home country, your work, your schooling, and the number of children you have. We will also ask you questions about who you talked to about your pregnancy, how often you talked to them, what things you talked about, and the things the people close to you helped you with during your pregnancy. We will also ask you questions about your new community and how close you feel to others. Questions will be asked in Nepali during an interview by Aruna Khanal, a Nepali speaking member of the research team. The interview will last about 1 hour to 1.5 hours from start to finish. This will include the time it takes for us to review this document with you, for you to agree to take part in the study, receive your gift card, answer questions, ask questions if you do not understand, and end the interview.

Benefits
There are no direct benefits to you for being part of this study. However, the community will benefit from the things you tell us. The things that you tell us may help to make resettlement better for refugees – in particular, women who give birth in the United States after resettlement.

Project: The Role of Social Networks in Providing Social Support to Resettled Female Refugees During Pregnancy in the United States

Page 1 of 2
Risks and Discomforts
There are no risks beyond what you might find in everyday life. If a question is asked that makes you feel upset, angry, scared, or sad, you do not have to answer. We will also give you the names of people you can talk to about your feelings if you need it. If there are questions you do not want to answer, please let us know and we will go on to the next question.

Privacy and Confidentiality
The things you tell us will be kept private. Any personal information you tell us will be kept in a secure place and only the researchers will be able to see it. You will not be identified in any written report or presentation of study results. Your information may, in certain situations, be given to the Institutional Review Board (IRB), which oversees research at Kent State University, or to certain federal agencies.

Compensation
For being part of this study, we will give you a $15.00 Walmart gift card.

Voluntary Participation
Being part of this study is entirely up to you. You may choose not to take part or you may stop your participation at any time without consequences or loss of benefits to which you are owed.

Contact Information
If you have any questions or concerns about this study, you may contact Aruna Khanna at 330-672-6500. This study has been approved by the Kent State University Institutional Review Board. If you have any questions about your rights as a study participant or complaints about the study, you may call the IRB at 330-672-2704.

Consent Statement and Signature
I have read or been read and told the content of this form. I have had the chance to have my questions answered. I voluntarily choose to take part in this study. I know that a copy of this form will be given to me for future reference.

Participant Signature __________________________ Date __________________________

Project: The Role of Social Networks in Providing Social Support to Resettled Female Refugees During Pregnancy in the United States

Page 2 of 2
APPENDIX D

Abasish Shikha: The Role of Social Networks in Providing Social Support to Resettled Female Refugees during Pregnancy in the United States

Prashna Sambandhakar: Jagn Yada, Parag, Param, Prag

Amrutanjan Bhasha: Jagn Yada, Parag, Param, Prag
Objective and Assumptions

This objective is to ensure the appropriate use of a particular method in the context of a specific study. The assumptions made are based on the following criteria:

1. The method is appropriate for the research question.
2. The data collected is reliable and valid.
3. The sample size is adequate for the study.
4. The ethical considerations are addressed.

Methodology

The methodology section details the specific procedures and techniques used in the study. It should include:

1. A description of the research design.
2. A discussion of the data collection methods.
3. A description of the analysis methods.

Results

The results section presents the findings of the study. It should include:

1. A description of the statistical analyses performed.
2. A discussion of the results obtained.
3. A comparison of the results with previous studies.
4. A discussion of the implications of the findings.

Discussion

The discussion section interprets the results and their implications. It should include:

1. A comparison of the findings with previous studies.
2. A discussion of the limitations of the study.
3. A discussion of the potential applications of the findings.
4. A conclusion that summarizes the main findings and their implications.

References

The references section lists all the sources cited in the study. It should include:

1. Books and journal articles.
2. Online resources.
3. Other sources such as government reports or industry standards.

Appendices

The appendices section includes additional information that may not fit in the main text. It should include:

1. Data tables.
2. Figures or graphs.
3. Detailed calculations.
4. Additional comments or notes.
APPENDIX E

AUDIOTAPE/VIDEO CONSENT FORM

THE ROLE OF SOCIAL NETWORKS IN PROVIDING SOCIAL SUPPORT DURING PREGNANCY TO RESETTLED FEMALE REFUGEES IN THE UNITED STATES

JEFFREY S. HALLAM, PhD
MADHAV BHATTA, PhD
DIANA KINGSBURY, MA, MPH

I agree to participate in an audio-taped/video taped interview about MY RELATIONSHIPS WITH OTHERS DURING MY PREGNANCY IN THE UNITED STATES as part of this project and for the purposes of data analysis. I agree that ARUNA KHANAL and DIANA KINGSBURY may audio-tape/video tape this interview. The date, time and place of the interview will be mutually agreed upon.

Signature                        Date

I have been told that I have the right to listen to the recording of the interview before it is used. I have decided that I:

_____ want to listen to the recording          _____ do not want to listen to the recording

Sign now below if you do not want to listen to the recording. If you want to listen to the recording, you will be asked to sign after listening to them.

ARUNA KHANAL and DIANA KINGSBURY may / may not (circle one) use the audio-tapes/video tapes made of me. The original tapes or copies may be used for:

_____ this research project _____ publication _____ presentation at professional meetings

Signature                        Date
APPENDIX F

THE ROLE OF SOCIAL NETWORKS IN PROVIDING SOCIAL SUPPORT DURING PREGNANCY TO RESETTLED FEMALE REFUGEES IN THE UNITED STATES

Jeykshi Das, M.A. (Hons), Ph.D.

Aaditya Pr Shrestha, M.A. (Hons), Ph.D.

Pravin K Mikkal, M.A. (Hons), Ph.D.

THE ROLE OF SOCIAL NETWORKS IN PROVIDING SOCIAL SUPPORT DURING PREGNANCY TO RESETTLED FEMALE REFUGEES IN THE UNITED STATES

М "MY RELATIONSHIPS WITH OTHERS DURING MY PREGNANCY IN THE UNITED STATES" ("संपथि राष्ट्र अमेरिकास म गर्भवती हुँदा मेरी असहस्त संबंधका सम्बन्ध"") समतली श्रेयको रूपमा तथा यसले अनुपात र तथ्यमंडलको विश्लेषणमा लागि यससता भाषाले सिन सहमत पुनि। म अरण खानास र डायना किन्नरकोले मेरी अनुपात श्रेयको रूपमा रेक्षितमा गर्ने पाउने सहमति जताउँछ।

अनुपातको दिन, समय र स्थान अपर्याप्ती सहमतिका तप गरिने छ।

__________________________

दस्तावेज

महाराज अनुपातको रेक्षितमा यसको प्रयोग अनुपात पहिले मैले सुन्न पाउँने अधिकारका बारेमा प्रतिष्ठित छ। मैले यो निर्णय सल्लो छः

______ रेक्षितमा सुन्न पाउँछु ______ रेक्षितमा सुन्न पाउँछन्

यदि तपाईं रेक्षितमा सुन्न पाउँछु भने अधिक तस्थ दस्तावेज मुझाउँछ। यदि सुन्न पाउँछु भने तपाईंलाई रेक्षितमा सुनिश्चित दस्तावेज मुझाउँछु छ।

अरण खानास र डायना किन्नरकोले मेरी श्रेयको रूपमा रेखाहरू प्रयोग गर्ने पाउँछु / पाउँछु भने भएको सबभन्दा।

THE ROLE OF SOCIAL NETWORKS IN PROVIDING SOCIAL SUPPORT DURING PREGNANCY TO RESETTLED FEMALE REFUGEES IN THE UNITED STATES

__________________________

दस्तावेज

मिति
Thank you for participating in our interview! We appreciate your time and want you to know that by participating, we can use this information to help improve the pregnancy experiences of women residing in the United States, particularly women who have moved here from other countries.

First, we are going to ask you some questions about yourself. If you have any questions at any time, please feel free to ask. If you do not wish to answer a question, please tell us and we will move on to the next question.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>How old are you?</td>
<td></td>
</tr>
<tr>
<td>Where were you born?</td>
<td></td>
</tr>
<tr>
<td>How long have you lived in Akron, Ohio?</td>
<td></td>
</tr>
<tr>
<td>Where did you live before you came to Akron, Ohio?</td>
<td></td>
</tr>
<tr>
<td>How long have you lived in the United States?</td>
<td></td>
</tr>
<tr>
<td>How many children do you have?</td>
<td></td>
</tr>
<tr>
<td>How many of your children were born outside of the United States?</td>
<td></td>
</tr>
<tr>
<td>Where were they born?</td>
<td></td>
</tr>
<tr>
<td>How many children were born in the United States?</td>
<td></td>
</tr>
<tr>
<td>Where were they born? (in the U.S.)</td>
<td></td>
</tr>
<tr>
<td>How old are your children?</td>
<td></td>
</tr>
<tr>
<td>Do you work outside the home? If yes, where?</td>
<td></td>
</tr>
<tr>
<td>What is the highest level of school you completed?</td>
<td></td>
</tr>
</tbody>
</table>
Now we are going to ask you some questions about the people you talked with frequently about your pregnancy. We are going to ask you to provide the names (or nickname or initials) of the people you talked with most about pregnancy. We will then ask you some questions about each person and the type of help they provided you. If you do not wish to answer a question, please tell us and we will move on to the next question.

Looking back, who are the people you talked to most about important matters related to your pregnancy?

1. 
2. 
3. 
4. 
5. 
6. 
7. 

How do you know [name]? For each person you listed, please select the number that applies.

0 = Spouse or partner
1= Family member or relative (specify)
2 = Friend
3 = Neighbor
4 = Work or school associates
5 = Health care worker
6 = Counselor or therapist
7 = Minister/priest/rabbi/or other spiritual advisor
8 = Someone else (specify)

1. 
2. 
3. 
4. 
5.
6.

7.

**How long have you known this person? (years)**

1.

2.

3.

4.

5.

6.

7.

**How old is [name]?**

1.

2.

3.

4.

5.

6.

7.

**Is [name] male or female?**

1.

2.

3.

4.
How did you meet [name]?

1.
2.
3.
4.
5.
6.
7.

Did you know [name] before you came to the U.S.?

1.
2.
3.
4.
5.
6.
7.

What country is [name] from?

1.
2.
3.
4.
5.
6.
7.

Where does [name] currently live?

1.
2.
3.
4.
5.
6.
7.

How long has [name] lived there?

1.
2.
3.
4.
5.
6.
7.

Does [name] work outside the home? If so, where?

1.
2.
3.
4.
5.
6.
7.

What level of schooling did [name] complete?

1.
2.
3.
4.
5.
6.
7.

On a scale of 0 to 2, how close do you feel to [name]?

0 = Not at all close
1 = Somewhat close
2 = Very close

1.
2.
3.
4.
5.
6.
7. How would you personally describe the quality of your relationship with this person?

1.

2.

3.

4.

5.

6.

7. On a scale of 0 to 5, how frequently did you interact with [name] about your pregnancy?

0 = Once during my pregnancy
1 = A few times during my pregnancy
2 = Monthly
3 = Weekly
4 = Daily
5 = Multiple times a day

1.

2.

3.

4.

5.

6.

7.

How would you personally describe the frequency with which you spoke to this person about your pregnancy?

1.
What aspects of your pregnancy did you discuss with [name]? 
1. 
2. 
3. 
4. 
5. 
6. 
7. 

For each person you listed, please answer the following questions by writing in the number that applies. 

0 = not at all  
1 = a little  
2 = moderately  
3 = quite a bit  
4 = a great deal  

How much did this person make you feel liked or loved during your pregnancy?

1. 
2. 
3. 
4. How much did this person make you feel respected or admired during your pregnancy?

5. How much could you confide in this person about matters related to your pregnancy?

6. How much did this person agree with or support your actions or thoughts related to your pregnancy?
If you needed to borrow $10, a ride to the doctor, or some other immediate help during your pregnancy, how much could this person usually help?

1.
2.
3.
4.
5.
6.
7.

If you were confined to bed for several weeks during your pregnancy, how much could this person help you?

1.
2.
3.
4.
5.
6.
7.
In what way could this person help you?

1. 

2. 

3. 

4. 

5. 

6. 

7. 

Finally, we are going to ask you some questions about people who are close to you and your new community as a whole. If you do not wish to answer a question, please tell us and we will move on to the next question.

Since you moved to the United States, have you lost contact with anyone close to you that you would have communicated with about your pregnancy?

How did you lose contact with this person?

What did you do as an alternative to talking to this person?

Can you think of anything specific about your relationships during pregnancy that made your experience easier in the United States?

Can you think of anything specific about your relationships during your pregnancy that made your experience more difficult in the United States?

Is there someone in your community that everyone goes to for information about pregnancy? Who?
How would you compare your current community to your previous community?

After you moved to the United States, how easy was it to make connections with others?

Do you think people feel connected to each other in your community? If not, why not?

Do you find your community helpful to you during your pregnancy?

Is there anything else you would like to tell us about your pregnancy experience in the United States?

Is there someone in your community that everyone goes to for information in general? Who?
### APPENDIX H

1. डेमोग्राफिक्स

<table>
<thead>
<tr>
<th>सवाल</th>
<th>उत्तर (वर्णन)</th>
</tr>
</thead>
<tbody>
<tr>
<td>तपाई कितने वर्ष को हुनेछन्?</td>
<td>सम्र (वर्षमा)</td>
</tr>
<tr>
<td>तपाई कहाँ जन्मिन्न भएको हो?</td>
<td></td>
</tr>
<tr>
<td>तपाई एक्सन, ओहापोथमा बस्नु भएको कितने समय भएको?</td>
<td>सम/अस्तित्व/वर्ष</td>
</tr>
<tr>
<td>एक्सन, ओहापोथमा आउनु अथवा तपाई कहाँ बस्नु हुन्छ भयो?</td>
<td></td>
</tr>
<tr>
<td>तपाई संयुक्त राज्य अमेरिकामा बस्नु भएको कितने समय भएको?</td>
<td></td>
</tr>
<tr>
<td>तपाईका कितना सन्तान छन्?</td>
<td></td>
</tr>
<tr>
<td>तपाईका सन्तान मध्ये कितना संयुक्त राज्य अमेरिकाका बाहिर जन्मेका हुन्?</td>
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<td>अमेरिकाका बाहिर जन्मेका तपाईका सन्तानको कहाँ जन्मेका हुन्?</td>
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<td>तपाईका सन्तान मध्ये कितना अमेरिकामा जन्मेका हुन्?</td>
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<td>अमेरिकामा जन्मेका सन्तान कहाँ जन्मेका हुन्?</td>
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<td>तपाईका सन्तान कितनी वर्षका छन्?</td>
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</tr>
<tr>
<td>का तपाई घर भएका बाहिर काम गर्नु हुन्छ भने कहाँ?</td>
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<tr>
<td>तपाईले कितना समय पढ्नु भएको छ?</td>
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</tbody>
</table>
2. सामाजिक संज्ञाल र सामाजिक सम्बन्धको जोडिएका प्रस्तावकर

| व्यक्तिगत संज्ञाल नाम उत्पादक (५ जना सम्म) | सम्बन्धको प्रकार | तपाईले [नाम] लाई कस्री चिन्नु भएको हो?
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td></td>
<td>० = श्रीमान/जीवनसाथी</td>
<td></td>
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<tr>
<td></td>
<td>१ = परिवार को सदस्य अथवा आफन्त्र ; उल्लेख गर्नुहोस्</td>
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<tr>
<td></td>
<td>२ = साथी</td>
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<tr>
<td></td>
<td>३ = पितृसिकि</td>
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<td></td>
<td>४ = कामको अथवा विद्यालयको साथी</td>
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<td></td>
<td>५ = स्वास्थ्यकर्मी</td>
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<tr>
<td></td>
<td>६ = सल्लाहकार अथवा चिकित्सक</td>
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<tr>
<td></td>
<td>७ = धर्म गुरु / पुजारी / पुत्र अथवा अध्यादेशिक सल्लाहकार</td>
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<tr>
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<td>८ = आर कोहि ; उल्लेख गर्नुहोस्</td>
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</table>

| सम्बन्धको लम्बाई | तपाईले यस व्यक्तिलाई चिन्नु भएको कारण भएको?
|----------------|----------------------------------|

| सम्बन्धको व्यक्तिगत विशेषताहरू | कारण वर्णको हुनुहुन्छ?
<table>
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<tr>
<td>महिला वा पुरुष को हो?</td>
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</tr>
<tr>
<td>कस्री भएतनु भएको?</td>
<td></td>
</tr>
<tr>
<td>उल्लेख गर्नुहोस्</td>
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<tr>
<td>वहाँलाई अमेरिका आउनु पहिलेले चिन्नु भएको हो</td>
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</table>
| सम्बन्ध बल | 0-2 को मागामा, तपाई __ संग काठिको निजिक महसुस गर्नुहुन्छ।  
| 0 - पटकको महिना  
| 1 - काहिनी निजिक  
| 2 - धेरै निजिक |
| सम्बन्ध बल - सन्दर्भ | तपाई उक्त प्रबंधको संग कृतिको नितिक हुन्छ्न्यो भने तपाईले उक्त प्रबंधकको संग रुपमा कसैले बजन गर्नुहुन्छ? |
| अन्तर्जियको बार्म्भारता | 0 - 5 को मागामा, तपाई __ संग काठिको कुरायकाली गर्नु हुन्छ्न्यो।  
| 0 - गर्मह्रित बुझिएका एक पटक  
| 1 - गर्मह्रित बुझिएका काहिनी पटक  
| 2 - माध्यम  
| 3 - साध्यथार  
| 4 - दैनिक  
<p>| 5 - एक दिन मा धेरै पटक |</p>
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<tr>
<th>अन्तरराष्ट्रीय को बार-बारता - सन्दर्भ</th>
<th>व्यक्तिगत रूपमा तपाईं यो व्यक्ति संग कतिको कुरा गर्दै हुन्छ जसल्नु हुन्छ।</th>
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<tr>
<td>कुरा गर्न विषय</td>
<td>तपाईं संग गर्मीवटी हुन्छ कुरा कुरा छुएको छ जसल्नु हुन्छ।?</td>
</tr>
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<td>सामाजिक सहयोग : असर १</td>
<td>० - ५ को मात्रमा (० - तपाईंको मन नपराइएको/लभुवारीको/ र ५ - धेरै मन पराइएको / सुवारीएको ), उक्त व्यक्तिले गर्मीवटी हुदा तपाईलाई कतिको माया दिएको / मन पराइएको महसूस गराउनु भयो? । ० - पटकै थाइन १ - धेरै २ - सामान्य ३ - धेरै ५ - एकदम धेरै</td>
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<tr>
<td>सामाजिक सहयोग : असर २</td>
<td>० - ५ को मात्रमा ( ० - आदर/सम्मान पटकै नपाइएको/र ५ - आदर/सम्मान एकदम धेरै पाइएको ), उक्त व्यक्तिले गर्मीवटी हुदा तपाईलाई कतिको आदर/सम्मान दिएको महसूस गराउनु भयो? । ० - पटकै थाइन १ - धेरै २ - सामान्य ३ - धेरै ५ - एकदम धेरै</td>
</tr>
<tr>
<td>सामाजिक समर्पण - Affirm 1</td>
<td>तपाईं उक्त व्यक्तिलाई गर्मीवटीको मामलामा कतिको बरोबरा गर्दै हुन्छ। ० - पटकै गर्दिन १ - धेरै २ - सामान्य ३ - धेरै ५ - एकदम धेरै</td>
</tr>
</tbody>
</table>
सामाजिक समर्थन - Affirm 2

0 २ ४ को मार्ग मा (० - एकदमै गर्नु भएन र ४ - एकदमै धेरै गर्नुभयो )। उक्त व्यक्तिले तपाईंको गर्नुसँग बेलाका विचार र कामहरू लाई कलि को सहभागि अजानौन भयो?

1 - एकदमै गर्नु भएन
2 - धेरै गर्नु भयो
3 - धेरै गर्नु भयो
4 - एकदमै धेरै गर्नु भयो

सामाजिक समर्थन : सहायता १ (अल्पकालिन)

तपाईलाई गर्नुभएको हुँदा $ १० चाहिए, डाकटरको मा जान गाडी चाहिए, अथवा कुनै आकस्मिक सहयोग चाहिए, उक्त व्यक्तिवाद कतिको सहयोग पाउनु हुन्छौ?

1 - पटकै पाइन
2 - धेरै
3 - सामान्य
4 - एकदमै धेरै

सामाजिक समर्थन : सहायता २ (दिनकालिन)

यदि तपाईं गर्नुभएको हुँदा कर्णै हाताको लागि ओँपात पनि भएको खण्डभाग, उक्त व्यक्तिवाद कतिको सहयोग पाउनु हुन्छौ?

1 - पटकै धिनाइन
2 - धेरै
3 - सामान्य
4 - एकदमै धेरै

सामाजिक समर्थन : सहायता २ (दिनकालिन) - सत्ताम्र

कुनै कुनै तरिकाले उक्त व्यक्तिले तपाईलाई सहयोग गर्नु हुन्छौ?

ब्यक्तिगत सामाजिक संज्ञालिका परिवर्तन

तपाईको पुनस्चीपितापनाले कारण, तपाईले कोई आफ्नो निश्चित को व्यक्तिगत संज्ञालिक संस्कर्ण फूटाउनु भएको ४ जो संग तपाईं यता नस्तो। उक्त आफ्नो गर्नुसँग बारेमा कुरा गर्नु हुन्छौ?
| म्याको स्तर सामाजिक संरचना - "केन्द्र" | तपाईंले समुदायमा यस्तो कृत्य यस्ता यस्ता बनाउन गर्न सक्दै? 
| म्याको स्तर सामाजिक संरचना - गर्भावस्था विशेष "केन्द्र" | तपाईंले समुदायमा यस्तो कृत्य यस्ता यस्ता बनाउन गर्न सक्दै? 
| म्याको स्तर सामाजिक संरचना - समुदाय तुलना | तपाईं आफ्नो समुदाय र पहलेको समुदाय को कसरी तुलना गर्नु हुन्छ? 
| म्याको स्तर सामाजिक संरचना - पुष्टि पृष्ठभूमि | तपाईंले पुष्टिको पृष्ठभूमि पढ़ि, तपाईंलाई आफ्नो समुदाय र राखे संग केन्द्रित रूपमा लिन सकिन्छ?
| म्याको स्तर सामाजिक संरचना - वर्तमान समुदाय निकटता | केन्द्रको समुदायमा मानिसहरु एक अर्को संग निवास गर्नु लागेका यदि गर्नु भए, क्याँ?
| म्याको स्तर सामाजिक संरचना - समुदाय स्तर गर्भावस्था सहयोग | केन्द्रको समुदायमा आफ्नो समुदाय सहयोगी पाउनु भए?
<table>
<thead>
<tr>
<th>समाजो र राष्ट्रीय संगठन - सामाजिक</th>
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</thead>
</table>
| के तपाईं नया समुदायमा आफ्नो समृद्धी हुदा को बारेमा अरु केही भुरा भन्न राखाउनु हुन्छ?

7
Opportunity to join a health research study

Researchers from the College of Public Health at Kent State University are looking for women to take part in a study about the pregnancies of ethnic Bhutanese-Nepali women who have had babies in the United States.

You may join the study if:

• You are 18-44 years old
• You are a resettled refugee from Bhutan
• You had a baby in the United States in the last 2 years

If you would like to join the study or have questions, please contact Aruna Khanal at akhanal@kent.edu or Phone number retracted.
स्वास्थ्य सम्बन्धित अनुसन्धानमा भाग लिने सुनौलो अवसर

केन्ट स्टेट युनिवर्सिटी कलेज अफ पब्लिक हेल्थका अनुसन्धानकतौन संयुक्त राज्य अमेरिकामा भएका भुटानी - नेपाली मूलका महिलाको गर्भावस्था सम्बन्धित अध्ययनका लागि महिलाहरू खोज मिल्दै रहेका छन् ।

तपाइले अनुसन्धानमा भाग लिन पाउनु हुनेछ यदि तपाईँ?

• १८-४५ वर्षको हुनुहुन्छ
• पुलिस्याहित भुटानी - नेपाली मूलको हुनुहुन्छ
• तपाइले गत २ वर्षमा अमेरिकामा विस्कूलाई जन्म दिन भएको छ

यदि तपाईं अनुसन्धानमा भाग लिन इच्छुक हुनुहुन्छ अथवा तपाईंसँग यसका बारेमा केही प्रश्न छन् माथि अनुरुप खनालाई arunakhanal7@gmail.com या सम्पर्कमा गर्नुहोस् ।

Phone number retracted
AUTHOR VITA

Diana Marie Kingsbury
E-mail dkingsb2@kent.edu

Academic Record

2006 Bachelor of Arts
The University of Akron, Akron, OH
College of Arts and Sciences
Major Area: Political Science

2006 Certificate
The University of Akron
Ray C. Bliss Institute for Applied Politics
Certificate in Applied Politics

2008 Master of Arts
The University of Akron, Akron, OH
College of Arts & Sciences
Major Area: Political Science
Thesis Committee: Dr. William Lyons, Dr. Stephen Brooks, Dr. Daniel Coffey

2011 Master of Public Health
The University of Akron, Akron, OH
Consortium of Eastern Ohio Master of Public Health program
Capstone Project: Community Participation in Research: Motivations and Barriers in Summit County
Capstone Committee: Karen L. Snyder, Dr. Mieko Smith

2017 Doctor of Philosophy
Kent State University, Kent, OH
Department of Social and Behavioral Sciences
Major Area: Prevention Science
Dissertation: The Role of Social Networks in Providing Social Support to Resettled Female Refugees during Pregnancy in the U.S.
Dissertation Committee: Dr. Jeffrey Hallam, Dr. Madhav Bhatta, Dr. Eric Jefferis, Dr. Brian Castellani
Faculty/Graduate Teaching and Research Appointments

Aug. 2006-May 2008  Teaching Assistant, The University of Akron, College of Arts and Sciences, Department of Political Science
Research Assistant, The University of Akron
The Ray C. Bliss Institute of Applied Politics

Aug. 2008-May 2009  Adjunct Professor, The University of Akron, College of Arts and Sciences, Department of Political Science

Aug. 2008 – Jun. 2010  Research Associate, The University of Akron, College of Arts and Sciences
The Ray C. Bliss Institute of Applied Politics

Aug. 2012 – Present  Graduate Teaching Assistant and Graduate Research Assistant
Kent State University College of Public Health, Department of Social and Behavioral Sciences

Other Work Related Research Experience

Jul. 2010- Dec. 2011  Practice-Based Research Network Manager, The Austen BioInnovation Institute, Center for Clinical and Community Health Improvement, Akron, OH.


Teaching Experience at The University of Akron

Undergraduate
- Government and Politics in the United States
- Government and Politics in the United States: Distance Learning
- Introduction to Political Thought
- The American Presidency

Teaching Experience at Kent State University

Undergraduate
- Social and Behavioral Science Theories in Public Health
- Health Disparities – Writing Intensive
- Destination Kent State – First Year Experience
- Mobile Technologies for Health
- Public Health Capstone
- Introduction to Public Health
Research Projects at Kent State University

1. **Assessment of Opportunities to Impact Global Public Health by Providing Hand Sanitizing Solutions to Base of the Pyramid (BoP) Global Communities in Water-Restricted Regions Project (2012-2013)**
   Contributed to a literature review of hand hygiene practices in the developing world. Responsible for preparing written reports and oral presentations for delivery at GOJO Industries, Inc. Liaison: Ken Slenkovich

   Co-led focus groups on the Kent State University campus with international students to gain information about global hand hygiene practices. Participated in question framework development, transcription, and analysis of themes. Prepared presentation of findings for GOJO Industries, Inc. Presented findings and awarded the Kent State University Spring 2013 graduate research symposium for top oral presentation. Liaison: Dr. R. Scott Olds

3. **Community Health Needs Assessment - Akron Children’s Hospital, Akron General Hospital, and Summa Health System (2013)**
   Contributed to the research and writing of the community health needs assessment document for the three major hospital systems in Akron, Ohio. Contributing author to series of technical reports. Liaison: Dr. William Oglesby

4. **Cuyahoga County Government Health Promotion Project (2013)**
   Responsible for survey development and administration in Qualtrics™ of workplace hand hygiene study. Responsible for data management and dissemination. Served as a project contact for study participants. Contributing author to scholarly publication. Liaison: Dr. Maggie Stedman-Smith

5. **Health and Wellness as Part of Regular Medical Care (2013-2014)**
   Served as focus group facilitator. Assisted in analysis and extraction of qualitative themes. Contributing author to scholarly publication. Liaison: Dr. Jingzhen Yang

   Assisted in delivering a series of focus groups to refugee mothers resettled in Akron, Ohio. Responsible for first cycle coding and assessment for themes of focus group data. Co-presented a poster at the 2016 annual meeting for the American Public Health Association. Liaison: Dr. Madhav Bhatta

7. **A Metasummary of Published Qualitative Research on Pregnancy and Resettlement Among Refugee Women (2016)**
   Conducted literature review of qualitative research. Acted as first reviewer of articles for quality assessment using the CASP assessment tool. Assisted in the development of findings to be reported as a qualitative metasummary. Co-presented an oral presentation for the The Qualitative Report (TQR) annual conference. Liaison: Dr. Sheryl Chatfield

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Research Projects (Summa Health System)

1. **Addressing Healthcare Disparities (2012)**
   Prepared a comprehensive literature review and report to the Ohio Statewide Health Disparities Collaborative, Health Transformation and Policy subcommittee about disparities within the healthcare system. Liaison: Billie Copeland-King

   Prepared a written report for delivery to Summa Health System board of directors and executive leadership of proposed plans for Medicare premium support reform as discussed by federal policymakers. Liaison: Michael Dalton

3. **Physician Involvement in Driving Cessation Recommendations for Elderly Patients (2012)**
   Prepared a written report for state policymakers and local healthcare system stakeholders regarding the involvement of healthcare providers in recommending driving cessation for elderly patients. Liaison: Michael Dalton

Research Projects (Center for Clinical and Community Health Improvement)

1. **Centers for Disease Control and Prevention Community Transformation Grant**
   Assisted in work related to the successful submission for grant funding to the Centers for Disease Control and Prevention, with $500,000 awarded. Assisted ABIA’s Center for Clinical and Community Health Improvement in the development of resources to assist in capacity-building activities as granted to ABIA’s CCCHI through the CDC’s Community Transformation grant. Liaison: Dr. Janine Janosky

2. **Community Health and Wellness/Mental Health Program Surveillance**
   Conducted a study of community health and wellness programs in Summit County via telephone interviews. Created a summary of available programming and potential gaps as mapped to the Healthy People 2020 topic areas and the Health Impact Pyramid. Disseminated results to the ABIA/Summit County Wellness Council to guide future collaborative programming. Contributed to scholarly publication. Liaison: Dr. Janine Janosky

3. **Patient Centered Medical Home Research**
   Conducted telephone interviews with healthcare providers in the Akron area to determine their readiness to implement a patient-centered medical home in their practices. Prepared manuscript for submission. Contributing author of Letter to the Editor in Health Affairs. Liaison: Dr. Janine Janosky

4. **Mobile Applications for Health Interventions Project**
   Served as a team member in the exploration of the use of mobile applications to motivate health behavior change. Responsible for collaborative team management across ABIA’s five partner institutions. Responsible for grant writing and management. Liaison: Dr. Vivek Narayan, Dr. Janine Janosky
Research Projects (The University of Akron)

1. **2006 Midterm Election Exit Polling**
   Served as liaison between exit poll workers and academic primary investigators for exit polling that occurred in Summit County, Ohio during the 2006 midterm elections. Liaisons: Dr. J. Quinn Monson, Dr. Karl Kaltenthaler, Dr. Daniel Coffey

2. **Ohio Reconnaissance Network**
   Included visits to local TV stations to acquire media ad buy documents for the 2006 midterm election. Maintained database of campaign literature that was sent across Northeast Ohio. Coded campaign literature for content. Liaison: Anne C. Hanson

3. **2008 Primary Election Campaign Finance Research (all candidates)**
   Maintained database of newspaper articles offering coverage of campaign fundraising for the 2008 presidential primary election in Ohio. Liaison: Dr. John C. Green

4. **Presidential Candidate Research (Mike Huckabee)**
   Maintained database of all blog postings from the Huckabee campaign website. Sampled blog responses to create profiles of Huckabee supporters. Liaison: Dr. John C. Green

5. **Financing the 2008 Election**
   Responsible for tracking campaign finance records and drawing samples of donors from 2008 presidential primary campaigns. Contributing author to book chapter. Liaison: Dr. John C. Green

6. **2008 Battleground Ohio Project**
   Responsible for organizing team of volunteers around the state of Ohio to track presidential and congressional campaign communication in the state. Responsible for data organization and input. Responsible for tracking various campaign finance records. Communicated with leading party and interest group officials in the state of Ohio. Contributing author to book chapter. Liaison: Dr. John C. Green

7. **Buckeye Battlefield**
   Responsible for proofreading and data collection for book about the political landscape in the state of Ohio. Liaison: Dr. Daniel Coffey
Peer Reviewed Publications


Book Chapters


Technical Reports

Presentations


Awards

1. Top Oral Presentation: A Focus Group Analysis of Global Hand Hygiene Perceptions and Practices, Kent State University Graduate Research Symposium, April 2013

2. Top Poster Presentation: Determinants of Influenza Vaccine Uptake and Perceived Barriers Among Public University Employees, Kent State University Public Health Student Alliance Research Symposium, May 2014

3. Top Poster Presentation: Effects of a Pilot Hand Hygiene Randomized Cluster Trial to Reduce Communicable Diseases Among U.S. Office-Based Employees, Kent State University Graduate Research Symposium, April 2015

4. Outstanding Student Research: Mobile Technologies for Health: Online Learning for High School and Undergraduate Students, American Public Health Association, Public Health Education and Health Promotion Section, Student Awards, November 2015

5. Three Minute Thesis Finalist: Getting By With a Little Help from Your…Networks: Social Support for Resettled Female Refugees During their Pregnancy in the U.S., Kent State University, October 2016

Professional Experience, Memberships, and Certifications

February 2017  Student Editor, American Journal of Public Health
June 2016  Social Networks and Health workshop, Duke University
February 2016  Summit County Refugee Health Task Force
January 2016  Advancement co-chair, American Public Health Association Student Assembly
November 2015  Science Board, student representative, American Public Health Association
June 2015  LINKS Social Network Analysis summer workshop, University of Kentucky
May 2014  Contributing blogger, “Global Health Aging”
February 2014  International Network for Social Network Analysis, member
May 2013  Contributing blogger, “Global Health Africa”
May 2013  Student attendee, World Health Organization 66th World Health Assembly, Geneva, Switzerland
May 2009  Ohio Public Health Association, member