COMMUNITY RESILIENCE, HEALTH, AND HUMAN SECURITY: A STAKEHOLDER-ENGAGED CASE STUDY ON GANG VIOLENCE AND ITS HARMFUL EFFECTS ON ADOLESCENTS IN BELIZE

by

Francisca Flores

BS, University of Iowa, 2003

MS, Slippery Rock University of Pennsylvania, 2011

MPH, University of Pittsburgh, 2013

Submitted to the Graduate Faculty of

the Department of Behavioral and Community Health Sciences

Graduate School of Public Health in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

University of Pittsburgh

2018

UNIVERSITY OF PITTSBURGH
Graduate School of Public Health

This dissertation was presented

by

Francisca Flores

It was defended on

December 6, 2018

and approved by

Dissertation Advisor:
Jessica G. Burke, PhD, MHS
Associate Professor and Associate Chair
Department of Behavioral and Community Health Sciences
Graduate School of Public Health
University of Pittsburgh

Committee Members:

Steven M. Alert, PhD, MS
Professor and Chair
Department of Behavioral and Community Health Sciences
Graduate School of Public Health
University of Pittsburgh

Patricia Documet, DrPH, MD
Associate Professor
Department of Behavioral and Community Health Sciences
Graduate School of Public Health
University of Pittsburgh

Taylor Seybolt, PhD
Associate Professor
Graduate School of Public and International Affairs
University of Pittsburgh

Marcelo Korc, PhD, MPH
Regional Advisor
Special Program on Sustainable Development and Health Equity
Pan American Health Organiztion / World Health Organization
Washington, DC

Jessica G. Burke, PhD, MHS

COMMUNITY RESILIENCE, HEALTH, AND HUMAN SECURITY: A STAKEHOLDER-ENGAGED CASE STUDY ON VIOLENCE AND ITS HARMFUL EFFECTS ON ADOLESCENTS IN BELIZE

Francisca Flores, PhD

University of Pittsburgh, 2018

ABSTRACT

Youth violence will be one of the most challenging threats to adolescent health in the 21st Century. Building individual and family resilience have proven to be effective prevention measures against youth violence; however, they do not adequately address inequities in violence-related health outcomes among adolescents. To improve health equity, it is imperative that prevention measures not only curtail violence, but also curb its harmful effects --- particularly inequities in vulnerabilities that give rise to inequities in health. Emerging research suggests that building community resilience may support prevention efforts at the individual and family levels *while concurrently reducing vulnerability to risk factors for youth violence* at the population level. Notwithstanding, the public health literature on community resilience against chronic adversities, such as youth violence, is limited.

The public health relevance of this dissertation is that it fills a gap in knowledge on community resilience that could improve health equity. Through a stakeholder-engaged case study, community resilience against gang violence (as an example of youth violence) and its harmful effects was explored in Belize. A social ecological model, human security approach, community-based participatory research, and concept mapping were employed to identify factors of community resilience; to rate their importance for building community resilience; and to

articulate how they work with each other to build community resilience. Multidimensional scaling and hierarchical cluster analysis resulted in a 7-cluster concept map, which was used to develop working theories on how factors work with one another to build community resilience.

Working theories support a framework for community resilience with three main areas: Area I, a foundation of "essential building blocks" of survival, livelihood, and dignity through the provision of human security; Area II, a strengthening of community assets and social dimensions facilitated by a sense of community, social capital, and social connectedness; and Area III, a transformation of collective efficacy into community empowerment and collective action towards reducing, adapting to, or recovering from adversity (e.g., gang violence). Future research will include building a case series, which will allow for theory testing and refinement of the framework for community resilience against the chronic adversity of gang violence.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

PREFACE

I would like to give thanks to my committee members for sharing with me their invaluable expertise and mentorship with patience, kindness, and curiosity. A special thanks must be given to my academic advisor and chair of my committee Dr. Jessica G. Burke: You are my alchemist. Thank you endlessly for your authenticity, wisdom, and encouragement. This dissertation would not have been possible without funding from the United Nations Trust Fund for Human Security, support from the Ministry of Health in Belize and RESTORE Belize, or the leadership from Dr. Marcelo Korc (Washington, DC) and Dr. Jorge Polanco (Belize City, Belize) of the Pan American Health Organization/World Health Organization. Gratitude must be expressed for the Garel Family, who not only gave me a lovely treehouse to stay in during my time in Belize City, but also made me feel at home. Thank you for introducing me to your food, culture, and way of life with such warmth and hospitality. I drank the Belizean water and I will return someday. To my parents José D. Flores and Wilza Schmied, thank you for giving me life and for teaching me to live with purpose in service to others, to always fight for social justice, to protect those who are vulnerable, and to dream without limits. I am the person that I am because of your unconditional love and support. I would have never been able to achieve what I have without your sacrifices --- you two literally traveled to the other end of the world to give your children a better life. And for that, I will never be able to thank you both adequately or sufficiently. Lastly, to the love of my life, Lauren B. Paulsen, you are my Compass, my true North.

1.0 INTRODUCTION

As part of a global strategy for development and prosperity, countries in Latin America and the Caribbean (LAC) are prioritizing the health of their future workforce: adolescents (World Health Organization [WHO], 2017). In regard to adolescent health, the majority of the countries in LAC are challenged by an excess of injuries and violence, accompanied by a rise in mental health issues (Patton et al., 2016). A downstream analysis of youth violence shows how bullying, physical assault, and gang violence can lead to injuries and poor mental health, as well as other adverse health outcomes (WHO, 2015). As such, violence prevention interventions may be a better investment since they not only reduce the prevalence of violence, but also move the needle on violence-related injuries and poor mental health.

While the evidence on youth violence prevention interventions has identified effective prevention measures at all levels, the majority of evidence-based interventions (EBIs) focus on the individual and interpersonal levels, such as interventions that seek to build individual and family resilience (WHO, 2015). Emerging research suggests that building community resilience may support prevention efforts at the individual and family levels, as well as help address health inequities (Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008; Frankenberger, Mueller, Spangler, & Alexander, 2013). This being true, the public health literature on community resilience *against youth violence* is limited. Currently, conceptualizations of community resilience

center on acute adversities, like natural disasters or epidemics, and do not entirely account for health or health equity.

This dissertation is a case study that explores factors of community resilience against gang violence (as an example of youth violence) and its harmful effects on adolescents, their families, and the community as a whole in Southside Belize City, Belize. A social ecological model, human security approach, community-based participatory research (CBPR), and concept mapping were employed to identify factors of community resilience against gang violence and its harmful effects, to rate their importance for building community resilience, to articulate their relationships to one another, as well as how they work with each other to build community resilience against gang violence and its harmful effects.

2.0 BACKGROUND

2.1 ADOLESCENT HEALTH IS A PRIORITY FOR LAC

The Pan American Health Organization (PAHO) and its LAC Member States are investing in the future of their countries by prioritizing the health and wellbeing of their young people, including adolescents[1] (WHO, 2017). The most recent publication from the series *Our Future: A Lancet Commission on Adolescent Health and Wellbeing* (Patton et al., 2016) provides a global snapshot of adolescent health and wellbeing, as well as a forecast of future opportunities and challenges. Understanding the current situation, opportunities, and challenges are key to informing investments in adolescent health and wellbeing that could transform LAC in the 21st Century.

2.1.1 An Epidemiological Transition Model for Adolescent Health

In the publication, adolescent health and wellbeing is presented using a modernization of the *epidemiological transition model* developed by Omran (1971). While conserving the core meaning of *epidemiological transition*[2], the model proposed by Patten et al. (2016) has been adapted to reflect the modern health status of *only* the adolescent population. Like its predecessor, the modern model has three categories of epidemiological profiles: from least to most developed,

[1] The World Health Organization defines young people as individuals between the ages of 10-24 and adolescents as individuals between the ages of 10-19.
[2] Omran introduced the epidemiological transition as "the complex changes in patterns of health and disease, the interactions between these patterns, and their demographic, economic, and sociologic determinants and consequences," (1971, p. X).

all countries fall into either multi-burden, injury excess, or non-communicable diseases (NCDs) predominant (Patton et al., 2016).

2.1.1.1 Multi-burden

Approximately half of the global adolescent population lives in multi-burden countries, characterized by an epidemiological profile comprised of diseases of poverty (e.g., under-nutrition, infectious diseases, poor sexual and reproductive health), as well as injury and violence, and NCDs. Female adolescents in these countries experience high rates of fecundity, which are reinforced by unmet needs in sexual and reproductive health (e.g., access to contraception). In LAC, there are three countries that fall into this category, including Haiti, Guatemala, and Guyana.

2.1.1.2 Injury excess

One in eight adolescents live in *injury excess* countries, characterized by persistent high levels of unintentional injuries or violence, as well as high birth rates among the adolescent population. Adolescents in these countries have benefited from the control of infectious diseases. Notwithstanding, this epidemiological transition has been accompanied by an increase in road traffic injuries, mental health issues (including self-harm and suicide), and homicides (mostly in young men). In LAC, 14 countries fall into this category, including Belize, Bolivia, Brazil, Colombia, Dominican Republic, Ecuador, El Salvador, French Guiana, Honduras, Mexico, Panama, Paraguay, Suriname, and Venezuela.

2.1.1.3 NCD-Predominant

Approximately one third of the global adolescent population lives in *NCD predominant* countries, characterized by an epidemiological profile that is almost exclusively comprised of

mental health issues (including substance use disorders) and chronic physical illnesses. In addition to the control of infectious diseases, adolescents in these countries have benefited from reductions in injury and violence. In LAC, seven countries fall into this category, including Argentina, Chile, Costa Rica, Cuba, Nicaragua, Peru, and Uruguay.

2.1.2 Future Public Health Efforts for Adolescent Health

The prescription for future public health efforts will reflect the epidemiological profile of the adolescent population for each country. That stated, as a general prescription, multi-burden countries will need to implement measures to control diseases of poverty, while also devoting resources to the prevention of injuries and violence, mental health issues, and risk factors for NCDs. Injury excess countries will need to balance reducing injury, violence, and adolescent pregnancy with averting rises in mental health issues and risk factors for NCDs. Lastly, NCD predominant countries will need to prioritize universal health access and universal health coverage (Patton et al., 2016).

With the majority of LAC Member States falling into the injury excess category, it would behoove PAHO to update their state-of-the-art in injury and violence prevention, as well as adolescent pregnancy. With respect to any updates, Patton et al. (2016) recommend addressing knowledge gaps in the prevention of mental health disorders and violence as a priority. One important knowledge gap to address is the variations in the effectiveness of prevention efforts: a better understanding is needed regarding what types of interventions work best for different populations of adolescents, such as those from socially marginalized groups. In this regard, attention should be given to the social and structural determinants of injury and violence, including

policies that target inequities in these determinants among adolescents (Patton et al., 2016; WHO, 2017).

2.2 YOUTH VIOLENCE IS A THREAT TO ADOLESCENT HEALTH

2.2.1 The Violence Typology

The World Health Organization (WHO) defines violence as, "the intentional use of physical force or power, threatened or actual, against [oneself], another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, mal-development, or deprivation," (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002, p. 5). As this definition implies, violence is a broad concept that exists at all levels, ranging from individual to societal. Due to its broadness, researchers use the following typology of violence:

Self-inflicted violence:	violent acts committed against oneself (i.e., suicidal behavior and self abuse)
Interpersonal violence:	violent acts committed between individuals (e.g., child neglect and abuse, elder abuse, intimate partner violence, youth violence)
Collective violence:	violent acts committed by large groups (e.g., conflicts between countries, state terrorism, war)

Research has shown that different types of violence are associated with one another and share common risk factors (WHO, 2015). This suggests a need for conceptual and analytical tools that can capture the complexity violence --- the unique features of each type of violence as well as the common features that are shared among the typology.

2.2.2 Youth Violence and its Harmful Effects on Health

Violence in the adolescent population is referred to as *youth violence*, defined as "violence that occurs among individuals aged 10-19 years who are unrelated and who may or may not know each other, and generally takes place outside of the home," (WHO, 2015, p. 5). Bullying, physical assault (with or without a weapon), and gang violence are all examples of youth violence (WHO, 2015). **Figure 1** shows the harmful effects of youth violence on adolescent health and their consequences later on in life.

2.2.2.1 Individual level

Youth violence can result in a number of harmful effects on the health of adolescents, such as violence-related injuries (e.g., open wounds, fractures, concussions), mental health issues (e.g., anxiety, depression, post-traumatic stress disorder [PTSD]), health risk behaviors (e.g., substance abuse and dependence, physical inactivity, smoking, high stress levels), and death (WHO, 2015). Moreover, these adverse health outcomes can lead to further health problems: for example, violence-related injuries can lead to long-term disability; mental health issues can persist well into adulthood; and health risk behaviors can predispose adolescents to a number of NCDs. Furthermore, exposure to violence in childhood and adolescence can increase the risk of involvement in violence (e.g., intimate partner violence) later on in life, thus perpetuating a cycle of violence throughout the life course.

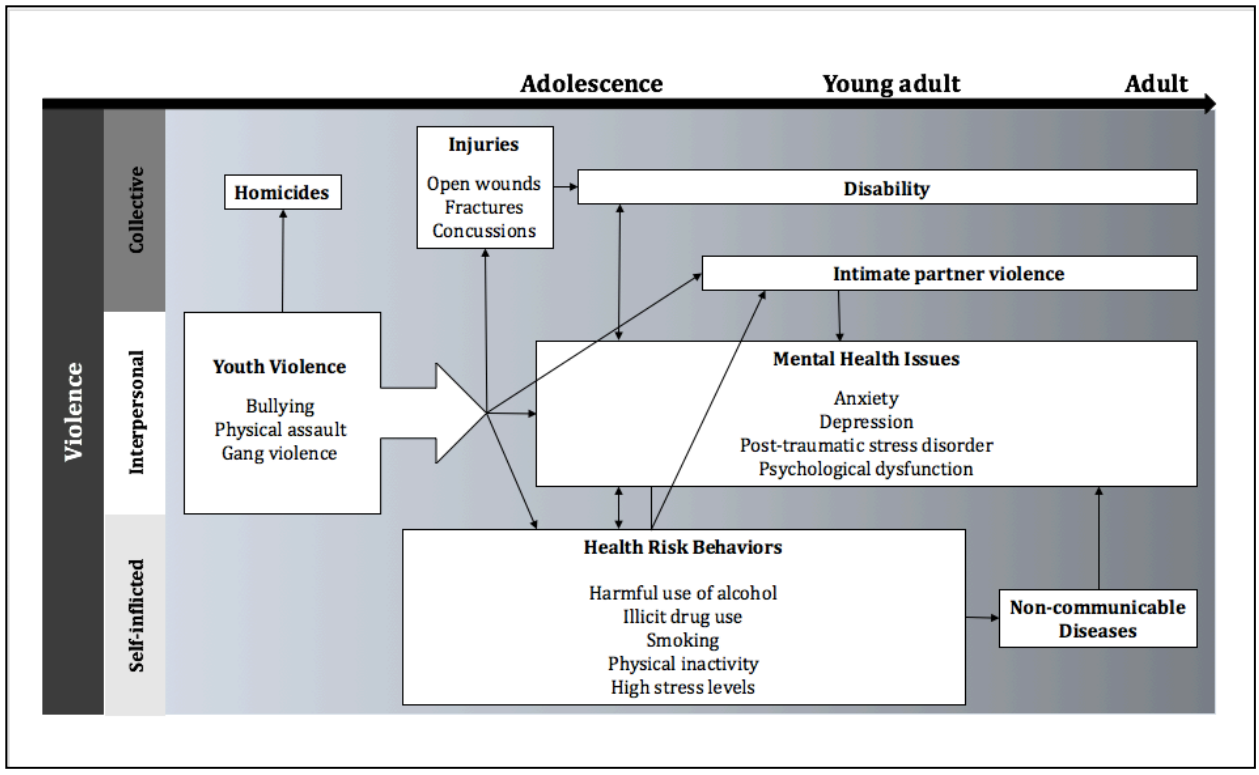


Figure 1. A Downstream View of Youth Violence

(WHO, 2015; Gibbs, Jewkes, Willan, & Washington, 2018)

2.2.2.2 Interpersonal level

Beyond its harmful effects at the individual level, youth violence can also have a negative impact on the health and wellbeing of those with whom adolescents have interpersonal relationships, primarily family and friends. For example, a study by Mrug and Windle (2010) on the prospective effects of violence exposure in early adolescents showed that relatives and close friends of adolescent victims of youth violence are significantly more likely to display symptoms of depression, to engage in substance abuse (including drugs and alcohol), and to enact disruptive behaviors, such as disobeying the rules (e.g., vandalism) and physical aggression (e.g., threatening others).

2.2.3 Youth Violence and Social Determinants of Health

The WHO defines *social determinants of health* (SDH) as "the conditions in which people are born, grow, work, live, and age and the wider set of forces and systems that shape the conditions of daily life," (2008, p. 26). Stated simply, these conditions can facilitate desirable health behaviors, which can lead to positive health outcomes; or, these conditions can facilitate undesirable health behaviors or frustrate and even impede desirable health behaviors, both of which can lead to poor health outcomes. There is evidence to support that youth violence can have harmful effects on the SDH of adolescents and thus indirectly impact their health and wellbeing, as well as the health and wellbeing of their family, friends, communities, and the greater society.

2.2.2.3 Individual level

Youth violence has a negative association with educational achievement for both victims and perpetrators (WHO, 2015). Adolescents who are involved in youth violence have reported fear of attending school (i.e., feeling unsafe in school or on the way to school), have been shown to be at a greater risk than their peers for truancy and dropping out of school, and have demonstrated lower educational performance (Kokko, Tremblay, Lacourse, Nagin, & Vitaro, 2006; Eaton et al., 2012). In turn, low educational performance can have lasting consequences on health and wellbeing (WHO, 2008).

2.2.2.4 Societal level

There are a number of economic and social costs associated with youth violence. With respect to the former, youth violence that results in the destruction of goods and infrastructure harms local businesses two-fold: owners must bear the cost of replacing goods and repairing

infrastructure, as well as overcome the deterrence imposed by youth violence on customers' patronage (WHO, 2015). Neighborhoods with a high prevalence of youth violence and violence-related destruction experience a depreciation in property values and discouragement in economic investments, both of which hurt the local economy (Mercy, Butchart, Rosenberg, Dahlberg, & Harvey, 2008; Bates, 2010). With respect to social costs, the more tangible costs include those associated with healthcare (e.g., direct medical costs) and the criminal justice system (e.g., cost of incarceration); where as, intangible costs include feelings of fear and insecurity among the community that weakens social cohesion[3] (WHO, 2015).

2.2.4 Risk Factors for Youth Violence

There is a mounting body of evidence on what factors increase the risk that an adolescent will be involved in youth violence (Lipsey & Derzon, 1998). At the individual level, risk factors include being male, having low intelligence, behaving disruptively (e.g., aggression) or impulsively (e.g. hyperactivity, low self-control, risk taking), engaging in the use of alcohol or illicit drugs, selling drugs, performing poorly in school (e.g., low academic achievement), frequently changing schools, playing truant, and dropping out of school (WHO, 2015). Risk factors at the interpersonal level involve parent-child and peer relationships. Adolescents who were born to adolescent parents, as well as those whose parents are or have been involved in crime, display antisocial behavior, suffer from mental health issues or substance abuse, maltreat their children (e.g., neglect, abuse), lack involvement with their children (e.g., poor parent-child bond, poor supervision), and use punitive

[3] Social cohesion is a sense of trust and solidarity among community members (Cagney et al., 2016).

discipline are at an increased risk for youth violence (Haapasalo & Pokela, 1999). In addition, adolescents who lack social ties with or who have antisocial peers are at an increased risk of becoming involved in youth violence (Lipsey & Derzon, 1998). Lastly, at the community and societal levels, risk factors include living in poverty (e.g., low socioeconomic status), growing up in a neighborhood with a high prevalence of crime and access to firearms, and weak social protection (Rogers & Pridemore, 2013; WHO, 2015).

2.2.5 Youth Violence and Health Inequities

Beyond their mere presence, the distribution of factors for youth violence may have a profound impact on adolescent health at the population level. For example, a disproportionate distribution of risk factors coincides with a disproportionate burden of youth violence, placing some adolescents in conditions of greater vulnerability than others. Without intervention, this bias in vulnerability will translate into a bias of health outcomes, resulting in health inequalities among an adolescent population.

Section 2.2.4 presented a number of risk factors for youth violence that have been identified in the public health literature. Examined overall, these risk factors represent the multiple environments --- from his personal constitution to the society that governs him --- that influence the health behaviors of an adolescent. Moreover, risk factors do not only act within their own environments, but interact with one another in multiple environments (Krieger, 2001). Following this line of logic, a causal analysis could show how societal-level risk factors influence community-level risk factors, which in turn influence interpersonal- and individual-level risk factors. As such, societal- and community-level factors, although more distal to an adolescent,

could be considered "causes of the causes" that directly influence the health behaviors of that adolescent (Marmot, 2005).

Upon closer examination, risk factors for youth violence at both the community and societal levels, such as living in poverty, are symptoms of power inequalities in the political, economic, and social domains. Inequalities in power and their manifestations (e.g., health inequalities) are avoidable and morally unjust. Per this judgment, health inequalities are more than just unequal, they are inequitable. Health inequities are more egregious than health inequalities in that they not only threaten health and wellbeing, but also threaten social justice.

With this in mind, youth violence prevention interventions (as a collective) should account for the pervasive nature of violence and its influences on adolescent health behaviors at multiple levels. Revisiting the aforementioned causal analysis, intervening at the community and societal levels (i.e., addressing the "causes of the causes") could support and complement prevention and early intervention at the individual and interpersonal levels. That stated, the evidence in youth violence prevention interventions that employ a community-based or whole-of-society approach is still emerging (WHO, 2015).

2.3 RESILIENCE AS A PREVENTION MEASURE FOR YOUTH VIOLENCE

The majority of the research on effective prevention measures for youth violence focuses on risk factors, deficits, and pathology (Lösel & Farrington, 2012). Since risk models account for only a fraction of outcome variance, knowledge on protective and buffering factors could enhance our understanding of youth violence (Lösel & Bender, 2003). Research on protective and buffering factors against youth violence is concentrated on *resilience* in the discipline of developmental

psychology, specifically psychopathology (Luthar, Cicchetti, & Becker, 2000; Cicchetti, 2010). According to Lösel and Farrington (2012), the concept of resilience can be defined as "the process and outcome of an elastic biopsychosocial adaptation to stressors and difficult circumstances in life," (p. S9). This definition pertains to an individual (e.g., male adolescent) and his biological, psychological, and social capability for adaptation. For example, an adolescent who was able to *function within normal range* (i.e., cope) under a specific stressor (e.g., the separation of his parents) would be considered more resilient than an adolescent who was unable to cope under the same stressor (Lösel & Farrington, 2012).

The WHO document *Preventing Youth Violence: An Overview of the Evidence* (2015) presents life and social skills development as an EBI that works to strengthen individual resilience. Life and social skills are defined as "the abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life," (p. 28) and include the following skills: problem solving, critical thinking, effective communication, decision-making, creative thinking, interpersonal relationship skills, self-awareness building, empathy, and coping with stress and emotions (WHO, 2015). Learning to better cope with stress and emotions is particularly apropos for adolescents who are at a higher risk of becoming involved in youth violence or who already are involved in youth violence (Lipsey, Landenberger, & Wilson, 2007). For these more vulnerable adolescents, a therapeutic version of life and social skills, known as cognitive behavioral therapy, is recommended.

Resilience can also be strengthened at the interpersonal level (e.g., family resilience) and may reinforce efforts to strengthen individual resilience (Walsh, 1996; 2002). For example, *family resilience* refers to a family's abilities to adapt to and master adversity (Walsh, 1996). Stressors and difficult circumstances can affect the whole family. Conversely, responses to these adversities

at the family level can reduce, adapt to, or recover from the harmful effects of a stressor or difficult circumstance for the entire family as a unit (Walsh, 2002). In this way, vulnerable members, who would otherwise lack resilience at the individual level, are protected by being a member of the family.

2.4 COMMUNITY RESILIENCE

Community resilience has been defined as "the ability and capacities of a community to mitigate, adapt to, and recover from [adversities] in a manner that reduces chronic vulnerability and facilitates inclusive growth," (Frankenberger, Mueller, Spangler, & Alexander, 2013, p. 4). While previous research and interventions have focused on resilience at the individual and family levels, much less attention has been given to this concept at the community level (Poortinga, 2012). Emerging evidence suggests that community resilience may play an important role in supporting individual and family resilience, reduce disproportionate vulnerability within a community, and redress health inequities (Norris et al., 2008; Frankenberger et al., 2013).

2.2.1 Current Knowledge

2.2.1.1 Attributes of community resilience

According to the definition provided, community resilience has the following attributes: exposure to adversity, a response to being exposed to adversity (i.e., collective action toward mitigation, adaptation, or recovery); and a positive trajectory as a result of collective action.

With respect to the attribute *exposure to adversity*, the public health literature has dichotomized adversities into disaster and non-disaster typologies. McFarlane and Norris (2006) define a disaster as "a potentially traumatic event that is collectively experienced, has an acute onset, and is time delimited," (p. 4). Some examples of disasters represented in the community resilience literature include cyclones (Cash, Halder, Husain, Islam, Mallick, May, Rahman, & Rahman, 2013), floods (Cash et al., 2013; Ng, Wilson, & Veitch, 2015), superstorms (Cagney, Sterrett, Benz, & Tompson, 2016), and outbreaks (Rosenfeld, Etkind, Grasso, Adams, & Rothholz, 2011). Non-disasters are also potentially traumatic and collectively experienced; however, they are chronic --- sometimes normalized --- in character, and lack defined time boundaries (Norris et al., 2008). Some examples of non-disasters represented in the community resilience literature include gang-related youth violence (Hansen-Nord, Kjaerulf, Almendarez, Morales Rodas, & Castro, 2016) and long-standing human rights abuses (Beiser, Wiwa, & Adebajo, 2010). The argument for dichotomization is the variation in the dynamics of responses to disasters versus non-disasters: case studies indicate that disasters incite a greater urgency that likely drives mobilization more efficiently than non-disasters (Norris et al., 2008; USAID, 2013). Whether disasters or not, these adversities compromise the health and wellbeing of a community (Cash et al., 2013) and thus are considered health threats themselves.

With respect to the attribute *a response to being exposed to adversity*, the literature has identified various factors of community resilience that may serve as communal assets for collective action, including place attachment (Hegney, Buikstra, Baker, Rogers-Clark, Pearce, Ross, King, & Watson-Luke, 2007; Hess, Malilay, & Parkinson, 2008; Scannell, Cox, Fletcher, & Heykoop,

2016); social resources, including social capital[4] (Beiser, Wiwa, & Adebajo, 2010; Castleden, McKee, Murray, & Leonardi, 2011; Nolet, 2016) and social connectedness[5] (Ng, Wilson, & Veitch, 2015; Cagney, Sterrett, Benz, & Tompson, 2016; Eshel & Kimhi, 2016); language competence (Castleden, McKee, Murray, & Leonardi, 2011; Nystad, Spein, & Ingstad, 2014; Cagney, Sterrett, Benz, & Tompson, 2016; Nolet, 2016); and traditional knowledge (Nystad, Spein, & Ingstad, 2014; Nolet, 2016).

With respect to the attribute *a positive trajectory as a result of collective* action, the community resilience literature ranges in characterizations of the endpoint from *sustainability* to *transformation*. For example, both Moore, Chandra, and Feeney (2013) and Saul and Simon (2016) define the endpoint trajectory for community resilience in terms of sustainability: if a community is capable of sustaining itself through a crisis (Moore, Chandra, & Feeney, 2013) or sustaining its wellbeing (Saul & Simon, 2016) as a result of exposure to adversity, then the community is considered resilient. Pushing beyond mere sustainability, some sources (Eshel, Kimhi, Lahad, & Leykin, 2016) define the resilience trajectory in terms of adaptation: if a community is capable of not only sustaining itself through adversity, but also adapting from it so that the community as a whole is better prepared for future adverse events, then the community is considered resilient. Pushing further beyond, the trajectory of community resilience has even been defined in terms of transformation (Frankenberger et al., 2013; United Nations Development Programme [UNDP], 2014): if a community is capable of not only sustaining itself through and

[4] Putnam defined social capital as "the organization of social networks…that facilitate cooperation and coordination for mutual benefit," (1995, p. 67).
[5] Cagney et al. (2016) define social connectedness as a composite measure of social exchange (the frequency of social interactions among community members) and collective efficacy (a community's perceived capacity to achieve common goals).

adapting itself to adversity, but also transforming itself in a way that is more favorable than the community's pre-adversity status (e.g., by reducing chronic vulnerability, inequalities, and inequities), then the community is considered resilient.

2.2.1.2 Factors of community resilience and their associations with health

In the public health literature, the multifactorial concept of community resilience has mainly been investigated through its factors of social capital and social connectedness under a resilience framework (Flores, 2017). As proxies of community resilience, social capital and social connectedness have been shown to be positively associated with wellbeing (Hess, Malilay, & Parkinson, 2008; Poortinga, 2012; Nystad, Spein, & Ingstad, 2014; Ng, Wilson, & Veitch, 2015; Eshel & Kimhi, 2016), mental health (Beiser, Wiwa, & Adebajo, 2010), and other levels of resilience (Daigneault, Dion, Hebert, McDuff, & Collin-Vézina, 2013; Eshel & Kimhi, 2016). Beyond correlating with both individual and family resilience, variables of community resilience were also shown to predict both individual wellbeing and coping success, which may protect against negative mental health outcomes (Eshel & Kimhi, 2016). These findings suggest that community resilience may complement resilience efforts at the individual level, particularly with respect to mental health interventions.

2.2.1.3 Conceptual tools for community resilience, health, and health inequities

A limited number of conceptualizations on community resilience have been proposed in the public health literature. While models and frameworks are similar in their construction of community resilience factors (e.g., social capital, social connectedness), they differ in their representation of health and health inequities.

All conceptualizations of community resilience are anchored by at least one dimension of social capital (i.e., bonding, bridging, or linking). Both the LINC Model (Landau, 2010) and the EnRiCH Community Resilience Framework for High-Risk Populations (O'Sullivan, Kuziemsky, Corneil, Lemyre, & Franco, 2014) consider *within network* bonds (i.e., bonding social capital) among members of the same community essential to fostering solidarity and trust (i.e., social cohesion), which can be used as a community asset in the building of community resilience. Joining these two conceptualizations, the Los Angeles County Community Disaster Resilience (LACCDR) Framework (Wells, Tang, Lizaola, Jones, Brown, Stayton, Williams, Chandra, Eisenman, Fogleman, & Plough, 2013) emphasizes horizontal bridges *between network*s (i.e., bridging social capital) among sources of policy support (e.g., local government) and academic capacity (e.g., universities), whose exchange of information, communication, and expertise can guide communities in collective action as they build resilience. Lastly, the Framework for Multi-Level Integration for Healthcare Services (Kreisberg, Thomas, Valley, Newell, Janes, & Little, 2016) joins the previous three models and frameworks in championing for vertical links *across hierarchies* (i.e., linking social capital) that connect communities with valuable resources from community-based organizations (CBOs), service providers (e.g., hospitals, clinics), and administrative entities (e.g., policy support, funding) that can be used to build resilience.

In terms of how health and health equity are represented, these conceptualizations of community resilience are markedly different. For example, the LINC Model is explicitly predicated on the theory that trauma and persistent threats at the community level (e.g., inequalities in power, privilege, resources, and wealth) lead to poor health outcomes (e.g., substance abuse and addiction, depression, PTSD, suicide, violence) and poor social outcomes (e.g., abuse of power, marginalization, prejudice, stigma) (Landau, 2010), which in turn lead to health inequities. This

becomes the rationale for why the model focuses on the concepts of *continuity* and *connectedness* to mobilize social systems for systemic-wide, sustainable change (Landau, 2010). As a result, the collective management of shared communal assets reduces vulnerability to traumas and threats for the community as a whole (Landau, 2010).

While the Framework for Multi-Level Integration for Healthcare Services has an analogous focus on reducing vulnerability and includes physical, mental, and behavioral health (Kreisberg et al., 2016), it does not provide a theory on the causes of health inequities at the community level as a rationale for the framework, nor does it explicate how the framework intends to reduce health inequities. That stated, the framework is based on the assumption that linking social capital ("Multi-Level Integration") among the community members, CBOs, public health service providers, and public health administrative entities is vital for the full inclusion of vulnerable populations in building disaster-related community resilience (Kreisberg et al., 2016). As such, it is implied that the inclusion of vulnerable populations would redress their marginalization --- a poor social outcome, according to the LINC Model (Landau, 2010) --- and perhaps to some extent inequalities in power, privilege, resources, and wealth; and that this reparation would be accompanied by improvements in health equity. In a similar manner, both the LACCDR Framework (Wells et al., 2013) and the EnRiCH Community Resilience Framework for High-Risk Populations (O'Sullivan et al., 2014) target vulnerable and high-risk populations, respectively; however, neither framework is health-specific although both could be applied within a health context.

2.4.2 Gaps in Knowledge

While public health research has begun to identify factors of community resilience (e.g., social capital, social connectedness), there remains a paucity of research in the identification of the multiple factors of community resilience, as well as gaps in knowledge on their role in building community resilience (Flores, 2017). Moreover, these community-resilience factors have been identified within the context of community resilience against acute adversities, not chronic ones. Furthermore, the multifactorial concept of community resilience has been studied via its individual factors in isolation --- not in concert --- under a resilience framework (Flores, 2017). It is highly likely that factors of community resilience do not operate in isolation, but rather interact with each other to build community resilience. As such, studying them in isolation is insufficient and provides limited insight on the necessary factors and conditions that favor resilience building, let alone those that favor a more equitable distribution of health protection.

3.0 RESEARCH QUESTIONS

This dissertation explored the following research questions:

Research question 1:	(a) What factors do communities need in order to reduce, adapt to, or recover from youth violence and its harmful effects on adolescents, their families, and the community as a whole?
Research question 2:	(a) Are all factors equally important (or are some more important than others) for communities to be able to reduce, adapt to, or recover from youth violence and its harmful effects? (b) How does importance vary between distal (e.g., policy level) and proximal (e.g., interpersonal) perspectives?
Research question 3:	(a) How do these factors relate to one another and work together to build community resilience against youth violence and its harmful effects on adolescents, families, and community members? (b) How do relationships and working theories vary between distal and proximal perspectives?

These research questions call for a diverse group of stakeholders, from those that represent the most proximal environment (i.e., interpersonal level) to those that represent the most distal environment (i.e., policy level) of at-risk adolescents. An ecological model would suit this requirement and inform the recruitment of participants in a way that would yield a comprehensive range of perspectives of community resilience against youth violence and its harmful effects on adolescents, their families, and the community as a whole. Concurrently, an ecological model would account for the risk factors of youth violence, as well as the building of resilience, at multiple levels. Moreover, a participatory approach would guide all stakeholders through the research process in an equitable, power-sharing process that benefits all participants; and a human security approach would account for the multiple insecurities within the ecology of at-risk adolescents that influence risk factors for youth violence.

Furthermore, the research questions necessitate a method that allows for the generation, valuation, and organization of abstract ideas from a diverse group of stakeholders (i.e., a range of distal and proximal actors) into one unified conceptualization on how the ideas relate to one another and how they work together to explain a phenomenon. With respect to these necessities, the generation of abstract ideas refer to the the capability of a method to collect perceptions of community resilience against youth violence and its harmful effects from the various standpoints of a diversity of stakeholders; the valuation of abstract ideas refers to the capability of a method to assign a value of importance to each idea; and the organization of abstract ideas refers to the capability of a method to achieve a consensus on how study participants understand these factors to relate to one another and work together to build community resilience against youth violence and its harmful effects.

4.0 MODEL

In order to obtain a comprehensive understanding of community resilience against youth violence and its harmful effects, it is critical to select a model that will allow for the exploration of both youth violence and community resilience under the full spectrum of circumstances through which they influence adolescent health. The social ecological model (SEM) recognizes the circumstances (i.e., wider set of forces, systems, and conditions) at play on both individual and population determinants of health behaviors and their influence on health outcomes (Susser & Susser, 1996a). Moreover, the SEM contextualizes these determinants within a hierarchy of interactive systems (e.g., individual, interpersonal, community, institutional, political) that reflect the human reality (e.g., boundaries, laws, dynamics) within which youth violence and community resilience exist (Susser & Susser, 1996b). In this context, determinants not only act *within* their own system, but also interact *between* proximal systems, and *across* distal systems (Krieger, 2001). As a result, what happens in one system will have an effect on other systems within the hierarchy.

The sophistication of the SEM lends a complex yet comprehensive causal analysis of the public health problem upon which interventions can leverage the multi-dimensionality (i.e., multiple systems) of the model in a manner that would not be possible under one- or two-dimensional models. Consider the following example, which discusses the promotion of resilience at the individual, interpersonal, and community levels:

> Over the past two decades, the human security paradigm has progressed to place a greater emphasis on the prevention of insecurity (e.g., gang violence) and the promotion of resilience at multiple levels (Chandler, 2012). While previous research and interventions

(Frankenberger et al., 2013) have focused on resilience at individual and household (i.e., interpersonal) levels, much less attention has been given to this concept at the community level. Findings in the resilience literature suggests that community resilience may have the following advantage over individual and household resilience: through the collective management of communal assets, resilience at the community level can be extended to more vulnerable community members who would otherwise lack resilience at either the household or individual levels (Poortinga, 2012).

In this example, neither individual nor household interventions, which respectively address individual and interpersonal determinants, may be sufficient to address the broader scope of causes of gang violence (e.g., community determinants). Moreover, intervening at a point within the community dimension may provide a greater amount of leverage since the influence of community determinants has the potential to amplify the influence of interpersonal and individual determinants within their respective dimensions of the model. As such, efforts to build community resilience may complement current interventions focused on individual and interpersonal resilience building.

4.1 INTRAPERSONAL ECOLOGICAL SYSTEM

The intrapersonal ecological system includes the adolescent and their personal constitution: biological factors (e.g., genetics, age, sex), psychological factors (e.g., personality, behaviors), and learning factors (e.g., cognitive domains, intelligence). These factors are considered individual determinants of health behaviors. Within the intrapersonal ecology of an adolescent, individual

determinants of health behaviors act within the intrapersonal dimension and are governed by the boundaries (e.g., the human body), laws (e.g., laws of physics), and dynamics (e.g., brain development, puberty) of the intrapersonal ecological system. Their actions and governance influence the health behaviors of an adolescent, which in turn has an influence on their health and wellbeing.

4.2 INTERPERSONAL ECOLOGICAL SYSTEM

The interpersonal ecological system includes the adolescent and their intimate relationships with family, friends, other adolescent peers, and adults who take on a mentoring role (e.g., teachers, coaches, counsellors). The interpersonal dimension introduces tightly-connected social factors (e.g., bonding social capital) into the adolescent's most proximal social environment. These factors are considered interpersonal population determinants of health behaviors. Within the interpersonal ecology of an adolescent, both population and individual determinants act on the adolescent to influence their health behaviors. Interpersonal population determinants of health behaviors act within the interpersonal dimension and are governed by the boundaries, laws, and dynamics of the interpersonal ecological system. Concurrently, individual determinants of health behaviors (from the intrapersonal dimension) interact with interpersonal population determinants of health behaviors within the interpersonal dimension and are governed by the boundaries, laws, and dynamics of the interpersonal ecological system. Their actions, interactions, and governance influence the health behaviors of an adolescent, which in turn has an influence on their health and wellbeing.

4.3 COMMUNITY ECOLOGICAL SYSTEM

The community ecological system includes the adolescent and their less intimate relationships with acquaintances, neighbors, classmates, community members, as well as their interactions with individuals who represent community-based services. The community dimension introduces loosely-connected social factors (e.g., bridging social capital, social connectedness) into the adolescent's second-most proximal environment. These factors are considered community population determinants of health behaviors. Within the community ecology of an adolescent, two different levels of population determinants (i.e., tightly- and loosely-connected social factors) and individual determinants act on the adolescent to influence their health behaviors. Community population determinants of health behaviors act within the community dimension and are governed by the boundaries, laws, and dynamics of the community ecological system. Concurrently, interpersonal population determinants of health behaviors and individual determinants of health behaviors interact with each other, as well as community population determinants within the community dimension and are governed by the boundaries, laws, and dynamics of the community ecological system. Their actions, interactions, and governance influence the health behaviors of an adolescent, which in turn has an influence on their health and wellbeing.

4.4 INSTITUTIONAL ECOLOGICAL SYSTEM

The institutional ecological system includes the adolescent and their governance by the institutions of education (e.g., schools), the economy (e.g., money), family (e.g., marriage), religion (e.g., churches), and local government (e.g., police departments, the courts). The institutional dimension

introduces organizational factors, as well as social factors (e.g., linking social capital), into the adolescent's second-most distal environment. These factors are considered institutional population determinants of health behaviors. Within the institutional ecology of an adolescent, a number of population determinants and individual determinants act on the adolescent to influence their health behaviors. Institutional population determinants of health behaviors act within the institutional dimension and are governed by the boundaries, laws, and dynamics of the institutional ecological system. Concurrently, community and interpersonal population determinants of health behaviors, along with individual determinants of health behaviors, interact with each other, as well as institutional population determinants within the institutional dimension and are governed by the boundaries, laws, and dynamics of the institutional ecological system. Their actions, interaction, and governance influence the health behaviors of an adolescent, which in turn has an influence on their health and wellbeing.

4.5 POLITICAL ECOLOGICAL SYSTEM

The political ecological system includes the adolescent and their governance by power or force, including the national government (e.g. policymakers). This political dimension introduces political factors (e.g., decision-making power) into the adolescent's most distal environment. These factors are considered political population factors of health behaviors. Within the political ecology of an adolescent, a number of population determinants and individual determinants act on the adolescent to influence their health behaviors. Political population determinants of health behaviors act within the political dimension and are governed by the boundaries, laws, and dynamics of the political ecological system. Concurrently, institutional, community, and

interpersonal population determinants of health behaviors, along with individual determinants of health behaviors, interact with each other, as well as political population determinants within the political dimension and are governed by the boundaries, laws, and dynamics of the political ecological system. Their actions, interaction, and governance influence the health behaviors of an adolescent, which in turn has an influence on their health and wellbeing.

5.0 APPROACHES

Section 2.0 made evident that the nature of youth violence is pervasive throughout society. Although the vantage point of the dissertation is from the public health perspective (i.e., youth violence and its harmful effects on health), youth violence affects multiple domains and actors external to the health sector and its institutions. Similarly, resilience can exist and intervene at multiple ecological levels, allowing for a comprehensive and diverse group of factors and actors to exert influence on the health behaviors of at-risk adolescents. Due to the nature of youth violence and community resilience, both the human security approach and community-based participatory research (CBPR) were employed for the dissertation.

5.1 HUMAN SECURITY

5.1.1 Roots of the Human Security Approach

Human security protects the vital core of all human lives in ways that enhance human freedoms and human fulfillment (United Nations [UN], 2003). The human security approach is derived from the conceptual and philosophical roots of human security. As a philosophy, human security recognizes that all individuals have the right to three essential freedoms**:** the freedom to live *without fear*, the freedom to live *without want*, and the freedom to live *in dignity*; with an equal opportunity to enjoy these freedoms, individuals are capable of fully developing their human potential (UN, 2003). As a concept, human security encompasses the multiple dimensions of

security that are necessary in order to guarantee the aforementioned freedoms. These dimensions are described in **Figure 2** and include community, economic, environmental, food, health[6] health, personal, and political security (UNDP, 1994).

[6] For the purposes of this dissertation, the term *health security* refers to the health dimension of human security.

Dimensions of Human Security	Descriptions
Community	Ensures protection through membership in a group (e.g., family, community, diasporas, religious enclaves)
Economic	Ensures basic income or publically-funded safety net (e.g., education, employment, entitlements)
Environmental	Ensures a healthy physical environment (e.g., policies on clean air and water, housing conditions)
Food	Ensures physical and economic access to basic food (e.g., food banks, food stamps, school-sponsored meals)
Health	Ensures protection from threats that lead to poor health outcomes (e.g., universal access to health, vaccinations)
Personal	Ensures protection from physical violence, including collective, interpersonal, and self-inflicted violence (e.g., peace treaty, policing, conflict resolution, crisis management)
Political	Ensures basic human rights (e.g., conventions, laws, policies)

Figure 2. Descriptions of the Human Security Dimensions

The dimensions of human security are interrelated, meaning that changes in one dimension will affect change in any or all of the other dimensions. This being true, individuals are considered secure when they are free from threats to *all* dimensions of human security, as a threat to any one of them could lead to insecurity overall (UNDP, 1994). In this way, human security not only meets basic needs, but also protects basic human rights: when individuals are secure, they are free to live in dignity, without want or fear. These three essential freedoms protect the vital core of an individual, affording them the liberty to pursue, develop, and fulfill their human potential (United Nations Trust Fund for Human Security [UNTFHS], 2016).

5.1.2 The Principles of the Human Security Approach

The prescription for guaranteeing the interrelated dimensions of human security is delineated by the following guiding principles (Korc, Hubbard, Suzuki, & Jimba, 2015):

1. Address the linkages among freedom from fear, freedom from want, and freedom to live in dignity
2. Focus on the ways in which people experience vulnerability in their daily lives and acknowledge that different threats feed off one another and thus need to be addressed in a comprehensive manner
3. Engage the most vulnerable population groups in all stages of programs to address their vulnerabilities, from the needs and resource assessment through the design and implementation to the monitoring and evaluation phases of activities
4. Understand the local-specific context and ensure that all decisions and interventions take that context into consideration.

5. Include all relevant sectors and actors in the planning, decision-making, and implementation processes
6. Focus on prevention to the extent possible
7. Create synergy between protection and empowerment actions

5.1.3 The Key Characteristics of the Human Security Approach

The guiding principles of human security are operationalized into the human security approach using a process of governing that promotes equity, participation, pluralism, transparency, accountability and the rule of law in a manner that is effective, efficient, and enduring. As an approach, human security has five key characteristics. First, the approach is *people-centered* and thus places people at the core of all actions (Korc et al., 2015). Second, the approach is *context-specific*, taking into account the lived experiences and local circumstances of the communities who are exposed to threats of human security (Korc et al., 2015). Third, the approach takes on a *comprehensive perspective* and *multi-sectorial framework*, which recognizes that threats are interrelated, involving different areas (e.g., health, education), and thus need to be addressed by multiple sectors and their actors (Korc et al., 2015). Fourth, the approach is both *prevention-* and *promotion-oriented*, focusing on the root causes of human insecurities as an entry point for intervention (Korc et al., 2015). Fifth, the approach follows a *protection-empowerment framework*, which balances the provisions from protection actors with the feedback from empowerment actors (Korc et al., 2015).

5.1.4 The Rationale for Employing the Human Security Approach

The key characteristics of the human security approach presented in the pervious section provide only part of the rationale for employing the approach to the dissertation. Beyond the advantages of each characteristic, the relationship between human security and health, as well as human security and resilience, further supports the application of the human security approach to the exploration of community resilience against gang violence and its harmful effects on adolescents, their families, and the community as a whole.

5.1.4.1 Human security and health

The most evident connection between human security and health is the fact that health security is one of the seven dimensions of human security. As previously established, the multiple dimensions of human security are interrelated. Due to their interrelatedness, poor health outcomes can manifest directly as a result of threats to health security or indirectly as a result of threats to any of the other dimensions of human security. In public health, the dimensions of human security are considered SDH, whose conditions, forces, and systems interplay within the ecology of an adolescent, influencing their health behaviors and ultimately health outcomes. This being true, accounting for each dimension of human security, versus primarily just the health dimension of human security, likewise accounts for the full gamut of SDH that threaten the health and wellbeing of adolescents.

5.1.4.2 Human security and resilience

Over the past two decades, the human security paradigm has progressed to place a greater emphasis on the prevention of insecurity through the promotion of resilience at multiple levels

(Chandler, 2012). While previous research and interventions have focused on resilience at individual and household (i.e., interpersonal) levels, much less attention has been given to this concept at the community level (Frankenberger et al., 2013). Frankenberger, Mueller, Spangler, and Alexander (2013) developed a community resilience conceptual framework for measurement based on their own research (Frankenberger, Langworthy, Spangler, & Nelson, 2012) and three other models (CARE, 2002; TANGO, 2008; DFID, 2011), for the United States Government Global Hunger & Food Security Initiative: Feed the Future. Within the context of the human security dimension of food security, the objective of the framework according to the authors is "…to provide a comprehensive understanding of the factors and processes influencing vulnerability and resilience at the community level," (p. 7). From a human security perspective, the framework's vulnerability pathway leads to more insecurity, while its resilience pathway leads to more security (i.e., enhances human security) (Frankenberger et al., 2013; Constas & Frankenberger, 2013). As such, this framework is a conceptual tool that illustrates factors of community resilience, their relationships to one another in the process of building community resilience, and how the process of community resilience results in one of two pathways as outcomes of human security.

Central to this framework is *community capacities for collective action*, which represents a community's response to adversity. This response includes the assets that are available to the community (*community assets*), the characteristics of a community that guide how members will use their assets to implement actions (*community social dimensions*), and the specific areas of action that are of interest to the community (*areas of collective action*). According to Frankenberger et al. (2013), assets in the community are not only essential to building resilience in response to adversity, but also essential to meeting the basic needs of community members on

a daily basis. Meeting basic needs is dependent on six different forms of capital as assets: financial, human, natural, physical, political, and social capital. Moreover, social capital overall is displayed as an asset, as well its dimensions: bonding (i.e., connections within the same social network), bridging (i.e., connections between different social networks), and linking (i.e., connections between social networks and authorities, power, or other resources) social capital. All forms of capital can be improved (in both quantity and quality) and their improvement can contribute to building resilience.

Community social dimensions are the characteristics of a community that will guide how they manage their communal assets to carryout collective action (Frankenberger et al., 2013). According to Frankenberger et al. (2013), community social dimensions include: preparedness, responsiveness, connectivity, learning and innovation, self-organization, diversity, inclusions, social cohesion, and aspirations. The affective qualities of a community (e.g., attitudes, beliefs, emotions, feelings, motivation, perceptions, and values) often indicate the community's social dimensions and thus indicate how the community would respond to adversity.

According to Frankenberger et al. (2013), areas of collective action are strategies that the community enacts in order to reduce, adapt to, or recover from adversity. Each area is specific to the adversity that threatens community resilience. Actions are linked in a strategic way and will rely on managing community assets in an equitable manner per the community's social dimensions. To this end, collective action should be directed towards the preservation or restoration of institutions that govern the behaviors of everyday life for the community.

5.1.5 The Employment of the Human Security Approach

Each of the key characteristics of human security were taken into account at varying degrees in the design and execution of this dissertation.

5.1.5.1 People-centered

All of the multiple elements to this dissertation were considered with respect to their influence on people, primarily at-risk adolescents. For example, the SEM was centered around the social ecology of adolescents and included factors that influence their health behaviors and ultimately their health outcomes. Moreover, the identification of stakeholders for participation in the dissertation is dependent on their relationships to or governance on adolescents who are at risk for becoming involved in gang violence.

5.1.5.2 Context-specific

While the dissertation begins broad in terms of youth violence and its harmful effects on adolescent health, the case study (Section 7.0) that explored community resilience against youth violence and its harmful effects on adolescents, their families, and the community as a whole is narrowly defined to reflect the reality (i.e., specific context) of male adolescents living in a selected community. The goal of the dissertation is not to generalize findings to a greater population, but rather to transfer findings and apply the same process of exploration with other populations. In this way, any future applications should likewise take into account the specific context within which resilience, the adversity, and adolescents exist.

5.1.5.3 Comprehensive perspective and multi-sectorial framework

Due to the pervasive nature of youth violence, the adversity affects multiple domains and actors. The identification of stakeholders for participation in the dissertation attempts to provide a comprehensive perspective from institutions and policymakers representing multiple sectors. Specifically, the range of stakeholders identified was based on each dimension of human security.

5.1.5.4 Prevention- and promotion-oriented

The WHO defines the health functions of public health as "…the indispensable set of actions…that are fundamental for achieving the goal of public health, which is to improve, promote, protect, and restore the health of the population through collective action," (WHO, 2018, p. 4). Since the entry point of this dissertation is from the public health perspective, every design decision made strives towards informing future prevention interventions of youth violence and its harmful effects on adolescent health and future promotion interventions of community resilience to support adolescent health and wellbeing at the community, interpersonal, and individual levels.

5.1.5.5 Protection-empowerment framework

This dissertation utilized a conceptual model and a participatory approach to ensure a balance of protection and empowerment participants. The SEM identified a diverse groups of stakeholders that reflected the social ecology of an at-risk adolescent. Among the stakeholders are participants who lend protection (i.e., protection actors) by governing and providing services and participants who receive protection (i.e., empowerment actors) by governance and services provided. Since it is not merely sufficient to identify and recruit an array of protection and empowerment actors, the dissertation also applied principles of CBPR to value, foster, and balance the participation of all stakeholders.

5.2 COMMUNITY-BASED PARTICIPATORY RESEARCH (CBPR)

5.2.1 Defining CBPR

CBPR can be defined as "a collaborative approach to research that engages partners from a community…in all phases of the research process, with a shared goal of producing knowledge that will be translated into action or positive social change for the community," (Lantz et al., 2006, p. 239). The key difference that distinguishes CBPR from other methodologies is the equitable distribution of power (e.g., influence, decision making, ownership) among *all* stakeholders: whether it be the principal investigator (PI), policymakers, institutions, organizations, or community members, each participant group contributes their own unique expertise, which is recognized as equally valuable and powerful by all participants in the research process (Cornwall & Jewkes, 1995; Israel et al. 1998). Accordingly, CBPR complements efforts to address inequities that are the manifestations of power inequities (Israel et al., 2003).

5.2.2 The Principles of CBPR

Like the human security approach, CBPR has its own guiding principles, which were taken into account at varying degrees for this dissertation.

5.2.2.1 Acknowledge a "community" as a unit of shared identity

When selecting a community and identifying community members, the CBPR partners acknowledged the community and its members, including their at-risk adolescent population, would have a shared identity that bound them to one another as a unit. This shared identity would

include a shared history that shaped the circumstances for and experiences of violence for the community as a whole.

5.2.2.2 Build on strengths and resources within the community

The PI and partners considered key stakeholders --- their services to, presence in, and rapport with the selected community --- an invaluable strength and resource. A variety of stakeholders were identified and recruited with the intention that they could (1) enrich the exploration of community resilience against youth violence and (2) take their experiences gained from participating in the dissertation back to the selected community.

5.2.2.3 Facilitate a collaborative, equitable partnership in all phases of research, involving an empowering and power-sharing process that attends to social inequalities

All CBPR partners were involved in all phases of the research process. Depending on their expertise, each partner had an opportunity to take the lead in at least one aspect of the dissertation, as well as play a facilitating role. Regardless of the stakeholder's position of power in reality, under the context of the dissertation, all stakeholders were valued and treated as equals. For example, community members from Southside Belize City had the same role in interpreting and utilizing the data as the national policymakers from the Government of Belize. This shifted decision-making power to community members, who typically lack this degree of influence, in order to create a balance between the two stakeholders.

5.2.2.4 Foster co-learning and capacity building among all partners

To varying extents, the PI fostered co-learning and capacity building among all CBPR partners. For example, personnel from local partners were invited to observe and learn about any

part of the research process that was of interest to them. Most observations occurred during data collection, management, and analysis of the concept mapping method, which was novel for all personnel. Moreover, partners were involved in deciding how to utilize the findings to best serve the selected community, as well as their own partnerships.

5.2.2.5 Integrate and achieve a balance between knowledge generation and intervention for the mutual benefit of all partners

The dissertation was designed to be an opportunity for a diverse group of stakeholders to work together to explore, better understand, and make decisions on youth violence and its harmful effects. The PI was transparent that the work being conducted was for the purposes of her dissertation; however, she also expressed that the decisions she made in designing the dissertation were intended to also benefit partners. For example, the working theories (i.e., outputs of concept mapping) would inform partners about areas of opportunities that participants (including their beneficiaries) felt were important for building community resilience against youth violence and its harmful effects on adolescents, their families, and the community as a whole. Moreover, the working theories would inform partners from the health sector on the role of health in building community resilience against youth violence and its harmful effects on adolescent health, as well as perhaps the health of their families and/or community members.

5.2.2.6 Focus on the local relevance of public health problems and on ecological perspectives that attend to the multiple determinants of health

The dissertation purposely recruited a diverse group of participants who would represent the multiple environments with multiple factors (e.g., determinants of health) that influence youth violence, community resilience, and the health and wellbeing of adolescents.

5.2.2.7 Involve systems development using a cyclical and iterative process

During the research process, local partners were transparent about the limitations of their human resources, technology, standard operating procedures, and current systems. With this transparency, the PI was able to make certain modifications to accommodate some limitations (e.g., provide a paper-based alternative to participating online), as well as work with partners to adopt a new operating procedure that participants felt was beneficial to their professional work (e.g., having standard meetings to discuss services and issues with partners from multiple sectors and thus perspectives).

5.2.2.8 Disseminate results to all partners and involves them in the wider dissemination of results

The PI created an event where participant groups could disseminate their working theories to one another, as well as to a greater audience of CBPR partners and stakeholders. At the end of the event, all attendees (i.e., participants, CBPR partners, stakeholders, and the PI) had the opportunity to decide how and to whom the findings should be disseminated. For example, attendees expressed that it was critical for the finding to be disseminated to the greater community. Following this expression, attendees discussed the possibility of creating a book, booklet, or exhibit that presents the explanations of working theories into stories and the corresponding models of working theories into illustrations.

5.2.2.9 Involve a long-term process and commitment to sustainability

The PI engaged partners that are local, well-connected and already serving at-risk adolescents. In this way, local partners can share their experiences gained with their local networks and use their experiences gained to inform the services that they provide to at-risk adolescents,

their families, and their communities. For example, from the findings of the dissertation, participants realized that there was a need for better continuity among the various health services offered. In this way, no child would "slip through the cracks" and be left without the support that they need to achieve an acceptable standard of health and wellbeing.

5.2.3 The Rationale for Employing CBPR

The principles of CBPR represent the lessons learned in over two decades of research on health inequities. Every principle alone seeks to ensure, incrementally, a more equitable distribution of power among all partners. This is especially important when working with a diverse group of stakeholders from the same society, but different power hierarchies. For example, a national government policymaker exercises their power by making decisions that will influence the whole of society. In contrast, a community member's power may be limited to influencing their family members. A dissertation that recruits a national government policymaker and a community member needs to recognize the innate power differential between the two participants and shift the power towards an equilibrium point. By employing CBPR, the PI creates a scenario where the two participants exist with equal power: both have the same privilege to advocate for a focus on a public health problem that is important to them and their community; an intervention that will mutually benefit them and their community; and an opportunity to share their personal experiences and knowledge, while also learning and building their own capacities. Under this scenario, the power inequities that underlie health inequities are redressed. While the dissertation is finite in duration, it introduces long-term processes that can be sustained indefinitely, if desired, and demonstrates what can be achieved under the parameters of an equal partnership.

5.3 THE HUMAN SECURITY APPROACH AND CBPR

5.3.1 Reinforcement between the Human Security Approach and CBPR

An examination of the guiding principles of CBPR and those of HS (**Figure 3**) shows substantial areas of overlap between the two approaches. For example, CBPR Principle (3) and HS Principles (3) and (5) all promote the engagement and inclusion of all stakeholders in all phases of the process in order to empower marginalized communities to actively participate in addressing their own vulnerabilities and social inequalities; CBPR Principle (6) and HS Principle (4) both stress the importance of taking into account the local conditions of marginalized communities in order to contextualize the "causes of the causes" that place them at a greater risk for experiencing threats to health and human security; and CBPR Principle (5) and HS Principle (7) both emphasize a process of ensuring that all partners derive benefit from their respective participation.

Principles of CBPR (Israel et al., 2003)	**Principles of Human Security** (Korc et al., 2015)
1. Acknowledge a "community" as a unit of shared identity 2. Build on strengths and resources within the community 3. Facilitate a collaborative, equitable partnership in all phases of research, involving an empowering and power-sharing process that attends to social inequalities 4. Foster co-learning and capacity building among all partners 5. Integrate and achieve a balance between knowledge generation and intervention for the mutual benefit of all partners 6. Focus on the local relevance of public health problems and on ecological perspectives that attend to the multiple determinants of health 7. Involve systems development using a cyclical and iterative process 8. Disseminate results to all partners and involves them in the wider dissemination of results 9. Involve a long-term process and commitment to sustainability	1. Address the linkages among freedom from fear, freedom from want, and freedom to live in dignity 2. Focus on the ways in which people experience vulnerability in their daily lives and acknowledge that different threats feed off one another and thus need to be addressed in a comprehensive manner 3. Engage the most vulnerable population groups in all stages of programs to address their vulnerabilities, from the needs and resource assessment through the design and implementation to the monitoring and evaluation phases of activities 4. Understand the local-specific context and ensure that all decisions and interventions take that context into consideration. 5. Include all relevant sectors and actors in the planning, decision-making, and implementation processes 6. Focus on prevention to the extent possible 7. Create synergy between protection and empowerment actions

Figure 3. Side-by-Side Comparison of Principles from CBPR and the Human Security Approach

5.3.2 Added Value of Each Approach

In addition to the overlap between CBPR and human security principles, their approaches are distinct and each adds value to the dissertation. Of the remaining CBPR principles, arguably the

greatest added value comes from CBPR Principle (1) for two reasons: one, the presence of a community is an antecedent of community resilience (Heagele, 2016); and two, a sense of belonging, which may be supported by shared identity, has been proposed as a factor of community resilience (Frankenberger et al., 2013). Communities whose members perceive a greater sense of belonging may also have a greater degree of bonding social capital among community members. A greater degree of bonding social capital, which itself is a factor of community resilience, may serve as a facilitator for the communal management of collective assets --- a hallmark of community resilience (Frankenberger et al., 2013). Of the remaining human security principles, arguably the greatest added value comes from HS Principle (1) due to its explicit focus on freedoms. In combination, these freedoms cover the survival, livelihoods, and dignity of a community. While health approaches account for survival and livelihoods as SDH, few account for the idea of dignity --- being valued as worthy of respect. The emphasis on dignity may be particularly beneficial when working with marginalized populations as participants and working towards redressing power inequities that yield health inequities. Moreover, the overall application of the human security approach focuses on freedoms while championing for human rights, such as the fundamental human right to health.

6.0 METHODS

In order to explore factors of community resilience against gang violence and its harmful effects, *concept mapping* was utilized. Concept mapping is a structured, participatory method and methodology to organize ideas from a diverse group of stakeholders into a unified conceptualization, referred to as a *concept map* (Kane & Trochim, 2007). In addition to organizing ideas, the method allows for the rating of ideas on any set of values of interest (Trochim, 1989). Based on the unified conceptualization, concept mapping has an entire step dedicated to developing a working theory on how ideas are related to one another and how they work together to explain a phenomenon (Kane & Trochim, 2007).

6.1 AN OVERVIEW OF CONCEPT MAPPING

Traditionally, concept mapping involves six consecutive steps: preparation, generation, structuring, representation, interpretation, and utilization (Trochim, 1989). During *preparation*, relevant stakeholders are identified and recruited as participants; and the focus of the study is clearly articulated (Kane & Trochim, 2007). The next step is *generation*, where participants are presented with the study's focus statement and, in response, ideas are generated in a collective brainstorming activity (Kane & Trochim, 2007). During *structuring*, participants work independently to structure ideas through the techniques of rating and sorting (Kane & Trochim, 2007). With respect to *rating*, participants are asked to rate each idea on selected scales that relate to the focus of the study (Kane & Trochim, 2007). With respect to *sorting*, participants are asked

to sort each idea into categories that make sense to them (Kane & Trochim, 2007). During *representation*, the structuring of ideas on an individual level are analyzed and represented in a series of concept maps at the group level (Kane & Trochim, 2007). The next step is *interpretation*, where several maps are examined to decide upon the most meaningful conceptual groupings of ideas (Kane & Trochim, 2007). Lastly, during *utilization*, participants use rating data to discuss how to use the concept maps to affect change (Kane & Trochim, 2007).

6.2 THE ADVANTAGES OF CONCEPT MAPPING

Concept mapping has several advantages, as well as precedence for its use in studying factors of violence in public health. The method is "mixed" in that it integrates a series of qualitative and quantitative methods into a singular method (Burke, O'Campo, Peak, Gielen, McDonnell, & Trochim, 2005). As such, concept mapping retains the advantages of both: For example, the method collects rich data, like other qualitative methods, *and* analyzes relationships between and among data points, like other quantitative methods (Burke et al., 2005). Unlike other qualitative methods that collect either individual-level (e.g., interviews) or group-level (e.g., focus group discussions) data, concept mapping collects both individual- and group-level data (Trochim, 1989). Similar to the nominal group (Delbecq & Van de Ven, 1971) and Delphi (Hsu & Sandford, 2007) techniques, the final outputs of concept mapping are based on a consensus of individual-level data, representing the conceptualization of a diverse group of participants (Burke et al., 2005). Beyond these advantages, concept mapping is particularly well-suited to explore the proposed research questions since it is (1) an inductive process that is conducive for theory development and (2) the conceptualization is grounded in the lived experiences of participants, who are actively

involved in the analysis (e.g., interpretation, utilization) of study data, as well as in the dissemination of the study results (Trochim, 1989). Moreover, concept mapping has been used in public health research to explore factors of and their relationships to intimate partner violence (O'Campo, Burke, Peak, McDonnell, & Gielen, 2005), which, like gang violence, is a type of interpersonal violence.

7.0 THE CASE STUDY

In the first quarter of 2018, the PI had the opportunity to explore community resilience against youth violence in the PAHO Member State of Belize. In consultation with the PAHO Offices in Belize (PAHO Belize), the type of youth violence that was most relevant to the local context was gang violence. Accordingly, the PI modified the research questions to reflect this relevance: all instances of "youth violence" were replaced with "gang violence". With respect to identifying a community and its adolescent population, PAHO Belize collaborated with their close partner RESTORE Belize, who works with adolescents that are at a higher risk of becoming involved in gang violence or are already involved in gang violence. PAHO Belize and RESTORE Belize identified male adolescents from Southside Belize City as the most at-risk population for gang violence. The following describes a case study of a stakeholder-engaged exploration of community resilience against gang violence and its harmful effects on adolescents, their families, and their community of Southside Belize City, Belize.

7.1 THE CONTEXT

7.1.1 An Overview of Belize

7.1.1.1 Human development

The Human Development Index (HDI) was created to assess not only the economic conditions of a country, but also the quality of life enjoyed by its people (UNDP, 2018). For this

reason, the HDI is a composite measure of key dimensions of human development, including health (i.e., life expectancy at birth), education (i.e., expected years of schooling for children of school-entering age, mean years of schooling for adults 25 years old and older), and standard of living (i.e., gross national income [GNI][7] per capita). For purposes of assessment, such as monitoring trends in HDI over a specific time period, HDIs can be categorized into the following tiers: very high (≥ 0.800), high (0.799 – 0.700), medium (0.699 – 0.555), and low human development (< 0.555) (UNDP, 2018).

According to the latest data from the United Nations Development Program (UNDP), Belize has an HDI of 0.708, placing it in the high human development category and ranking it 106 among its 192 fellow Member States (2016). Notwithstanding, when inequality is taken into account, the country's human development profile changes substantially. Belize has an Inequality-adjusted Human Development Index (IHDI) of 0.550, which places the country in the lower end of the medium human development category (UNDP, 2016).

While the HDI and IHDI simplify key dimensions of human development, they capture only a portion of health, education, and standard of living for any country. In order to get a more complete overview, other indicators from each key dimension should be analyzed.

7.1.1.2 Health

In 2018, Belize spent approximately 6.2 percent of total GDP on health expenditures (UNDP, 2016). Life expectancy at birth is 70.6 years, which is slightly above the global average

[7] According to UNICEF, gross national income (GNI) is "the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad."

of 70.5 years (UNDP, 2016). The infant mortality rate (IMR) is 12.8 deaths per 1000 live births and the under-five mortality rate (U5MR) is 14.9 per 1000 live births; both IMR and U5MR are the second lowest in Central America (UNDP, 2016). Approximately 10 and 11 percent of the infant population lack immunization for measles and DPT (diphtheria, pertussis, and tetanus), respectively.

At a maternal mortality rate of 28 deaths per 100,000 live births, Belize is well below the average for Central America: 72.4 deaths per 100,000 live births (UNDP, 2016). The total fertility rate is 2.85 children born per woman, which is greater than the replacement fertility rate (2.1 children born per woman) (Craig, 1994; UNDP, 2016). The adolescent birth rate is 63.5 births per 1000 women 15-19 years old (UNDP, 2016). Antenatal care coverage (at least one visit) was at 97 percent in 2016; and 98.6 percent of births were attended to by skilled health personnel (UNDP, 2016). Approximately 51.4 percent of women 15-49 years old, who are married or in-union, use a method of contraception; where as, 22.2. percent of this population report having an unmet need for family planning (UNDP, 2016).

7.1.1.3 Education

Due to their colonial history, the education system in Belize has its roots in the British system (Leslie, 2016). There are eight years of primary school divided into two years of "infant" classes, followed by six years of "standards" (RESTORE Belize, 2014; United Nations Education, Scientific, and Cultural Organization [UNESCO], 2010). According to the Education Act of 1990, primary school is mandatory by law for children 5 – 14 years old (UNESCO, 2010). While there is no cost for admissions, there are indirect fees associated with attending school (RESTORE Belize, 2014). Secondary school is comprised of four "forms". At some schools, students can

complete two more years and become eligible to sit for the Cambridge Advanced examinations or earn an Associates of Arts degree (UNESCO, 2010).

In 2017, Belize spent approximately 7.4 percent of total GDP on education expenditures (UNDP, 2016). The expected years of schooling for children of school-entering age is 12.8 and the mean years of schooling for adults 25 years old and older is 10.5 (females = 10.5 years; males = 10.4 years) (UNDP, 2016). Only 73 percent of all primary school teachers are trained in education (UNDP, 2016). As of 2016, total net enrollment in primary school was 96 percent (female = 95 percent; males = 97 percent); and the primary completion rate was 106 percent (female = 106 percent; male = 105 percent) (UNESCO, 2010). Of the 376 school-aged children who were not enrolled in primary school, 312 (83 percent) of them were female while 64 (17 percent) of them were male (UNESCO, 2010). As of 2016, total net enrollment in secondary school was 72 percent (females = 74 percent; males = 71 percent) (UNESCO, 2010). It is estimated that 76.8 percent of the Belizean population 25 years old and older have at least some secondary education (females =78.9 percent; males = 78.4 percent) (UNDP, 2016).

7.1.1.4 Income and employment

In 2011, Belize had an average GNI per capita (PPP) of $7,166 (female = $5,689; male = $8,655) (UNDP, 2016). In 2017, over 62 percent of the population 15 years old and older were employed (UNDP, 2016). Of the total number of Belizeans who were employed, approximately 27 percent participated in employment that qualifies as vulnerable (e.g., informal work arrangements) (UNDP, 2016). The total unemployment rate (15 years old and older) was estimated at 7.6 percent (UNDP, 2016). The youth unemployment rate (15-24 years old) was 16.6 percent; and 22 percent of the youth population was neither in school nor employed (UNDP, 2016).

7.1.2 Current Status of Violence in Belize

7.1.2.1 Interpersonal violence

According to the Global Burden of Disease Study 2016 (GBD 2016), interpersonal violence ranked second among the top 10 causes of premature death, a +31.9 percent change in Years of Life Lost (YLLs) from 2005-2016, for all ages in the Belizean population. For the GBD 2016, data from Belize was grouped with data from ten other countries[8] that met the same criteria based on regional classifications, known trade partnerships, and socio-demographic indicators (Institute for Health Metrics and Evaluation [IHME], 2016). With respect to premature death attributable to interpersonal violence, Belize ranked first among its group at 1026.8 YYLs, which was reported as significantly higher relative to the group mean of 223.8 YYLs (IHME, 2016). Factoring in disability, interpersonal violence ranked third among the top 10 causes of premature death and disability, a greater than +30 percent change in Disability-Adjusted Life Years (DALYs) from 2005-2016, for all ages in the Belizean population (IHME, 2016). With respect to premature death and disability attributable to interpersonal violence, Belize ranked first among its group at 1080.9 DALYs, which was reported as significantly higher relative to the group mean of 267.3 DALYs (IHME, 2016).

[8] Bhutan, Bolivia, Federated States of Micronesia, Gabon, Kyrgyzstan, Morocco, Myanmar, Namibia, Swaziland, and Syria

7.1.2.2 Intentional homicide

According to the United Nations Office on Drug and Crime (UNODC), the latest data on the rate of intentional homicide[9] in Belize was 37.7 per 100,000 population, the third highest in Central America behind Honduras (93.2 per 100,000 population) and El Salvador (72.2 per 100,000 population) (United Nations Office on Drug and Crime [UNODC], 2011). When urbanization was taken into account, the rates of intentional homicide showed a different ranking. In a comparison of the homicide rates in the most populous city per country in Central America, Belize City at 105.1 per 100,000 population surpassed the rates of Tegucigalpa, Honduras (102.2 per 100,000 population) and San Salvador, El Salvador (89.9 per 100,000 population) (UNODC, 2011). One in every three intentional homicides in Belize was attributable to gangs or organized criminal groups (UNODC, 2011). In terms of the percentage of intentional homicides by sex, males accounted for 90 percent of the victims; where as, females accounted for only 10 percent (UNODC, 2011). This gender bias is consistent with UNODC data from Central America and the Caribbean, as well as the literature (Winton, 2005; Gayle, Mortis, Vasquez, Mossiah, Hewlett, & Amaya, 2010), which presents gang involvement, including victimization, as largely a male phenomenon.

7.1.2.3 Youth violence

According to the latest Global School-based Health Survey[10] (GSHS) for Belize, an average of 36.0 percent of students (n_{male} = 42.7 percent, 95-CI_{male}: (38.7 – 46.8); n_{female} = 29.7

[9] The UNODC defines intentional homicide as "unlawful death [or serious assault leading to death] purposefully inflicted on a person by another person."
[10] The GSHS collects data on health-related risk behaviors from a representative sample of 13 – 15 year olds who are enrolled in school.

percent, 95-CI_{female}: (26.0 – 33.6)) reported being in a physical fight one or more times during the past 12 months; and an average of 30.7 percent of students (n_{male} = 30.3 percent, 95-CI_{male}: (25.3 – 35.9); n_{female} = 31.1 percent, 95-CI_{female}: (26.0-36.8)) reported that they had been bullied on one or more days during the past 30 days (United States Department of Health and Human Services Centers for Disease Control and Prevention [CDC], 2011). While the Ministry of Health has the authority to add variables of interest to the GSHS, there has not been a single variable on gangs since the first implementation of the survey in Belize. Moreover, the most recent *Status Report on Violence Prevention in the Region of the Americas* (PAHO, 2014) recommends strengthening data collection efforts in gang violence in order to capture the true extent of youth violence and its harmful effects on adolescent health in LAC, including Belize.

7.1.3 The Origin of Gang Violence in Belize City

During World War II, the US Labor Department recruited men from Belize to fill vacated positions from the droves of US workers who had left to serve in the military. Recruitment was particularly appealing to the Garifuna ethnic group of Belize, who were economically dependent on male labor migration. After the end of the war, approximately half of these men, having gained economic security and formed diasporas across the country, decided to stay in the United States. With the prospects and means of laying down roots, many Garifuna men sent for their spouses to join them in their new life. (Miller Matthei & Smith, 2009)

7.1.3.1 Late-1940s and 1950s

Belize: While some spouses emigrated Belize with their children, most left them behind in the care of family. These childcare arrangements were temporary (typically one or two years) until

parents were suitably established in their new surroundings to send for their children. For the Garifuna families in Belize, caring for the children of migrant kin was something worthy of competition, as the advantages were irresistible: a social network in the United States, elevated social status in Belize, and a steady flow of cash remittances that were sufficient to support the entire family, not just the children left in their care. (Miller Matthei & Smith, 2009)

Over a period of time, cash remittances became more than just an advantage; they became an expectation. Since they were sufficient to support the entire family, there was no need for adults to *work* for money; they would simply *wait* for money to be sent to them (D. Singh, personal correspondence, March 23, 2018). For the children left behind in Belize, their parents would not only send them extra cash, but also expensive clothing and other material items that were exclusive to the United States (Miller Matthei & Smith, 2009). These items became highly coveted among the adolescent population: those that had them flaunted their exclusivity; and those that didn't have them were tempted to obtain them (D. Singh, personal correspondence, March 23, 2018).

7.1.3.2 1960s and mid-1970s

Los Angeles: The Garifuna diasporas of Los Angeles, California, is one of the most well-known transnational ties between Belize and the United States. In the 1960s and 1970s, economic conditions in Los Angeles were favorable for migrants: there were ample job opportunities for both men and women, plus employers had little concern for immigration status. The majority of Garifuna men found employment in high-wage manufacturing jobs; where as, most Garifuna women were employed with low-wage domestic services or non-skilled nursing jobs. (Miller Matthei & Smith, 2009)

Belize City: In 1961, Hurricane Hattie devastated the cays and costal cities of Belize, including the capital Belize City (Stoddart, 1963). In the immediate aftermath, officials in Belize

City declared martial law in response to the disaster (United Press International [UPI], 1961). It was estimated that 70-80 percent of the city's infrastructure had been damaged and anywhere between 10,000 to 15,000 residents of Belize City were left homeless (UPI, 1961). In the months that followed, Belizeans experiencing homelessness either remained in Belize City, were internally displaced to nearby villages, or emigrated as refugees (Leslie, 2016).

According to a report issued by the National Research Council of the National Academy of Sciences in Washington, DC, the destruction of marine life, land and vegetation, livestock, infrastructure, industries, natural economic resources, as well as human life, was catastrophic but inevitable given the increasing incidents of hurricanes to hit Belize (Stoddart, 1963). With this in mind, British Parliament decided to relocate rather than rebuild the capital (RESTORE Belize, 2014). To this end, government priorities and resources were directed towards constructing the new capital Belmopan, located approximately 48 miles inland from Belize City (RESTORE Belize, 2014; Google Maps, 2017).

By the early 1970s, government offices and businesses began relocating, leaving behind a city that remained largely in a state of catastrophe (RESTORE Belize, 2014). As a result, Belize City and its residents became dependent on foreign aid and humanitarian assistance (Gayle et al., 2010). To the many residents whose families had made Belize City their home over generations, relocation to Belmopan had little allure (D. Singh, personal correspondence, March 23, 2018). Nonetheless, the worsening economic and social conditions were intolerable and triggered another wave of migration (RESTORE Belize, 2014).

7.1.3.3 Late-1970s and 1980s

Los Angeles: By the late 1970s, Los Angeles began to experience the deindustrialization of its city. Plant closures of major companies, like General Motors and Bethlehem Steel, meant

the loss of high-wage manufacturing jobs that had sustained Garifuna families --- both in the United States and back in Belize. With the majority of families forced to rely on the low-wages of Garifuna women, cash remittances decreased substantially in amount and frequency (D. Singh, personal correspondence, March 23, 2018).

The economic relapse hit the neighborhood of South Central, Los Angeles --- home to a large Garifuna diaspora --- particularly hard. Declining economic conditions were followed by a rapid demographic shift, marked by the egress of whites and middle-class blacks and the ingress of immigrants, mostly from Mexico and Central America. This shift in demographics was accompanied by a rise in crime rates, especially those related to drugs and the notorious gangs Bloods and Crips. With crime rates on the rise, many Garifuna parents began to send their children back to relatives in Belize --- either as a precaution for their safety or as a punishment for their participation in drug and gang-related activities. (Miller Matthei & Smith, 2009)

Belize City: The waves of emigration in the 1960s and 1970s had lead to an exodus of able-bodied, employment-seeking adults, which bifurcated the demographics of Belize: at one extreme, there were many seniors and at the other extreme, there were many children, adolescents, and young people (Leslie, 2016). As a result, children and adolescents either lived with their grandparents, many of whom were ill-equipped to meet the demands of parenting, or some adolescents --- particularly those in Southside Belize City --- were left to fend for themselves (RESTORE Belize, 2014). At the same time, adolescents who had been caught participating in drug- and gang-related activities in Los Angeles were being sent back to Belize City. (Miller Matthei & Smith, 2009). The combination of self-fending adolescents, drug- and gang-involved adolescents, and high levels of poverty was ripe for the reemergence of the Bloods and Crips: Belizean Edition (Muhammad, 2015).

7.1.4 Gang Violence Prevention in Belize

7.1.4.1 Crimes Commission Report

By 1990, the first series of gang-related, violent incidents were reported in Belize City (RESTORE Belize, 2014). Following an investigation of these incidents, the 1992 Crimes Commission Report stressed the causes of gang violence and gang-related crime, as well as provided recommendations on the way forward (Muhammad, 2015). According to the report, causes included poverty, migration, "invasion of North American values" (p. 39), structural weaknesses in the police department, drug abuse, and the breakdown of the family unit. To address these causes, the report recommended a two-pronged solution that focused on improving law and order, as well as human development and the root causes of violence (RESTORE Belize, 2014).

7.1.4.2 Bird's Isle Declaration

In 1994, the director of the Youth Department issued the following statement:

> "In the wake of the recent rise in gang violence in Belize City, the Youth Department has announced that they will be making a renewed initiative to bring together rival gang members to discuss ways to prevent further violence and a revocation of a life of crime by young gang members… The Department is convinced that the incidents of violence in our streets by young people is only the tip of the iceberg of a deeper malady affecting the Belizean society. And that it will require more than punitive action against these young people to stop the spiral of violence which threatens the stability of the City," (Muhammad, 2015, p. 43).

The following year, 14 active gangs in Belize City, the Minister of National Security, and the Deputy Prime Minister signed the Bird's Isle Declaration, the first peace declaration which resolved to *stop gang violence, work to heal the wounds of rivalry, improve relations with the police, and improve chances of a fuller life* (Muhammad, 2015, p. 76).

7.1.4.3 Past gang violence prevention measures

During the years that followed the Bird's Isle Declaration, a number of violence prevention measures were introduced to former gang members and the at-risk adolescent population (Muhammad, 2015). Some of the more prominent programs included the Conscious Youth Development Program (established in 1995), a social reintegration program that provided former gang members with counseling, education, employment, and life-skills training; Youth Enhancement Academy (established in 1997), a rehabilitation-focused correctional program for first-time offenders; the National Youth Cadet Service Corps (established in 1999), a one-year residential program for at-risk adolescents and young adults that included boot camp, training in marketing skills, community service, integration back into the community, and counselling; and the Youth for the Future (established in 2002), which provided adolescents and young adults, who were not enrolled in school and were unemployed, with job training, violence reduction and conflict mediation services, health education and prevention services, as well as other auxiliary services (Muhammad, 2015). All four of these programs showed moderate success, but lacked the resources and political will necessary for sustainability (Muhammad, 2015).

7.1.4.4 Current gang violence prevention measures

In an attempt to reset their violence prevention efforts, the Government of Belize returned to the recommendations of the 1992 Crimes Commission Report. As a result, current violence

prevention measures in Belize are focused on law and order, as well as human development and the root causes of violence (RESTORE Belize, 2014).

Laws and policies: There are several laws relevant to firearms, as well as to youth violence and victims of violence. With respect to firearms, Belize enforces mandatory background checks; regulation on civilian access to hand guns, long guns, and automatic weapons; and carrying firearms in public (PAHO, 2014). With respect to youth violence, there are laws against weapons on school premises and gang membership (PAHO, 2014). At the sub-national level, there are some areas within Belize that provide victims of violence with legal representation (PAHO, 2014). Notably absent are any social (e.g., housing policies to de-concentrate poverty) or educational (e.g., incentives for at-risk adolescents with respect to academic achievement) policies (PAHO, 2014).

Human development and the root causes of violence: There are also several programs to complement laws on firearms, youth violence, and victims, as well as on human development and the root causes of violence. At the national level, there is a program to reduce civilian firearm possession and use; youth violence prevention programs (i.e., pre-school enrichment, life skills and social development training, mentoring, and after-school supervision); and victim services (e.g., child protection services) (PAHO, 2014). There are also several action plans that are relevant to different types of interpersonal violence, including RESTORE Belize, which is intended to address human development and the root causes of gang violence (PAHO, 2014; RESTORE Belize, 2018).

RESTORE Belize: Established in 2010, RESTORE Belize is a comprehensive action plan that focuses on threats to development, prosperity, and peace for the communities of Southside Belize City through three strategic pillars: Human Development, Economic Development, and

Democratic Governance (formally known as Citizen Security) (RESTORE Belize, 2014). Under these pillars, RESTORE Belize offers a package of interventions for vulnerable children and adolescents, who are at-risk for gang involvement: Beat a Pan, NOT a Man; Conflict Mediation Training Program; Early Warning System, I AM BELIZE Scholarship Program; Literacy and Numeracy; Mentorship Program; Peace in the Parks; Youth Violence Prevention Project; and the Metamorphosis Program (RESTORE Belize, 2018).

7.1.5 The Metamorphosis Program

Under the pillars of Human Development and Citizen Security, the Metamorphosis Program was created in response to the unique threats (e.g., gang violence) faced by male adolescents living in RESTORE Belize target communities (RESTORE Belize, 2014). As an amalgam of the life-course, gender-based, and socioecological perspectives, the Metamorphosis Program is predicated on the assumption that fortifying protective factors against unique threats within the adolescents' environment will build resilience, which will enable adolescents to make positive changes for themselves, their families, and their communities (RESTORE Belize, 2014). Accordingly, the objectives of the Metamorphosis Program are two-fold: (1) to foster resilience in male adolescents by promoting protective factors that can mitigate risk in their daily lives (i.e., building individual resilience); and (2) to provide caregivers of male adolescents with the knowledge and skills that they need to become effective parents (i.e., building family resilience) (RESTORE Belize, 2014).

Several activities were designed to achieve the program objectives, including a life-skills training program for male adolescents and a series of parenting education sessions for their caregivers (RESTORE Belize, 2014). The former is effective at reducing youth violence and the latter is effective at reducing child maltreatment, a risk factor for both experiencing and

perpetrating other types of violence, including youth violence (Wong & Wong, 2012; WHO, 2014). Furthermore, there is evidence to support life and social skills development as an EBI that builds individual resilience in adolescents (Lösel & Farrington, 2012; WHO, 2015) and parenting as a key factor in building family resilience (Walsh, 2002; Mackay, 2003).

A 2-year evaluation of the Metamorphosis Program pilot revealed moderate to significant improvements in behavior, academic performance, and social support for male adolescents; as well as, positive changes in family bonding and an increase in access to support services for both male adolescents and their caregivers (RESTORE Belize, 2014). Also documented in the evaluation were challenges and recommendations that imply the need for building resilience at other social ecological levels (e.g., community resilience) that will support the program's current efforts to build both individual and family resilience (RESTORE Belize, 2014).

7.1.6 Building a CBPR Partnership and Proposal

The building of a CBPR partnership for this dissertation began in the second quarter of 2016. At that time, the PI had two roles: she was studying as a doctoral student in the Department of Behavioral and Community Health Sciences (BCHS) at the University of Pittsburgh (PITT) Graduate School of Public Health (GSPH); and she was working as a consultant on Health and Human Security (HHS) for Dr. Marcelo Korc, Regional Advisor in Human Security and Sustainable Development, within the Special Program on Sustainable Development and Health Equity at PAHO/WHO Headquarters in Washington, DC.

On 11 May 2016, the Director of PAHO Dr. Carissa Etienne launched the Commission on Equity and Health Inequalities in the Region of the Americas to investigate how non-health factors influence health and contribute to health inequities and recommend actions to address these

factors. Complementary to the Commission's efforts, each PAHO technical area seized the opportunity to reorient their public health efforts towards health equity. For the technical area of Health and Human Security (HHS), this reorientation was driven by the positive relationship between human security and health --- specifically, the role that human insecurity plays in the manifestation of poor health outcomes, compounded by the disproportionate risk for human insecurity among subgroups of any given population.

Dr. Korc and his HHS technical team had been awarded funding by the United Nations Trust Fund for Human Security (UNTFHS) to build capacity of national and local public officers from select PAHO Member States in the relationship between health and human security. As part of the UNTFHS-funded project, the PI designed and co-instructed the 8-week virtual course *Health, Resilience, and Human Security* to public officers from the PAHO Member States of Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama in Fall 2016. Each Member State was required to select a population of interest, a challenge (with public health implications) that the population faces, and a national plan that seeks to address this challenge for the population. Belize (i.e., Team Belize) selected RESTORE Belize as their national plan that seeks to address gang violence for male adolescents in Southside Belize City. As such, it was as an instructor for this course that the PI met the National Policy Level (NPL) participants for this proposal, as well as became familiar with RESTORE Belize and its Metamorphosis Program.

Unanticipated scheduling conflicts forced Team Belize to drop the course after Week 4 of the HHS curriculum. That stated, PAHO Belize and the HHS technical team agreed to send the PI to Belize in order to complete the remainder of the HHS curriculum with Team Belize. With the limitations of virtual instruction lifted, Weeks 5-8 were revisited to maximize their applicability to

the real world selection of Team Belize (i.e., male adolescents from Southside Belize City, gang violence, and the RESTORE Belize Metamorphosis Program). Week 5 of the HHS curriculum guides students in combining their knowledge of and skills in human security (acquired in Weeks 2 and 3) with those in health (acquired in Week 4) through the concept of resilience. A recent evaluation of the RESTORE Belize Metamorphosis Program recommended building resilience at other social ecological levels, such as at the community level, to support the program's current efforts to build resilience at individual and family levels (RESTORE Belize, 2014).

As such, the PI saw an opportunity for Team Belize to explore community resilience within the context of the RESTORE Belize Metamorphosis Program. This exploration would not only build the capacity in health and human security for Team Belize, but also assist RESTORE Belize with recommendations for program improvement. Furthermore, the exploration would contribute to advancing public health research on community resilience.

On 5 May 2017, the PI presented a proposal for this dissertation to her Doctoral Committee, who represented expertise in CBPR, community health sciences, concept mapping, human security, international development, interpersonal violence, and LAC populations. Upon its approval, the PI worked with her academic advisor Dr. Jessica Burke to submit the proposal to the University of Pittsburgh Internal Review Board (IRB), the PAHO Ethics Review Board (ERC), and the *ad hoc* ethics committee from the Ministry of Health in Belize. Concurrently, the PI worked with PAHO Belize and RESTORE Belize to identify and recruit local partners. By the third quarter of 2017, the Ministry of Health in Belize had joined the CBPR partnership and the proposal had received support from the Ministries of Education and Human Development and Social Transformation. By the last quarter of 2017, the proposal had received ethics approval from

all three aforementioned entities; and on 20 February 2018, data collection for the dissertation began in Belize City.

7.2 PREPARATION

7.2.1 Identifying and Recruiting Stakeholders

Stakeholders were identified based on the social ecology of the male adolescent population in Southside Belize City. The CBPR partner RESTORE Belize, who has the most intimate knowledge of this population and who works on a daily basis with the communities of Southside Belize City, took the lead in stakeholder identification and recruitment. Using their experiences with the Metamorphosis Program as a guide, RESTORE Belize, PAHO Belize, and the PI identified a diverse group of stakeholders at every ecological level in order to obtain a comprehensive range of perspectives, from proximal to distal, of gang violence and its harmful effects on adolescents, their families, and the community.

7.2.1.1 Stakeholders at the individual level

In reality, the individual level corresponds with the intrapersonal dimension (its factors and system) of the SEM. Accordingly, stakeholders at the individual level would include adolescents whose personal constitution places them at an elevated risk for being involved in gang violence.

The PI reviewed the inclusion criteria for adolescents to participate in the RESTORE Belize Metamorphosis Program. Eligible adolescents met the following selection criteria:

- male sex,
- 12 – 14 years in age,
- enrolled in school (primary or secondary),
- exhibits behavior conflicts in the school environment,
- has low academic performance,
- is at risk of school dropout,
- belong to single mothers or blended families
- lives in a household with low socioeconomic status, and/or lives in a household that is exposed to crime and violence, and
- is a resident of Southside Belize City, within or bordering a designated Safe Zone established by RESTORE Belize (RESTORE Belize, 2014).

The PI determined that the inclusion criteria encompassed a sufficient quantity and quality of risk factors for youth violence, which includes gang violence, that the same sampling frame could be utilized for the dissertation.

According to an evaluation of the Metamorphosis Program (RESTORE Belize, 2014),

> "…there were some participants who indicated that their deep level of involvement in gang activity limited their ability to take advantage of the social support services they were offered through the Metamorphosis Program. For example, participants indicated that their participation in mainstream services would either put their lives at risk or put the lives of a family member or their service providers at risk," (p. 23) and "…some participants revealed to the service providers that in some cases their resistance to treatment and/or interventions was not because they did not want to participate. Rather, their refusal

of some services was a strategy for minimizing danger that could be directed at the service providers who, because they were unknown in the community, would become targets," (p. 27).

In consultation with our PAHO Offices in Belize and RESTORE Belize, it was agreed that the potential risk posed to adolescent males (and their caregivers) outweighed the potential benefits gained by having them participate in the dissertation (i.e., unfavorable risk-benefit ratio). As such, recruitment of adolescents (and their caregivers) was not pursued due to serious ethical concerns.

In order to best capture the lived experiences of eligible adolescents *without their participation*, the dissertation selectively recruited participants who represent the environments that influence adolescents of Southside Belize City at each social ecological level:

- individuals (excluding caregivers) who had **interpersonal** interactions with at-risk adolescents;
- individuals who work or live in the same **communities** of at-risk adolescents;
- individuals who represent **institutions** that directly or indirectly govern the daily conditions of at-risk adolescents; and
- individuals who make **policy** decisions that affect at-risk adolescents, their families, and their communities.

7.2.1.2 Stakeholders at the interpersonal level

In reality, the interpersonal level corresponds with the interpersonal dimension (its factors and system) of the SEM. Accordingly, stakeholders at the interpersonal level would include individuals with whom at-risk adolescents have intimate interpersonal relationships: friends and

individuals who take on a mentoring role (e.g., teachers, coaches, counsellors). In consultation with RESTORE Belize, the following stakeholders were identified for recruitment:

counsellors,

teachers, and

social workers (RESTORE Belize Metamorphosis Program).

7.2.1.3 Stakeholders at the community level

In reality, the community level corresponds with the community dimension (its factors and system) of the SEM. Accordingly, stakeholders at the community level would include individuals with whom at-risk adolescents have less intimate relationships: acquaintances, neighbors, classmates, community members, as well as their interactions with individuals who represent community-based services. In consultation with RESTORE Belize, the following stakeholders were identified for recruitment:

Conscious Youth Development Program

Youth and Community Transformation Project,

Gateway Youth Center,

The Princess Royal Belize Youth Hostel,

social workers (Ministry of Human Development[11]), and

community members.

[11] The Ministry of Human Development provides services at the community level through three different departments: Community Rehabilitation Department, Women and Family Support Department, and Department of Human Services.

7.2.1.4 Stakeholders at the institutional level

In reality, the institutional level corresponds with the institutional dimension (its factors and system) of the SEM. Accordingly, stakeholders at the institutional level would include individuals who represent institutions that govern the daily conditions of at-risk adolescents: education (e.g., schools), the economy (e.g., money), religion (e.g., churches), and local government (e.g., police departments, the courts, and the prison system). In consultation with RESTORE Belize, the following stakeholders were identified for recruitment:

RESTORE Belize Metamorphosis Program,

Mental Health Program,

Queen Street Baptist School

Education Support Services,

University of Belize (Social Work Department),

Belize Police Department,

Addressing Crime Together,

Community Policing,

Kolbe Foundation (Belize Central Prison),

The Belize Family Court,

Policy and Planning Unit, and

Community Rehabilitation Department.

7.2.1.5 Stakeholders at the policy level

In reality, the policy level corresponds with the political dimension (its factors and system) of the SEM. For the purposes of the dissertation, stakeholders at the policy level would include individuals who make policy decisions that affect at-risk adolescents, their families, and their

communities: senior officers from the Government of Belize. In consultation with RESTORE Belize and PAHO Belize, the following stakeholders were identified for recruitment:

Ministry of Economic Development,

Ministry of Education,

Ministry of Health,

Ministry of Human Development and Social Transformation,

Ministry of Labor and Local Government,

Ministry of Police and National Security,

Ministry of Youth, Sports, and Culture, as well as

RESTORE Belize, which is under the auspices of the Office of the Prime Minister.

7.2.2 Articulating the Focus

The focus of concept mapping was articulated in four research questions of the dissertation proposal, which was presented to the Doctoral Committee on 05 May 2017 for approval. During the presentation, Doctoral Committee Members provided feedback on the research questions, as well as the overall proposed focus. With revision, the focus of concept mapping was clearly articulated into the three research questions that are found in Section 3.0. Overall, the research questions seek to explore factors of community resilience against gang violence and its harmful effects on adolescents, their families, and the community as a whole. Within this frame, concept mapping will be used to identify factors of community resilience, rate their importance for building community resilience, illustrate the relationships between identified factors, as well as generate working theories on how factors work together to build community resilience. Moreover, each

research question will look at variations of the aforementioned between distal and proximal actors in order to capture a comprehensive array of perspectives.

7.3 GENERATION

7.3.1 Data Collection

The research activities involved in *generation* were designed to occur in-person during one 2-hour session, referred to as Session I: Generating a List of Needs. In separate sessions, one for each group, participants were presented with an introduction to community resilience, followed by the focus statement of the dissertation shown in **Figure 4**. In response, one list of needs was generated from each participant group in a collective brainstorming activity, which was audio recorded to capture the dynamic discussions that contextualized the data.

INTRODUCTION
A "resilient community" is one that can reduce, adapt to, or recover from adversities or negative experiences. While it is impossible for a community to be resilient against all adversities, it is possible for a community to build resilience against a very specific adversity that affects them. For example, RESTORE Belize works with the communities of Southside Belize City. While these communities face multiple adversities, RESTORE Belize's Metamorphosis Program specifically focuses on the adversity of gang violence and its harmful effects.

With this example in mind, let's generate a list of what communities (such as those in Southside Belize City) need in order to be resilient against gang violence and its harmful effects.

FOCUS STATEMENT
In order for communities to reduce, adapt to, or recover from gang violence and its harmful effects on adolescents, their families, and the community as a whole,
_____* is needed.

* The need can be a person or people, a program or service, a resource or item, a place, an action, a feeling, belief, or attitude, etc.

Figure 4. Introduction and Focus Statement for Generating a List of Needs

7.3.2 Data Management and Analysis

A transcript of the audio recording was created and open coded for "needs" that completed the focus statement. Open-coded needs were compared to needs that were listed in real time, as they were generated during Session I. Redundant needs were identified and their duplicates were removed; overlapping needs were consolidated to result in one final List of Needs, which was then shared with and verified by participants.

The data (i.e., needs) from verified lists were entered into the CS Global MAX ® platform. Redundant needs between the two final List of Needs were identified and their duplicates were removed; overlapping needs were consolidated and then both lists were collapsed into one final Master List of Needs. Collapsing input from both participant groups is a necessary methodological step in order to make comparisons between groups (Kane & Trochim, 2007).

7.4 STRUCTURING

7.4.1 Data Collection

The research activities involved in *structuring* occurred online through the CS Global MAX ® platform and were referred to as Session II: Rating and Sorting Needs. All participants worked independently at their own pace, over the course of one week, to rate and sort needs from the Master List of Needs. Needs were rated on importance using the scale shown in **Figure 5** and sorted into categories of similar themes using the instructions shown in **Figure 6**.

RATING INSTRUCTIONS	
Using the scale below (Vagias, 2006), please indicate how **important** each need is for communities to be able to *reduce*, *adapt to*, or *recover from* gang violence and its harmful effects on adolescents, their families, and the community as a whole.	
5 = extremely important	without this need, communities cannot reduce, adapt to, or recover from gang violence and its effects
4 = very important	without this need, it would be very difficult for communities to reduce, adapt to, or recover from gang violence and its effects
3 = important	without this need, it would be difficult for communities to reduce, adapt to, or recover from gang violence and its effects
2 = slightly important	communities do not need, but could benefit from having this need to reduce, adapt to, or recover from gang violence and its effects
1 = not at all important	communities do not need this need to reduce, adapt to, or recover from gang violence and its effects

Figure 5. Rating Scale on the Importance of Needs

SORTING INSTRUCTIONS

In this activity, you will sort needs according to your view of their meaning or theme.

To do this, you will need the following:

☐ 62 Sorting Cards ☐ paper clips ☐ Post-Its ☐ a pen or marker

---

In a previous task, participants identified a total of 62 needs that they believe are necessary for communities to BUILD UP RESILIENCE against gang violence and harmful effects. Each of the 62 Sorting Cards has one of these needs on it, as well as an identification number that was randomly assigned.

Step 1: Please read through the Sorting Cards to become familiar with the needs.

Step 2: Sort needs into piles in a way that best makes sense to you. Specifically, sort needs for how **similar in meaning or theme** they are to one another.

The only restrictions are the following:

- all needs **cannot** be put into a single pile
- all needs **cannot** be put into their own separate pile --- although a need may be grouped by itself **if it is unrelated to all other needs**
- **Do not** create piles such as "miscellaneous" or "other" that group together needs that are **not** similar in meaning or theme
- **Do not** create piles according to importance, priority, or quality --- you will rate needs on these characteristics during a different activity

Step 3: When you are done sorting all of the needs into piles, please paper clip each pile. (NOTE: People vary in how many piles they create. Usually 5 to 20 piles work well to organize this number of needs.)

Step 4: Give each pile a name that describes its theme or contents. Write the name of the pile on a Post-It. Then, tuck the Post-It underneath the paper clip, so that it stays in place.

Figure 6. Instructions for the Sorting of Needs

7.5 REPRESENTATION

7.5.1 Data Analysis

Proprietary functions of the CS Global MAX ® software, including multidimensional scaling and hierarchical cluster analysis, were used to analyze structuring data. Through these functions, multiple individual-level data were represented as a singular group-level data set (Kane & Trochim, 2007). This dissertation utilized the following representations to explore factors of community resilience against gang violence and its harmful effects as delineated by the research questions: one point map and multiple cluster maps.

7.5.1.1 Point map

Multidimensional scaling on individual-level sorting data from all participants resulted in one, group-level point map, referred to as the Point Map of Needs. As the name implies, this point map is a map of a distribution of points, where each point represents one need from the Master List of Needs and the distribution of points represents the relatedness of needs as a result of how they were sorted by all study participants. Points (i.e., needs) that are positioned closer together are considered to be more related to one another by participants (i.e., study participants sorted them within the same pile more frequently); where as, points that are positioned further away are considered to be less related to one another by participants (i.e., study participants sorted them within the same pile less frequently or not at all). Accompanying the point map is a measure of quality referred to as the *stress index*. The lower the stress index, the more accurately the 2-dimensional point map approximates the original 3-dimensional data input (Kane & Trochim, 2007).

7.5.1.2 Cluster maps

Hierarchical cluster analysis on data from the Point Map of Needs resulted in multiple cluster maps. Among all cluster maps, each one varies by the number of clusters. On any given cluster map, each cluster contains unique needs that represent how they were structured (i.e., sorted, labeled) by study participants. Cluster maps range from a 1-cluster solution, which contains all of the needs in one cluster, to an n-cluster solution (n = total number of needs), where each need is its own cluster.

Multiple cluster maps were examined in order to find the best cluster solution. A 1-cluster solution is not conceptually meaningful since the singular cluster contains multiple, perhaps even conflicting, themes. On the other extreme, an n-cluster solution is also not conceptually meaningful since there will be multiple clusters that share the same theme. Following this line of thought, the best cluster solution would be a cluster map where each of its clusters, regardless of the total number of clusters, represent one, unique theme. In this way, the needs represented in each cluster are unifying and conceptually meaningful.

By convention, representation starts with the analysis of an 8-cluster solution. Starting here, the selection of the best cluster solution was guided by the following question:

Does each cluster clearly represent one, unique theme?

- If the answer was "no" because any one cluster represented more than one theme, a greater cluster solution was analyzed to assess whether increasing the number of clusters resulted in a "yes" to the guided question.
- If the answer was "no" because more than one cluster represented the same theme, a lesser cluster solution was analyzed to assess whether decreasing the number of clusters resulted in a "yes" to the guided question.

When all clusters represented distinct themes, that cluster map was selected as the final solution, referred to as the Cluster Map of Needs.

7.6 INTERPRETATION

7.6.1 Data Verification

The research activities involved in *interpretation* occurred in-person during one 2-hour session. In separate sessions, one for each group, participants were presented with the Point Map of Needs and the Cluster Map of Needs, as well as a summary of the process, including representation and interpretation, taken to arrive at each of these outputs. After sufficient time to become familiar with the maps, participants were asked for feedback so as to verify the interpretation of the PI.

7.6.2 Data Collection and Analysis

After verification, participants were asked to work on an individual basis to answer the following two questions:

1. How do clusters relate to one another?
2. How do clusters work with each other to build community resilience against gang violence and its harmful effects?

After approximately 30 minutes, participants were asked to share their responses with the rest of the group. During the sharing process, participants were encouraged to analyze their responses:

What are the similarities? What are the differences? Based on their analysis, participants worked collectively to create one working theory that represents how the group as a whole would respond to the above questions. The final working theories (one from each participant group) were shared with partners and stakeholders for the purposes of utilization.

7.7 UTILIZATION

The research activities involved in *utilization* occurred in-person at a special event co-hosted by PAHO Belize and the PI. The purpose of the event was to convene study participants, partners, and key stakeholders; to disseminate and discuss the findings of the dissertation; and to decide how to use the concept maps to affect change (Kane & Trochim, 2007). At the event, attendees were presented with background information on the dissertation and then participated in a modified interpretation session in order to better prepare them to utilize the concept maps. Firstly, attendees received physical copies of the Point Map of Needs and Cluster Map of Needs, as well as a summary of the process taken to arrive at each of these outputs. They were then asked to work on an individual basis to answer the following two questions:

1. How do clusters relate to one another?
2. How do clusters work with each other to build community resilience against gang violence and its harmful effects?

Attendees worked for approximately 15 minutes. Secondly, the PI and study participants presented their respective working theories to the rest of the attendees. Each participant group took approximately 30 minutes. Thirdly, all attendees and study participants engaged in a 1-hour

discussion where attendees were able to compare and contrast their individual working theories to those of the study participants, and everyone in attendance was able to express at least one way they would like to see the working theories used to benefit the communities of Southside Belize City.

7.8 CODING

An iterative process of coding was used to qualitatively analyze the output of generation (i.e., the Master List of Needs) for factors of community resilience. The public health literature on community resilience, the concept of human security, and the Frankenberger et al. (2013) conceptual framework for community resilience were all utilized as sources from which codes were created *a priori*. The following factors of community resilience that have been identified in the public health literature were created into codes: place attachment, social capital, and social connectedness. From the concept of human security, all seven of its dimensions were created into codes: community, economic, environmental, food, health, personal, and political security. Lastly, codes were created from the following components of the Frankenberger et al. (2013) conceptual framework: community assets, community social dimensions, and areas of collective action.

Using the Master List of Needs, each individual need was analyzed in term of content and compared to the definitions of each code. An individual need could be assigned to more than one code, provided that it fit the definitions of the respective codes. As the PI reviewed and became familiar with the data, individual needs also emerged as promising factors of community resilience. Promising needs were researched and new codes were created. In an iterative fashion, each individual need from the Master List of Needs was analyzed again using an updated codebook.

Iterations continued until the data had been exhausted. The final codebook, containing all codes and their definitions, is available in **Appendices A – F**.

8.0 RESULTS

A total of 23 individuals participated in at least one of the concept mapping steps for this dissertation. **Figure 7** and **Figure 8** show an overview of participation by concept mapping steps for National Policy Level (NPL) and Local Institutional, Community, and Interpersonal Level (LICIL), respectively.

Participant Profiles			Concept Mapping Steps				
Source	Ecological Level	Position	Generation	Structuring		Interpretation	Utilization
				Sorting	Rating		
Ministry of Education	Policy	Education Officer	---	X	X	X	---
Ministry of Health	Policy	Deputy Director	X	X	X	X	X
Ministry of Human Development	Policy	Deputy Director	X	---	---	X	X
RESTORE Belize	Policy	National Coordinator	X	---	X	X	X
PAHO Belize	Policy	Advisor	---	---	---	---	X
PAHO Belize	Policy	Advisor	---	---	---	---	X
PAHO Belize	Policy	Advisor	---	---	---	---	X
United Nations Population Fund	Policy	*	---	---	---	---	X
		Total Number of Participants	3	2	3	4	7

Key: X = participated --- = did not participate
*Representative on behalf of Liaison Officer

Figure 7. Overview of Participation by Concept Mapping Steps for National Policy Level Participants

Participant Profiles			Concept Mapping Steps				
Source	Ecological Level	Position	Generation	Structuring		Interpretation	Utilization
				Sorting	Rating		
RESTORE Belize	Institutional	Director	---	X	X	---	X
Mental Health Program (MOH)	Institutional	Director	---	---	---	---	X
Community Rehabilitation Department	Institutional	Director	---	---	---	---	X
Queen Street Baptist School	Institutional	Principal	---	---	---	---	X
RESTORE Belize	Institutional	**	---	---	---	---	X
MHD	Community	Social Worker	X	X	X	X	---
MHD	Community	Social Worker	X	X	X	---	---
MHD	Community	Therapist	X	X	X	X	---
Private Practice	Community	Counsellor	---	X	X	X	---
Southside Belize City	Community	Resident	X	X	X	X	X
Southside Belize City	Community	Resident	X	X	X	X	---
Southside Belize City	Community	Resident	X	---	---	---	---
Southside Belize City	Community	Resident	X	---	---	---	---
RESTORE Belize	Interpersonal	Social Worker	X	X	X	X	X
RESTORE Belize	Interpersonal	MP Counsellor	---	X	X	---	X
Total Number of Participants			**8**	**9**	**9**	**6**	**8**

Key: X = participated --- = did not participate MP = Metamorphosis Program **Director of Communications
MHD = Ministry of Human Development MOH = Ministry of Health

Figure 8. Overview of Participation by Concept Mapping Steps for Local Institutional, Community, and Interpersonal Level Participants

8.1 FACTORS OF COMMUNITY RESILIENCE

A total of 11 individuals participated in generation. Three National Policy Level (NPL) participants, representing the Ministry of Health, Ministry of Human Development, and the RESTORE Belize Metamorphosis Program, participated collectively in person at the PAHO Offices in Belize City, Belize, on 20 February 2018. Eight Local Institutional, Community, and Interpersonal Level (LICIL) participants, consisting of social workers, a therapist, a counsellor, and community members, participated independently online through the CS Global MAX® platform between 05 March 2018 and 13 March 2018.

8.1.1 What Factors Do Communities Need in order to Reduce, Adapt to, or Recover from Gang Violence and its Harmful Effects on Adolescents, their Families, and the Community as a Whole?

8.1.1.1 Concept mapping

Generation resulted in the Master List of Needs (**Figure 9**), which contains the universe of needs that participants identified as playing a role in building community resilience against gang violence and its harmful effects. A total of 62 needs were generated by participants in response to the focus statement: In order for communities to reduce, adapt to, or recover from gang violence and its harmful effects on adolescents, their families, and the community as a whole, [FILL-IN-THE-BLANK] is needed. Of the 62 needs, 38 unique needs were generated by the National Policy Level (NPL) participants, 17 unique needs were generated by the Local Institutional, Community,

and Interpersonal Level (LICIL) participants, and five needs that were independently generated by both NPL and LICIL participant groups overlapped. The needs identified cover a variety of services (i.e., economic, educational, health, security, and social services); providers (i.e., police, truancy officers, childcare workers, government officials, university faculty, educators, mental health professionals, nurses, child development professionals, social workers, counsellors, the media); beneficiaries (i.e., children, adolescents, adults, parents, pregnant women) and settings (i.e., homes, schools, work places, neighborhoods).

No.	NEED
01	A curfew ♦
02	Childcare provided during parenting programs ♦
03	Policies and people (like truancy officers) to address or prevent further truancy (absence from school without good reason) ⊕
04	Media that highlights the 'positives' so that people feel that 'good deeds will get positive attention' ♦
05	Community mindedness (having your mind concerned with the community) ♦
06	Incentives for parents ◊
07	A belief that it 'pays to do the right thing' ◊
08	Community parenting ◊
09	Knowing your neighbors / neighbors knowing each other ◊
10	Investments (scholarships, more open posts, increase salaries) in trained counsellors ◊
11	School-based programs that ensure children have access to nutritional food & water ◊
12	Positive attitudes towards education & advancement ◊
13	Police presence in the community ♦
14	A system to monitor gun imports from neighboring countries ◊
15	Programs & places that can compete with gang safe houses & recruitment strategies ◊
16	Exposure to different extracurricular experiences (not just sports) for children ◊
17	Trust ♦
18	Programs or services that support working parents ◊
19	Responsible media coverage that informs community of violence & offers solutions ◊
20	Small business initiatives ♦
21	Neighbors taking care of/ helping neighbors ◊
22	Community involvement (all members of the community need to be involved) ♦
23	Job training programs for adults ◊
24	Prevention programs, like family planning ⊕
25	Public spaces (parks, sporting facilities) in the community for children to play ⊕
26	Support services for adolescents who are pregnant ◊
27	Adult literacy programs ◊
28	Early childhood stimulation programs ♦
29	Self-esteem, encouragement, and emotional support for children ◊
30	Gun control policies that regulate access to guns and ammunition ◊
31	Structured weekend activities ♦

Key: ◊ generated by National Policy Level (NPL) participants
♦ generated by Local Institutional, Community, and Interpersonal Level (LICIL) participants
⊕ need independently generated by both NPL and LICIL participant groups

Figure 9 (continued below)

No.	NEED
32	Programs that focus on early identification and intervention of child literacy issues ⊕
33	Free education with no hidden costs ◊
34	Respect for authority ♦
35	A value on “good” news ◊
36	Affordable programs and opportunities that keep children 'off the streets' all year round (afterschool and during the summer) ⊕
37	Programs or resources to help equip parents with the skills to address issues with & guide their children ◊
38	Positive feelings about oneself ◊
39	Opportunities for children to be creative and use their imagination ◊
40	Parental involvement with their children ♦
41	Opportunities for children to engage in outdoor activities in their own neighborhoods ◊
42	Subsidized daycare services ♦
43	Continuing education opportunities for pregnant teens/teen moms ◊
44	Spiritual activities ♦
45	Opportunities that provide options for children to leave the neighborhood ◊
46	Safe houses (where children can go and learn, study, use a computer, etc.) ◊
47	Programs, resources, and/or services that ensure households are able to meet children's basic needs ◊
48	Mental health services ◊
49	Policies that support child literacy and academic success ◊
50	Resources within the community ♦
51	Trained counsellors in schools ◊
52	Parenting support groups ♦
53	Long-term (versus short-term) investments ◊
54	Policies and procedures that ensure children get referred to mental health services ◊
55	Programs and/or services that allow for & encourage parent-child interactions ◊
56	Parenting programs ◊
57	Investments in mental health professionals ◊
58	Safe neighborhoods ◊
59	A value for education and advancement ◊
60	Building capacity of community resources ♦
61	A nurse at every primary school ◊
62	A sense of community ◊

Figure 9. Master List of Needs

8.1.1.2 Coding

No individual need on its own fit the definition of any of the codes in Appendix A. With respect to factors of community resilience that have been identified in the public health literature, coding resulted in 14 needs that fit the definitions of at least one of the following codes: place attachment, social capital, and social connectedness (**Figure 10**).

Factors of Community Resilience Identified in the Literature	Needs Identified in the Dissertation
Place attachment	
	• knowing your neighbors/ neighbors knowing each other (Need 9) • neighbors taking care of and/or helping neighbors (Need 21) • a sense of community (Need 62)
Social capital	
Overall	• trust (Need 17)
Bonding	• community parenting (Need 8) • parental involvement with their children (Need 40) • programs, services, or opportunities that allow for and encourage parent-child interactions (Need 55)
Bridging	• community involvement (Need 22) • parental support groups (Need 52)
Linking	• police presence in the community (Need 13) • respect for authority (Need 34)
Social Connectedness	
	• trust (Need 17) • neighbors taking care of and/or helping neighbors (Need 21) • a sense of community (Need 62)

Figure 10. Identified Needs that Support Factors of Community Resilience in the Public Health Literature

With respect to the concept of human security, coding resulted in 52 needs that fit the definitions of at least one dimension of human security, with the exception of political security (**Figure 11**).

Promising Factors of Community Resilience	Needs Identified in the Dissertation
Human Security	
Community	• community parenting (Need 8) • neighbors taking care of / helping neighbors (Need 21) • community involvement (Need 22) • parenting support groups (Need 52) • a sense of community (Need 62)
Economic	• policies and people to prevent further truancy (Need 3) • investments in trained counsellors (Need 10) • positive attitudes towards education and advancement (Need 12) • programs/services that support working parents (Need 18) • small business initiatives (Need 20) • job training programs for adults (Need 23) • support services for pregnant adolescents (Need 26) • adult literacy programs (Need 27) • early childhood stimulation programs (Need 28) • programs that focus on early identification and intervention of child literacy issues (Need 32) • free education with no hidden costs (Need 33) • subsidized daycare services (Need 42) • continuing education programs for pregnant adolescents/adolescent moms (Need 43) • safe houses (where children can go and learn, study, use a computer, etc.) (Need 46) • programs, resources, and services that ensure households are able to meet children's basic needs (Need 47) • policies that help support child literacy and academic success (Need 49) • trained counsellors in schools (Need 51) • long-term (versus short-term) investments (Need 53) • a value for education and advancement (Need 59)
Environmental	• safe neighborhoods (Need 58) • programs, resources, and services that ensure households are able to meet children's basic needs (Need 47)

Figure 11 (continued below)

Promising Factors of Community Resilience	Needs Identified in the Dissertation
Food	• school-based programs that ensure children have access to nutritional food and water (Need 11) • support services for pregnant adolescents (Need 26) • programs, resources, and services that ensure households are able to meet children's basic needs (Need 47) • trained counsellors in schools (Need 51)
Health	• prevention programs, like family planning (Need 24) • support services for pregnant adolescents (Need 26) • programs, resources, and services that ensure households are able to meet children's basic needs (Need 47) • mental health services (Need 48) • trained counsellors in schools (Need 51) • policies and procedures that ensure children get referred to the mental health services they need (Need 54) • investments in mental health professionals (Need 57) • a nurse at every primary school (Need 61)
Personal	• a curfew (Need 1) • policies and people to prevent further truancy (Need 3) • police presence in the community (Need 13) • a system to monitor gun imports from neighboring countries (Need 14) • responsible media coverage that informs the community of violence and offers solutions (Need 19) • support services for pregnant adolescents (Need 26) • gun control policies that regulate access to guns and ammunition (Need 30) • affordable programs and opportunities that keep children "off the streets" all year round (Need 36) • safe houses (where children can go and learn, study, use a computer, etc.) (Need 46) • mental health services (Need 48) • trained counsellors in schools (Need 51) • policies and procedures that ensure children get referred to the mental health services they need (Need 54) • investments in mental health professionals (Need 57) • safe neighborhoods (Need 58)

Figure 11. Identified Needs that Support Factors of Community Resilience in Human Security

The Master List of Needs also contains a number of factors of community resilience that are absent from the public health literature, but show promise as factors of community resilience.

These factors include a sense of community, qualities from the affective domain (e.g., attitudes, beliefs, emotions, feelings, motivation, perceptions, and values), and collective action (**Figure 12**).

Promising Factors of Community Resilience	Needs Identified in the Dissertation
A Sense of Community	
	• community mindedness (Need 5) • incentives for parents (Need 6) • knowing your neighbors/neighbors knowing each other (Need 9) • trust (Need 17) • neighbors taking care of / helping neighbors (Need 21) • community involvement (Need 22) • a sense of community (Need 62)
Affective Domain	
	• community mindedness (Need 5) • a belief that it "pays to do the right thing" (Need 7) • positive attitudes towards education and advancement (Need 12) • self-esteem, encouragement, and emotional support for children (Need 29) • a value on good news (Need 35) • positive feelings about oneself (Need 38) • a value for education and advancement (Need 59) • a sense of community (Need 62)
Collective Action	
	• [implementing] community parenting (Need 8) • [creating] programs, places, and services that can compete with gang safe houses and recruitment strategies (Need 15) • [creating] safe houses (where children can go and learn, study, use a computer, etc.) (Need 46) • [creating] safe neighborhoods (Need 58) • building capacity of community resources (Need 60)

Figure 12. Promising Factors of Community Resilience

8.2 IMPORTANCE OF FACTORS FOR BUILDING COMMUNITY RESILIENCE

A total of 12 individuals participated in the rating activity of structuring. Three NPL participants, representing the Ministry of Education, Ministry of Health, and the RESTORE Belize Metamorphosis Program, participated independently online through the CS Global MAX ® platform between 14 March 2018 and 20 March 2018. Nine LICIL participants, consisting of a director, social workers, a therapist, counsellors, and community members, participated independently online through the CS Global MAX® platform during the same time frame.

Structuring of the rating data resulted in over 740 ratings on how important needs are for communities to be able to reduce, adapt to, or recover from gang violence and its harmful effects on adolescents, their families, and the community as a whole. At the individual level, each participant rated each of the 62 needs from the Master List of Needs from 1 (not at all important) to 5 (extremely important), resulting in 744 individual importance ratings. While individual importance ratings range from 1 to 5, the most frequent rating (n=345, 46%) was a 5.00. At the group level, each need's individual importance ratings were averaged[12] by participant group, as well as collapsed into one All Participants group for a reference. The average importance ratings (AIRs) for all 62 needs range from 2.75 to 4.75, with the majority (n = 47; 76%) of the AIRs above a 4.00.

[12] Although ordinal in nature, Likert scale data was treated as continuous.

8.2.1 Are All Factors of Community Resilience Equally Important for Communities to be Able to Reduce, Adapt to, or Recover from Gang Violence and its Harmful Effects?

The study identified the following factors of community resilience that are present in the public health literature: place attachment, social capital (including the overall concept, as well as its bonding, bridging, and linking dimensions), and social connectedness. The AIRs for each of these factors per each participant group are displayed in **Table 1**. There are practically significant differences among place attachment, social capital, and social connectedness. Of the three factors, social capital was considered the most important factor (average importance rating [AIR] = 4.21) for a community to build resilience against gang violence and its harmful effects. When examining the dimensions of social capital, bonding social capital (AIR = 4.36) was considered more important than either bridging (AIR = 4.21) or linking (AIR = 4.00) social capital. Of the 62 needs identified by participants, the need with the highest AIR is an example of bonding social capital: with an AIR of 4.75, participants felt that without *parental involvement with their children* it would be very difficult to impossible for a community to reduce, adapt to, or recover from gang-violence and its harmful effects.

Table 1. Average Importance Ratings for Community Resilience Factors

Community Resilience Factors	Participants' Importance Ratings		
	All (n=12)	NPL (n=3)	LICIL (n=9)
Place Attachment	3.86	4.56	3.63
Social Capital	4.21	4.57	4.05
Bonding	4.36	4.67	4.15
Bridging	4.21	4.84	4.00
Linking	4.00	4.17	3.95
Social Connectedness	4.06	4.67	3.85

NPL: National Policy Level
LICIL: Local Institutional, Community, and Interpersonal Level

All community resilience factors were rated using a 5-point Likert scale on their importance (where 1 = not at all important and 5 = extremely important) for a community to be able to reduce, adapt to, or recover from gang violence and its harmful effects on adolescents, their families, and the community as a whole.

8.2.2 How Does Importance Vary by Participant Group?

The AIRs for each of the dimensions of social capital per each participant group are displayed in **Table 2**. There are practically significant differences among bonding, bridging, and linking social capital between participant groups. Following the consensus, both NPL and LICIL participants rated linking social capital (NPL: AIR = 4.17; LICIL: AIR = 3.95) as the least important of the three dimensions for a community to be resilient against gang violence and its harmful effects. However, LICIL participants rated bonding (AIR = 4.15) more important than bridging (3.95) social capital; where as, NPL participants rated bridging (AIR = 4.84) more important than bonding (AIR = 4.67) social capital.

Table 2. Average Importance Ratings of Social Capital Dimensions

Participants	Dimensions of Social Capital		
	Bonding	Bridging	Linking
NPL (n=3)	4.67	4.84	4.17
LICIL (n=9)	4.15	4.00	3.95

NPL: National Policy Level
LICIL: Local Institutional, Community, and Interpersonal Level

All community resilience factors were rated using a 5-point Likert scale on their importance, where 1 = not at all important) to 5 (extremely important) for a community to be able to reduce, adapt to, or recover from gang violence and its harmful effects on adolescents, their families, and the community as a whole.

8.3 RELATIONSHIPS AMONG FACTORS OF COMMUNITY RESILIENCE

A total of 11 individuals participated in the sorting activity of structuring. Two NPL participants, representing the Ministry of Education and Ministry of Health, participated independently online through the CS Global MAX ® platform between 14 March 2018 and 20 March 2018. Nine LICIL participants, consisting of a director, social workers, a therapist, counsellors, and community members, participated independently online through the CS Global MAX® platform during the same time frame as the NPL participants.

Representation of the sorting data resulted in a 7-cluster solution, based on a 62-point map with a stress index of 0.26 (reference value ≤ 0.36). The output from multidimensional scaling is illustrated by the Point Map of Needs (**Figure 13**). The output from hierarchical cluster analyses is illustrated by the Cluster Map of Needs (**Figure 14**), which shows that the following seven clusters best represent the sorting data:

Cluster 1: Physical Control

Cluster 2: Mental Health and Counseling

Cluster 3: Parental Support

Cluster 4: Programs

Cluster 5: Values

Cluster 6: Positive Communities

Cluster 7: Community Development

The label for each cluster describes the unique theme represented by each of the needs contained within that cluster. Labels were given by participants during the sorting activity of structuring. The Cluster Map of Needs Key (**Figure 15**) shows each need that is contained within each of the seven clusters.

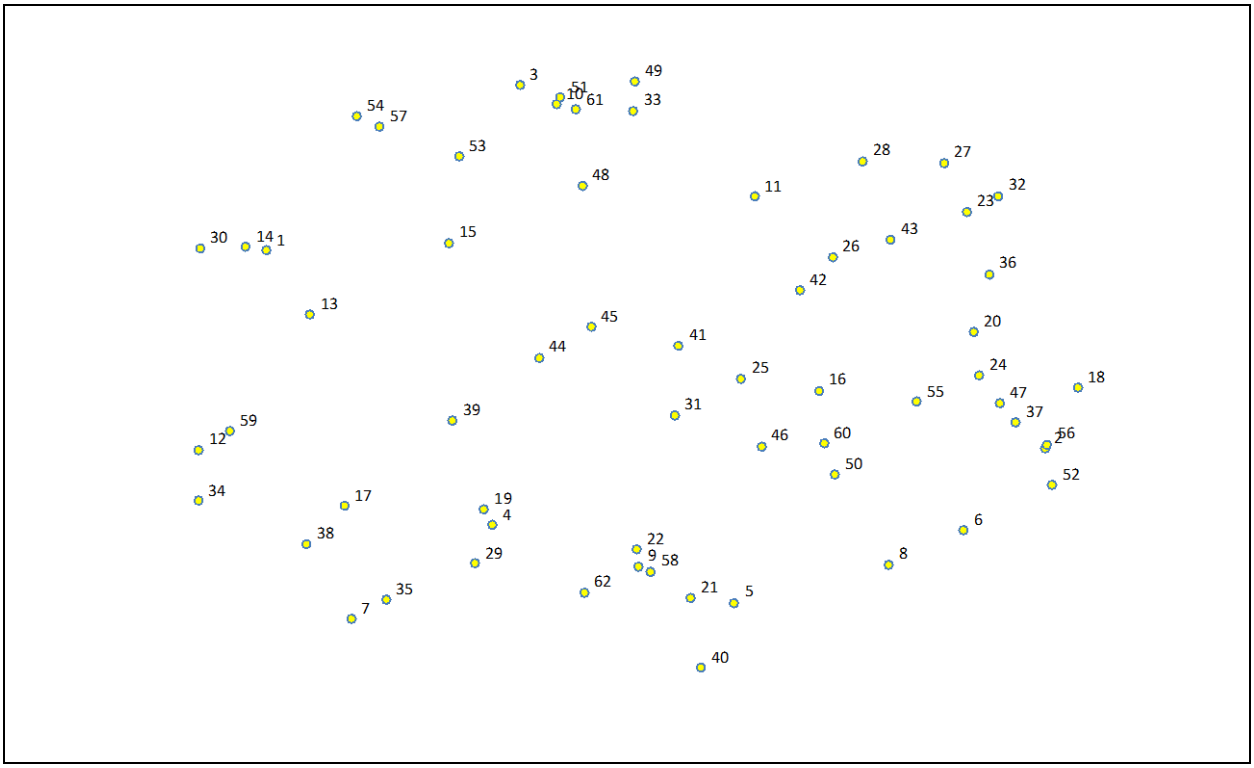


Figure 13. Point Map of Needs

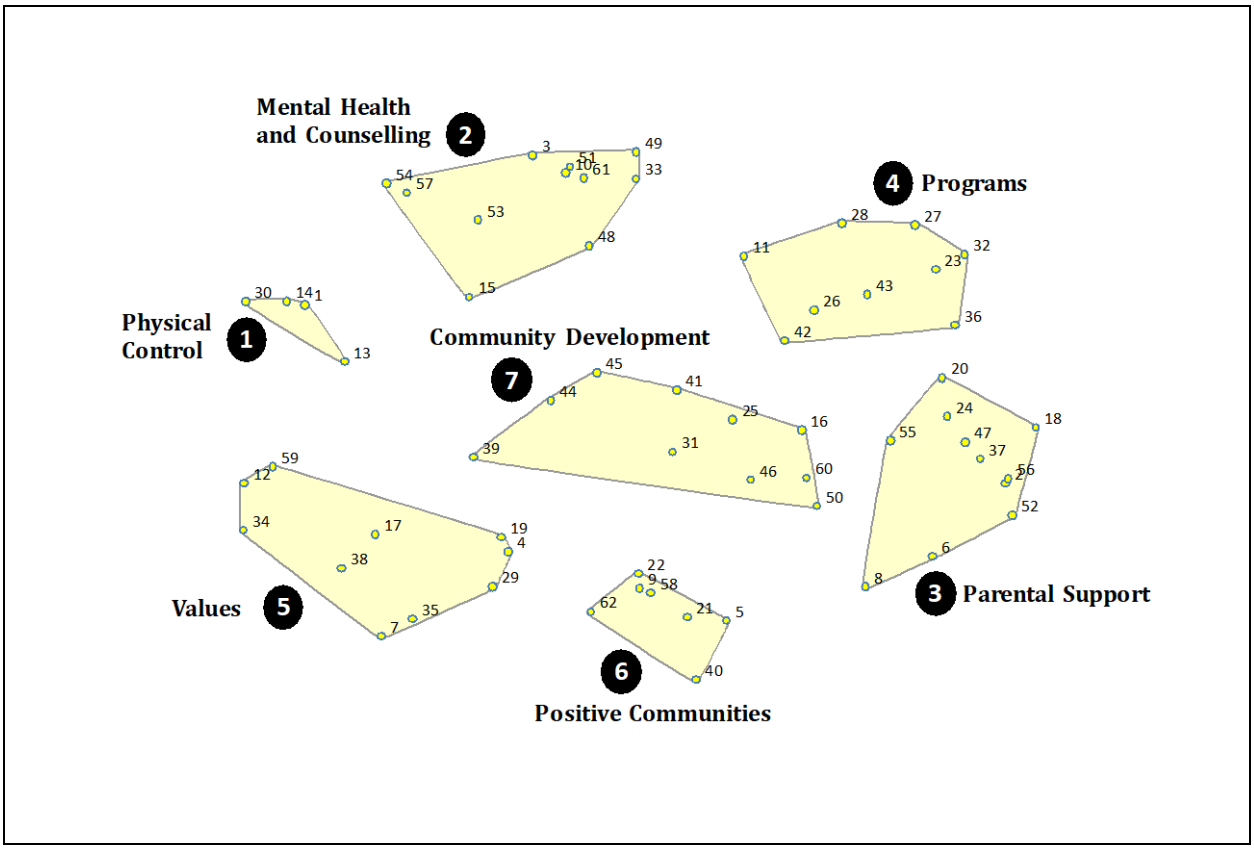


Figure 14. Cluster Map of Needs

Cluster No.: Cluster Label	[No.] Need
Cluster 1: Physical Control	[01] a curfew [13] police presence in the community [14] a system to monitor gun imports from neighboring countries [30] gun control policies that regulate access to guns and ammunition
Cluster 2: Mental Health and Counselling	[03] policies & people to help address or prevent further truancy [10] investments in trained counsellors [15] programs, places &/or services that can compete with gang safe houses and recruitment strategies [33] free education with no hidden costs [48] mental health services [49] policies that help support child literacy and academic success [51] trained counsellors in schools [53] long-term (versus short-term) investments [54] policies & procedures that ensure children get referred to the mental health services they need [57] investments in mental health professionals [61] a nurse at every primary school
Cluster 3: Parental Support	[06] incentives for parents [08] community parenting [18] programs or services that support working parents [20] small business initiatives [24] prevention programs, like family planning [37] programs or resources to help equip parents with the skills to address issues with and guide their children [47] programs, resources, &/or services that ensure households are able to meet children's basic needs [52] parenting support groups [55] programs, services, or opportunities that allow for and encourage parent-child interactions [56] parenting programs
Cluster 4: Programs	[11] school-based programs that ensure children have access to nutritional food and water [23] job training programs for adults (including parents) [26] support services for adolescents who are pregnant [27] adult literacy programs [28] early childhood stimulation programs [32] programs that focus on early identification and intervention of child literacy issues [36] affordable programs and opportunities that keep children "off the streets" all year round (afterschool & during the summer) [42] subsidized daycare services [43] continuing education opportunities for pregnant teens/teen moms

Figure 15 (continued below)

Cluster No.: Cluster Label	[No.] Need
Cluster 5: Values	[04] media that highlights the "positives" so that people feel that "good deeds will get you positive attention" [07] a belief that it "pays to do the right thing" [12] positive attitudes towards education and advancement [17] trust [19] responsible media coverage that informs the community of violence and offers solutions [29] self-esteem, encouragement, and emotional support for children [34] respect for authority [35] a value on "good" news [38] positive feelings about oneself [59] a value for education and advancement
Cluster 6: Positive Communities	[05] community mindedness (having your mind concerned with the community) [09] knowing your neighbors / neighbors knowing each other [21] neighbors taking care of &/or helping neighbors [22] community involvement (all members of the community need to be involved) [40] parental involvement with their children [58] safe neighborhoods [62] a sense of community
Cluster 7: Community Development	[16] exposure to different extracurricular experiences (not just sports) for children [25] public spaces (parks, sporting facilities, swimming pools) in the community for children to play [31] structured weekend activities [39] opportunities for children to be creative and use their imagination [41] opportunities for children to engage in outdoor activities in their own neighborhoods [44] spiritual activities [45] opportunities that provide options for children to leave the neighborhood [46] safe houses (where children can go learn, study, use a computer, etc.) [50] resources within the community [60] building capacity of community resources

Figure 15. Cluster Map of Needs Key

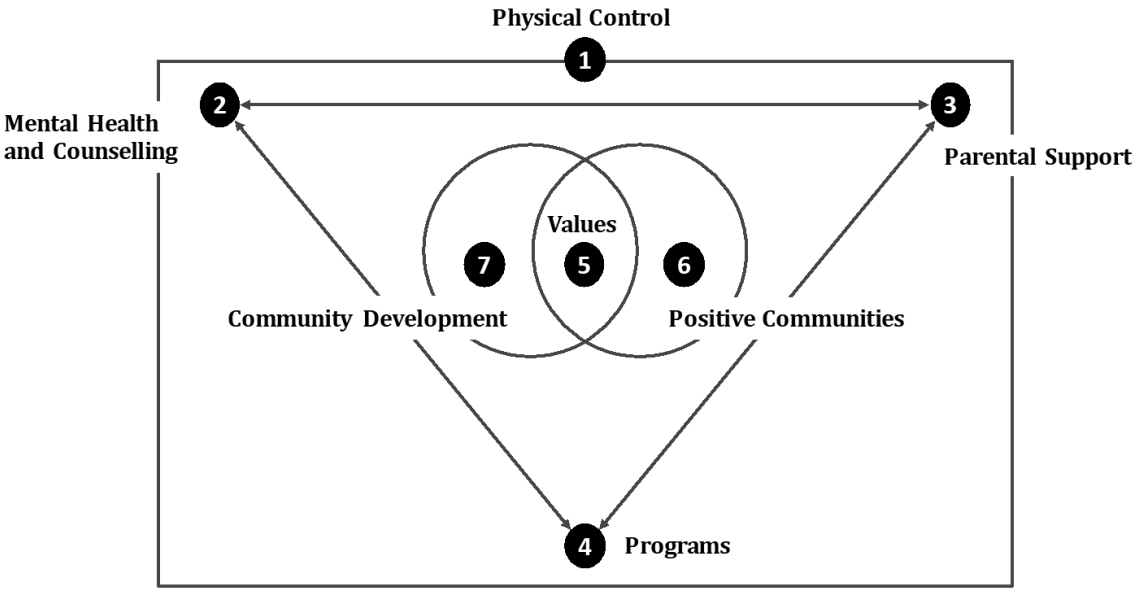
8.3.1 How Do Factors Relate to One Another and Work Together to Build Community Resilience against Gang Violence and its Harmful Effects on Adolescents, Families, and Community Members?

A total of 10 individuals participated in interpretation. Four National Policy Level (NPL) participants, representing the Ministry of Education, Ministry of Health, Ministry of Human Development, and the RESTORE Belize Metamorphosis Program, participated both

independently and collectively in person at the PAHO Offices in Belize City, Belize, on 26 March 2018. Six Local Institutional, Community, and Interpersonal Level (LICIL) participants, consisting of social workers, a therapist, a counsellor, and community members, participated both independently and collectively in person at the PAHO Offices in Belize City, Belize, on 23 March 2018.

Interpretation of The Cluster Map of Needs resulted in two final working theories, one from each of the participant groups, that explain how study participants conceptualize the relationships among the seven clusters, as well as how clusters work together to build resilience against gang violence and its harmful effects on adolescents, their families, and the community as a whole. The final working theories from NPL and LICIL participants are displayed in **Figure 16** and **Figure 17,** respectively. Each working theory includes a model accompanied by an explanation. The models illustrate how factors relate to one another, while the explanation communicates how they work together to build community resilience against gang violence and its harmful effects on adolescents, their families, and the community as a whole.

Model:

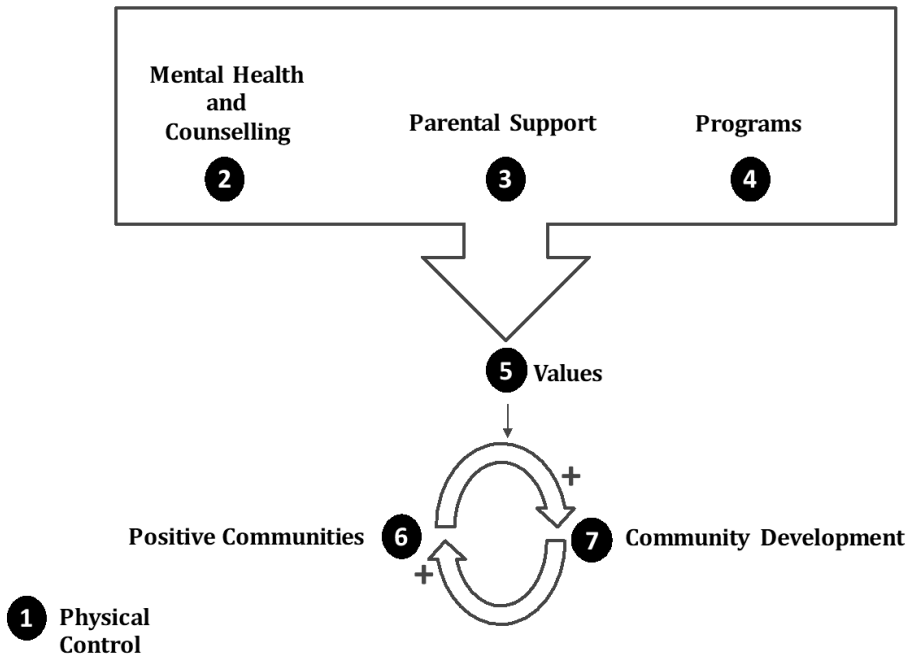


Explanation:
"If a person feels safe (Cluster 1), then that person will feel free to participate in his/her community. As persons and families go about their daily lives, they are assisted by mental health and counseling (Cluster 2), parental support (Cluster 3), and programs (Cluster 4) that allow them --- give them the tools that they need --- to participate in their communities. Through this assistance, families learn and adopt values (Cluster 5) and their participation contributes to both positive communities (Cluster 6) and community development (Cluster 7). Communities that have good values, that are considered "positive", and that are developed are resilient and have the defense necessary to reduce, adapt to, or recover from gang violence and its harmful effects."

--- NPL Participants

Figure 16. Working Theory on Community Resilience against Gang Violence and its Harmful Effects by National Policy Level Participants

Model:



Explanation:
"It all starts with the parents. Mental health and counseling (Cluster 2), parental support (Cluster 3), and programs (Cluster 4) are the foundations that assist parents in going about their daily lives. This foundation introduces parents to positive values (Cluster 5) that are necessary for them to participate in and contribute to their communities. Once parents are equipped with positive values, they will create positive communities (Cluster 6) and contribute to their community's development (Cluster 7). Communities that are considered "positive" and that are developed are resilient and have the defense necessary to reduce, adapt to, or recover from gang violence and its harmful effects."

--- LICIL Participants

Figure 17. Working Theory on Community Resilience against Gang Violence and its Harmful Effects by Local Institutional, Community, and Interpersonal Level Participants

8.3.2 How Do Relationships and Working Theories Vary by Participant Group?

A total of 15 individuals participated in utilization in person at the Belize Biltmore Plaza in Belize City, Belize, on 28 March 2018. Of the total participants, seven were National Policy Level (NPL)

participants (representing the Ministry of Health, Ministry of Human Development, the RESTORE Belize Metamorphosis Program, PAHO Belize, and the United Nations Population Fund) and eight were Local Institutional, Community, and Interpersonal Level (LICIL) participants (consisting of four directors, a social worker, a counsellor, a school principal and a community member).

Part of utilization resulted in a consensus among NPL and LICIL participants on the variations between the two working theories. A comparison of the models in Figure 16 and Figure 17 shows a slight variation in the positioning of Values (Cluster 5) and an opposition in the conceptualization of Physical Control (Cluster 1). With respect to Values, NPL participants positioned the cluster in the center of a Venn diagram, representing the overlap of Positive Communities (Cluster 6) with Community Development (Cluster 7); where as, LICIL participants positioned Values as a precursor to both Clusters 6 and 7. With respect to Physical Control, NPL participants utilized it to set the boundaries within which to present the NPL model; where as, LICIL participants positioned the cluster in the bottom left-hand corner, devoid of any relationship to the other six clusters. Consequently, the corresponding explanation for the LICIL story does not include Physical Control.

9.0 DISCUSSION

The following discussions are from the position of the PI, who spent six weeks peering through an ethnographic lens to better understand gang violence and community resilience within the context of the Belizean culture. As such, her interpretation of the data, which reflect the lived experiences of the participants, was determined by her positionality (Merriam, Johnson-Bailey, Lee, Kee, Ntseane, & Muhamad, 2001) as an outsider, an etic actor. This determination was based on her cultural identity, including her race (white), ethnicity (Hispanic), sex (woman), gender (female), sexual orientation (bisexual), education (graduate level), livelihood (professional), and citizenship (United States). Recognizing that her cultural identity is distinct from the cultural identity of the participants (i.e., the source of data), the PI's positionality should be taken into account when considering each sub-section that follows.

In addition to positionality, power should also be taken into account (Merriam et al., 2001). Employing the CBPR approach for the dissertation created a circumstance, under which all stakeholders had equal decision-making power with respect to research activities. By doing so, this circumstance shifted the natural dynamics of stakeholders temporarily and demonstrated what *could be* accomplished when partners allowed themselves to be guided by equity-seeking principles. Nevertheless, the following discussions recognize that data was collected, analyzed, and disseminated under power dynamics that were different from those that existed during pre-dissertation reality.

9.1 FACTORS OF COMMUNITY RESILIENCE

9.1.1 How Do Factors of Community Resilience That Were Identified through the Dissertation Compare to Those That Have Been Identified in the Public Health Literature?

9.1.1.1 Place attachment

While *place attachment* was not explicitly identified as a need, a related concept --- *a sense of community* --- was identified within the context of place (i.e., a neighborhood). In the seminal article *A Sense of Community: A Definition and Theory*, McMillan and Chavis (1986) define a sense of community as "… [a] feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together," (p. 9). As part of its review of related research, the article presents a study from Riger and Lavrakas (1981) that examined a sense of community as reflected in neighborhood attachment. Investigators found two distinct but correlated factors; one of which, labeled *social bonding*, included items such as *feeling a part of the neighborhood* and *the ability to identify neighbors* (Riger & Lavrakas, 1981).

Participants identified *a sense of community*, *neighbors taking care of and/or helping neighbors*, and *knowing your neighbors/ neighbors knowing each other* as needs that would help communities reduce, adapt to, and recover from gang violence and its harmful effects. Neighbors helping each other fits a sense of community as defined by McMillan and Chavis (1986). Neighbors who are willing to take care of each other's needs (e.g., feeding a sick neighbor) is an indication that neighbors have feelings of attachment to one another which underlie feelings of mattering to one another. In this case, the attachment is not place-based, but rather person-based. Knowing your neighbors fits a sense of community as studied by Riger and Lavrakas (1981).

Specifically, this need overlaps with an item of social bonding (i.e., the ability to identify neighbors). Other items of social bonding, such as feeling part of the neighborhood, also indicate feelings of attachment. However, in this case, it is not clear whether or not the attachment is place- or person-based.

While a review of the public health literature revealed *place* attachment as a factor of community resilience, the results of this study uncovered *person* attachment as a factor that communities need in order to build resilience against gang violence and its harmful effects. This finding suggests that the broader idea of attachment --- feelings of attachment to the community, whether they be place- or person-based --- is a factor of community resilience.

9.1.1.2 Social connectedness

While the concept of social connectedness was not identified in its entirety, participants did identify dimensions of *collective efficacy*, a necessary component of social connectedness. Collective efficacy refers to a community's capacity to achieve common goals (Cagney et al., 2016). According to Cagney et al. (2016), it is comprised of two dimensions: *social cohesion* (a sense of trust and solidarity among community members) and *informal social control* (the likelihood that community members would be willing to act on each other's behalf).

During generation, participants identified *trust*, *a sense of community*, and *neighbors taking care of and/or helping neighbors* as needs that would help communities reduce, adapt to, and recover from gang violence and its harmful effects. Trust is contained in, but does not fully encompass, the definition of social cohesion; solidarity is required as well. With respect to this requirement, a sense of community includes a commitment of community members to be together in order to meet their needs (i.e., solidarity) (McMillan & Chavis, 1986). Lastly, neighbors taking

care of or helping neighbors is an example of community members acting on behalf of one another and thus is a representation of informal social control.

During interpretation, both participant groups independently recognized the relationship among these needs in their respective stories. The narrations for the NPL and the LICIL stories explain that values (Cluster 5; Need 17 = trust) contribute to developing their communities and making their communities positive (Cluster 6; Need 21 = neighbors taking care of and/or helping neighbors, Need 62 = a sense of community). Furthermore, both narrations continue to explain that communities that are positive and developed are resilient against gang violence and its harmful effects. These findings are consistent with the public health literature on social connectedness and community resilience, which has shown that members of communities with higher social connectedness are more likely to perceive that their community is resilient (Cagney et al., 2016).

9.1.1.3 Social capital

Several needs were identified that represent the overall concept of social capital, as well as its dimensions: bonding, bridging, and linking social capital. Putnam (1995) defined social capital as "the social organization of networks…that facilitate coordination and cooperation for mutual benefit," (p. 67). Defined in this way, some scholars argue that the overall concept of social capital is too broad to be useful as an analytical tool (Kawachi et al., 2004; Poortinga, 2012). Accordingly, social scientists now parse social capital into three different dimensions, which vary in the organization of social networks, as well as the strength of their connections within, between, or across networks (Poortinga 2012).

With respect to social capital, participants identified *trust*; *community parenting*; *parental involvement with their children*; *programs, services, or opportunities that allow for and encourage parent-child interactions*; *parental support groups*; *community involvement*; *police presence in the*

community; and *respect for authority* as needs that would help communities reduce, adapt to, and recover from gang violence and its harmful effects.

Overall social capital: Trust among community members is believed to facilitate mutual cooperation and collective action (Putnam, 1995) and has been used as a proxy for the overall concept of social capital in the public health literature (Kawachi et al., 1997; Poortinga, 2012; Aldrich & Meyer, 2014).

Bonding social capital: Community *parenting*, *opportunities for parent-child interactions*, and *parental involvement with their children* focus on strengthening the intimate connections that are characteristic of bonding social capital (Poortinga, 2012). Szreter and Woolcock (2004) describe bonding social capital as "inward-looking" connections (i.e., bonds) that reinforce a shared identity among members within a social network. Since bonds occur among individuals who are emotionally close (e.g., family and friends), they are tight connections that provide a base for social cohesion and support (Hurlbert et al., 2000; Adler & Kwon, 2002). For example, community parenting relies upon trusting relationships and solidarity (i.e., social cohesion) between parents and parental surrogates in the community. As such, community parenting is an opportunity for non-existing bonds to be developed or existing bonds to be strengthened. This being true, participants sorted these needs into different clusters, suggesting that participants regarded needs as thematically different from one another.

Bridging social capital: Parental *support groups* and *community involvement* allow individuals to expand their social networks beyond family and friends, a characteristic of bridging social capital. Szreter and Woolcock (2004) describe bridging social capital as "outward-looking" connections (i.e., bridges) that span across social groups. Since bridges are formed among individuals who differ to some degree in shared identities, they are a source of diversity in the

form of novel information and resources that may prove helpful to individuals (Aldrich & Meyer, 2014). For example, parental support groups are an opportunity for parents from different social networks to exchange their experiences in parenting with one another. Since each parent's participation is colored by his or her own identity, this exchange provides the entire support group with a diverse source of parenting styles and skills, as well as support. This being true, participants sorted needs into different clusters, suggesting that participants regarded these needs as thematically different from one another.

Linking social capital: Police *presence in the community* and *respect for authority* exemplify the connections between citizens and those in power that characterize linking social capital. Szreter and Woolcock (2004) describe linking social capital as connections (i.e., links) that cross authority gradients. As such, links serve as a mechanism for community members to mobilize authoritative or political resources and power (Aldrich & Meyer, 2014). For example, police presence in the community increases the proximity and thus accessibility of local authorities (actors who provide protection) and community members (actors who receive protection). Increased accessibility, overtime, allows for trusting relationships and respect to be established between the police and community. These relationships may evolve into a partnership based on reciprocity, where the police view community members as an ally and the community views the police as a resource --- a community asset that can be mobilized for collective action. This being true, participants sorted needs in different clusters, suggesting that participants regarded both needs as thematically different from one another.

Social capital as a resource: According to the community resilience framework proposed by Frankenberger et al. (2013), social capital is not just a community resource, but an important community asset that increases the community's capacity for collective action. While *resources*

in the community and *building capacity of community resources* were identified by participants as needs, they were provided in the context of financial capital (e.g., job training, small business initiatives), not social capital. This suggests that participants do not regard (or perhaps regard, but do not value) social capital as a community resource; or that participants do not regard or value social capital as a resource whose capacity is capable or worthy of being developed.

Facilitators of social capital: Community *mindedness* was also identified as a need that would help communities reduce, adapt to, and recover from gang violence and its harmful effects. Although not a proxy or dimension of social capital, community mindedness may facilitate efforts to build social capital. Stallwitz (2012) defines community-mindedness as a complex social phenomenon that includes an attitude that is both communal and caring. An individual who cares about his or her community is more likely to become involved in community activities. Since these activities provide an opportunity to form and build social bonds, bridges, and links, community-mindedness can be considered a facilitator of social capital.

9.1.2 How Do the Factors of Community Resilience That Were Identified through the Dissertation Contrast to Those That Have Been Identified in the Public Health Literature?

Of the needs that were identified through the dissertation as factors of community resilience, there was one single need and several combinations of needs that are absent from the public health literature. Whether on its own or in combination with one another, these needs are either related to factors of community resilience that are present in the public health literature or have been identified as factors of community resilience in the literature of other disciplines. The singular need, *a sense of community*, encompasses aspects of place attachment, social connectedness, and social capital; where as, the combinations of needs represent dimensions from the concept of

human security, qualities from the affective domain (e.g., attitudes, beliefs, emotions, feelings, motivation, perceptions, and values), and collective action.

9.1.2.1 A sense of community

While some elements of a sense of community (e.g., attachment) have been identified as factors of community resilience in the public health literature, the overall concept has not. Revisiting *A Sense of Community: A Definition and Theory*, McMillan and Chavis (1986) utilized four elements to define this concept. The first element, *membership*, is the feeling of belonging --- that an individual has earned the right to be a member through his or her investment to the community. *Influence*, the second element, is the feeling of mattering --- that the community matters to its members, and that members matter to each other and to the community as a whole. The third element, *integration and fulfillment of needs*, is the feeling of reciprocity --- that community members will have their needs met or receive some benefit through their membership (i.e., investment) to the community. Lastly, *shared emotional connection*, the fourth element, is the feeling of connectivity --- that community members have (in the present) and will have (in the future) a shared identity that binds them emotionally.

The findings of this study provide support for proposing a sense of community as a factor of community resilience. Specifically, the elements of a sense of community could be considered the highest expression of social connectedness with reinforcement by social capital. For example, through participation in efforts to build resilience, community members form social bonds and bridges with each other (social capital). Over time, these social connections foster feelings of belonging to the community, as well as to fellow community members (membership). Since community members feel attached to each other and to their community, they invest in each other's welfare, including their security (e.g., exposure to gangs), health, and wellbeing (e.g., exposure to

gang-related violence and its harmful effects on physical and mental health). In doing so, they reach a level of trust and solidarity (social cohesion) where community members feel that they matter to each other and to the community as a whole (influence). Based on this meaningfulness, community members feel willing to act on each other's behalf (informal social control) and begin to work together --- by managing communal assets for collective actions (e.g., community parenting, community policing) --- to meet each other's needs (integration and fulfillment of needs). This fulfillment of needs shapes the perception of community members on their capacity to achieve common goals (e.g., reduce exposures to gangs, recover from gang-related violence) that will not only meet the health needs of the community (e.g., reduce anxiety, depression, and suicidal ideation), but also improve the social conditions for health for all community members (collective efficacy).

9.1.2.2 Human security

With the exception of political security, all dimensions of human security were represented by a combination of needs. Given the relationship between human security and resilience, it is not surprising that 52 of the 62 needs (84%) represent at least one dimension of the concept. What was somewhat surprising is that more needs fit economic security (n = 19) than personal security (n = 14). By definition, personal security ensures protection from interpersonal violence, such as gang violence. Accordingly, one might postulate that what a community needs to reduce, adapt to, or recover from gang violence and its harmful effects would primarily be people, programs, services, resources, or items that were related to enhancing personal security. The fact that economic security slightly outweighed personal security may reflect the belief that economic development and prosperity are a stronger deterrent for gang recruitment and operations, which

are sustained by the lure of financial rewards. Notwithstanding, this finding supports the concept of human security as a factor of community resilience against gang violence and its harmful effects.

9.1.2.3 Affective domain

Many of the needs that fit the affective domain would qualify as a community social dimension, according to Frankenberger et al. (2013). To reiterate, community social dimensions are described as the qualities of a community that guide how its members collectively manage their communal assets in an equitable and sustainable way (Frankenberger et al., 2013). These qualities exist as attitudes, beliefs, emotions, feelings, motivation, perceptions, and values. A community who values social justice and believes that health is a fundamental human right as social dimensions would likely distribute their communal assets in a way that directly addresses inequities in resources, which could indirectly address inequities in health.

9.1.2.4 Collective action

The most notable contrast with respect to collective action is that the public health literature on community resilience is heavily focused on collective action against acute adversities, such as natural disasters and epidemics. Due to this focus, collective action has mainly taken the form of disaster preparedness and emergency response, which rely on linking community members to the resources or services that they need in order to reduce, adapt to, or recover from such an adversity. As mentioned in Section 2.4.1.1, case studies indicate that disasters incite a greater urgency that likely drives community mobilization more efficiently than non-disasters (Norris et al., 2008; Frankenberger et al., 2013). Accordingly, community mobilization for non-disasters (i.e., chronic adversities), such as gang violence, will not only look different in terms of collective action, but will also require a different quality and/or quantity of community social dimensions: a sense of

community is likely the driver of community mobilization under these circumstances. This being true, collective action against chronic adversities would rely on bonding more so than linking social capital.

9.2 IMPORTANCE OF FACTORS FOR BUILDING COMMUNITY RESILIENCE

9.2.1 Are All Factors Equally Important for Communities to be Able to Reduce, Adapt to, or Recover from Gang Violence and its Harmful Effects?

Needs that were identified through the dissertation as factors of community resilience had varied average importance ratings (AIRs), suggesting that participants at the group-level perceived some factors more important than others for communities to be able to reduce, adapt to, or recover from gang violence and its harmful effects. Perceptions ranged from important (*without this need, it would be difficult for communities to reduce, adapt to, or recover from gang violence and its effects*) to extremely important (*without this need, communities cannot reduce, adapt to, or recover from gang violence and its effects*); the majority of needs (n = 47; 76%) had AIRs above a 4.00, meaning that participants on average felt that *without the need it would be very difficult to impossible for a community to reduce, adapt to, or recover from gang-violence and its harmful effects*.

While the overall concept of social capital is consistently regarded as a factor of community resilience in the public health literature, the descending importance of its dimensions --- from bonding to bridging to linking social capital --- is a notable finding in that it runs counter to current research trends. A review of the literature shows that the majority of studies on community

resilience focus on linking social capital (Flores, 2017). Specifically, in the public health literature, this dimension of social capital has been conceptualized in all models and frameworks on community resilience (Landau, 2010; Wells, Tang, Lizaola, Jones, Brown, Stayton, Williams, Chandra, Eisenman, Fogleman, & Plough, 2013; O'Sullivan, Kuziemsky, Corneil, Lemyre, & Franco, 2014; Kreisberg, Thomas, Valley, Newell, Janes, & Little, 2016); operationalized into the limited number of tools to measure community resilience (Gilk, Eisenman, Donatello, Afifi, Stajura, Prelip, Smmartinova, & Martel, 2014); and has been used as a proxy for the overall concept of social capital in interventions designed to build community resilience (Rosenfeld, Etkind, Grasso, Adams, & Rothholz, 2011; Hansen-Nord, Kjaerulf, Almendarez, Morales Rodas, & Castro, 2016). In contrast, research in either bonding or bridging social capital has been limited to conceptualizations of community resilience (Landau, 2010; O'Sullivan, Kuziemsky, Corneil, Lemyre, & Franco, 2014) and two toolkits (Davis, Cook, & Cohen, 2005; Landau, 2010). That stated, the findings of this study on the different levels of importance among the dimensions of social capital *with respect to community resilience against chronic adversities*, such as gang violence, suggest that future research should consider shifting its attention to bonding and bridging social capital as key factors.

9.2.2 Hoes Does Importance Vary between Distal and Proximal Perspectives?

With respect to bonding and bridging social capital, there is variation in their order of importance: NPL participants considered bridging to be more important than bonding social capital; where as, the opposite was true for LICIL participants. This consideration may indicate that those who are directly exposed to and affected by gang violence and its harmful effects, like community members and other participants in the LICIL group, value a social network with tight, inward-seeking

connections as more important than one with loose, outward-seeking connections with respect to being able to reduce, adapt to, or recover from gang-related adversities. Nevertheless, this variation does not change the aforementioned suggestion that future research should shift its attention away from linking social capital and towards developing a body of evidence on its bonding and bridging counterparts.

9.3 COMMUNITY RESILIENCE RELATIONSHIPS AND WORKING THEORIES

9.3.1 How Do the Factors of Community Resilience that Were Identified through the Dissertation Relate to One Another and Work Together to Build Community Resilience against Gang Violence and its Harmful Effects on Adolescents, Families, and Community Members?

9.3.1.1 People-centeredness is the favored approach

Both participant groups believe that working theories should be viewed from the perspective of people (i.e., a person, parents, families). This belief adheres to the *people-centered* key characteristic of the human security approach, which places people at the core of all activities and supports "the essential building blocks" of their survival, livelihood, and dignity. Arguably, the greatest advantage of people-centeredness is that it empowers the individual, family, or community to identify their own vulnerabilities --- drawing from their own values, needs, vulnerabilities, assets, aspirations, and lived experiences --- to ensure that no one is left behind.

A community resilience framework would consider values, needs, vulnerabilities, assets, and aspirations --- as well as other components --- as part of a community's capacity for collective

action. Revisiting the conceptual framework for community resilience proposed by Frankenberger et al. (2013), *community capacity for collective action* incorporates *community assets* (e.g., social capital), *community social dimensions* (e.g., diversity, inclusion, values, aspirations), and *areas of collective action* (e.g., conflict management). Together these capacities arm communities with the tools that they need in order to build resilience against a specific threat to health and human security --- or with "… the defense necessary to reduce, adapt to, or recover from gang violence and its harmful effects," (per both NPL and LICIL explanations).

9.3.1.2 Essential building blocks are the foundation

As previously mentioned, both participant groups believe that the clusters Mental Health and Counseling (Cluster 2), Parental Support (Cluster 3), and Programs (Cluster 4) form the foundation for community resilience. This foundation provides the "essential building blocks" of survival, livelihood, and dignity through the provision of community, economic, food, and health security. For example, support groups (Need 52, Cluster 3) afford parents with an opportunity to receive benefits from being a part of a group --- a community of concerned parents who want to improve their relationship with their children --- and thus enhances their community security; small business initiatives (Need 20, Cluster 3) give all community members a means to improve their economic security; establishing programs that ensure children have access to nutritional food and water (Need 11, Cluster 4) improves food security for these children; and having a nurse at every primary school (Need 61, Cluster 2) enhances the health security of all primary school students. In total, almost half of the needs identified in this dissertation are contained in these foundational clusters, suggesting that human security plays a significant role in the building of community resilience.

As a complement to the human security perspective, community resilience frameworks include mechanisms to *leverage community assets in a collective manner* so as to provide the essential building blocks (i.e., dimensions of human security) to those who lack them at an individual, family, or household level. Assets themselves are defined as capital that allows community members to not only meet their basic needs, but also secure their livelihoods (Frankenberger et al., 2013). Revisiting the conceptual framework for community resilience proposed by Frankenberger et al. (2013), livelihood security includes financial capital, human capital, natural capital, physical capital, political capital, and social capital. Moreover, a recent review of community resilience in the public health literature yielded a number of models and frameworks with varying elements; however, social capital was an important element that was conserved among all conceptualizations. This particular asset should appeal to plans, programs, or policies (like the RESTORE Belize Metamorphosis Program) who seek to improve health outcomes in their beneficiaries, since there is a well-established body of work to support the positive association between social capital and health outcomes (Kawachi et al., 2004; Phelan, Link, & Tehranifar, 2010).

9.3.1.3 Positive communities and community development are the goals

According to both participant groups, the aforementioned foundational clusters are precursors to Values (Cluster 5), Positive Communities (Cluster 6), and Community Development (Cluster 7). Specifically, NPL and LICIL participants believe that the needs identified in the Mental Health and Counseling, Parental Support, and Programs clusters provide community members with the possibility to learn, practice, and adopt the needs sorted into the Values cluster. In turn, practicing and adopting "values" (i.e., qualities of the affective domain) within their communities was expressed by participants to be the means by which community members are

able to contribute to their community's positivity and development. To this end, NPL and LICIL participant groups uphold that Positive Communities and Community Development work together as a defense against gang violence and its harmful effects on adolescence, their families, and the community as a whole. In a collective voice, participants and attendees concur that realizing the positive community-community development feedback loop is the goal that communities and their allied stakeholders should strive toward.

Through a human security lens, this feedback loop may be regarded as a vehicle for human development and fulfillment. Human security operates under the assumption that guaranteeing community security, economic security, environmental security, food security, health security, personal security, and political security guarantees the freedom to live in dignity, the freedom from fear, and the freedom from want; which, in turn, protects a person's vital core and ultimately enhances his or her human fulfillment (UNTFHS, 2016). Both NPL and LICIL working theories thread these assumptions throughout their explanations and thus offer a concrete opportunity to observe and examine human security for communities, like those of Southside Belize City, who are vulnerable due to gang violence.

Bolstering this offer, the explanations leading up to and including the positive community-community development feedback loop are also consistent with a community resilience framework. Revisiting a community's *capacity for collective action*, the needs that were identified under the clusters of Mental Health and Counseling, Parental Support, and Programs provide the capital (i.e., *community assets*) for communities to collectively manage and leverage in their favor; where as, those that were identified under the cluster Values provide the chance for community members to learn, practice, and adopt the characteristics (i.e., *community social dimensions*) necessary for them to collectively manage their capital for the common good. In general, both

community assets and community social dimensions work together to achieve different *areas of collective action*. Specifically, in the case of the NPL and LICIL working theories, areas of collective action include activities that foster positivity and community development, as defined by the needs sorted within those two clusters.

9.3.2 How Do Relationships and Working Theories Vary Between Distal and Proximal Perspectives?

The one remarkable difference between distal (i.e., NPL working theory) and proximal (i.e., LICIL working theory) perspectives is their opposed conceptualization of Cluster 1: Physical Control. According to NPL participants, a person must feel safe in order to feel free to participate in his or her community. Believing safety to be a perquisite for community participation, NPL participants utilized Physical Control to set the boundaries within which to present their model. Since needs identified within this cluster are those that enhance the personal security dimension of human security, NPL participants expressed that community members and police should work hand-in-hand as partners to ensure that all persons within the community feel safe in their everyday lives. Along with this expression, they recognized that this partnership will require trust.

In stark contrast, LICIL participants refused to consider Cluster 1: Physical Control and its needs within the context of building resilience against gang violence and its harmful effects. When probed about what underlay the refusal, LICIL participants were initially reticent, but eventually concluded that they, as a group, felt that the needs in Cluster 1 did not relate in an obvious way to the other clusters: Mental Health and Counselling, Parental Support, Programs, Values, Positive Communities, and Community Development. As such, it was agreed to have Physical Control stand on its own, off to the side, in the LICIL model.

Informal conversations with LICIL participants, as well as community members of Belize City, revealed a general lack of trust in the police among communities. This lack of trust in police was cited as a reason that community members do not report criminal activity and known criminal actors. Furthermore, when community members feel that they cannot go to the police to resolve issues of personal security, there becomes a vacuum for law and order. At the moment, this vacuum is filled by gangs through a phenomena referred to by Belizeans as "street justice". As a result, a lack of trust in the police not only isolates the community from a critical asset and ally in building resilience against gang violence, but also sustains gang activity by legitimizing the role of gangs in the communities of Southside Belize City and allowing them to fill a need that was once the responsibility of the State.

9.3.3 How Do Relationships and Working Theories Compare and Contrast with Those Identified in the Public Health Literature?

In comparison to the conceptualizations of community resilience identified in the public health literature, both NPL and LICIL working theories are likewise anchored by at least one dimension of social capital (i.e., bonding, bridging, or linking). Specifically, both working theories present the same foundation for community resilience that consists of policies, programs, or services that build bonding (e.g., *opportunities that allow for and encourage parent-child interactions*), bridging (e.g., *parenting support groups*), and linking (e.g., *mental health services*) social capital for community members.

In contrast to the conceptualizations of community resilience identified in the public health literature, both NPL and LICIL working theories explicitly assign health to part of the foundation of community resilience. Specifically, this foundation consists of policies, programs, and services

that improve health security and equity. For example, *providing a nurse at every primary school* would increase access to primary health care for all school-aged children --- regardless of their family's economic means to pay for healthcare. Moreover, according to both working theories, obtaining health security (as well as other dimensions of human security) allows community members to participate in and contribute to their communities.

9.4 A PROPOSED CONCEPTUAL FRAMEWORK FOR COMMUNITY RESILIENCE AGAINST GANG VIOLENCE AND ITS HARMFUL EFFECTS ON ADOLESCENTS, FAMILIES, AND COMMUNITIES

The findings of this dissertation support the conceptual framework for community resilience developed by Frankenberger et al. (2013). Although proposed within the context of food security, this dissertation suggests that its application to health security, specifically the factors and process of community resilience that enhance health security, may be an appropriate tool for examining community resilience against chronic adversities, such as gang violence.

When looking at factors of community resilience, the dissertation identified the multidimensional concept of human security as a foundation for community resilience. This foundation provides the "essential building blocks" of survival, livelihood, and dignity through the provision of community, economic, environmental, food, health, personal, and political security (Area I). Once a community achieves a certain level of human security, its community members are able to focus on strengthening their capacities for collective action: community assets, community social dimensions, areas of collective action (Frankenberger, 2013). The strengthening of community assets and social dimensions is facilitated by a sense of community, which is

achieved by reinforcing attachment, social capital, and social connectedness (Area II). In turn, these factors of community resilience will result in collective efficacy and community empowerment specific to achieving the goals outlined under the areas of collective action that are important for community members (Area III). In the dissertation, areas of collective action included creating a positive community (e.g., a community where neighbors know each other, take care of each other, and are concerned with and involved in the community) and bolstering community development (e.g., building capacity of community resources and using community assets to develop opportunities for children to thrive).

9.5 LIMITATIONS AND STRENGTHS

9.5.1 Limitations

Although this dissertation contributed to filling knowledge gaps in the current public health literature on community resilience, there are some notable limitations.

Firstly, while there were ethical issues that precluded the participation of adolescents and their families, the dissertation recruitment strategy was designed to represent the multiple actors within the multiple environments that have influence on the health behaviors of both adolescents and their families. That stated, future work should consider using trusted institutions (e.g., school, church) to involve at-risk adolescents and their caregivers. For example, the arts-based method Visual Voices [13](Yonas, Burke, & Miller, 2013) could be used to collect generation data from at-

[13] Visual Voices is a participatory research method that gives communities an opportunity to express how they view their health, social conditions for health, and lived experiences through

risk youth. The PI could train self-selected school personnel, who are familiar faces to participants, in the Visual Voices methodology. The method could be introduced to students as an "art project", perhaps led by the art teacher, and occur within the school facilities. In addition, the CBPR partners could consider broadening the focus statement to elicit generation data on community resilience against adversities and later on, during a discussion of the artwork, students could be probed for what types of adversities they face.

Secondly, while small sample size is never favorable, due to the qualitative nature of the dissertation, it was not considered a major issue since the findings are not meant to be generalizable; they are meant to be transferrable. Moreover, while overall counts were low, representation was high. For example, only one person from Mental Health Services participated in the dissertation. That said, this person *is the only person* in the Ministry of Health that works in this area; and thus, the dissertation captured the perspectives of 100% of mental health personnel at the national level for the entire country of Belize. With the exception of community members from Southside Belize City, this example reflects the norm. Accordingly, the PI has confidence that the process (i.e., model, approaches, methods, data collection, data analysis) of the dissertation is solidly transferrable given the level of representation of the strategically selected participants.

Thirdly, an incident that was out of the control of the PI arose and complicated the participation of teachers in the dissertation. On Thursday, 22 February 2018, a 12-year old, male student from Queen Street Baptist School was murdered in a gang-related shooting. As a result, all school personnel, including teachers, were preoccupied with providing support for students (e.g., his friends and peers) and their families. Understandably, the provision of support took

---

art (e.g., painting, drawing, and writing), while fostering relationship-building between community members and non-community actors.

priority over and precluded the participation of teachers in generation and structuring, which were the research activities that coincided with this timeframe. That stated, we did invite teachers to participate in interpretation and utilization; however, not a single teacher accepted our invitation.

Fourthly, social workers and community members were unable to participate in-person during the generation step of concept mapping; however, modifications in the mode of participation were made so that social workers and community members could contribute to list of needs in response to the focus statement through the CS Global Max ® platform. While online participation does not allow for the dynamic discussions that occur during in-person participation, the online mode is a valid modification that is used in the concept mapping method (Kane & Trochim, 2007).

Fifthly, while concept mapping is a time- and resources-intensive method, there are modifications that can be made to offset this limitation in future work with PAHO Belize or other Member States. For example, from the six traditional steps of concept mapping, all six can be partially or completely executed by other partners in the CBPR partnership (e.g., PAHO Belize, RESTORE Belize). As is consistent with this dissertation, all partners would be involved in preparation, including articulating the focus and identifying and recruiting participants. In addition, the PI (as a consultant for PAHO) would provide technical expertise to the extent requested by the Member State (i.e., PAHO Belize). Modifications that would shift responsibilities from the PI to other CBPR partners could include any or all of the following:

- The PI could train a self-selected personnel from PAHO Belize to collect, enter, and manage data from generation and structuring using the CS Global MAX ® software.
- The PI could work with the PAHO Belize personnel to analyze data during representation.

- The PAHO Belize personnel could verify, collect, and manage data from interpretation and utilization.

9.5.2 Strengths

There are several strengths of this dissertation.

9.5.2.1 Unique focus on a chronic adversity

Firstly, this dissertation is unique with respect to the adversity selected as a focus. The overwhelming majority of evidence on community resilience in the public health literature has focused on acute adversities, such as natural disasters and epidemics. In contrast, this dissertation focused on the chronic adversity of gang violence as an example of youth violence. In the LAC, incidents of youth violence far outweigh incidents of acute adversities as a threat to adolescent health. As such, it is important that conceptual tools (e.g., a framework for community resilience) appropriately account for their differences in nature.

9.5.2.2 Novel approach with human security

Secondly, this dissertation selected an approach that is novel in the public health literature on community resilience. From the literature identified, no published research has employed the human security approach to explore community resilience against an adversity. This novelty coincides with the chronic nature of gang violence as an insidious, pervasive threat to the whole of society. The employment of the human security approach provides a comprehensive perspective on community resilience against gang violence and its harmful effects to not only health security (i.e., direct threats to health), but also community, economic, environmental, food,

personal, and political securities (i.e., direct threats to social determinants of health). This comprehension is valuable as it better accounts for inequities in other areas that underlie and manifest inequities in health.

9.5.2.3 Innovative use of concept mapping

Thirdly, this dissertation selected a method that is innovative in the public health literature on community resilience. From the literature identified, no published research has employed the concept mapping method to explore community resilience against an adversity. Concept mapping provides a mechanism for the dynamic participation of a diverse group of stakeholders. In terms of diversity, the strategic selection of participants for concept mapping furnished a comprehensive exploration of gang violence and its harmful effects from various socioecological perspectives across different sectors. In this way, the dissertation captured the social determinants of health --- from distal (e.g., national policy) to proximal (e.g., local community) circumstances --- that moderate or elevate the risk of exposure to gang violence and the risk of experiencing harmful effects as a result of this exposure.

In terms of dynamics, the employment of concept mapping afforded each participant group equal power in the research process. Under the purview of the dissertation, there was a better balance between protection actors (i.e., national policy actors) and empowerment actors (i.e., the community) and an observed increase in group cohesiveness and morale. Many participants expressed that being a part of the dissertation was a positive experience. In particular, the NPL participants reported being pleased to have had the opportunity to work with each other on a weekly basis and discussed maintaining their multi-sectorial working group for future collaborations in the RESTORE Belize Metamorphosis Program.

9.5.2.4 Findings have practical significant for stakeholders

Fourthly, the results of the dissertation provided stakeholders with practical significance. The programs and services represented by the needs in Area 1 (i.e., the essential building blocks) were reviewed by their respective providers and informed future actions to streamline programs and services. For example, during a discussion with PAHO Belize and the Ministry of Health it was noted that intervening at the critical period of adolescence is too late and that intervention should occur as early as possible. Observations from both partners corroborated that many mothers of at-risk adolescents became pregnant during their teenage years and, as a consequence, dropped out of school --- which limited their employment prospects and their family's economic security in the future.

Reviewing the working theories, the PI, PAHO Belize, and the Ministry of Health concluded the following:

- *Prevention programs, like family planning* (Need 24) could prevent teenage pregnancy, but should a teen become pregnant *support services for adolescents who are pregnant* (Need 26) and *mental health services* (Need 48) could help her during this critical period.
- Once the child is born and begins to grow, *early childhood stimulation programs* (Need 28), *programs, resources, and services that ensure households are able to meet children's basic needs* (Need 47), and *mental health services* (Need 48) could support his development and health, as well as prepare him to enter school.
- As the child grows and enters the school system, Need 47 and Need 48 could continue to play an important role; but, in addition, *school-based programs that ensure children have access to nutritional food and water* (Need 11), *policies and procedures that ensure children get referred to the mental health services they need* (Need 54), and having *a*

nurse at every primary school (Need 61) could further support his development and health.

These needs are covered by PAHO programs in maternal health, child health, adolescent health, and mental health, as well as by programs from our partners, like UNFPA (e.g., family planning) and UNICEF (e.g., early childhood stimulation programs). The PI recommended assessing which programs PAHO Belize, the Belizean Ministry of Health, and our partners are currently implementing. For those that are not being implemented, how can we implement them? For those that are being implemented, how can we link them together so that children (as they grow from birth to adolescence) don't fall through the cracks or get left behind?

9.5.2.5 Findings support a novel application of existing framework on community resilience

Lastly, this dissertation provides support for the novel application of an existing framework on community resilience. The conceptual framework for community resilience developed by Frankenberger et al. (2013) is centered on how a community's capacities for collective action (i.e., community assets, community social dimensions, and areas for collective action) can lead to either a resilience pathway that strengthens human security or a vulnerability pathway that threatens human security. Adapting this framework to the public health context requires minor modifications where the end point of the pathways was health security or health insecurity, including a measure for health equity.

10.0 FUTURE RESEARCH

10.1 EXPANDING PERSPECTIVES

Future research should expand the distal (i.e., NPL participants) versus proximal (i.e., LICIL participants) perspectives. For example, the LICIL participant group could be partitioned into the following groups: institutional level, community level, and interpersonal level. It would be interesting to investigate whether the perspectives of the institutional level group are most similar to those of NPL participants; whether the perspectives of the interpersonal level group are most similar to those of LICIL participants; and whether the perspectives of the community level group look more similar to NPL or LICIL participants or whether they are a blend between the two. Given the more intimate relationship between the non-community participants of the LICIL group (e.g., institutional and interpersonal participants) and community members, I would anticipate that the data from community members would more closely reflect that of other local participants versus the NPL participants.

10.2 EXPLORING CULTURAL CONSENSUS

Future research could inductively explore the resulting working theories using cultural consensus analysis. Cultural consensus analysis (CCA) is a method to explore important differences in cultural knowledge, beliefs, values, or norms between one or more groups within the same society (Weller, 2007). Future research could utilize CCA to explore the differences in cultural beliefs

and values on Cluster 1: Physical Control between NPL and LICIL participants. Accordingly, a series of meaningful statements regarding Physical Control could be administered to a sample of individuals who would be eligible to join either NPL or LICIL participant group. Next, responses could be aggregated per group and assessed for homogeneity (i.e., a high level of consistency). If homogeneity was not met, the LICIL participant group may need to be separated into the following three groups: institutional level, community level, and interpersonal level. If homogeneity of responses was met using four participant groups, then the set of meaningful statements could be used as a tool to infer the group affiliation (i.e., NPL or LICIL; national, institutional, community, or interpersonal) of fellow society members. If homogeneity is not met, even after the partitioning of the LICIL participant group, then CCA would not be appropriate (Weller, 2007).

10.3 TESTING HYPOTHESES

Future research could deductively examine the resulting working theories using hypotheses testing. According to both the NPL and LICIL working theories, if people have a sufficient quality and quantity of the essential building blocks of survival, livelihood, and dignity (i.e., the dimensions of the human security concept), then they will be free to contribute to their communities. Specifically, this consensual explanation relates (1) the human security concept to community participation; and (2) community participation to Cluster 6: Positive Communities (i.e., needs that describe the affective domain or social dimensions) and Cluster 7: Community Development (i.e., needs that describe areas of collective action). With respect to (1), it could be hypothesized that there is a positive relationship between human security and community

participation --- meaning, enhancing human security would likewise enhance community participation.

In order to examine this relationship, a time series analysis could be conducted, as follows. For each participant, a baseline assessment on the seven dimensions of human security and community participation could be measured. As actions are taken to meet the needs from the foundational clusters (Mental Health and Counselling, Parental Support, and Programs), human security and community participation variables could be repeatedly measured on a monthly basis over the period of one year. The human security variables (at least one per dimension) could be combined to form one composite human security variable that would serve as the independent variable; where as, the community participation variable would serve as the dependent variable. The relationship between the variables could be examined on a bivariate plot with human security on the x-axis and community participation on the y-axis. This examination would visually confirm whether the relationship between human security and community participation is positive. Then, a correlation coefficient can be calculated to statistically confirm the direction of the relationship (i.e., positive or negative), as well as the strength of the relationship. Additionally, a significance test could indicate the probability that the correlation occurred by chance.

With respect to (2), it could be hypothesized that there is a positive relationship between (a) community participation and positive communities and (b) community participation and community development. We could examine both (a) and (b) independently using the same process described above or concurrently by computing a correlation matrix.

10.4 BUILDING A CASE SERIES

Future research could be dedicated to transferring this dissertation to other contexts in order to build a case series. In this pursuit, the PI could engage other Member States who participated in the UNTFHS-funded project *Health, Resilience, and Human Security* in Fall 2016. Both Honduras and El Salvador expressed gang violence as a major public health threat to their adolescent populations. For this reason, both Member States may find this dissertation relevant and its transferability appealing. Specifically, the same process (i.e., research questions, model, approaches, selection of participants, methods, data collection, data analysis) could be applied to explore factors of community resilience against against gang violence and its harmful effects on adolescents, their families and the community as a whole within selected communities of Honduras and El Salvador. Each case study could contribute to building a case series, full of multiple working theories from a range of perspectives. Through a comparative analysis, working theories could be used to develop a singular, formal conceptual framework on community resilience against gang violence and its harmful effects (George & Bennett, 2005).

11.0 CONCLUSIONS

For PAHO Member States in LAC, youth violence will be one of the most challenging threats to adolescent health in the 21st Century. While the evidence on youth violence prevention interventions has identified effective prevention measures at all levels, the majority of evidence-based interventions focus on the individual and interpersonal levels, including interventions that seek to build individual and family resilience (WHO, 2015). Emerging research suggests that building community resilience may support prevention efforts at the individual and family levels, as well as help address health inequities (Norris et al., 2008; Frankenberger et al., 2013).

As a case study, this dissertation explored factors of community resilience against gang violence (as an example of youth violence) and its harmful effects with a diverse group of stakeholders that represented the most distal environment (i.e., national level policymakers) to the most proximal environment (e.g., counsellor) of an at-risk male adolescent from Southside Belize City. A social ecological model, human security approach, CBPR, and concept mapping were employed for the exploration.

Findings identified factors of community resilience against gang violence, their importance for building community resilience, their relationships to one another, and two working theories (one from the distal perspective and one from the more proximal perspective) that explain how these factors work together to build community resilience against gang violence and its harmful effects on adolescents, their families, and the community as a whole. These working theories were compared and contrasted to the current public health literature on community resilience and were found to contribute to the paucity of available conceptual tools. Specifically, these working theories were combined into a single framework for community resilience, which was adapted

from Frankenberger et al. (2013). The adapted framework is the first of its kind to include the concepts of community resilience, health, and health equity.

Future research will be directed towards building a case series, which will allow for theory development on the "how to" of building community resilience against youth violence (George & Bennett, 2005). Public health research on community resilience should focus on developing conceptual tools for chronic adversities (e.g., youth violence, gang violence). Such tools are necessary in order to design measurement tools and interventions that will tackle the daily adversities that threaten the health and wellbeing of adolescents.

APPENDIX A: CODES UTILIZED FOR THE CODING OF SOCIAL CAPITAL

Sources	Codes	Definitions
Public Health Literature on Community Resilience	**Social Capital**	"the social organization of networks…that facilitate coordination and cooperation for mutual benefit," (Putnam, 1995, p. 67) proxy = trust (Liu, Milojev, Gil de Zúñiga, H, & Jiqi Zhang, 2018)
	Bonding	"inward-looking" connections that reinforce a shared identity among members within a social network (Szreter & Woolcock, 2004) bonds between individuals who are emotionally close (e.g., family and friends) (Hurlbert et al., 2000; Adler & Kwon, 2002).
	Bridging	"outward-looking" connections that span across social groups (Szreter & Woolcock, 2004) bonds between individuals who differ to some degree in shared identities (Aldrich & Meyer, 2014)
	Linking	connections that cross authority gradients (Szreter & Woolcock, 2004) connections that allow community members to mobilize authoritative or political resources and power (Aldrich & Meyer, 2014)

APPENDIX B: CODES UTILIZED FOR THE CODING OF SOCIAL CONNECTEDNESS

Sources	Codes	Definitions	
Public Health Literature on Community Resilience	**Social Connectedness**		
	Social Exchange	measures the frequency of exchanges (e.g., social interactions) between community members (Cagney et al., 2016)	
	Collective Efficacy	the community's perceived capacity to achieve common goals (Cagney et al., 2016)	
		Social Cohesion	a sense of trust and solidarity among community members (Cagney et al., 2016)
		Informal Social Exchange	the willingness of community members to act on each other's behalf (Cagney et al., 2016)

APPENDIX C: CODES UTILIZED FOR THE CODING OF PLACE ATTACHMENT, TRADITIONAL KNOWLEDGE, AND LANGUAGE COMPETENCE

Sources	Codes	Definitions
Public Health Literature on Community Resilience	**Place Attachment**	a sense of belonging to a place bonds between people and places (Scannell, Cox, Fletcher, & Heykoop, 2016)
	Traditional Knowledge	experiential knowledge knowledge obtained by lived experiences (Nolet, 2016)
	Language Competence	able to communicate effectively (using language) with fellow community members (Nystad, Spein, & Ingstad, 2014)

APPENDIX D: CODES UTILIZED FOR THE CODING OF HUMAN SECURITY

Sources	Codes	Definitions
Human Security Concept (UNDP, 1994)	**Community**	ensure protection of individual members who belong to the greater group (i.e., protection through membership to family, community, organizations, racial, ethnic, or religious group)
	Economic	ensure basic income, including publically financed safety net (e.g., jobs, work, training, employment, education, cash transfers, microfinance opportunities)
	Environmental	ensure a healthy physical environment
	Food	ensure that "…all people at all times have both physical and economic access to basic food," (p. 27) ready access to food --- growing food, buying food, or by public distribution of food (e.g., food bank)
	Health	Ensure primary health care: education concerning prevailing health problems and the methods of preventing and controlling them; promotion of food supply and proper nutrition; an adequate supply of safe water and basic sanitation; maternal and child health care, including family planning; immunization against the major infectious diseases; prevention and control of locally endemic diseases; appropriate treatment of common diseases and injuries; and provision of essential drugs (WHO, 1978, p. 2)
	Personal	"ensure protection from physical violence, including threats from the state (e.g., physical torture); threats from other states (e.g., war); threats from other groups of people (e.g., ethnic tensions); threats from individuals or gangs against other individuals or gangs (crime, street violence); threats directed against women (rape, domestic violence); threats directed at children based on their vulnerability and dependence (child abuse); and threats to self (suicide, drug use)," (p. 30)
	Political	Ensure protection of basic human rights, including protection against military intervention and police repression

APPENDIX E: CODES UTILIZED FOR THE CODING OF COMMUNITY CAPACITIES FOR COLLECTIVE ACTION

Sources	Codes	Definitions
Conceptual Framework for Community Resilience (Frankenberger et al., 2013)	**Community Assets**	"tangible and intangible assets that allow community members to meet their basic needs," (p. 10) financial, physical, political, human, social (bonding, bridging, linking), and natural capital
	Community Social Dimensions	"the dynamic qualities possessed by a community that enables it to manage community-based assets in an equitable and sustainable way," (p. 10) "include preparedness, responsiveness, connectivity, learning and innovation, self-organization, diversity, inclusion, social cohesion, and aspirations," (p. 10) "evident in perceptions, attitudes, and in the nature and quality of relationships," (p. 10)
	Areas of Collective Action	"areas in which communities organize and collaborate in a strategic way in the interest of advancing resilience at the community level," (p. 10) "depends on the efficient and equitable use of community assets and optimization of community social dimensions," (p. 10) "key tasks that must be performed to maintain or restore essential community institutions, structures, and related environments in the context of actual or potential [adversities]," (p. 10)

APPENDIX F: CODES THAT EMERGED FROM THE DISSERTATION

Sources	Codes	Definitions
Dissertation (Flores, 2018)	**A Sense of Community** (McMillan & Chavis, 1986)	"the feeling of belonging or of sharing a sense of personal relatedness," (p. 9) "a sense of mattering, of making a difference to a group and of the group mattering to its members," (p. 9) "the feeling that members' needs will be met by the resources received through their membership in the group," (p. 9) "the commitment and belief that members have shared and will share history, common places, time together, and similar experiences," (p. 9)
	Community Mindedness (Stallwitz, 2014)	communal spirit an attitude of concern and care for one's community interest in the good of one's community

BIBLIOGRAPHY

Bates, RH. (2010). *Prosperity and Violence: The Political Economy of Development*. New York, New York: WW Norton & Company Inc.

Beiser, M, Wiwa, O, & Adebajo, S. (2010). Human-initiated disaster, social disorganization and post-traumatic stress disorder above Nigeria's oil basins. *Social Science & Medicine, 71*(2), 221 – 227. doi:10.1016/j.socscimed.2010.03.039

Burke, J.G., O'Campo, P., Peak, G.L., Gielen, A.C., McDonnell, K.A., & Trochim, W.M.K. (2005). An introduction to concept mapping as a participatory public health research method. *Qualitative Health Research, 15*(10), 1392 – 1410.

CARE. (2002). Household Livelihood Security Assessments. A Toolkit for Practitioners.

Chandler, D. (2012). Resilience and human security: The post-interventionist paradigm. *Security Dialogue, 43*(3), 213 – 29.

Charlton, SEM. (1984). *Women in Third World Development*. Boulder, Colorado: Westview Press.

Cicchetti D. (2010). Resilience under conditions of extreme stress: a multi-level perspective. *World Psychiatry, 9*(X), 145–54.

Cornwall, A., & Jewkes, R. (1995). What is participatory research? *Social Science Medicine, 41*(12), 1667-1676.

Craig, J. (1994). Replacement level fertility and future population growth. *Population Trends, 78*(X), 20-2.

Daigneault, I, Dion, J, Hebert, M, McDuff, P, & Collin-Vézina, D. (2013). Psychometric properties of the Child and Youth Resilience Measure (CYRM-28) among samples of French Canadian youth. *Child Abuse & Neglect, 37*, 160 – 171.

Davis, R, Cook, D, & Cohen, L. (2005). A community resilience approach to reducing ethnic and racial disparities in health. *American Journal of Public Health, 95*(12), 2168 – 2173.

Delbecq, AL, & Van de Ven, AH. (1971). A group process model for problem identification and program planning. *Journal of Applied Behavioral Science, 7*(4), 466 – 91.

Department of Health and Human Services Centers for Disease Control and Prevention [CDC]. (2011). Global School-based Health Survey: Belize. Retrieved on 4 November 2018 from https://www.cdc.gov/gshs/countries/americas/belize.htm

Department for International Development [DFID]. (2011). Defining disaster resilience: A DFID approach paper. London: DFID.

Eaton DK, Kann L, Kinchen S, Shanklin S, Flint KH, Hawkins J, et al. (2012). Youth risk behavior surveillance – United States, 2011. Morbidity and mortality weekly report surveillance summaries (Washington, DC: 2002), 61(4), 1–162.

Eisenman, D, Chandra, A, Fogleman, S, Magana, A, Hendricks, A, Wells, K, Williams, M, Tang, J, & Plough, A. (2014). The Los Angeles County Community Disaster Resilience Project – a community-level, public health initiative to build community disaster resilience. *International Journal of Environmental Research and Public Health, 11*, 8475 – 8490. doi:10.3390/ijerph110808475

Eshel, Y, & Kimhi, S. (2016). Community resilience of civilians at war: a new perspective. *Community Mental Health Journal, 52*, 109 – 117. doi:10.1007/s10597-015-9948-3

Flores, F. (2017). A review of community resilience in the public health literature. Comprehensive exam presentation, Pittsburgh, PA.

Frankenberger, T. R., Langworthy, M., Spangler, T., & Nelson, S. (2012). Enhancing resilience to food security shocks in Africa. Discussion paper. Retrieved from http://www.fsnnetwork.org/sites/default/files/discussion_paper_usaid_dfid_wb_nov._8_2012.pdf

Frankenberger, T, Mueller M, Spangler T, & Alexander, S. (2013). Community Resilience: Conceptual Framework and Measurement Feed the Future Learning Agenda. Rockville, MD: Westat.

Gayle, H, Mortis, N., Vasquez, J., Mossiah, RJ, Hewlett, & Amaya, A. (2010). Social Participation and Violence in Urban Belize.

George, AL, & Bennett, A. (2005). *Case Studies and Theory Development in the Social Sciences*. Cambridge, Massachusetts: MIT Press.

Gibbs A, Jewkes R, Willan S, & Washington L (2018) Associations between poverty, mental health and substance use, gender power, and intimate partner violence amongst young (18-30) women and men in urban informal settlements in South Africa: A cross-sectional study and structural equation model. *PLoS ONE 13*(10): e0204956. https://doi.org/10.1371/journal.pone.0204956

Grillo, I. (2018, June). "There Is No Way We Can Turn Back.' Why Thousands of Refugees Will Keep Coming to America Despite Trump's Crackdown. TIME, X(X), pp. X.

Groves, RM, Fowler, FJ, Couper, MP, Lepkowski, JM, Singer, E, & Tourangeau, R. (2009). *Survey Methodology*. Hoboken, New Jersey: John Wiley & Sons, Inc., Publication.

Haapasalo J, & Pokela E. (1999). Child-rearing and child abuse antecedents of criminality. *Aggression and Violent Behavior, 4*(1), 107–27.

Heagele, T. (2016). Disaster-related community resilience: A concept analysis and a call to action for nurses. *Public Health Nursing, X*(X), 737 – 1209. doi: 10.1111/phn.12292

Hess, JJ, Malilay, JN, & Parkinson, AJ. (2008). Climate change: The importance of place. American Journal of Preventative Medicine, 35(5), 468 – 478. doi:10.1016/j.amepre.2008.08.024

Hsu, CC, & Sandford, BA. (2007). The Delphi technique: Making sense of consensus. *Practical Assessment, Research, & Evaluation, 12*(10), 1-8.

Institute for Health Metrics and Evaluation [IHME]. (2016). Global Burden of Disease Study 2016 Country Profile Belize. Retrieved on 30 October 2018 from http://www.healthdata.org/belize

Israel et al. (1998). Review of community-based research: Assessing partnership approaches to improve public health. *Annual Review of Public Health, 19*, 173-202.

Israel et al. (2003). Critical issues in developing and following community-based participatory research principles. In M. Minkler & N. Wallerstein (Eds.), *Community-based participatory research for health* (pp. 56-73). San Francisco: Jossey-Bass.

Kane, M., & Trochim, W.M.K. (2007). *Concept Mapping for Planning and Evaluation*. Thousand Oaks, California: SAGE Publications.

Krathwohl, DR, Bloom, BS, Masia, BB. (1973). *Taxonomy of Educational Objectives, the Classification of Educational Goals. Handbook II: Affective Domain*. New York: David McKay Co., Inc.

Kokko K, Tremblay RE, Lacourse E, Nagin DS, & Vitaro F. (2006). Trajectories of prosocial behavior and physical aggression in middle childhood: Links to adolescent school dropout and physical violence. *Journal of Research on Adolescence, 16*(3), 403–28.

Korc, M., Hubbard, S., Suzuki, T., & Jimba, M. (2015). *Health, Resilience, and Human Security: Moving Toward Health for All*. [ADD]

Krieger, N. (2001). Theories for social epidemiology in the 21st century: an ecosocial perspective. *International Journal of Epidemiology, 30*(X), 668-677.

Krug E, Dahlberg L, Mercy J, Zwi A, & Lozano R. (2002). *World report on violence and health*. Geneva: World Health Organization.

Landau, J. (2010). Communities that care for families: The LINC Model for enhancing individual, family, and community resilience. *American Journal of Orthopsychiatry, 80*(4), 516 – 524.

Lantz et al. (2006). Community-based participatory research: Rationale and relevance for social epidemiology. In J.M. Oakes & J.S. Kaufman (Eds.), *Methods in social epidemiology* (pp. 239-266). San Francisco: Jossey-Bass.

Leslie, R. (2016). A History of Belize. Belize City, Belize: Cubola Productions.

Lipsey MW, & Derzon JH. (1998). Predictors of violent or serious delinquency in adolescence and early adulthood: a synthesis of longitudinal research. In: Loeber R, Farrington DP, editors. *Serious and violent juvenile offenders: risk factors and successful interventions* (pp. 86-105). Thousand Oaks, CA: Sage Publications.

Lipsey M, Landenberger NA, & Wilson SJ. (2007). Effects of cognitive-behavioral programs for criminal offenders: A systematic review. *Campbell Systematic Reviews, 3*(6).

Liu, JH, Milojev, P, Gil de Zúñiga, H, & Jiqi Zhang, R. (2018). The Global Trust Inventory as a "proxy measure" for social capital: Measurement and impact in 11 democratic societies. *Journal of Cross-Cultural Psychology, 49*(5), 789-810.

Lösel F, & Bender D. (2003). Protective factors and resilience. In: Farrington DP, Coid JW, eds. Early prevention of adult antisocial behaviour. Cambridge, UK: Cambridge University Press, 130 –204.

Lösel F, & Farrington DP. (2012). Direct protective and buffering protective factors in the development of youth violence. *American Journal of Preventive Medicine, 43*(2), S8–S23.

Luthar SS, Cicchetti D, & Becker B. (2000). The construct of resilience: a critical evaluation and guidelines for future work. *Child Development, 71*(X), 543– 62.

Mackay, R. (2003). Family resilience and good child outcomes: an overview of the research literature. *Social Policy Journal of New Zealand, 20*(X), 98 – 118.

Marmot M. (2005). Social determinants of health inequalities. *The Lancet, 365*, 1099–1104

Maslow, AH. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370-96.

Mercy JA, Butchart A, Rosenberg ML, Dahlberg L, & Harvey A. (2008). Preventing violence in developing countries: a framework for action. International Journal of Injury Control and Safety Promotion, 15(4), 197–208.

Merriam, SB, Johnson-Bailey, J, Lee, MY, Kee, Y, Ntseane, G, & Muhamad, M. (2001). Power and positionality: Negotiating insider/outsider status within and across cultures. *International Journal of Lifelong Education, 20*(5), 405-416.

McMillan, DW, & Chavis, DM. (1986). A sense of community: A definition and theory. *Journal of Community Psychology, 14*, 6-23.

Miller Matthei, L & Smith, DA. (2009). Belizean "Boyz 'n the 'Hood"? Garifuna Labor Migration and Transnational Identity In MP Smith & LE Guarnizo Editors (Eds.), *Comparative Urban & Community Research: Transnationalism from Below* (pp. 270-90). New Brunswick, NJ: Transaction Publishers.

Moore, M, Chandra, A, & Feeney, KC. (2013). Building community resilience: What can the United States learn from experiences in other countries? *Disaster Medicine and Public Health Preparedness, 7*(3), 292 – 301.

Mrug S & Windle M. (2010). Prospective effects of violence exposure across multiple contexts on early adolescents' internalizing and externalizing problems. *Journal of Child Psychology and Psychiatry, 51*(8), 953–61.

Muhammad, N. (2015). Insights into Gangs Culture in Belize. Belize City, Belize: Reynolds Desktop Publishing.

Murphy, BL, Anderson, GS, Bowles, R, & Cox, RS. (2014). Planning for disaster resilience in rural, remote, and coastal communities: Moving from thought to action. Journal of Emergency Management, 12(1), 1 – 16. doi:10.5055/jem.2014.0000

Ng, FY, Wilson, LA, & Veitch, C. (2015). Climate adversity and resilience: the voice of rural Australia. *Rural and Remote Health 15*(3071), 1 – 13.

Nolet, E. (2016). 'Are you prepared?' Representations and management of floods in Lomanikoro, Rewa (Fiji). *Disasters, 40*(4): 720−739.

Norris FH, Stevens SP, Pfefferbaum B, Wyche KF, Pfefferbaum RL. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. Am J Community Psychol. 2008;41(1–2):127–50.

Nystad, K, Spein, AR, & Ingstad, B. (2014). Community resilience factors among indigenous Sámi adolescents: A qualitative study in Northern Norway. Transcultural Psychiatry, 51(5), 651–672.

O'Campo, P., Burke, J.G., Peak, G.L., McDonnell, K.A., & Gielen, A.C. (2005). Uncovering neighborhood influences on intimate partner violence using concept mapping. *Journal of Epidemiology and Community Health, 59*(X), 603 – 8.

Omran, AR. (1971). The epidemiologic transition. A theory of the epidemiology of population change. *Milbank Memorial Fund Quarterly, 49(4):509-38.*

Pan American Health Organization / World Health Organization [PAHO/WHO]. (2014). *Status Report on Violence Prevention in the Region of the Americas*. [ADD]

PAHO/WHO. (2015). *Interpersonal Youth Violence in Latin America and the English-speaking Caribbean*. [ADD].

PAHO, 55th Directing Council, Millennium Development Goals and Health Targets: Final Report of the 68th Session of the Regional Committee of WHO for the Americas, CD55/INF/5 (15 August 2016), available from iris.paho.org/xmlui/handle/123456789/33653

Poortinga, W. (2012). Community resilience and health: The role of bonding, bridging, and linking aspects of social capital. Health & Place, 18(X), 286 – 95.

RESTORE Belize. (2014). *Metamorphosis Program: Building Resiliency in High-Risk Male Children*. Belize City, Belize: [Publisher Unknown].

Riger, S, & Lavrakas, PJ. (1981). Community ties: Patterns of attachment and social interaction in urban neighborhoods. *American Journal of Community Psychology, 9*, 55-66.

Rogers ML, & Pridemore WA. (2013). The effect of poverty and social protection on national homicide rates: Direct and moderating effects. *Social Science Research, 42*(3), 584–95.

Rutter M. (2012). Resilience as a dynamic concept. *Developmental Psychopathology, 24*(X), 335–44.

Scannell, L, Cox, RS, Fletcher, S, & Heykoop, C. (2016). "That was the last time I saw my house": The importance of place attachment among children and youth in disaster contexts. *American Journal of Community Psychology, 58*(X), 158–173. doi:10.1002/ajcp.12069

Stallwitz, A. (2014). Community-mindedness: Protection against crime in the context of illicit drug cultures? *International Journal of Rural Criminology, 2*(2), 166-208.

Stoddart, DR. (1963). Effects on Hurricane Hattie on the British Honduras Reef and Cays. Atoll Research Bulletin, 95(405 628) --- [report, all pages]

Susser, M., & Susser, E. (1996a). Choosing a future for epidemiology: I. Eras and paradigms. American Journal of Public Health, 86(5), 668-673.

Susser, M., & Susser, E. (1996b). Choosing a future for epidemiology: I. From black box to Chinese boxes and eco-epidemiology. American Journal of Public Health, 86(5), 674-677.

TANGO International. (2008). Sustainable livelihoods manual. Prepared for Heifer International. May 2008.

Trochim,W. (1989). An introduction to concept mapping for program planning and evaluation. *Evaluation and Program Planning, 12*(X), 1-16.

United Nations [UN] General Assembly Resolution 41/128, *Declaration on the right to development*, A/RES/41/128 (4 December 1986), available from undocs.org/A/RES/41/128.

UN General Assembly Resolution 70/1. *Transforming our world: The 2030 Agenda for Sustainable Development*, A/RES/70/1 (21 October 2015), available from undocs.org/A/RES/70/1.

UN. (2003). *Human Security Now: Commission on Human Security*. New York, New York: United Nations. available from http://www.un.org/humansecurity/sites/www.un.org.humansecurity/files/chs_final_report_-_english.pdf

UN Development Programme [UNDP]. (1994). *Human Development Report 1994*. New York, New York: Oxford University Press.

UNDP. (2016). Country Profiles: Belize. Retrieved on 30 October 2018 from http://hdr.undp.org/en/countries/profiles/BLZ

UNDP. (2018). *Human Development Indices and Indicators*. New York, New York: United Nations.

United Nations Education, Scientific, and Cultural Organization [UNESCO]. (2010). *World Data on Education: Belize*. Retrieved on 30 October 2018 from http://www.ibe.unesco.org/fileadmin/user_upload/Publications/WDE/2010/pdf-versions/Belize.pdf

UN Trust Fund for Human Security [UNTFHS]. (2016). *Human Security Handbook: An Integrated Approach for the Realization of the Sustainable Development Goals and the Priority Areas of the International Community and the United Nations System*. New York, New York: United Nations.

United Press International. (1961, November 2). Hattie's Toll is 62: Martial Law Declared. St. Petersburg Times, pp. 1A, 2A.

Vagias, W.M. (2006). *Likert-type scale response anchors*. Clemson International Institute for Tourism and Research Development, Department of Parks, Recreation and Tourism Management. Clemson University.

Walsh, F. (1996). The concept of family resilience: Crisis and challenge. *Family Process, 35*(3), 261-81.

Walsh, F. (2002). A family resilience framework: Innovative practice applications. *Family Relations, 51*(2), 130-8.

Weller, SC. (2007). Cultural Consensus Theory: Applications and frequently asked questions. *Field Methods, 19*(4), 339-368.

Winton, A. (2005). Youth, gangs and violence: Analyzing the social and spatial mobility of young people in Guatemala City. *Children Geographies, 3*(2), 167 – 184.

Wong, P.T.P., & Wong, L.C.J. (2012). A Meaning-Centered Approach to Building Youth Resilience in Paul TP Wong (Ed.), *The Human Quest for Meaning: Theories, Research, and Applications* (pp. 585 – 617). New York, New York: Taylor & Francis Group.

World Health Organization [WHO]. (2008). *Commission on Social Determinants of Health: Final Report 2005 – 2008*. Geneva: World Health Organization.

WHO. (2014). *Global Status Report on Violence Prevention*. Geneva: World Health Organization.

WHO. (2017). *Global Accelerated Action for the Health of Adolescents (AA-HA!): Guidance to Support Country Implementation*. Geneva: World Health Organization.

WHO. (2018). Essential public health functions, health systems and health security: developing conceptual clarity and a WHO roadmap for action. Geneva: World Health Organization.

Yonas, MA, Burke, JG, & Miller, E. (2013). Visual Voices: A participatory method for engaging adolescents in research and knowledge transfer. *Clinical Translational Science, 6*(X), 72-7.