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# Warm Connections: An Integrated Behavioral Health Intervention Development Study

## Abstract

Research demonstrates the presence of maternal mental health disparities as well as barriers to quality behavioral health care among women with low socioeconomic status. Warm Connections represents an innovative, interdisciplinary intervention designed to improve access to timely behavioral health support for women with low socioeconomic status. Based on an infant mental health framework and drawing from integrated behavioral health and brief intervention approaches, Warm Connections addresses the psychosocial needs of participants in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). The primary mission of WIC is to provide nutrition education, access to healthy nutrition, and health care referrals for pregnant, breastfeeding and non-breastfeeding postpartum women, infants, and children under the age of five with low socioeconomic status. Co-located within WIC clinic settings, Warm Connections aims to reduce caregiver distress and increase caregiver confidence. This dissertation manuscript describes an intervention development study of Warm Connections. It includes a quantitative comparison of psychosocial needs assessments from the perspectives of WIC participants and WIC staff. It also includes the development and analysis of two versions of pre-post intervention surveys to identify which version measures intervention aims with the most sensitivity. Results show that WIC participants and WIC staff for the most part share their perceptions of what WIC families need most, but they rate the urgency of those concerns differently. Results also show that while both pre-post intervention survey versions detect statistically significant changes in the desired direction for most individual items, version 2 appears to detect change more reliably and somewhat more sensitively than version 1. Findings suggest Warm Connections may meet multiple urgent concerns among WIC families and affirm the value of intervention development studies for innovative projects. Through examining the development of Warm Connections, this study demonstrates how social workers may engage in interdisciplinary research partnerships in health contexts to advocate for health equity for women and children.

## Document Type

Dissertation

## Degree Name

Ph.D.

## Department

Social Work

## First Advisor

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## Keywords

Infant mental health, Integrated behavioral health, Interdisciplinary research, Maternal mental health disparities, Social work

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**Subject Categories**

Social Work

**Publication Statement**

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WARM CONNECTIONS: AN INTEGRATED BEHAVIORAL HEALTH  
INTERVENTION DEVELOPMENT STUDY

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A Dissertation

Presented to

the Faculty of the Graduate School of Social Work

University of Denver

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In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

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by

Susanne Klawetter

June 2017

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Title: WARM CONNECTIONS: AN INTEGRATED BEHAVIORAL HEALTH INTERVENTION DEVELOPMENT STUDY  
Advisor: Leslie Hasche, PhD  
Degree Date: June 2017

## ABSTRACT

Research demonstrates the presence of maternal mental health disparities as well as barriers to quality behavioral health care among women with low socioeconomic status. Warm Connections represents an innovative, interdisciplinary intervention designed to improve access to timely behavioral health support for women with low socioeconomic status. Based on an infant mental health framework and drawing from integrated behavioral health and brief intervention approaches, Warm Connections addresses the psychosocial needs of participants in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). The primary mission of WIC is to provide nutrition education, access to healthy nutrition, and health care referrals for pregnant, breastfeeding and non-breastfeeding postpartum women, infants, and children under the age of five with low socioeconomic status. Co-located within WIC clinic settings, Warm Connections aims to reduce caregiver distress and increase caregiver confidence. This dissertation manuscript describes an intervention development study of Warm Connections. It includes a quantitative comparison of psychosocial needs assessments from the perspectives of WIC participants and WIC staff. It also includes the development and analysis of two versions of pre-post intervention surveys to identify which version measures intervention aims with the most sensitivity. Results show that WIC participants and WIC staff for the most part share their perceptions of what WIC families need most, but they rate the urgency of those concerns differently. Results also

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## ACKNOWLEDGMENTS

I thank the University of Denver for its academic and financial support. Specifically, I express my gratitude to Leslie Hasche, PhD, Jennifer Greenfield, PhD, and Nicole Nicotera, PhD. You have each remained true to the spirit and values of the social work profession, which is the highest professional compliment I can give. Your kindness, integrity, and commitment to social justice have shaped my identity as a scholar.

I thank the University of Colorado School of Medicine and Warm Connections' community partners including Denver Health Public Health, Tri-County Public Health, Mental Health Center of Denver, and Aurora Mental Health Center. A special thanks to Karen Frankel, PhD, Kelly Glaze, PsyD, Ashley Sward, PsyD, WIC families, and WIC staff who made the Warm Connections project possible (and enjoyable). I thank the American Association of University Women, NASW Foundation, Temple Hoyne Buell Foundation, and Community First Foundation for providing financial support for this dissertation research project.

I owe my colleagues from the Garland School of Social Work an enormous amount of gratitude. Helen Harris, EdD, Jon Singletary, PhD, and Tiffany Hogue, JD (whom I consider an honorary social worker), thank you for your inspiration and endless support. With love and admiration, I thank the late Diana Garland, PhD.

Thank you to my family for instilling within me the values of public service, kindness, education, and humility. I hope this work honors you. Thank you, Chad, for your partnership and for reminding me of my voice. I never imagined a life as rich and meaningful as the one we have co-created.

This manuscript is dedicated to Olivia, Sam, and Zoe.

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## CHAPTER 1: INTRODUCTION

Mothers and babies in the United States experience troubling adverse mental and physical health outcomes despite the United States' status as an industrialized nation. In fact, the United States spends more on health care compared to other industrialized countries but has comparatively poor health outcomes and a shorter overall life expectancy (Squires & Anderson, 2015). Moreover, women and children of color and women and children with low socioeconomic status experience stubborn disparities across multiple common health indicators. Women with low socioeconomic status and women of color experience disparities in rates of mental health disorders such as postpartum depression and posttraumatic stress disorder (PTSD; Dennis, Janssen, & Singer, 2004; Mounts, 2009). Research also demonstrates disproportionately high rates of preterm birth, low birth weight, and infant mortality among women with low socioeconomic status and women of color, including African Americans, American Indians and Alaskan Natives (AI/ANs), and Latinos/as (CDC, 2011; Walker & Chestnut, 2010). Though methodological challenges exist in clearly describing how socioeconomic status and race/ethnicity relate to maternal and child health, research consistently demonstrates that women with low socioeconomic status and women of color experience persistently poor outcomes across these key maternal and child health indicators despite advances in medical technology and attempts to reduce disparities.

An examination of the literature portrays a complex relationship between race/ethnicity, socioeconomic status, and mental health disparities among women (Liu & Tronick, 2013). Some research points to both low socioeconomic status and race/ethnicity as risk factors for postpartum or postnatal depression (Mounts, 2009), which fits with literature examining the cumulative effects of chronic stress and social inequality associated with racism and discrimination (Lu & Halfon, 2003). Studies have found that mothers of low socioeconomic status, mothers of color (Howell, Mora, & Leventhal, 2006), and mothers who have recently immigrated to the United States (Dennis, Janssen, & Singer, 2004) have increased risk for postnatal depression.

However, other research points to the presence of racial/ethnic disparities in prevalence of mental health diagnoses irrespective of socioeconomic status. In one study, Asian/Pacific Islander women were found to have up to 4.6 times and Latina women up to 2.7 times greater risk for a postpartum depression diagnosis than White women (Liu & Tronick, 2013). African American women were 1.6 times more likely to be diagnosed with postpartum depression. However, when controlling for sociodemographic factors such as maternal age, income, and education, only Asian Pacific Islander women had significantly greater risk for postpartum depression at about double the rate for White women (Liu & Tronick, 2013). In another study, African American women were found to be four times more likely to have a PTSD diagnosis compared to white women, regardless of sociodemographic status (Seng, Kohn-Wood, McPherson, & Sperlich, 2011).

Still, other studies find that socioeconomic status, not race/ethnicity, is associated with increased risk for postnatal depression (Dolbier et al., 2013). Women with low socioeconomic status are 2-3 times more likely to be diagnosed with postpartum depression (Mounts, 2009). Evidence also suggests higher prevalence of PTSD in low-income populations (Wenz-Gross, Weinreb, & Upshur 2016). Methodological challenges such as failure to account for potential confounding between race/ethnicity and socioeconomic status as well as inconsistent assessment methods are cited as reasons for inconclusive findings (Dolbier et al., 2013).

In regards to maternal and child physical health disparities, the literature shows that African Americans have double the rate of low birth weight babies, a 60% higher rate of preterm births (Martin & Osterman, 2013), and 2.3 times the rate of infant mortality compared to Whites (MacDorman & Mathews, 2013). Latinos/as and AI/ANs have higher rates of preterm birth (Martin & Osterman, 2013), and infant mortality rates among AI/ANs are 53% higher and 32% higher among Puerto Ricans compared to Whites (MacDorman & Mathews, 2013). Additional studies point to the relationship between income and maternal and child health disparities, suggesting that low socioeconomic status is associated with adverse birth outcomes including low birth weight and prematurity (Zeka, Melly, & Schwartz, 2008).

In addition to disparities in mental and physical health prevalence rates, research consistently demonstrates that women of color and women with low socioeconomic status are less likely to receive quality mental and physical care services. People of color are generally less likely to seek health care, have poorer access to health care, and are less

likely to receive quality health care in a variety of health care settings (Hausmann et al., 2009; McQuire & Miranda, 2008; Williams & Mohammed, 2009). People of color also consistently report greater perceptions of discrimination from health care providers. One study found that African Americans, Latinas, and Asian Americans were more likely than Whites to perceive discrimination from health care providers, with African Americans reporting the highest levels of perceived discrimination (Lee, Ayers, and Kronenfeld, 2009). In this same study, Latinas and Asian Americans were significantly more likely to report dissatisfaction with the provider-patient relationship than Whites. An additional important finding of this study was that respondents who reported perceived provider discrimination and dissatisfaction with the provider-patient relationship were significantly less likely to seek health care treatment (Lee et al., 2009). While both perceived discrimination and dissatisfaction with the provider-patient relationship had statistically significant relationships to health care seeking behaviors, perceived discrimination had a much stronger relationship (Lee et al., 2009). In addition, African American women and Latinas are less likely than other racial/ethnic groups to seek prenatal care in the first trimester and African American women are more likely than other racial/ethnic groups to have cesarean-section deliveries (Bryant et al., 2010).

Disparities specific to maternal mental or behavioral health care also exist. Results from one study found that African American and Latinas are less likely to seek behavioral health support than White women. Moreover, when they do seek behavioral health services, providers are less likely to follow up and less likely to fill relevant prescriptions compared to when White women seek behavioral health services

(Kozhimannil, Trinacty, Busch, Huskamp, & Adams, 2011). Women with low socioeconomic status from the same study were less likely to seek and receive behavioral health support regardless of race/ethnicity (Kozhimannil et al., 2011). In a report on the implementation of a community-based pregnancy-related screening initiative, Perry, Le, Vilamil, Yengo, and Boateng (2015) noted that even though women with low socioeconomic status have higher risk for pregnancy-related depression, they are not routinely screened. Thus, a troubling pattern emerges—women with greater risk for adverse maternal health outcomes also have less access to the necessary physical and mental health resources.

### **Maternal Mental Health and Child Outcomes**

Evidence of the relationships between race/ethnicity, socioeconomic status, and maternal mental health are particularly important given the established links between maternal depression and child neglect and maltreatment. Children whose mothers have depressive symptoms are at increased risk for maltreatment (Plant, Pariente, Sharp, & Pawlby, 2015). In addition to child maltreatment, children whose mothers exhibit depressive symptoms are more likely to spend time in foster placement (Kohl, Jonson-Reid, & Drake, 2011).

Maternal mental illness may also impact children's physical, social, behavioral, and cognitive development. Infants whose mothers have depressive symptoms gain less weight and have more health problems than infants whose mothers do not have depressive symptoms (Gress-Smith, Luecken, Lemery-Chalfant, & Howe, 2011). Posttraumatic stress disorder in mothers has been linked to preterm birth, low birth

weight, and compromised neurodevelopment in their infants (Lipkind, Curry, Huynh, Thorpe, & Matte, 2010). Research suggests that mental disorders such as PTSD in mothers is associated with decreased ability to self-regulate emotions and increased aggressive behaviors in their children (Samuelson, Wilson, Padrón, Lee & Gavron, 2016). Maternal depression is associated with increased adverse internalizing and externalizing behaviors, as well. Children with mothers who have had a depression diagnosis are more likely to report feelings of loneliness, guilt, sadness, and being nervous along with acting out behaviors such as demonstrations of aggression towards objects or people (Turney, 2012). Throughout the life course, children of mothers with depression experience a higher prevalence of depression as adults compared to those whose mothers did not have depression (Plant et al., 2015).

### **Maternal Mental Health and Integrated Behavioral Health Care**

In response to the literature demonstrating disparities in mental health diagnoses and differential access to quality mental health care, some scholars and providers advocate for an integrated behavioral health care approach (Bridges et al., 2014; Holden et al., 2014; Sanchez, Ybarra, Chapa, & Martinez, 2016). Integrated behavioral health care is traditionally conceptualized as the partnership between behavioral health and physical health care. The partnerships between behavioral health and health care providers are unique depending on the context, but typically, behavioral health care providers work with primary care providers to coordinate and collaborate on treatment goals for patients. Various models for integrated behavioral health care exist, but most of them describe levels of integrated care ranging from relatively disconnected coordination

of care to highly connected, or integrated, collaboration and shared decision-making between multidisciplinary care providers (Christian & Curtis, 2012; Heath, Wise, & Reynolds, (2013).

Utilizing an integrated behavioral health care approach to address maternal mental health disparities makes sense given research showing that mental health conditions such as depression reflect some of the most costly health care expenditures in the United States (Christian & Curtis, 2012). In fact, depression costs more to manage than almost every other chronic health condition except ischemic heart disease (Christian & Curtis, 2012). Moreover, depression is one of the most prevalent mental health conditions in the United States and one in which women are disproportionately affected (Holden et al., 2014). Fortunately, integrated behavioral health care approaches have been found to be especially effective in managing depression (Christian & Curtis, 2012).

In addition, research demonstrates that this approach is associated with increased patient satisfaction, increased follow-up on referrals (Christian & Curtis, 2012), medical cost-savings (Sperry, 2013), improved culturally-responsive care, reduced mental health stigma, and improved provider-patient communication (Sanchez et al., 2014). These findings are especially relevant in the context of addressing disparities given some of the barriers described above. For example, research showing that integrated behavioral health care may reduce the stigma of mental health conditions (Sanchez et al., 2014) and improve both the initiation of care and adherence to treatment recommendations (Holden et al., 2014) directly address findings that people of color may perceive more stigma



around mental health issues, seek mental health services less, and leave treatment earlier compared to Whites (Holden et al., 2014).

### **Introduction to Warm Connections**

While integrated behavioral health care usually involves the partnership between behavioral health and primary health care, the term may also be applied uniquely to other health care provider collaborations (Christian & Curtis, 2012). *Warm Connections* represents one such creative application of the integrated behavioral health care approach. Warm Connections evolved out of an interdisciplinary partnership aimed at supporting maternal and infant health through a community partnership with the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the University of Colorado's School of Medicine, Department of Psychiatry. The University of Colorado's School of Medicine, Department of Psychiatry houses the Harris Infant Mental Health Program. The Harris Program seeks to promote infant and early childhood mental health through training postdoctoral psychology fellows in research, clinical skills, and advocacy (University of Colorado, 2017).

The primary mission of WIC is to provide nutrition education, access to healthy nutrition, and health care referrals for pregnant, breastfeeding and non-breastfeeding postpartum women, infants, and children under the age of five with low socioeconomic status (United States Department of Agriculture [USDA], 2015). Income requirements for WIC are relatively generous; in fact, WIC serves more than half of babies born in the United States (USDA, 2015). In 2015, WIC served approximately 8 million people each month, three-fourths of which were infants and children (USDA, 2016). Multiple studies

have demonstrated that since its inception in 1974, WIC is one of the most successful, accessible and cost-effective nutrition assistance programs in the United States (USDA, 2013). These attributes make WIC an important portal for many women with low socioeconomic status to access mental health services (USDA, 2013) and, thus, a logical community-based organization for the Harris Program to partner with in order to support maternal and infant mental health.

The lack of timely access to quality behavioral health care among low-income women and children initially drove the interdisciplinary collaboration that developed Warm Connections. Knowing that pregnancy-related depression is an over-represented health concern among WIC participants (Perry et al., 2015), administrators and staff within Denver, Colorado-area WIC clinics identified the need to improve the identification of women at risk for or currently experiencing depression, provide education and early intervention treatment strategies when appropriate, and refine the referral process to community mental health centers when longer-term behavioral health care is indicated. Thus, Warm Connections evolved in response to unmet psychosocial needs among low-income women with children and involves screening for psychosocial needs, providing just-in-time behavioral health support using an infant mental health framework, and linking participants with community resources when indicated.

Because women and especially mothers most often present as the primary caregivers in WIC clinics, the terms women and mothers will be used throughout the remainder of this dissertation study. The author would like to note, however, that men, fathers, and other caregivers such as grandmothers and aunts also receive WIC services

and may have a vital role in a child's development and well-being. Each of those groups are under-researched in terms of identifying and ameliorating psychosocial needs. While this dissertation focuses on women and mothers specifically, future areas of research must include other caregivers salient to children's care and development.

In light of the research demonstrating maternal mental health disparities and barriers to quality mental health care, Warm Connections represents an innovative, interdisciplinary intervention designed to improve access to timely and quality behavioral health support for women with low socioeconomic status. Using an integrated behavioral health approach and an infant mental health framework, Warm Connections aims to address the psychosocial needs of WIC participants within a WIC clinic setting, with the goal of reducing caregiver distress, increasing resource utilization among WIC participants, and decreasing the distress of WIC staff in supporting vulnerable families.

This dissertation manuscript describes an intervention development study of the Warm Connection intervention. This study includes a quantitative comparison of psychosocial needs assessments from the perspectives of WIC participants and what WIC staff perceive as the most salient needs among WIC participants. It also includes the development and analysis of two iterations of pre-post intervention surveys to identify which version best measures the intervention aims.

A review of the literature will describe WIC's history and the psychosocial needs present within the families it serves as the context for Warm Connections. Also included in this manuscript is a discussion of how an integrated behavioral health care approach and infant mental health framework shape the author's design of the study and

interpretation of findings. A detailed account of the research methods, analysis, and results will be included in this manuscript, followed by a discussion of the implication of findings. Through examining the development of the Warm Connections intervention, this study aims to demonstrate how social workers may engage in interdisciplinary research partnerships in health contexts that may be used to advocate for health equity for women and children.

## CHAPTER 2: BACKGROUND AND THEORETICAL FRAMEWORKS

The presence and implications of adverse maternal mental health coupled with disparities in access to quality behavioral health care for women of color and women with low socioeconomic status demand innovative responses. Warm Connections is an example of an innovative response to maternal mental health disparities. By integrating behavioral health care into WIC clinics using an infant mental health response, women of color and women with low socioeconomic status can more easily access quality care in their communities. This section will provide an overview of the history and purpose of WIC and the psychosocial needs present in the populations WIC serves. In addition, this section will contain a description, example of application, and critique of the theoretical frameworks that informed the development of Warm Connections. These include infant mental health, integrated behavioral health, and screening, brief intervention, and referral to treatment (SBIRT). The infant mental health and integrated behavioral health care frameworks will be described as the theoretical frameworks underpinning Warm Connections. In addition, empirical evidence will be provided in support of brief and just-in-time interventions. An overview of Warm Connections will explain the intervention, followed by the aims this dissertation study addresses.

### **Overview of WIC**

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) began as a pilot program to address poverty-related hunger among pregnant and

breastfeeding women, infants and children (Oliveira, Racine, Olmsted, & Ghelfi, 2002). The 1960's had brought growing concern in the United States about poverty-related hunger and other supplemental food programs (e.g., Food Stamps) were not adequately addressing the unique needs of pregnant women, infants, and children. In 1972, an amendment was added to the Child Nutrition Act of 1966 authorizing funding for a pilot program entitled the Special Supplemental Food Program for Women, Infants, and Children. Kentucky hosted the first WIC site in 1974, and by the end of that year, 45 states had WIC sites. In 1975, WIC was established as a permanent Federal program (Oliveira et al., 2002). The overarching goal of WIC is to improve the health of low-income women, infants, and children with nutritional risk (Oliveira et al., 2002).

Various pieces of legislation have shaped WIC since its inception in the 1970's. For example, amendments in 1978 defined income eligibility requirements and strengthened the nutrition education component of WIC. The 1980's brought lower income eligibility requirements and increased attention to the nutritional quality of food provided through WIC benefits. Its name was formally changed in 1994 to the Special Supplemental *Nutrition* Program for Women, Infants, and Children. Also in the 1990's, the national conversation about the benefits of breastfeeding precipitated changes to WIC to more strongly encourage breastfeeding among recipients (Oliveira et al., 2002). Breastfeeding remained a high priority for WIC. In 2004, WIC established a program in which women with breastfeeding expertise, many of whom are prior WIC recipients, support mothers who are WIC recipients in their breastfeeding efforts (National WIC Association, n.d.). While changes to the food packages provided through WIC have

occurred throughout its history, the 2000's ushered in more significant changes in response to increasing obesity rates, types of food available through grocery outlets, and an acknowledgement of the importance of providing culturally appropriate foods (Hoynes & Schanzenbach, 2016; National WIC Association, n.d.).

**WIC eligibility.** The primary beneficiaries of WIC are infants and children. In 2015, WIC served an average of 8 million people each month, with children accounting for 4.16 million and infants accounting for 1.94 million of the total 8 million (USDA, 2016). Currently, over half (53%) of infants born in the United States receive WIC benefits (USDA, 2015a). All 50 states and the District of Columbia participate in WIC, as well as 34 Indian Tribal Organizations and 5 territories (USDA, 2015a). Participants may access WIC through many different types of locations such as county health departments, schools, public housing sites, hospitals, mobile clinics, Indian Health Service facilities, and migrant health centers (USDA, 2015a).

Eligibility requirements for WIC include all of the 4 following aspects—categorical, residential, income, and nutritional risk. Categorical requirements include pregnant women up to 6 weeks postpartum, nonbreastfeeding mothers up to 6 months postpartum, breastfeeding mothers up to 1 year postpartum, infants under 1 year old, and children up to age 5. All participants must be residents of the state in which they are receiving WIC benefits (Oliveira et al., 2002), but American citizenship is not required. Refugees and both documented and undocumented immigrants are eligible for WIC (USDA, 2014). Income eligibility requirements are generous relative to other food assistance programs in the United States. All participants enrolled Medicaid, Temporary

Assistance to Needy Families (TANF), and/or the Food Stamp Program are eligible for WIC, as are applicants with a household income up to 185% of the Federal Poverty Income Guidelines (Oliveira et al., 2002). Nutritional risk is determined by a medical professional (e.g., physician, nurse, nutritionist) and includes issues such as adverse nutritional conditions, nutrition-related medical conditions, dietary deficiencies, conditions that affect nutritional health (e.g., alcoholism), and conditions that make one vulnerable to poor nutritional health (e.g., homelessness; Oliveira et al., 2002). Participants must renew their eligibility every 6 months unless they are pregnant, in which case they are eligible throughout the pregnancy until 6 weeks postpartum (Oliveira et al., 2002).

The benefits provided to WIC participants revolve around supporting the nutritional health of women, infants and children with low socioeconomic status. Participants receive one of seven different supplemental food packages depending on the category of the participant (Oliveira et al., 2002). For example, a breastfeeding mother of an infant under the age of one would receive a different food package than a nonbreastfeeding mother of an infant under the age of one. In addition to food packages, WIC provides nutritional counseling and referrals to health care and social services as appropriate (Oliveira et al., 2002).

**WIC outcomes.** Since its inception, WIC has delivered on its promise to safeguard the health of women, infants, and children with low socioeconomic status and with nutritional risk. Research shows numerous positive health outcomes, as well as cost effectiveness, making it one of the most successful and popular food assistance programs



in the United States (USDA, 2013). Studies completed throughout the past three decades demonstrate that participation in WIC is associated with improved birth outcomes, health care cost savings, increased rates of immunization among children, improved use of regular medical care among children, improved cognitive development, improved diet for women and children including preconception women, and better infant feeding practices (USDA, 2013).

Recent data confirms the efficacy of WIC in supporting women and children's health. In a recent study conducted in South Carolina, WIC participation was associated with increased birthweight, decreased prematurity, and reduced neonatal intensive care time (Sonchak, 2016). These findings held true for African American mothers as well (Sonchak, 2016), an important fact given the stubborn disparities present in birth outcomes among African Americans. Children who participate in WIC also continue to be more likely to be immunized compared to WIC eligible children who do not participate in WIC. The immunization rates of children who participate in WIC are similar to more affluent children (Thomas, Kolasa, Zhang, & Shefer, 2014). In addition to positive health impacts, research continues to support WIC's benefits on cognitive development. Participation in WIC is associated with improved cognitive development for very young children that carries over into academic achievement in the school-aged years (Jackson, 2015). Interestingly, these findings are consistent among siblings—children in families who did not access WIC prenatally and/or during early childhood had poorer cognitive and academic achievement compared to siblings from the same families

who participated in WIC. These findings were not explained by different parenting practices or economic circumstances (Jackson, 2015).

Current research also supports WIC's effectiveness at improving the diets of participating women and children. Grocery stores located in low-income neighborhoods who are authorized to participate in WIC are more likely to provide fresh fruits and vegetables, low fat milk, and whole grain items compared to stores in similar neighborhoods who do not participate in WIC (Hillier et al., 2012). After implementing changes to the food packages offered through WIC in an effort to enhance nutritional quality, California WIC families reported an increase in the consumption of fresh fruits and vegetables, low fat milk, and whole grain items (Whaley, Ritchie, Spector, & Gomez, 2012). While breastfeeding rates among WIC participants have historically been lower than among those not participating in WIC, recent efforts to improve breastfeeding rates are making an impact (Oliveira et al., 2002). In a Texas study evaluating the effectiveness of WIC's peer counselor program aimed at supporting first time mothers to breastfeed, mothers who participated in the peer counselor program were more likely to initiate breastfeeding than those who did not participate in the program (Campbell, Wan, Speck, & Hartig, 2014).

**WIC population.** While ample evidence supports WIC's effectiveness at reaching and positively impacting the health and well-being of many women, infants, and children in the United States, families who participate in WIC nonetheless have pressing psychosocial needs currently unaddressed. Because of eligibility requirements, WIC necessarily serves women and children with low socioeconomic status. Because of the

over-representation of people of color with low socioeconomic status, women and children of color disproportionately participate in WIC as well. Among those enrolled in WIC during 2012, 41.49% identified as Hispanic, 57.83% identified as non-Hispanic, and .68% did not identify their ethnicity (USDA, 2015b). In the same reporting period, 58.2% of those enrolled in WIC identified as white, 19.8% as Black, 12.2% as American Indian, 5.1% as multiracial, 3.1% as Asian, .8% as Hawaiian/Pacific Islander, and .7% did not identify their race (USDA, 2015b). Participation by race and ethnicity in Colorado WIC, the host state for the Warm Connections pilot, is similar to national trends.

Approximately half (51%) of Colorado WIC participants identify as Hispanic, followed by 33% non-Hispanic whites, and 8.6% non-Hispanic Blacks (US Census Bureau, 2016).

### **Psychosocial Stress: Disparities and Implications**

Extant research describes some of the psychosocial stressors experienced by women with low socioeconomic status and women of color, however a dearth of information exists about the psychosocial needs of WIC participants specifically. Nonetheless, given the population sociodemographics WIC is known to serve, the literature gives some insight into common adverse experiences among this population. Moreover, one study examining data from 22 states found that WIC participants experienced similar prevalence rates of postpartum depression compared to women eligible but who did not participate in WIC after controlling for age, education level, degree of poverty, risk behaviors, unintended pregnancy, and exposure to intimate partner violence (Pooler, Perry, & Ghandour, 2013). This suggests that evidence of psychosocial stressors among women with low socioeconomic status and women of color may be

similar to those experienced by WIC participants. While social inequality is linked to numerous health and well-being disadvantages, those related to maternal mental health and maternal distress are particularly relevant to the Warm Connections intervention.

Social inequality contributes to and perpetuates greater psychosocial needs among women of color and women with low socioeconomic status compared to White, more affluent women (Lu & Halfon, 2003). Women with low socioeconomic status are at higher risk for adverse mental health outcomes such as depression (Mounts, 2009) and PTSD (Wenz-Gross, Weinreb, & Upshur, 2016). The literature provides mixed findings about whether or not women of color experience higher prevalence of certain mental health conditions such as depression. However, studies consistently document higher trauma exposure among people of color including experiences of discrimination and violence (Wenz-Gross et al., 2016).

In addition to mental health conditions, people with low socioeconomic status and people of color experience disparities in broader definitions of mental or socioemotional well-being. People with low socioeconomic status are more likely to experience both *toxic stress* and *parenting stress* (Cates et al., 2016). Toxic stress evolves from factors associated with social inequality such as food insecurity, economic insecurity, inadequate social support, low educational attainment (Cates et al., 2016). Scholars continue to discover the consequences of toxic stress, but research suggests early childhood exposure to toxic stress is associated with impaired brain development (Shonkoff & Garner, 2012). Children who experience toxic stress are at risk for adverse cognitive, social, and emotional development (Shonkoff & Garner, 2012). Importantly, consistently nurturing

and supportive adult relationships function as buffers to toxic stress (Shonkoff & Garner, 2012), which points to the importance of supporting mothers' psychosocial needs.

Toxic stress contributes to parenting stress, which is defined as stress related to the parenting role and parent-child interactions (Cates et al., 2016). In a study comparing reported parenting stress between African American, American Indian, Asian, Hispanic, and White parents, African American, Hispanic, and Asian parents report more parenting stress than both White and American Indian parents (Nomaguchi & House, 2013).

Elevated levels of parenting stress are associated with socioeconomic factors—unemployment is linked to higher levels of parenting stress and affluence is linked to lower levels of parenting stress (Nomaguchi & House, 2013). Other associated factors include single mother status and lower maternal age. Parenting stress is an important construct to infant and child well-being. High levels of parenting stress are linked to compromised parent-child interactions and child development. Parents who report high levels of parenting stress are more likely to exhibit harsh discipline and less parental responsiveness and warmth. Children whose parents report high levels of parenting stress display more internalizing and externalizing behaviors, insecure attachment, and decreased social competence (Cates et al., 2016).

**Addressing psychosocial stressors among WIC participants.** In summary, a review of the literature demonstrates that due to social inequality, women of low socioeconomic status and women of color—both of whom are over-represented among the WIC population—experience disparities in adverse mental health conditions, toxic stress, and parenting stress. Additionally, research illuminates the negative short-and

long-term consequences for mothers, infants, and children associated with poor maternal mental health and maternal distress. These findings, when combined with research that consistently demonstrates these same groups experience perceived discrimination and compromised access to quality behavioral health care, unveil a troubling pattern. Namely, those most likely to need access to quality behavioral health care are least likely to receive it. These findings fit with a life course perspective, which asserts that social inequality contributes to adverse health outcomes passed from one generation to the next that impact the well-being of people with low socioeconomic status and people of color (Lu & Halfon, 2003). These findings also suggest the utility of integrating behavioral health care into the communities most impacted by disparities in maternal mental health and access to behavioral health care.

Research demonstrating WIC's effectiveness as a food assistance policy in impacting the health and development of women, infants, and children combined with its vast reach among the American population make it one of the primary providers of nutrition assistance and sources of health care and social services referrals in the country. Given the enormous reach and effectiveness with which WIC serves families with low socioeconomic status and families of color, WIC potentially functions as a vital port of entry to health and social services for women and children most affected by health disparities.

In response to extant research, Warm Connections addresses these disparities by integrating behavioral health support into WIC clinics. Using infant mental health and integrated behavioral health frameworks, Warm Connections provides brief and just-in-

time psychosocial support for participating WIC families. The following section describes the infant mental health and integrated behavioral health frameworks.

### **Infant Mental Health Framework**

The infant mental health framework serves as a guiding framework for this study. Selma Fraiberg (1918-1981), a clinical social worker, first conceptualized the idea of *infant mental health* as “working with infants and mothers to strengthen infant wellbeing through promotion of secure attachment relationships” (Lawless, Coveney, & MacDougall, 2014, p. 417). It reflected the integration of developmental theory with adult psychotherapy and targeted infants deemed “at risk” for developmental delay and compromised attachment (Weatherston, 2001). ZERO TO THREE (2001) explains that infant mental health has since evolved into a broad, interdisciplinary field focused on promoting children from birth to age 3 in their “...capacity to experience, regulate, and express emotions, form close and secure relationships, and explore the environment and learn” (Zeanah, 2009, p. 6) through research, policy, and practice.

The World Association for Infant Mental Health (WAIMH) identifies three primary tenets of an infant mental health framework:

1. Infant behavior must be viewed within the context of relationships
2. Caregiver relationships are the most salient
3. Infant mental health exists within social contexts (Lawless et al., 2014; WAIMH, 2014).

Essentially, the infant mental health framework posits that the early relationship between a mother and her child occurs in a social context, promotes child development,

and ultimately provides a sort of “scaffold” for future social relationships and mental wellness for children as they mature (Cho et al., 2013). Thus, supporting mental health during infancy through supporting maternal mental health and mother-infant bonding provides opportunities to support the infant’s mental health throughout the life course (Lawless et al., 2014). Or to say it another way, an infant’s short-and-long term mental health relies heavily on their caregiver’s mental health and the quality of attachment to their caregiver. Advocates of this framework emphasize the importance of early intervention strategies aimed at strengthening mother-child interactions in the first weeks and months of life (Cho et al., 2013), as well as evidence-based practice and interdisciplinary practice.

The infant mental health framework has evolved over the past several decades, resulting in various authors presenting slightly different iterations of key concepts. Most of them are not substantively different from one another, but rather elevate certain concepts over others, use different words to describe similar ideas, or expand upon certain concepts. However, each iteration has in common an emphasis on *development* and *context*. *Development*, as it relates to the infant mental health framework, refers primarily to the rapid rate of infant development that occurs from birth to age 3 (The Center on the Social and Emotional Foundations for Early Learning, n.d.; Zeanah, 2009). It also refers to caregiver development, acknowledging that caregivers are on their own psychosocial and biological developmental path (Zeanah, 2009). Thus, the infant mental health framework guides practitioners to consider developmental trajectories, support



positive developmental growth, and intervene in developmentally appropriate ways for both caregivers and babies (Zeanah, 2009).

*Context* is an additional key concept of the infant mental health framework.

Context refers to an infant's social environment and includes the physical environment, as well as family, community, and culture (The Center on the Social and Emotional Foundations for Early Learning, n.d.). Context can be thought of as where infant development occurs, as well as the governing expectations of what they learn (The Center on the Social and Emotional Foundations for Early Learning, n.d.). Included in the contextual elements of family, community, and culture is an understanding of intergenerational transfer of parenting values, knowledge and skills (The Center on the Social and Emotional Foundations for Early Learning, n.d.) as well as the socio-historical context of the infants' social environment (Weatherston, 2001).

Acknowledging the powerful role an infant's social environment has on its development has led some infant mental health advocates to pay more attention to elements such as culture and culturally-responsive services, policy and institutional barriers to services and equality, language, and the presence of social inequality (St. John, Thomas, & Noroña, 2012). As St. John et al. (2012) explain, if the infant mental health framework purports to value human relationships in an infant's natural ecology, infant mental health advocates must acknowledge and respond to the social inequality that privileges certain groups and certain relationships over others.

Out of this concern, these scholars developed a set of ten "Diversity-Informed Mental Health Tenets", organized into the following categories—stance toward infants

and families, practice/research field principles, and advocacy (St. John et al., 2012).

These tenets include 1) self-awareness leads to better services for families, 2) champion children's rights globally, 3) work to acknowledge privilege and combat discrimination, 4) recognize and respect nondominant bodies of knowledge, 5) honor diverse family structures, 6) understand that language can be used to hurt or heal, 7) support families in their preferred language, 8) allocate resources to systems change, 9) make space and open pathways for diverse professionals, and 10) advance policy that supports all families (St. John et al., 2012).

Using the Diversity-Informed Mental Health Tenets, infant mental health professionals must begin by engaging in continuous reflective practice that leads to self-awareness. This involves understanding one's own values, beliefs, areas of privilege and oppression, and personal bias. As infant mental health professionals evaluate their stance toward infants and families, they must recognize global and local responsibility to nurture and support families, as well as recognize privilege and combat discrimination institutionally, systemically, and within the profession. This framework also leads infant mental health advocates to value nondominant ways of knowing, healing, sources of strength, and diverse family structures. In terms of practice and/or research principles, infant mental health professionals should attend to the linguistic needs of families and be mindful of the power of verbal and nonverbal communication. They should purposefully allocate resources toward addressing social injustice as it relates to infant mental health in agencies, institutions, and systems of care. Diversity-informed mental health also values diverse practitioners and interdisciplinary practice. Finally, advocacy within this

framework refers to policy work aimed at addressing social inequalities, particularly as they relate to families (St. John et al., 2012).

### **Infant Mental Health Application**

The infant mental health framework has been used predominantly to inform practice internationally and in a variety of contexts. For example, it has been used in Australia in programs to identify perinatal physical and mental health risk and to subsequently provide relevant support for mothers (Myors, Cleary, Johnson & Schmied, 2015). In the United States, it has been integrated into services located in NICUs, child psychiatry outpatient clinics, and day treatment programs (Harmon & Frankel, 1997). Some of the hallmarks of programs and interventions integrating this theoretical framework are those that work with infants and their mothers jointly, support maternal-infant bonding, approach families from a strengths perspective, value culturally-responsive care, and focus heavily on bio-psychosocial developmental processes.

One intervention that has heavily incorporated an infant mental health framework is the child-parent psychotherapy model (Lieberman & Van Horn, 2009). The child-parent psychotherapy model is an intervention designed to support children who are experiencing or are at risk for adverse mental health issues associated with parental mental illness, problematic parenting behaviors and/or attachment styles, or the presence of stressors such as traumatic life events (e.g., intimate partner violence). Children from birth through preschool age participate in child-parent psychotherapy together with their primary caregiver(s). The overarching goal of the child-parent psychotherapy model is to support a caregiver(s) in providing their child a secure relationship attachment so that the

child may engage in necessary and appropriate social, emotional, and cognitive development (Lieberman & Van Horn, 2009).

Utilizing the child-parent psychotherapy approach, a therapist works directly with a caregiver and their child to interrupt maladaptive or harmful parenting techniques and responses through reflective listening, helping caregivers gain insight into how their own experiences shape their parenting beliefs and actions, teaching caregivers about normative developmental processes, reframing children's frustrating or confusing behaviors, and supporting caregivers as they develop more empathic, nurturing, safe, and appropriate responses (Lieberman & Van Horn, 2009). While a child-parent psychotherapist individually assesses the unique needs and strengths of each family, particularly salient behavioral targets include dangerous or aggressive caregiver responses to children, as well as caregiver internalization of frustrating caregiver-child interactions such as emotional withdrawal, anxiety, and somatization (Lieberman & Van Horn, 2009).

Several focal points of child-parent psychotherapy exist as a therapist works with a caregiver(s) and their child. First, child-parent psychotherapists assess and subsequently respond to children's developmental stages (Lieberman & Van Horn, 2009). Caregivers are helped to understand normative developmental tasks, behaviors, and emotional experiences. Therapists frame children's behaviors as relevant to their current developmental stage and help caregivers develop more appropriate and empathic responses to these behaviors. Next, the child-parent psychotherapist values play and assists parents in understanding the role of play in supporting healthy psychosocial

development (Lieberman & Van Horn, 2009). In addition to attending the developmental needs of children, therapists working from this model assess and respond to the developmental needs of caregivers (Lieberman & Van Horn, 2009). For example, caregivers are helped to evaluate the potential effects of their own childhood experiences, intimate attachments, sense of self, and overall fulfillment in adulthood. Finally, child-parent psychotherapists maintain a strict child-centered orientation to all work (Lieberman & Van Horn, 2009). Children are included in sessions whenever possible. If not physically present, children remain the focus of all work done with caregivers. That is, all therapeutic work with caregivers is oriented around cultivating higher functioning adults for the ultimate benefit of their children.

Child-parent psychotherapy employs a variety of specific interventions with families. One intervention is resolving misinterpretations or misunderstandings between caregivers and children through play, physical contact (e.g., holding, showing affection through touch), and language (i.e., accurately describing feelings). Other interventions might include providing reflective developmental guidance to caregivers, modeling appropriate protective behavior, and offering insight-oriented interpretation (Lieberman & Van Horn, 2009). In addition to helping caregivers understand how their own traumatic childhood experiences might affect current parenting beliefs and actions, child-parent psychotherapy often encourages caregivers to remember benevolent memories. As an example of how this approach uses a strengths-perspective, child-parent psychotherapists help caregivers recall past instances in which they felt protected, valued, and supported and then identify how these memories could shape current parenting

beliefs and actions (Lieberman & Van Horn, 2009). Additional interventions include providing emotional support, crisis intervention, and case management when needed (Lieberman & Van Horn, 2009).

Empirical evidence from randomized trials supports child-parent psychotherapy as a model of care for vulnerable children and their families. Examples of vulnerable families have included anxiously attached toddlers with Latina mothers with low socioeconomic status and trauma backgrounds (Lieberman, Weston & Pawl, 1991), toddlers whose mothers are depressed (Cicchetti, Rogosch, & Toth, 2000), maltreated preschoolers (Toth, Maughan, Manly, Spagnola, & Cicchetti, 2002), and preschoolers exposed to intimate partner violence (Lieberman, Van Horn, & Ippen, 2005). Results from these studies reflect positive effects of the child-parenting psychotherapy approach including improvements in the quality of attachment and relationship between mothers and their children, more positive child attributions of themselves, their parents, and other relationships, and improved cognitive functioning among children. Thus, there is evidence to suggest that the child-parent psychotherapy approach, based upon the infant mental health framework, is an effective model of care for vulnerable families experiencing various forms of stress and trauma (Lieberman & Van Horn, 2009).

### **Infant Mental Health Rationale and Critique**

Conceptually, the infant mental health framework draws from multiple theoretical perspectives across multiple disciplines. Psychoanalytic theory influences the infant mental health framework through the work of Sigmund Freud and Anna Freud. The work of developmental theorists Erik Erikson and Jean Piaget is also found throughout the

infant mental health framework. Attachment theorists Jean Piaget, John Bowlby, Mary Ainsworth, Mary Main, Donald Winnicott, and Daniel Stern all shape the infant mental health framework heavily. Finally, Vygotsky and Bronfenbrenner's theories of social, cultural, and historical context are also reflected in this framework (Weatherston, 2001).

As indicated earlier, Selma Fraiberg, a social worker, initially developed the infant mental health framework. Her ability to draw from and integrate multiple theories into a model of care and engage in interdisciplinary work should not be surprising to those familiar with the knowledge and skill set required of social workers. Indeed, the infant mental health framework reflects several social work values. It acknowledges the importance of human relationships, a strengths-orientation, ecology, and cultural responsiveness (Zeanah, 2009). The approach of engaging families in their most natural context (i.e., in their homes and communities) and working to build an alliance between caregivers and workers was so important to the model that Fraiberg and her colleagues at times referred to infant mental health as "Kitchen Table Therapy" (Weatherston, 2001). Also in agreement with the social work profession is the three-pronged approach to supporting positive infant mental health through research, policy advocacy, and practice (Zeanah, 2009).

The infant mental health framework privileges the caregiver-child relationship rather than focusing solely on either the child or the mother, thus acknowledging the interdependence that exists between mothers and their children. It acknowledges both the short-and long-term consequences of a functional, supportive, and nurturing relationship between caregivers and children. Notably, this framework recognizes the influence of the

social environment on human health, a concept that some health care companies are just now beginning to incorporate into their understanding of preventive care and effective health care (Holzer, Canavan, Cherlin, & Bradley, 2014). Advocates of this theoretical framework strive to support maternal and child health both on a downstream (i.e., micro) level through education and intervention as well as an upstream (i.e., macro) level through policy and advocacy.

Despite its conceptual foundations and strengths, the infant mental health framework also has weaknesses and gaps that must be acknowledged. First, its multidisciplinary practice and breadth of scope make even the definition of “infant mental health” challenging (Zeanah, 2009). A cursory search of the literature using “infant mental health framework” as a search term will yield similar yet unique descriptions and applications. This varied understanding of the core elements of the framework and the array of foundational theoretical influences makes it difficult at times to distinguish between core knowledge that many disciplines possess or specialized knowledge that only professionals who identify themselves as infant mental health specialists possess (Zeanah, 2009). It may also challenge advocates of this framework in their ability to empirically prove its utility. And while empirical studies exist that link applications of the infant mental health framework to improvements in maternal-child bonding, children’s relationships, and children’s cognitive functioning, its utility in improving mental health throughout the life course (a key core construct) is difficult to demonstrate without robust longitudinal studies.



A final critique of the infant mental health framework involves the claim that it is strengths-oriented. Proponents of the framework point to how it guides clinicians to identify strengths in the mother-infant dyad and surrounding social environment, build upon those strengths, and employ them to address weaknesses or barriers to optimal infant mental health (Zeanah, 2009). However, one cannot overlook the dominance of the words “risk,” “pathology,” and “problems” throughout infant mental health literatures. In fact, Fraiberg’s initial conceptualization of the infant mental health framework arose out of a desire to support “at risk” mothers and infants in which mothers were unable to provide a nurturing relationship for their child (Weatherston, 2001). In response, some recent scholars have attempted to reframe infant mental health language to be more strengths-oriented. For example, one of Fraiberg’s seminal writings, entitled, “Ghosts in the Nursery,” described the intergenerational transfer of intimate relationship experiences from mother to child. She noted how mothers may think, feel, and behave toward their infant in ways that reflect trauma, dysfunction, and lack of healthy attachment experienced as children by their own caregivers. The proverbial “ghost” represents those people who harmed, failed to protect, and/or neglected the mother in her own early childhood. Lieberman, Padrón, Van Horn, and Harris (2005) reframed this article in their writing of the manuscript “Angels in the Nursery.” In their work, Lieberman et al. (2005) acknowledge the potential for a mother’s own early childhood experiences to impact her relationship with her infant, but they challenge the notion that only malevolent experiences are salient. They point to the value in helping caregivers reflect upon benevolent people and memories that modeled safety, protection, nurturance, and care.

Further, they propose using this reflection on proverbial “angels” as an intervention tool to support caregivers in providing security and nurturance to their own children (Lieberman et al., 2005).

### **Infant Mental Health Influence on Current Study**

This study explores the development of Warm Connections, an integrated behavioral health intervention. The intervention is grounded in an infant mental health framework as demonstrated by several key facets. First, Warm Connections asserts that the mental health of caregivers, usually mothers, is vital for the socioemotional and developmental well-being of infants and children. Second, Warm Connections meets participants in the community at a location commonly considered to have less stigma and be more accessible than community mental health centers or other locations mothers might locate behavioral health support. Third, the interventionist implementing Warm Connections is a trained infant mental health specialist. This means she is skilled at addressing a broad range of psychosocial needs and takes a dyadic approach to supporting mothers. From an infant mental health perspective, supporting a mother in distress *is* supporting the socioemotional and developmental well-being of the infant and vice versa. In action, this might be supporting a mother with strategies to address infant feeding problems or improve infant sleep as a strategy to ultimately improve maternal mental health. Thus, the infant mental health framework shapes this study through highlighting the interconnectedness of maternal and infant well-being. It supports efforts to improve maternal mental health, especially among families with low socioeconomic status given the numerous vulnerabilities they may possess.

## **Integrated Behavioral Health**

An integrated behavioral health framework serves as an additional framework that heavily influences the Warm Connections intervention. While the infant mental health framework shapes the intervention's clinical approach toward WIC families, the integrated behavioral health framework guides the implementation model of the intervention. Developed in response to shifting health care needs, integrated behavioral health refers broadly to the collaboration between primary care and behavioral health care providers (Curtis & Christian, 2012). In the past several decades, population health care needs have moved away from the treating of infectious disease toward the more costly management of chronic disease (Wodarski, 2014). The location and level of integration between providers varies, but the theory asserts that both primary care and behavioral health care work more effectively and efficiently together, thus controlling health care costs (Curtis & Christian, 2012). Different models of integrated behavioral health continue to appear as research demonstrates the benefits of the framework. While once considered a partnership between primary care and behavioral health care, innovative models integrate behavioral health into other contexts such as the provision of group prenatal care (Ickovics et al., 2011).

Integrated behavioral care rests on several values consistent with social work values. First, integrated behavioral care asserts that the segregation of primary care and behavioral care is arbitrary (Curtis & Christian, 2012; Holden et al., 2014). Research consistently documents the connection between physical and mental wellness both in etiology and in outcome. In other words, the relationship between physical and mental

health is bidirectional—physical health is associated with both the onset and amelioration of mental health, and mental health is associated with both the onset and amelioration of physical health (Holden et al., 2014). For example, cardiac patients commonly experience anxiety and depression, which when treated assists patients in their ability to adhere to treatment recommendations (Curtis & Christian, 2012). While findings are mixed, research shows that somewhere between 30-80% of physical health conditions have a behavioral health component (Wodarski, 2014). Research also shows that people with severe mental health conditions have an average shortened life expectancy of 25 years (Curtis & Christian, 2012). The position that the line separating primary care and behavioral care is an arbitrary one fits well with social work's value on a biopsychosocial-spiritual perspective to human wellness (National Association of Social Workers [NASW], 2016). Social workers have long advocated for a holistic view of human well-being that recognizes the interconnectedness between our physical and biological selves and our social, emotional, and spiritual selves.

A second value that aligns with social work values is the emphasis within integrated behavioral health on systemic changes to address complex human challenges. An integrated behavioral health framework views the problem of an inefficient healthcare system with rising healthcare costs funneled toward treating chronic health conditions systemically and proposes systemic solutions. Rather than focusing solely on more effective healthcare interventions, an integrated behavioral health perspective considers the delivery of healthcare more broadly (Curtis & Christian, 2012). This fits well with the ecological perspective highly valued by the social work profession. Commonly referred

to “person-in-environment”, an ecological perspective recognizes the environmental influences on human behavior and development (NASW, 2016). Social workers approach even micro social work with a working knowledge of the client’s ecology, acknowledging that individuals are intricately embedded within systems such that changes in any layer of the ecology has a ripple effect to varying degrees throughout.

Additionally, an integrated behavioral health values the importance of human relationships. Scholars theorize one reason integrated behavioral health approaches are more successful at helping consumers initiate and adhere to treatment recommendations is due to the relationships between providers and between providers and consumers. Research shows that patients who historically might not seek behavioral health support are more likely to do so with the recommendation of a primary care provider (Curtis & Christian, 2012; Holden et al., 2014). In addition, providers working within more integrated models of integrated behavioral health collaborate more closely than those working in more traditional, segregated models of care (Curtis & Christian, 2012).

Various models of integrated behavioral health exist but most reflect different levels of collaboration along a continuum. The least integrated models of integrated behavioral health care, providers refer patients to providers with different training/expertise located in different facilities (Curtis & Christian, 2012). For example, a physician might refer a patient she suspects is experiencing depression to a behavioral health care provider located in a community mental health center. Moving along the continuum, a middle point of integration might be co-located providers who intermittently or inconsistently consult with one another regarding patient care (Curtis &

Christian, 2012). An example might be a behavioral health care provider who offices out of the same facility as a physician. The two providers might refer patients to one another and occasionally consult with one another, but no systematic process is in place to ensure a higher level of collaboration between providers. At the other end of the continuum, full integration is reflected by co-located providers who regularly consult with one another regarding patient care, even seeing patients together and developing treatment plans collaboratively (Curtis & Christian, 2012). Studies show that full integration yields the best patient results and is the most effective at controlling or reducing costs. However, significant challenges may accompany attempts to fully integrate behavioral health care into other systems, which may prohibit full integration and make less integrated approaches more attractive (Curtis & Christian, 2012). These challenges could include integrating electronic patient/consumer records, deciding to what degree support staff can and should be shared, choosing evidence-based protocols, and negotiating conflicts within the context of interdisciplinary partnerships (Curtis & Christian, 2012).

In addition to different levels of collaboration, an important concept to an integrated behavioral health framework is distinguishing between horizontal and vertical approaches to integration. Horizontal models of integrated behavioral health provide different degrees of behavioral health support to a broad range of consumers with a variety of needs (Curtis & Christian, 2012). A horizontal approach could include the inclusion of behavioral health support to address depression and anxiety that typically accompany cancer treatment. Moreover, services might range from psychoeducational support to more in-depth and intensive counseling services as warranted. Alternatively,

vertical models of integrated behavioral health provide more targeted behavioral health support to a specific subset of a population (Curtis & Chapman, 2012). For example, a primary care setting may provide a behavioral health support protocol for patients who experience chronic pain.

### **Integrated Behavioral Health Application**

The integrated behavioral health framework is transforming health care delivery in the United States (Curtis & Chapman, 2012). Innovative versions of integrated behavioral care continue to appear, with iterations involving placement of primary care providers in behavioral health care settings (i.e., reverse co-location) and state initiatives to address the psychosocial needs of underserved populations (Curtis & Chapman, 2012).

One example of an integrated behavioral health framework application is the delivery of a modified group prenatal care program in two public hospital clinics (Ickovics et al., 2011). In this randomized controlled trial, group prenatal care was augmented with psychoeducation elements aimed at reducing psychosocial stress among program participants. Women receiving prenatal care from two public hospital clinics were randomized into one of three groups—individual care (IC) or standard care, centering pregnancy (CP), a type of group prenatal care, or centering pregnancy plus (CP+; Ickovics et al., 2011). Participants in this study were either insured through Medicaid or received financial assistance through the public hospital for their prenatal care. Participants also tended to be relatively young, with about half (49%) aged between 14-19 years. Slightly more than one third of participants were still in high school (38%)

or had completed high school (36%), and about a quarter (26%) had dropped out of high school. In addition, 80% of participants were African American (Ickovics et al., 2011).

Individual care reflected traditional delivering of prenatal care. Pregnant women received 10 sessions of prenatal care from a medical professional lasting approximately 10-15 minutes each (Ickovics et al., 2011). Participants randomized into the CP group received 10 prenatal care sessions in groups of 8-10, with each session lasting 120 minutes. The CP model provided opportunities for social support, along with physical assessment and education. A unique aspect of CP, other than the group approach and length of time, is the opportunity for participants to engage in group discussions with medical providers about topics related to pregnancy such as childbirth and postpartum care (Ickovics et al., 2011). For pregnant women randomized into the CP+ group, CP was augmented with discussion topics aimed at addressing psychosocial needs. For example, participants completed education and skills training sessions on topics such as communication, negotiation, goal setting, and behavioral risks (Ickovics et al., 2011).

This study examined the impact of CP+ compared to IC and CP on psychosocial outcomes. Enrollment in this study took place over a three year period (n=1047), with measures of stress, self-esteem, social support, social conflict, depression, and sociodemographic and behavioral factors collected at entry into the study, prior to 24 week gestation, during the third trimester, 6 months postpartum, and 12 postpartum (Ickovics et al., 2011). Results showed that participants in the CP+ group had statistically significant less stress at one year postpartum compared to those in the CP group. Additionally, for participants assessed to be the most stressed (i.e., the top third most



stressed of all participants), those randomized to the CP+ group had significantly positive outcomes in self-esteem, stress, social conflict, and depression as measured through the third trimester compared to those randomized to the IC group (Ickovics et al., 2011). At one year postpartum, the top third most stressed participants in the CP+ group demonstrated reduced depression and social conflict compared to those in the IC group. Additionally, the top third most stressed participants in the CP+ group showed reduced social conflict compared to those in the CP group (Ickovics et al., 2011).

These findings suggest that for potentially vulnerable populations, such as pregnant women with low socioeconomic status and those with high levels of stress, prenatal care delivered through an integrated behavioral health approach may be more effective at addressing psychosocial concerns. Moreover, these effects may continue well past pregnancy up to one year postpartum (Ickovics et al., 2011). Results from this study affirm the potential value of integrating behavioral health components into primary care for pregnant women and especially for women with low socioeconomic status and women of color.

### **Integrated Behavioral Health Rationale and Critique**

Integrated behavioral health, though long implemented in European countries with socialized medicine (Curtis & Christian, 2012), is a relatively recent development in the United States. As a practice framework, integrated behavior health presents strengths and promise for addressing some of the flaws in the United States' healthcare system. Its growing popularity may be attributed to several characteristics. Evolving from needs to control health care costs, research suggests that integrated behavioral health care is

effective at controlling and at times reducing health care costs (Curtis & Christian, 2012). Primary care providers also recognize the increasing number of consumers asking for mental health support in primary care settings. Related, primary care providers increasingly acknowledge the interrelatedness of physical and mental health. Efforts to integrate behavioral health care with primary care continue to yield positive health outcomes in both domains (Curtis & Christian, 2012).

The cost effectiveness and efficacy of integrated behavioral care is especially noteworthy in the context of treating historically expensive and complicated health conditions such as depression and unexplained physical symptoms. Depression is the second most expensive health condition to treat in the United States, but integrated behavioral health approaches have been especially effective in treating depression (Curtis & Christian, 2012). In addition to effectively treating depression, research suggests integrated behavioral health approaches may even reduce some of the societal costs of depression by reducing emergency room and community health center visits (Curtis & Christian, 2012).

From a social work perspective, one of integrated behavioral health's greatest strengths is its potential to reduce health disparities. Research suggest integrated behavioral health may reduce health disparities among people of color (Bridges et al., 2014; Curtis & Christian, 2012; Holden et al., 2014), women (Curtis & Christian, 2012), and people with low socioeconomic status (Curtis & Christian, 2012; Ickovics et al., 2011). Several factors contribute to integrated behavioral health's strength in this area. First, integrated behavioral health may be more likely than traditional primary or

behavioral health care approaches to meet consumers in a more natural ecological context. A social worker might say that integrated behavioral health “meets clients where they are at.” By collocating services, often in locations more convenient to or more frequented by consumers, providers are more likely to ease the burden of accessing care (Bridges et al., 2014; Curtis & Christian, 2012; Holden et al., 2014).

Additionally, research demonstrates that an integrated behavioral health framework is associated with reduced stigma, particularly in accessing behavioral health care (Bridges et al., 2014; Curtis & Christian, 2012; Holden et al., 2014). The collocation of services combined with decreased stigma contribute to integrated behavioral health’s ability to reach clients who otherwise might not seek behavioral health care (Bridges et al., 2014; Holden et al., 2014). The integrated behavioral health framework’s ability to reduce stigma may be related to another core social work value—the value of human relationships. Scholars hypothesize one reason integrated behavioral health is associated with increased initiation of healthcare and continuation or completion of treatment may be that when one trusted healthcare provider recommends additional treatment from a co-located provider with whom they regularly collaborate, consumers are more likely to trust and follow through on the recommendation (Curtis & Christian, 2012).

Despite research demonstrating its advances and potential strengths, significant challenges exist for adopting an integrated behavioral health approach to healthcare. Valentijn (2016) places these challenges into two categories—functional or “hard” barriers and normative or “soft” barriers. Functional barriers refer to the practical and logistical challenges involved in integrating two different systems of care such as

integrating technology, billing, and record keeping systems. These challenges intensify depending on the level of system integration. Fully integrated systems must address more of the barriers and to a greater degree than less integrated systems (Curtis & Christian, 2012; Valentijn, 2016). Normative barriers refer to what may be thought of as cultural barriers in interdisciplinary partnership. These include factors such as how control and decision-making is shared, as well as relationship dynamics between providers (Valentijn, 2016). Until very recently, primary and behavioral health care providers have not been trained for fully integrated levels of collaboration, making the science of integrated behavioral health care emergent and valuable (Valentijn, 2016; Wodarski, 2014).

### **Integrated Behavioral Health Influence on Current Project**

An integrated behavioral health framework contributes several key aspects to this study. The service delivery approach for Warm Connections is based on an integrated behavioral health approach. Warm Connections delivers behavioral health support in the context of WIC clinics located in community health centers, which are in turn located in under-resourced communities. WIC provides nutrition assistance and referrals to community and social service supports. As such, it is not a primary care provider. Nonetheless, WIC does not include the provision of behavioral health care in its scope of service delivery. Warm Connections represents an innovative integrative behavioral health approach by partnering with WIC to provide behavioral health support. While co-located, Warm Connections is not a fully integrated behavioral health approach. Infant mental health specialists provide training and consultation to WIC staff, and a moderate

degree of collaboration exists between both entities. However, recording keeping and billing systems are not shared. Finally, integrated behavioral health influences the study's potential to effectively serve its target population, namely women and children with low socioeconomic status. Extant research points to this framework's ability to positively shape behavioral health outcomes (e.g., depression, stress) for women with low socioeconomic status who may experience high levels of stress.

### **Screening, Brief Intervention, and Referral to Treatment**

Screening, brief intervention, and referral to treatment (SBIRT) is an additional concept central to the Warm Connections intervention. Originally developed to address substance abuse concerns, the Substance Abuse and Mental Health Services

Administration (SAMHSA) describes SBIRT as an:

evidence-based practice used to identify, reduce, and prevent problematic use, abuse, and dependence on alcohol and illicit drugs. The SBIRT model was prompted by an Institute of Medicine recommendation that called for community-based screening for health risk behaviors, including substance use. (SAMHSA, n.d., para.1)

Building on evidence that supports universal screening and brief intervention, SAMHSA advocates providers implement SBIRT as part of routine healthcare (Levy & Williams, 2016). Additionally, the American Academy of Pediatrics (AAP) recommends providers implement SBIRT as part of routine adolescent healthcare to address troubling rates of youth substance abuse (AAP, 2011).

*Screening* as a part of the SBIRT approach involves universal screening to identify risk factors and symptoms of problematic alcohol and/or substance use to inform treatment planning. If screening indicates concerning risk levels and/or symptoms, the

provider provides a brief intervention or referral to treatment based on the level of risk and/or symptoms (Levy & Williams, 2016). Mild to moderate risk and/or symptoms may prompt a *brief intervention*, which may include steps such as conversation about risk, concrete strategies to reduce risk and stop using; psychoeducation; motivational interviewing; and positive reinforcement (Levy & Williams, 2016). Moderate to severe risk may warrant a *referral to treatment*. Referral to more intensive substance abuse treatment is accompanied by the expectation that the provider take an active role in facilitating the referral process (Levy & Williams, 2016).

Numerous studies support the efficacy of screening, brief interventions and referral to treatment for substance abuse treatment. A systematic review of brief, behavioral interventions to treat alcohol use among nonpregnant adults showed that at 6-12 month follow up, groups who received brief, behavioral interventions showed less alcohol use and safer, more moderate drinking patterns compared to control groups (Whitlock, Polen, Green, Orleans, & Klein, 2004). Notably, some studies reported positive effects of brief, behavioral interventions through a reduction in alcohol use and/or a reduction in alcohol-related morbidity for up to 2 years post treatment (Whitlock et al. 2004). In a Colorado initiative, SBIRT was implemented in 22 different settings, none of which included WIC. Results at 6-month follow up showed a dramatic decrease in alcohol use (51%) and overall illegal drug use (36%; SBIRT Colorado, n.d.b.).

The literature reveals positive outcomes from SBIRT approaches in a variety of age groups and treatment contexts. In one study conducted over a five-year period, a SBIRT approach with older adults in Florida was conducted in various settings including

healthcare/medical sites, aging services, mental health services, and substance abuse treatment (Schonfeld et al., 2015). Out of a total of 85,001 assessments, providers identified 8,165 older adults at moderate to high risk of substance abuse. Six month follow up data of those referred to treatment showed significant decrease in substance use (Schonfeld et al., 2015). Recent studies also support the use of SBIRT in rural settings. A study conducted in New Mexico over the course of five years demonstrated that SBIRT can be successfully implemented in rural contexts as evidenced by screening over 50,000 throughout the state for substance abuse risk (Gonzales et al., 2012).

In addition to positive health outcomes, SBIRT is associated with savings in healthcare costs. A recent study examined cost and healthcare utilization associated with the SBIRT approach with Medicaid consumers in Wisconsin (Paltzer et al., 2016). Findings demonstrated decreased healthcare costs, more outpatient healthcare use, and less inpatient healthcare use (Paltzer et al., 2016). Colorado's SBIRT project asserts that by screening everyone and not just those with identifiable risk factors, SBIRT is able to prevent and/or intervene early in problematic substance use patterns, thus thwarting more expensive and intensive substance abuse treatment. SBIRT Colorado estimates that within one year, alcohol universal screening and brief intervention yields a 400% return on the state's investment (SBIRT Colorado, n.d.a).

### **SBIRT Adaptations**

In response to evidence supporting SBIRT's efficacy in addressing problematic substance use, integrated behavioral health providers have adapted SBIRT to address other adverse health conditions including HIV and sexually transmitted infections,

depression, and trauma. The use of SBIRT in a public health setting treating sexually transmitted infections showed promising behavioral health results. Of 146,657 people screened, 15,687 received brief intervention, 954 received formal substance abuse treatment, 2,082 received substance abuse support services (e.g., Alcoholic Anonymous), and 690 received mental health, social awareness, or HIV awareness services (Yu et al., 2016). Six month follow up results showed that participants in some form of intervention reported less substance use risk, fewer mental health problems, and less unprotected sex (Yu et al., 2016).

Research shows that SBIRT may also be effective in addressing depression. In an evaluation of Open Door, a program aimed at increasing initiation of depression care services through an aging service meal program, screening and engaged discussion about structural and attitudinal barriers to care were effective in getting older adults to access depression care (Sirey et al., 2016). Participants who received the screening and brief intervention component of Open Door were more likely than those who received referrals, a handout, and transportation assistance at initiating services (Sirey et al., 2016). In a community health care setting, SBIRT was shown to be effective at identifying depression and substance abuse risk, and subsequently providing behavioral health care referrals (Dwinnells, 2015).

In a recent innovative adaptation, Hiratsuka et al. describe a modified SBIRT to specifically address trauma-related health concerns among American Indians and Alaskan Natives (AIAN). This community-based participatory research project, called *T-SBIRT*, was designed to assess and treat trauma in Alaska and Oklahoma. Results from



qualitative aspects of the project's development suggest that SBIRT can be effectively modified to address trauma among AIAN (Hiratsuka et al., 2016). Finally, some maternal and child health scholars advocate for the use of SBIRT to screen for psychosocial stressors among pregnant women (Records & Hanco, 2016). Using SBIRT to universally screen pregnant women during prenatal care visits could aid in the early identification and intervention of adverse psychosocial stress such as alcohol, tobacco, and substance use, depression, anxiety, gestational diabetes, and sleep disturbances (Records & Hanco, 2016).

In conclusion, a review of the literature supports the efficacy of SBIRT in identifying and treating substance abuse and behavioral health concerns in a variety of practice contexts and among diverse populations. Scholars measure the effectiveness of SBIRT in a variety of ways. These include tracking numbers of persons screened, referral rates, decreases in behavioral risks (e.g., risky sexual contact, alcohol use), and decreased mental health or substance abuse symptoms. Studies report findings from the point of screening and referral, as well as relatively short longitudinal outcomes (i.e., 6 month, 12 month, 48 month follow up). SBIRT appears to be effective across the life course from adolescence through older adulthood, with women and men, and across diverse urban, rural, racial and ethnic groups. These findings support its use with the Warm Connections intervention. Because Warm Connections is co-located with WIC, it has the potential to screen a broad range of women situated in that particular clinic's community for psychosocial stress regardless of obvious risk factors. Moreover, SBIRT's efficacy in

reducing behavioral health concerns lends support to Warm Connection's provision of infant mental health services.

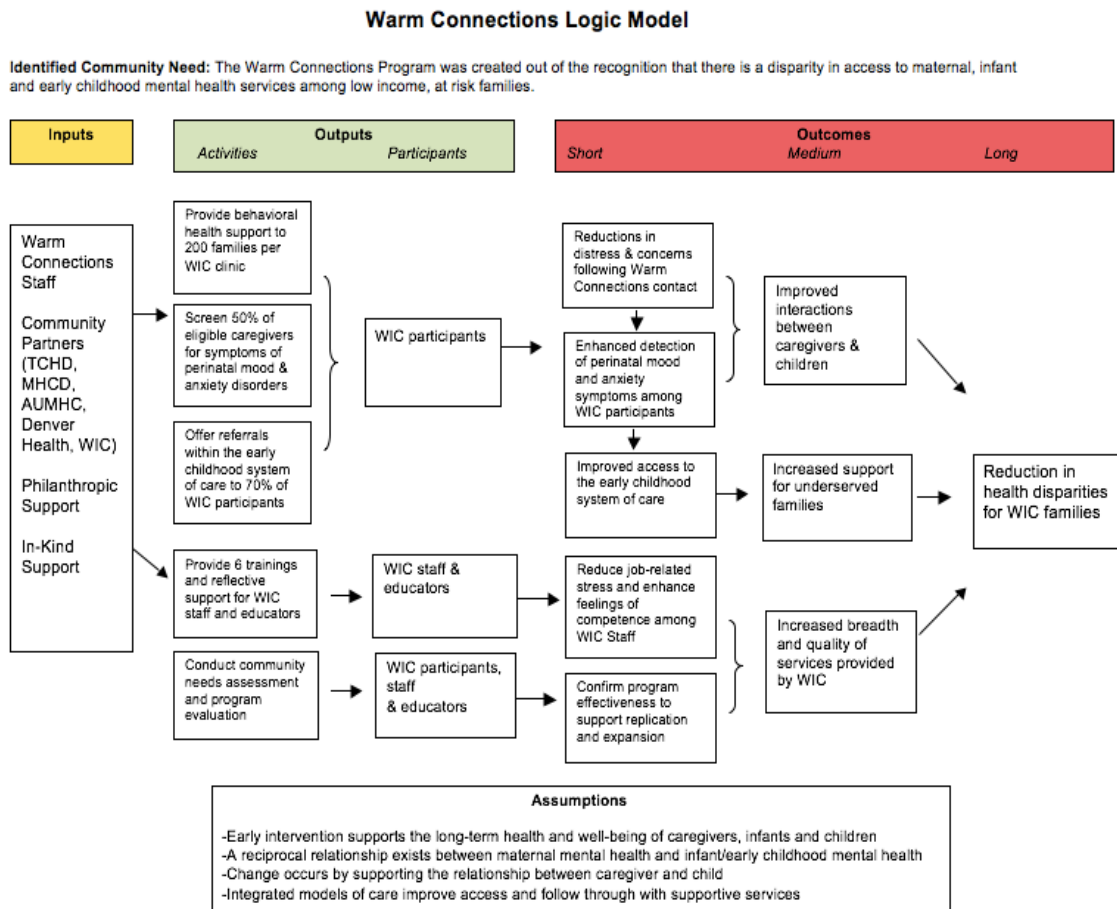
### **Warm Connections: An Overview**

Warm Connections aims to reduce caregiver distress through an integrated behavioral health intervention using an infant mental health approach. Participants in a Denver-area WIC clinic may voluntarily participate in the Warm Connections program. The Warm Connections interventionist, a doctoral-level psychologist trained in infant mental health, provides a brief psychosocial needs assessment to those who choose to participate in Warm Connections. Depending on participants' self-reported most urgent concerns, the interventionist provides support, usually ranging from addressing practical needs (e.g., referrals for housing, childcare), behavioral interventions for children, linkage to relevant support groups, and/or brief behavioral health counseling. For Warm Connections participants who require a more intensive level of behavioral health support, the interventionist may provide multiple sessions of psychosocial and behavioral health counseling and/or refer to an appropriate resource.

A secondary aim of Warm Connections includes reducing WIC staff distress in the context of addressing maternal behavioral health concerns. Most WIC staff who interact with WIC participants are trained in the areas of nutrition and perhaps nursing or administrative skills. Assessing and treating behavioral health concerns is usually not within their purview. Thus, WIC staff may experience a quandary when interacting with WIC participants potentially in need of psychosocial care. Warm Connections seeks to ameliorate some of this distress through providing an onsite behavioral health provider

(i.e., the infant mental health specialist) who provides services to Warm Connection participants, thereby removing the burden of response from WIC staff, and provides education and support regarding infant and child development and maternal mental health. Figure 2 provides a visual illustration of how Warm Connections envisions reaching these aims.

Figure 2. Warm Connections Logic Model. This model illustrates Warm Connections’ inputs, outputs, and outcomes.



TCHD: Tri-Country Health Department

MHCD: Mental Health Center of Denver

AUMHC: Aurora Mental Health Center

WIC: Special Supplemental Nutrition Program for Women, Infants, and Children

## Dissertation Study

The literature consistently demonstrates that women with low socioeconomic status and women of color experience physical and mental health disparities. Because WIC by definition as a food assistance program serves women with low socioeconomic status and disproportionately serves women of color, research suggests that WIC participants may have increased risk for various psychosocial stressors. While one study examines the prevalence of pregnancy related depression symptoms among WIC participants (Pooler et al., 2013), a dearth of information exists regarding the presence of psychosocial stressors present among WIC participants. Perhaps most importantly, no study to date examines what women who participate in WIC identify as their most urgent or most salient psychosocial needs. A critical tenet of providing effective behavioral health support is joining or aligning with a client around a shared definition of “the problem” and a shared vision for treatment (Hepworth, Rooney, Rooney, Strom-Gottfried, & Larsen, 2010). A social worker might describe this skill as “starting where the client is at.” (Hepworth et al., 2010). Thus, the absence of research exploring what psychosocial needs exist and which are most urgent among WIC participants reflects a critical gap in the literature.

In addition to the gap in identifying salient psychosocial needs among WIC participants, the literature provides little guidance on responses to maternal mental health concerns in under-resourced populations. Because maternal and infant mental health are interconnected, the potential consequences of adverse maternal mental health have intergenerational implications that demand innovative approaches. Scholars must develop

and test behavioral health interventions that remove barriers related to access, stigma, and cultural-responsiveness.

In response to this gap in the literature, this dissertation study aims to describe the development and pilot phase implementation of Warm Connections. Specific aims include:

1) Compare the congruence between WIC participants and WIC staff on the three most salient psychosocial needs of WIC participants. Through comparing what WIC participants identify as their three most urgent concerns and what WIC staff perceive WIC participants' three most urgent concerns, this study examines the acceptability of the Warm Connections intervention. Results will inform Warm Connections' messaging. This study's hypothesis for aim 1 is that incongruence will exist between what WIC participants perceive as most urgent and what WIC staff believe to be most salient for WIC participants.

2) Determine the sensitivity of two different measurement approaches for assessing change from Warm Connection's integrated behavioral health intervention. Results will identify the measurement approach that best captures the intervention's overarching goals of reducing maternal distress and increasing caregiver confidence through the screening and brief intervention components of the intervention. Aim's 2 hypothesis is that version 2 of the pre-post intervention assessment, which was revised to make questions and response options more direct, require a lower reading level, and to make questions more directly measure confidence in addressing concerns, will be better measure change than the first version.

3) Identify the difference between pre- and post-intervention effects on levels of distress and levels of confidence, as well as compare results of post-intervention satisfaction reports among participants in the Warm Connections intervention. Results will show preliminary effects and influence further intervention directions. The hypothesis for aim 3 is that the pre-post intervention assessment, as determined by the results of aim 2, will show effects on levels of confidence but will not show effects on levels of distress among Warm Connections participants. In addition, the hypothesis for aim 3 is that post-intervention satisfaction reports will indicate that participants perceive the Warm Connections program positively.

## CHAPTER 3: METHODS

Using an intervention development study approach, this dissertation describes the development and evaluation of the pilot phase implementation of Warm Connections. Intervention development studies are designed to report the methods and findings from the inception of an intervention and through its conceptualization process until it is ready for full implementation and evaluation (Hoddinott, 2015). These studies include aspects of intervention development such as acceptability, feasibility, measurement, and pilot or efficacy testing (Hoddinott, 2015).

While the process of designing interventions is not new, funding for intervention development studies is gaining interest among major funding sources. The National Institutes of Health (NIH) provides funding support for intervention development studies such as the R34 (NIH, 2016) and R15 (NIH, 2015) grant mechanisms. For example, NIH (2016) states that one of the purposes of the R34 grant mechanism is to promote:

...research on the development and preliminary testing of innovative services interventions. Applications should provide resources for evaluating the feasibility, tolerability, acceptability and safety of approaches to improve mental health or functional outcomes, or modify risk factors, and for obtaining the preliminary data needed as a pre-requisite to a larger-scale intervention trial (e.g., comparative effectiveness study, practical trial) or large-scale services study. (Funding Opportunity Purpose section, para. 1)

An intervention development study approach is appropriate for this project given its innovative nature. Warm Connections is a first attempt at providing integrated behavioral health care in a WIC context using an infant mental health and SBIRT approach. Thus, detailing its development and pilot phase implementation in a deliberate fashion provides opportunities to explore the acceptability, feasibility and measurement aspects of the Warm Connections intervention. Framing the study's purpose as an opportunity to assess and troubleshoot barriers, as well as refine aspects of the intervention itself and its implementation may prove valuable to its long-term effectiveness, as well as inform the development of future innovative integrated behavioral health interventions.

This intervention development dissertation study utilizes secondary data analysis in order to explore the acceptability, measurement, and effects of Warm Connections. Secondary data analysis allows a researcher to analyze data to answer the research question(s) different than the research question(s) originally hypothesized (Cheng & Phillips, 2014). This dissertation research study involves the examination of the development of the intervention and in particular the components aimed at acceptability and measurement among Warm Connection participants. In contrast, Warm Connections' broad evaluation plan examines the intervention's effectiveness as fully implemented and its overall goal of affecting change among Warm Connections participants in addition to WIC staff. Thus, secondary data analysis is appropriate for this study.

### **Timeline**

The University of Denver Institutional Review Board reviewed this dissertation study and granted it exempt status on November 1, 2016 based on its use of secondary



analysis of de-identified data. Prior to that review, the Colorado Multiple Institutional Review Board, which oversees research conducted at the University of Colorado, granted exempt status to the Warm Connections project on March 26, 2016 based on their determination that the project did not involve human subjects research. Exempt status was granted due to several factors including 1) no identifying information was collected and 2) the study was designed as a program evaluation project. While the identification of both the original study and this dissertation study's status as exempt in some ways limited the richness or depth of data collection, it also allowed for expediency and flexibility in refining the intervention and its evaluation. Implications and limitations will be described in later portions of this dissertation manuscript. Data collection took place from January 2016 through March 2017 in a series of 4 different data collection periods. The "data collection" section below describes each data collection period and procedure in detail.

### **Sample**

This intervention development study uses a convenience sample approach. Convenience sampling accesses study participants based on convenience – or ease of access (Teddlie & Tashakkori, 2009). While limitations exist in using convenience sampling such as bias, sampling error, and threats to generalizability of results (Teddlie & Tashakkori, 2009), this method may be necessary in situations where pilot and hypothesis testing occur and resource constraints to the research project exist (Hoddinott, 2015). Thus, this study used convenience sampling due to its purpose as an intervention development study and limited resources.

While identifying or sociodemographic information specific to participants could not be collected in this study, certain sample characteristics may be inferred based on WIC population characteristics in the state and specific clinic locations. To clarify, the study includes three convenience samples. Adults who participated in WIC and who attended the Denver Eastside Family Health Center completed the WIC psychosocial needs assessment. A subset of this group who volunteered to participate in Warm Connections make up the sample for version 1 of the pre-post intervention assessment. When version 2 of the pre-post intervention assessment was piloted, Warm Connections had expanded to the Denver Westside Family Health Center. Thus, the sample for version 2 of the pre-post intervention assessment includes WIC participants who received the Warm Connections intervention in both the Eastside and Westside clinics. Finally, WIC staff who work at several Denver County WIC clinics completed the WIC staff psychosocial needs assessments.

**Inclusion criteria.** Inclusion criteria for this dissertation study included adults who participated in WIC at the Eastside Community Health Center who speak English, Warm Connections participants from the Eastside Community Health Center and Westside Community Health Center who speak English, and Denver Country WIC educators and WIC dieticians who speak English. All participants voluntarily completed assessments. Exclusion criteria included WIC participants and WIC staff who did not speak English and WIC staff who work at non-Denver County WIC clinics.

**Recruitment.** The Warm Connections Specialist, Kelly Glaze, PhD, recruited WIC participants to complete the WIC participant needs assessments. She approached

WIC participants in the WIC clinic who were waiting for their WIC appointment and asked if they would voluntarily complete the assessment. Dr. Glaze recruited Warm Connections participants from the Eastside Family Health Center to voluntarily complete both versions of the pre-post intervention surveys. A second Warm Connections Specialist, Ashley Sward, PhD, recruited Warm Connections participants from the Westside Family Health Center to voluntarily complete version 2 of the pre-post intervention survey. WIC staff were recruited to complete the WIC staff needs assessment at a Denver County WIC training.

**WIC participants.** Participants who completed the WIC psychosocial needs assessments (n=78) included adults who accessed WIC services through Denver Health's Gibson Eastside Family Health Center. Because of the study's stage of intervention development, sample characteristics could not be directly collected. Instead, data from the US Census Bureau's 2013-2014 American Community Survey linked to the 2012-2014 Colorado WIC Administrative Records, reflect the race/ethnicity and socioeconomic characteristics of those eligible and participating in Colorado WIC (US Census Bureau, 2016). A complete description of Colorado WIC eligibility and participant characteristics may be found in Table 1.

Hispanic and non-Hispanic White infants/children represent the vast racial/ethnic majority of those eligible and participating in WIC (US Census Bureau, 2016). Employment status, educational attainment, insurance status, and household income may be used as indicators of socioeconomic status. In general, those eligible and participating in WIC tend to comprise the working poor. Approximately three-quarters are employed

and have either a high school diploma, some college experience, or have a bachelor degree or more (US Census Bureau, 2016). A little over one third have public health insurance, a third have private health insurance, and about one fifth report having no health insurance (US Census Bureau, 2016). In terms of federal poverty level guidelines (FPL), income is almost equally distributed. Approximately one third of those eligible and participating in WIC have incomes less than 100% FPL, one third report incomes between 100-185% FPL, and one third report incomes higher than 185% FPL (US Census Bureau, 2016).

Table 1. Colorado WIC Eligibility and Participant Characteristics

	Eligible	Participants
<b>Race/ethnicity</b>		
Hispanic	45.8%	51%
Non-Hispanic White	39.9%	33%
Non-Hispanic Black	6.5%	8.6%
<b>Employment</b>		
Employed/Military	68.3%	65.7%
Unemployed	6.1%	6.5%
Not in labor force	25.6%	27.8%
<b>Education</b>		
Bachelor or more	15.5%	10.9%
Some college	37.8%	37.3%
High school diploma	26.9%	29%

Less than high school diploma	19.8%	20.9%
Health insurance		
Public	39.2%	45.3%
Private	33.1%	27.5%
None	20.8%	20.3%
Public and Private	7%	6.9%
% FPL		
< 100% FPL	32.5%	35.8%
100-145% FPL	20.5%	21.7%
145-185% FPL	16.9%	13.4%
> 185% FPL	30.1%	29.1%

**Warm Connections participants.** Warm Connections participants who completed version 1 of the pre-post intervention survey (n=28) included a subset of the WIC participant sample from the Denver Eastside Family Health Center. Warm Connections participants who completed version 2 of the pre-post intervention survey (n=33), included WIC participants from the Denver Eastside Family Health Center (n=14) and the Denver Westside Family Health Center (n=19). Demographic characteristics for both health centers are similar to those reported above for Colorado WIC. Because of its status as a pilot and program evaluation study, identifying information was not collected.

**WIC staff.** The WIC staff sample (n=39) consisted of WIC employees from Denver County WIC clinics. These clinics include the Eastside Community Health Center, Lowry Community Health Center, Montbello Community Health Center, Southwest Family Health Center, and the Westside Community Health Center (Denver Health WIC, 2016). Only WIC staff members who interact directly with WIC participants as regular part of their job description completed the WIC staff psychosocial needs assessment. These staff roles included WIC educators and registered dietitians. Educators complete assessment and administrative activities such as determining eligibility, assessing and referring participants to WIC dietitians and social services (e.g., housing, childcare, and transportation information and assistance), and issuing benefits packages (Denver Health Edu, 2016). Registered dietitians complete nutritional assessments and provide personalized nutritional counseling, information, support, and referrals, as well as oversee WIC policies and procedures (Denver Health RD, 2016).

## **Warm Connections**

### **Development Process**

Warm Connections is an integrated behavioral health care intervention designed to provide integrated, on-site, immediate behavioral health support for families participating in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Warm Connections' mission is to mitigate the impact of psychosocial stressors and improve access to the early childhood system of care for low-income, at-risk women, infants and children (Warm Connections, 2017). It reflects an interdisciplinary partnership between the University of Colorado's Irving Harris Program

in Child Development and Infant Mental Health, community mental health centers including the Mental Health Center of Denver and the Aurora Mental Health Center, the University of Denver's Graduate School of Social Work, and public health agencies that house WIC, including Tri-County Public Health and Denver Health Public Health (Warm Connections, 2017). Representatives from these organizations gathered May 21, 2014 to address concerns about maternal mental health in the Denver area. Minutes report the process of developing Warm Connections from inception through pilot phase implementation and inform this study's description of Warm Connections' development along with the Warm Connections Manual (Warm Connections, 2017).

Karen Frankel, PhD, director of the Irving Harris Program, spearheaded the initiative that eventually led to the creation of Warm Connections and continues to oversee the program. She assembled the aforementioned interdisciplinary team to address maternal mental health concerns, particularly for low-income families in Denver and its surrounding metropolitan areas. Minutes reflect the following key impressions from the first meeting:

1. Group members had a wealth of experience working with mothers and young children.
2. Group members agreed on the importance of mental health for both mothers and babies.
3. Sufficient behavioral health services were not easily available to mothers and babies who participate in WIC.

4. Prior piloted programs in the community such as “Mama Talk” (Early Childhood Partnership of Adams County, 2013) and partnering WIC with a clinician from the Aurora Mental Health Center seemed promising.
5. Significant momentum to address pregnancy related depression existed in the state among public health and behavioral health providers.

These initial key impressions shaped the team’s intervention development process going forward. The first meeting concluded with group members committing to monthly meetings to further discuss these impressions. Notably, Dr. Frankel hosted meetings at the University of Colorado’s Anschutz Medical Campus which meant group members commuted to attend meetings. Commute times varied but often meant at least 60 minutes of commute time each way during the work day. Nevertheless, group members met faithfully once a month for approximately 18 months as they developed and prepared the intervention for implementation. Dr. Frankel facilitated the meetings, which usually lasted 90 minutes, and provided small snacks for members. Susanne Klawetter took minutes. Other than these responsibilities, all group members shared openly at each meeting and took care to collaborate and listen to the respective expertise and experience of other members.

Minutes also reflect the team’s identification and problem-solving of potential barriers to the implementation and success of the intervention. Group members discussed concerns such as cultural-responsiveness given the diversity of Colorado WIC participants, WIC staff buy-in considering their already considerable workload, fidelity between clinics if/when implemented fully across multiple WIC clinics, funding, and



whether didactic work with families was preferable to group work or classes. Additionally, the team discussed how to integrate care and how much time could be asked of families already coming for WIC visits. These concerns were discussed throughout intervention development, including during the pilot phase implementation.

The group moved quickly to the idea of developing an integrated behavioral health intervention to address maternal mental health concerns among low-income families. By only the second meeting, members suggested a partnership between WIC and behavioral health care providers in which behavioral health support could be co-located at local WIC clinics. The group also quickly decided to use the infant mental health framework as one of the dominant theoretical frameworks. Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an additional theoretical framework supporting Warm Connections intervention. The explicit identification of SBIRT as a foundational approach did not occur until much later in the planning process, although the team consistently added elements of the SBIRT approach into Warm Connections practically from inception. While the team did not quickly identify SBIRT as the specific model to pattern the intervention's approach, it did describe early in the intervention development process the need for a co-located behavioral health support that could facilitate referral to treatment for families needing more intensive behavioral health support.

In addition to determining guiding theoretical frameworks, minutes reflect the team's discussion of other vital elements in an intervention designed to address maternal mental health concerns among low-income families. For example, several meetings

included discussion of desired outcomes. Initial ideas included reducing parenting stress, improving child developmental outcomes, reducing maternal mental health symptoms, reducing toxic stress, improving parent-child interactions, improving job satisfaction among WIC staff, reducing WIC staff burnout, and improving knowledge of infant mental health among WIC staff. Each of these ideas informed the final list of Warm Connections' desired outcomes:

1. Reduce caregiver distress.
2. Increase caregiver confidence (i.e., efficacy).
3. Improve access to the early childhood system of care among low-income families.
4. Increase WIC staff knowledge and application of infant mental health.
5. Increase workforce capacity by training early childhood mental health specialists.

### **Description of Intervention**

Warm Connections is an innovative intervention designed to offer behavioral health support to low-income families at WIC, a community-based setting that already welcomes a broad spectrum of families but is thus far not cited in the literature as a behavioral health site (Warm Connections, 2017). It draws from three theoretical frameworks supported in the literature as effective with marginalized populations including integrated behavioral health, infant mental health, and screening, brief intervention, and referral to treatment (SBIRT). Warm Connections places an infant mental health specialist in a WIC clinic who provides behavioral health assessment, including screening for perinatal mood disorders, at the moment of distress/need.

In partnership with the participant, the Warm Connections specialist offers behavioral, social, emotional and developmental information and support, as well as connection to community resources. When indicated, the infant mental health specialist may offer more intensive behavioral health support. For example, participants may return to receive behavioral health support multiple times (Warm Connections, 2017). Thus, the infant mental health specialist, a doctoral-level trained psychologist with extensive training in infant mental health, in practice becomes the behavioral health provider for some participants.

The infant mental health specialist also provides training and support to WIC staff specific to infant mental health content. For example, she provides information on infant and child development, as well as perinatal mood disorders. Some of this information is delivered in structured group trainings held at WIC, however, Warm Connections also provides ongoing support and consultation for individual WIC staff when appropriate (Warm Connections, 2017).

Flexibility and availability are key elements of the Warm Connections approach. As such, WIC families may begin participating in Warm Connections through a variety of avenues. Any caregiver and their infant/child who participates in WIC may receive Warm Connections support. They may self-refer through flyers posted in the WIC clinic, or WIC staff may refer families to Warm Connections. The Warm Connections specialist may meet with participants after their WIC appointments, join the family in their WIC appointment, schedule an appointment for a different time/date, and even provide support via telephone if necessary (Warm Connections, 2017).

Typically, caregivers and their children hear about Warm Connections through WIC staff and meet with the Warm Connections specialist after their WIC appointment. As families come for their WIC appointments, WIC staff identify those who might need additional psychosocial support. The staff member explains that a Warm Connections specialist is present in the clinic and available to offer additional support if needed. If the WIC family member indicates interest in the program, the WIC staff person completes the WIC appointment and then walks with the WIC family member to the Warm Connections office and introduces them to the Warm Connections specialist. The Warm Connections specialist then briefly explains the program and her role and asks if the WIC family member would like to participate in Warm Connections. In this way, the WIC and Warm Connections programs collaborative to facilitate a “warm hand off” between the WIC staff and Warm Connections specialists.

Once the WIC family member agrees to participate in Warm Connections, the Warm Connections specialist loosely structured three-part sessional format (Warm Connections, 2017). First, she employs empathetic inquiry, usually by asking, “What has it been like for you taking care of your baby?” She assesses the client and client ecology—parent, child, parent-child dyad, extended family and social support, and access to community resources (Warm Connections, 2017).

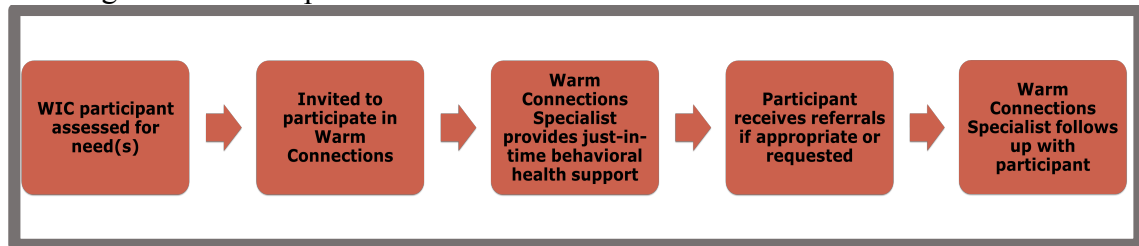
Next, she collaboratively explores caregivers’ concerns, working to prioritize and address participants’ most urgent concerns, including providing referrals to relevant resources (Warm Connections, 2017). When indicated, the Warm Connections specialist provides ongoing behavioral health support. She might ask a question during this phase

such as, “Have we gotten to what you most wanted to talk about today?” (Warm Connections, 2017).

Last, she works to integrate the process by asking participants to summarize and/or reflect upon the session. She might do this by asking questions such as, “What would you like to remember from our time together?” or “What are three words to describe your baby?” (Warm Connections, 2017).

Thus, the Warm Connections specialist provides individualized assessment and treatment, in partnership with and according to participant need and preference. Figure 1 provides a visual illustration of the Warm Connections’ implementation process from assessment through intervention and follow-up.

Figure 1. Warm Connections’ intervention process from point of client contact through discharge and follow-up.



Warm Connections entered pilot phase implementation January 2016 at the Eastside Family Health Center. In September 2016, it expanded to the Westside Family Health Center. Notably, pilot phase implementation will continue through Spring 2017. Pending funding, Warm Connections’ five year implementation plan includes expanding into eight Denver-area WIC clinics. As Warm Connections expands, the Harris Program will provide post-doc fellows to staff each clinic along with the appropriate training and supervision (Warm Connections, 2017).

## Data Collection

Needs assessments and surveys were built into Research Electronic Data Capture (REDCap), a HIPAA-compliant data capture software package.

REDCap is a secure, web-based application designed to support data capture for research studies, providing: 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources. (Harris, Taylor, Thielke, Payne, Gonzalez, Conde, 2009)

REDCap allows users to enter data directly through portable electronic devices (e.g., Digi-land Tablet, iPad). REDCap allows users to download and print paper copies in PDF format. Needs assessments and surveys were offered either through Digi-land tablets (Digi-land, n.d.) or in paper format. Participation in needs assessments, surveys, and the Warm Connections program was completely voluntary. Participants were assured that no identifying information was collected and that participation in WIC and/or the Warm Connections program was not contingent upon completing needs assessments or surveys.

This study is comprised of four data collection points. The Warm Connections interventionist collected psychosocial needs assessments from WIC participants from January 2016 through December 2016 as part of preparing to implement the Warm Connections intervention. The WIC Participant Needs Assessment was presented to WIC participants in the waiting room of the Eastside WIC Clinic. WIC participants completed the needs assessment on a Digi-land tablet while waiting for their WIC appointment. Paper format was used as a substitute if technical issues existed or if preferred by WIC participants. This study cannot estimate a response rate for WIC participants who completed WIC participant needs assessments.

WIC staff's perceptions of WIC participants' psychosocial needs was the second piece of data collected. The WIC Staff Needs Assessment was collected on October 31, 2016 at a WIC staff training. The Warm Connections interventionist presented paper format needs assessments to WIC staff from several Denver-area WIC clinics, including the Eastside WIC clinic. Paper format was used to expedite the completion of the assessment rather than circulating a tablet. WIC staff voluntarily completed the assessment and entered a drawing to receive one of two \$25 Target gift cards. Of the 39 WIC staff presented with the opportunity to complete the WIC staff needs assessment, 39 completed the assessment for a 100% response rate.

The Pre-Post Intervention Survey Version 1 was the third data collected for this study. The Warm Connections interventionist asked WIC participants who were invited to participate in Warm Connections to complete the pre-intervention survey prior to beginning the intervention and then again upon completing the intervention session. WIC participants invited to participate in Warm Connections but who chose not to participate received their standard WIC care. Warm Connections participants who chose not to complete the pre-and/or post-intervention survey still received the intervention. The Warm Connections intervention invited participants to complete the first version of the pre-post survey at the Eastside clinic from April 2016 through December 2016. The survey was offered on a Digi-land tablet, but paper format was used when technological issues arose or upon participant preference.

Based on participant and interventionist feedback, the Pre-Post Intervention Survey Version 1 was revised into a second version. This fourth and final data source was

collected from January 2017 through March 2017 at Eastside and Westside clinics. Data collection methods were identical to those for the first version of the pre-post intervention survey. Among Warm Connections participants, 61 out of approximately 150 participants completed either version 1 or version 2 of the pre-post intervention surveys, which yields an approximate response rate of 40%.

### **WIC Participant Needs Assessment**

The WIC Participant Needs Assessment was developed to measure the three most salient concerns among WIC participants (See Appendix A). Participants were asked to rate 19 items on a 4-point scale (strongly disagree, disagree, agree, strongly agree) about the importance of various psychosocial concerns. Considering an ecological framework, items addressed content related to caregivers, infants, family, and community supports.

Sample items included:

- I would like help and support with my baby/child's development.
- I would like help and support with my mood (sadness, anger, worry, irritability, etc.).
- I would like help and support to access assistance with housing, childcare, and/or transportation.

WIC participant needs assessment items may be grouped into four key variables—concerns about infant/child, concerns about self/caregiver, concerns about caregiver-child dyad, concerns about social environment. Caregiver concerns about their infant/child included specific questions about infant/child mood, behavior, development, sleep, fussiness, and eating. Caregiver concerns about themselves included specific



questions about caregiver mood, alcohol/substance use, past trauma experiences, and current stressful events. Concerns about the caregiver-child dyad included questions about understanding a child's cues, bonding, and discipline. Finally, caregiver concerns about the social environment were comprised of items addressing managing conflict with other family members, including one's partner, negotiating other caregiving responsibilities (i.e., caring for other children or older adults in the home), and accessing community resources. The survey took approximately 5-7 minutes to complete.

### **WIC Staff Needs Assessment**

The WIC Staff Needs Assessment was developed to measure WIC staff's perceptions of WIC families' most salient psychosocial needs (See Appendix B). Patterned after the WIC participant needs assessment, WIC staff were asked to rate 19 items on a 4-point scale (strongly disagree, disagree, agree, strongly agree) about the importance of various psychosocial concerns for WIC families. Considering an ecological framework, items addressed content related to caregivers, infants, family, and community supports. Items were slightly reworded to capture WIC staff perceptions. Sample items included:

- WIC participants need help and support with their baby/child's development.
- WIC participants need help and support with their own mood (sadness, anger, worry, irritability, etc.).
- WIC participants need help and support to access assistance with housing, childcare, and/or transportation.

Because the WIC staff needs assessment was patterned so closely to the WIC participant needs assessment, they share the key variables of concerns about infant/child, concerns about caregiver, concerns about caregiver-child dyad, concerns about social environment. Participants took approximately 5-7 minutes to complete the survey.

### **Pre-Post Intervention Survey Version 1**

The pre-post intervention survey was developed to measure effectiveness of the Warm Connections' brief intervention component at reducing caregiver distress and increasing caregiver confidence (i.e., efficacy; See Appendix C). Item selection and format for version 1 were based loosely on a survey used by a separate University of Colorado Harris Program project, Fussy Baby (Fussy Baby Network, 2010), as well as results from the WIC participants needs assessment scale. Priorities for item selection and development included feasibility and acceptability, particularly because Warm Connections is the first known integrated behavioral health intervention using an infant mental health framework to be co-located in a WIC setting.

The pre-post intervention survey was comprised of 10 items. For the pre-intervention survey, 9 items were answered on a 4-point scale. Depending on the item, response options were comprised of “strongly disagree, disagree, agree, strongly agree” or “not at all, slightly, moderately, extremely.” For three of the nine items, “On a scale of 1-4, how distressed do you feel about this issue?”, skip patterns were formatted into REDCap. Thus, several items would not appear in the survey if participants did not initially endorse concern about a related item. In addition, 1 item, “Would you like to be

connected with additional supports or resources in the community?”, was answered in “yes/no” format.

The post-intervention survey was comprised of the same questions with a few modifications. For the follow up question, “On a scale of 1-4, how distressed to you feel about this issue?”, was changed to “On a scale of 1-4, how distressed do you feel about this issue now?” The item asking if participants would like to be connected with additional supports or resources in the community was worded in the past tense to read, “Did you receive referrals for additional support or resources from Warm Connections?” Response options for these modified questions remained the same.

Additionally, items addressing program satisfaction were added to the post-intervention survey. Post-satisfaction items for version 1 included:

1. To what extent do you feel that Warm Connections helped you cope with your distress today? (1-not at all, 2-slightly, 3-moderately, 4-extremely)
2. Overall, how satisfied are you with the Warm Connections program? (very dissatisfied, dissatisfied, satisfied, very satisfied)
3. What do you think was most helpful about Warm Connections? Select all that apply. (talking with someone about my concerns, learning ways to help myself or my child, feeling supported, being connected with other resources in the community, receiving answers to questions I had, other)
4. Would you tell other families to get support from Warm Connections? (yes, no)

Caregiver distress and caregiver confidence were the key constructs for the pre-post intervention survey. While not a validated scale, variables indicating caregiver

distress included concern and levels of distress regarding 1) child mood, behavior, and/or development; 2) finding or using community resources; and 3) caregiver mood, behavior, and/or parenting. Caregiver confidence was measured by variables addressing 1) feeling like a good parent, 2) feeling close and connected to the child, and 3) perception of adequate support to manage concerns. Participants completed the surveys in approximately 10 minutes.

### **Pre-Post Intervention Survey Version 2**

A second version of the pre-post intervention survey was developed with modifications to the first version in response to feedback from the Warm Connections Specialist and Warm Connections participants (See Appendix D). Phrases and word choices were simplified for items and response options. For example, “I feel close and connected to my baby/child” was changed to “Do you believe that you and your baby/child have a good interaction with each other?” and “distress” was replaced with “concern.” Response options were modified by replacing the 4-point scale (strongly disagree, disagree, agree, strongly agree) with a 6-point scale (0, I’m not concerned about it at all – 5, I am extremely concerned about it).

For version 2, post-intervention satisfaction items included:

1. How well did Warm Connections help you address your concerns today? (0, it didn’t help at all – 5, I got all the help I needed)
2. Overall, how satisfied are you with the Warm Connections program? (0, very dissatisfied – 5, very satisfied)

3. I felt the Warm Connections Specialist heard, respected, and understood my concerns today. (0, no, not at all – 5, yes, absolutely)
4. What do you think was most helpful about Warm Connections? Select all that apply. (talking with someone about my concerns, learning ways to help myself or my child, feeling supported, being connected with other resources in the community, receiving answers to questions I had, other)

Caregiver distress and caregiver confidence remained key constructs for the pre-post intervention survey version 2, although attempts were made to improve the survey's ability to capture those constructs through the changes described above. Variables indicating caregiver distress included concern regarding 1) child mood, behavior, and/or development; 2) finding or using community resources; and 3) caregiver mood, behavior, and/or parenting. Caregiver confidence was measured by variables addressing 1) feeling like a good parent, 2) positive perceptions of parent-child interaction, and 3) perception of adequate support to manage concerns. Data collection procedures for the pre-post intervention survey version 2 mirrored those of pre-post intervention version 1.

Participants completed the survey in approximately 15 minutes.

### **Data Cleaning**

All data were recorded in REDCap and then exported into SPSS version 24. Variables not relevant to this study's research aims (e.g., time stamps, open-ended/text items) were omitted. Data were checked for missingness. Steps to address missingness are described below. Missing data accounted for more than 5% of some items for both versions of the pre-post intervention survey. For those surveys, missingness was explored

and determined missing not at random then addressed through listwise deletion as discussed below.

Missingness was explored for the WIC participant needs assessment and the WIC staff needs assessment and found to account for less than 5% of the data collected, which Schafer (1999) determined an acceptable amount of missing data.

Missingness was examined for the pre-post intervention survey version 1 and found to be greater than 5% for some items. Upon further examination, missingness for version 1 was associated with survey skip patterns. Several items asked respondents to rate levels of concern about specific issues (i.e., access to community resources, child behavior and mood, parent behavior and mood). These items were then followed by items asking respondents to rate their level of distress about the issue. However, if respondents indicated no concern about an issue, the survey employed a skip pattern so that respondents would not be asked the follow up question. Survey administration error also accounted for some of the missing data for version 1. Respondents who completed paper forms were not prompted to skip follow up items as there was no electronic mechanism to regulate the appearance of those items. In some of the earliest cases, the online survey's skip patterns were designed incorrectly, thus showing follow up items to respondents inadvertently. Data cleaning for version 1 included recoding follow up items so that data was only captured for those items when respondents indicated concern (i.e., "agree" or "strongly agree").

For both version 2 data sets, missingness was accounted for by skip patterns designed in REDCap and SPSS employed listwise deletion. For all versions of the pre-

post intervention survey, SPSS employed listwise deletion for missingness and sample sizes reflect only those who were intended to answer items.

## **Data Analysis**

### **Research Aim 1**

Research aim 1 was to compare the congruence between WIC participants and WIC staff on the three most salient psychosocial needs of WIC participants in order to examine the acceptability of the Warm Connections intervention. The hypothesis for research aim 1 was that incongruence would exist between what WIC participants perceived as their most urgent concerns and what WIC staff perceived as the most urgent concerns among WIC participants.

The WIC participant needs assessment and WIC staff needs assessment data sets were combined and responses categorized into either Group 1, WIC participants (n=78), or Group 2, WIC staff (n=39). Descriptive statistics were calculated for each item (means, frequencies, standard deviation). Based on group means, the three highest ranked items for each group were identified.

Cohen's  $\kappa$  may be used for studies examining agreement between raters (McHugh, 2012). In this study, all WIC participant responses were grouped as one rater and all WIC staff were grouped as a second rater. The five assumptions for Cohen's  $\kappa$  are 1) nominal and mutually exclusive responses, 2) responses are paired observations of the same phenomenon, 3) crosstabulation must be symmetric, 4) independence of raters, and 5) raters are fixed or unique (McHugh, 2012). Similar to correlations, Cohen's  $\kappa$  scores range from -1 to 1, with higher scores indicating greater agreement. Although acceptable

scores range depending on the cited author and research context, some scholars point to .60 or higher as an adequate  $K$  score for confidence in study findings (McHugh, 2012).

After determining that the data met assumptions for Cohen's  $K$ , Cohen's  $K$  was computed to examine the level of agreement on the three items with highest means for each group between Group 1 and Group 2. All  $K$  scores were below .5 and not statistically significant, indicating a low level of agreement on these items between groups. In response to these results, Cohen's  $K$  was computed on all other items to explore levels of agreement between Group 1 and Group 2.

## **Research Aim 2**

Research aim 2 was to determine the sensitivity of two different measurement approaches for assessing change from Warm Connection's integrated behavioral health intervention. The hypothesis for research aim 2 was that version 2 of the pre-post intervention survey would detect more change in caregiver distress and caregiver confidence than version 1. For this analysis, version 2 was split into two data sets reflecting version 2 data collected from the Eastside clinic and version 2 data collected from the Westside clinic.

After data were cleaned, Cronbach's alpha was computed for all items for version 1 ( $n=6$ ,  $\alpha=.608$ ) and version 2 ( $n=15$ ,  $\alpha=.506$ ). Next, items were grouped into variables of either distress or confidence. The distress variable ( $n=27$ ,  $\alpha=-.156$ ) for version 1 included three items addressing concerns about child, parent, and community resources:

1. I have a concern about my baby/child's mood, behavior or development.



2. I have a concern about finding and/or using community resources. Examples might be childcare, housing, and/or counseling.

3. I have a concern about my own mood, behavior, or parenting.

The confidence variable ( $n=27$ ,  $\alpha=.642$ ) for version 1 included three items addressing feelings of being a good parent, being close and connected to their child, and having adequate support:

1. I feel like I am a good parent/caregiver to my baby/child.

2. I feel close and connected to my baby/child.

3. I feel I have enough support to deal with my concerns.

For version 2, modifications were made to response options and some of the items in response to participant feedback that response options seemed redundant and/or confusing. Because of these modifications, the items included in the distress and confidence variables changed for version 2. The distress variable in version 2 ( $n=33$ ,  $\alpha=.433$ ) included three items addressing concerns about child, parent, and community resources:

1. How concerned are you about your baby/child's mood, behavior or development?

2. How concerned are you about finding and/or using community resources?

Examples might be childcare, housing, and/or counseling.

3. How concerned are you about your own mood, behavior, or parenting?

The confidence variable in version 2 ( $n=33$ ,  $\alpha=.671$ ) included three items addressing feelings of being a good parent, having a good interaction with their child, and having adequate support. Do you feel like a good parent/caregiver to my baby/child?

1. Do you feel like a good parent to your baby/child?
2. Do you believe that you and your baby/child have a good interaction with each other?
3. I feel I have enough support to deal with my concerns.

Descriptive statistics (frequencies, means, standard deviations) were conducted for version 1, version 2 Eastside, and version 2 Westside. Paired sample t-tests were then conducted to identify the significance in change between pre-and post-intervention means for each item as well as the dependent variables of distress and confidence for all versions. Paired sample t-tests are appropriate for small samples (Guilford & Fruchter, 1978). Assumptions that must be met for paired sample t-tests include normality and independence (Cumming & Calin-Jageman, 2017). While the data were not normally distributed, paired sample t-tests are robust to violations of normality (Guilford & Fruchter, 1978).

### **Research Aim 3**

Research aim 3 was to determine pre-post intervention effects on levels of distress and levels of confidence, as well as to compare results of post-satisfaction items for each version of the pre-post intervention survey. This study hypothesized that the pre-post intervention surveys would show effects on levels of caregiver confidence but not on caregiver distress and that post-intervention satisfaction reports would indicate that participants perceive the Warm Connections program positively.

Effect sizes were computed for levels of distress and levels of confidence for version 1, version 2 Eastside, and version 2 Westside. Descriptive statistics (frequencies,

means, standard deviations) were conducted for version 1, version 2 Eastside, and version 2 Westside for items indicating post-intervention satisfaction.

## CHAPTER 4: RESULTS

### **Research Aim 1**

Research aim 1 was to compare the congruence between WIC participants and WIC staff on the three most salient psychosocial needs of WIC participants in order to examine the acceptability of the Warm Connections intervention. The hypothesis for research aim 1 was that incongruence would exist between what WIC participants perceive as their most urgent concerns and what WIC staff perceive as the most urgent concerns among WIC participants.

### **Descriptive Statistics**

After conducting descriptive and univariate analysis, the three highest ranked items for WIC participants and WIC staff were identified by highest groups means for each item. WIC participants identified Resources (n=78, mean=2.63), Child Mood (n=78, mean=2.63), and Child Development (n=77, mean=2.16) as their top three ranked psychosocial needs. WIC staff identified Resources (n=39, mean=3.62), Child Mood (n=39, mean=3.59), and Child Eating (n=39, mean=3.59) as the top three ranked psychosocial needs among WIC participants. Group means for each item are reported in Table 2

Table 2. Psychosocial Needs Listed from Most to Least Important by WIC Participants and Staff

	<u>WIC Participants</u>		<u>WIC Staff</u>		
	N	M (SD)	N	M(SD)	
<b>Resources</b>	<b>78</b>	<b>2.63(1.021)</b>	<b>Resources</b>	<b>39</b>	<b>3.62(.493)</b>
<b>Child Mood</b>	<b>78</b>	<b>2.63(.955)</b>	<b>Child Eating</b>	<b>39</b>	<b>3.59(.549)</b>
<b>Child Development</b>	<b>77</b>	<b>2.61(.948)</b>	<b>Child Mood</b>	<b>39</b>	<b>3.59(.498)</b>
Child Sleep	77	2.57(.992)	Child Behavior	39	3.56(.502)
Child Eating	78	2.49(1.029)	Parent Mood	39	3.54(.505)
Fussiness	78	2.49(.908)	Child Cues	39	3.46(.505)
Child Cues	78	2.41(.973)	Child Caregiving	39	3.44(.598)
Child Behavior	78	2.40(.917)	Child Development	39	3.44(.502)
Parent Mood	78	2.32(.960)	Trauma	39	3.41(.549)
Discipline	77	2.32(.952)	Stress	39	3.38(.633)
Stress	78	2.23(.911)	Fussiness	38	3.34(.534)
Others Input	78	2.21(.903)	Discipline	39	3.33(.577)
Trauma	78	2.14(.936)	Adult Caregiving	38	3.26(.685)
Partner	77	2.13(.951)	Caregiver Conflict	39	3.26(.549)
Caregiver Conflict	78	2.08(.802)	Partner	39	3.21(.656)
Child Caregiving	78	1.99(.845)	Child Sleep	38	3.21(.622)
Adult Caregiving	78	1.81(.823)	Substance Use	39	3.15(.670)
Safety	77	1.70(.708)	Others Input	39	3.15(.587)

Substance Use	78	1.58(.694)	Safety	39	3.10(.641)
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Items rated from 1 (strongly disagree) to 4 (strongly agree). The top three needs are bolded.

### **Levels of Agreement**

To examine levels of agreement between WIC participants and WIC staff, Cohen's  $K$  was conducted for each group's highest three ranked items (Resources, Child Mood, Child Eating, and Child Development, Resources). The level of agreements were all non-significant, and  $K$  scores for each need were as follows: Resources (n=117),  $K=-.013$ ,  $p=.592$ ; Child Mood (n=117),  $K=-.010$ ,  $p=.693$ ; Child Eating (n=117),  $K=-.017$ ,  $p=.574$ ; Child Development (n=116),  $K=-.010$ ,  $p=.691$ . Acceptable Cohen's  $K$  scores for confidence in study findings is .60 or higher. None of the  $K$  scores for each group's top three ranked items met this threshold and were not statistically significant. In order to further explore levels agreement between WIC participants and WIC staff, Cohen's  $K$  was conducted for all items. WIC participants and WIC staff did not have adequate levels of agreement or statistical significance for any item, indicating a low level of agreement on all items between groups.

### **Research Aim 2**

Research aim 2 was to determine the sensitivity of two different measurement approaches for assessing change from Warm Connection's integrated behavioral health intervention. The hypothesis for research aim 2 was that version 2 of the pre-post intervention survey would detect change in caregiver distress and caregiver confidence better than the version 1. For this analysis, version 2 was split into two data sets reflecting

version 2 data collected from the Eastside clinic and version 2 data collected from the Westside clinic.

### **Distress and Confidence Variables per Version**

For each data set, distress and confidence variables were created by grouping certain items. For version 1, the distress variable ( $n=27$ ,  $\alpha=-.156$ ) was comprised of three items addressing concerns about child mood, access to resources, and parent mood. The alpha was negative, indicating negative covariance among the items. For version 1, the confidence variable ( $n=27$ ,  $\alpha=.642$ ) was comprised of three items addressing feelings of being a good parent, being close and connected to their child, and having adequate support. These items related adequately to one another as reflected in the confidence alpha.

In response to participant and Warm Connections' research team feedback, changes were made to the pre-post intervention survey. Participants reported feeling confused by some of the response options and unsure about the meaning of some of the words or phrasing of questions. For example, for an item asking participants rate their level of concern about their child's mood, development, or behavior on a scale ranging from strongly disagree to strongly agree, a follow up item asked them to rate how distressed they were about the same issue. This felt confusing and redundant to participants. Additionally, the meaning of the word "distress" was unclear to some participants. Similarly, participants were unsure what it meant to feel "close and connected" to their child.

Finally, the Warm Connections research team reflected on the program's goal of "reducing distress" in the context of a (mostly) brief intervention. While some participants have the opportunity to receive more intensive support, the majority of participants receive a brief intervention through Warm Connections. Moreover, the pre-post intervention survey is administered at the conclusion of the brief intervention. A follow up survey (e.g., 6 week follow-up) was not included as part of this intervention development study but might capture changes in caregiver distress more accurately.

A second version of the pre-post intervention survey was developed to address these concerns. First, response options and language were clarified. Second, items were reworded to more distinctly measure the constructs of "distress" and "confidence." For version 2, the distress variable ( $n=33$ ,  $\alpha=.433$ ) was comprised of three items addressing concerns about child mood, access to resources, and parent mood. The  $\alpha$  improved for version 2 compared to version 1, although it still reflects the items relate poorly to each other. For version 2, the confidence variable ( $n=33$ ,  $\alpha=.671$ ) was comprised of three items addressing feelings of being a good parent, feeling positively about parent-child interactions, and having adequate support. The  $\alpha$  improved slightly for this variable compared to Version 2.

### **Paired Sample t-Tests**

Descriptive statistics (frequencies, means, standard deviations) were conducted for version 1, version 2 Eastside, and version 2 Westside. Paired sample t-tests were then conducted to identify the significance in change between pre-and post-intervention means



for each item as well as the dependent variables of distress and confidence for all versions. An alpha level of .05 was used for all paired sample t-test analyses.

For individual items in Version 1, every item except “good parent” had a statistically significant level of change. The distress variable had a statistically significant level of change,  $t(26) = 5.86, p < .001$ , with post distress scores lower than pre distress scores. The confidence variable had a statistically significant level of change,  $t(26) = -6.35, p < .001$ , with post confidence scores higher than pre confidence scores. Table 3 reflects descriptive statistics and paired-sample t-test significance values for Version 1.

Table 3. Version 1 Pre-Post Survey Means (Standard Deviations) and t-test Significance Values

Item	N	M (SD)	Item	N	M (SD)	Sig.
Pre child mood	28	2.75(.928)	Post child mood	28	2.46(.881)	.018*
Pre child mood follow up <sup>+</sup>	18	2.83(.786)	Post child mood follow up <sup>+</sup>	14	2.43(.646)	.014*
Pre resources	27	3.07(.781)	Post resources	27	2.37(.565)	<.001*
Pre resources follow up <sup>+</sup>	20	3.15(.933)	Post resources follow up <sup>+</sup>	9	2.22(.972)	.018*
Pre parent mood	28	2.64(.826)	Post parent mood	28	2.25(.645)	.003*

Pre parent mood follow up <sup>+</sup>	16	3.06(.772)	Post parent mood follow up <sup>+</sup>	10	2.20(.632)	.004*
Pre good parent	27	3.52(.580)	Post good parent	27	3.63(.565)	.327
Pre connected	27	3.52(.753)	Post connected	27	3.74(.594)	.031*
Pre support	28	2.25(.752)	Post support	28	3.32(.548)	<.001*
Pre distress	27	8.4074(1.39392)	Post distress	27	7.0000(1.14354)	<.001*
Pre confidence	27	9.2963(1.61280)	Post confidence	27	10.7037(1.46274)	<.001*

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Items rated from 1 (strongly disagree) to 4 (strongly agree).

+ Items rated from 1 (not at all) to 4 (extremely).

\*  $p < .05$  \*\* $p < .01$

Each item in Version 2 Eastside had a statistically significant level of change. The distress variable had a statistically significant level of change,  $t(13) = 9.74, p < .001$ , with post distress scores lower than pre distress scores. The confidence variable had a statistically significant level of change,  $t(10) = -6.09, p < .001$ , with post confidence scores higher than pre confidence scores. Table 4 reflects descriptive and paired-sample t-test significance values for Version 2 Eastside.

Table 4. Version 2 Eastside Pre-Post Survey Means (Standard Deviations) and t-test Significance Values

Item	N	M(SD)	Item	N	M(SD)	Sig.
Pre child mood	14	2.29(1.637)	Post child mood	14	1.07(1.492)	.002*
Pre child mood follow up <sup>+</sup>	11	1.91(1.758)	Post child mood follow up <sup>+</sup>	7	4.43(.535)	.011*
Pre resources	14	3.14(1.791)	Post resources	14	1.50(1.454)	.002*
Pre resources follow up <sup>+</sup>	12	1.75(1.712)	Post resources follow up <sup>+</sup>	9	4.00(.707)	.003*
Pre parent mood	14	3.00(1.519)	Post parent mood	14	.86(1.027)	<.001*
Pre parent mood follow up <sup>+</sup>	12	1.75(1.765)	Post parent mood follow up <sup>+</sup>	8	4.13(.354)	.012*
Pre good parent	14	4.00(.679)	Post good parent	11	4.36(.505)	.038*
Pre interaction	14	4.43(.852)	Post interaction	14	4.71(.611)	.040*

Pre support	14	2.14(1.167)	Post	14	4.00(.679)	<.001*
			support			
Pre distress	14	8.4286(3.41297)	Post	14	3.4286(3.10618)	<.001*
			distress			
Pre	14	10.5714(1.60357)	Post	14	12.7273(.90453)	<.001*
confidence			confidence			

Items rated from 0 (I'm not concerned about it at all) to 5 (I am extremely concerned about it).

+Items rated from 0 (I have no idea what to do) to 5 (I know exactly what to do).

\* Significant at the  $p < .05$  level.

Among individual items in Version 2 Westside, each item except “good parent” and “interaction” had a statistically significant level of change. The distress variable had a statistically significant level of change,  $t(18) = 3.69, p = .002$ , with post distress scores lower than pre distress scores. The confidence variable increased in level of caregiver confidence, however, this change was not statistically significant. Table 5 reflects descriptive and paired-sample t-test significance values for Version 2 Westside.

Table 5. Version 2 Westside Pre-Post Survey Means (Standard Deviations) and t-test Significance Values

Item	N	M(SD)	Item	N	M(SD)	Sig.
Pre child	19	1.68(2.187)	Post child	19	1.05(1.779)	.024*
mood			mood			
Pre child	9	3.33(1.118)	Post child	6	4.50(.837)	.042*
mood			mood			
follow up <sup>+</sup>			follow up <sup>+</sup>			

Pre	19	3.53(1.744)	Post	19	2.37(1.461)	.019*
resources			resources			
Pre	17	2.76(1.786)	Post	16	4.00(1.366)	.005*
resources			resources			
follow up <sup>+</sup>			follow up <sup>+</sup>			
Pre parent	19	2.42(2.063)	Post parent	19	1.42(1.742)	.006*
mood			mood			
Pre parent	12	2.50(1.732)	Post parent	9	3.89(1.269)	.017*
mood			mood			
follow up <sup>+</sup>			follow up <sup>+</sup>			
Pre good	19	4.00(1.374)	Post good	12	4.17(1.467)	.891
parent			parent			
Pre	19	4.26(1.284)	Post	19	4.16(1.642)	.716
interaction			interaction			
Pre support	19	2.89(1.410)	Post	19	4.00(1.333)	.002*
			support			
Pre distress	19	7.6316(4.13938)	Post	19	4.8421(3.60960)	.002*
			distress			
Pre	19	11.1579(3.43613)	Post	12	12.3333(2.93361)	.314
confidence			confidence			

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Items rated from 0 (I'm not concerned about it at all) to 5 (I am extremely concerned about it).

+Items rated from 0 (I have no idea what to do) to 5 (I know exactly what to do).

\* Significant at the  $p < .05$  level.

### **Research Aim 3**

Research aim 3 was to identify the difference between pre-and post-intervention effects on levels of distress and levels of confidence, as well as post-intervention satisfaction reports among participants in the Warm Connections intervention. The hypothesis for aim 3 was that the pre-post intervention survey, as determined by the results of aim 2, would show effects on levels of confidence and post-intervention satisfaction but would not show effects on levels of distress among Warm Connections participants. Additionally, post-intervention satisfaction reports would indicate that participants perceive the Warm Connections program positively.

Effect sizes were computed for levels of distress and levels of confidence for version 1, version 2 Eastside, and version 2 Westside. Due to small sample sizes, Hedges  $g$  conversions with 95% confidence intervals are reported for effect sizes. For version 1, the distress variable had a large effect,  $g = 1.09$ , [.748, 1.428]. The confidence variable for version 1 also had a large effect,  $g = .90$ , [.490, 1.312]. For version 2 Eastside, the distress variable had a large effect,  $g = 1.49$ , [.279, 2.696] as did the confidence variable for version 2 Eastside,  $g = 1.61$ , [1.126, 2.090]. For version 2 Westside, the distress variable had a large effect,  $g = .70$ , [-.0532, 1.938]. The confidence variable had a medium effect,  $g = .35$ , [-.794, 1.497].

Descriptive statistics (frequencies, means, standard deviations) were conducted for version 1, version 2 Eastside, and version 2 Westside for items indicating post-intervention satisfaction. For version 1, these items included:

5. To what extent do you feel that Warm Connections helped you cope with your distress today?
6. Overall, how satisfied are you with the Warm Connections program?
7. What do you think was most helpful about Warm Connections?
8. Would you tell other families to get support from Warm Connections?

For version 2, post-intervention satisfaction items included:

5. How well did Warm Connections help you address your concerns today?
6. Overall, how satisfied are you with the Warm Connections program?
7. I felt the Warm Connections Specialist heard, respected, and understood my concerns today.
8. What do you think was most helpful about Warm Connections?

Descriptive analysis of post-satisfaction items for each version indicates that Warm Connections participants rated their satisfaction with the program highly. The two most helpful components of the program for Version 1 were “talking with someone about my concerns” ( $M = .89, SD = .315$ ) and “being connected to other resources in the community” ( $M = .68, SD = .476$ ). For Version 2 Eastside, the most helpful components of the program (tied) were “talking with someone about my concerns”, “being connected to other resources in the community”, and “feeling supported” ( $M = .86, SD = .363$ ). For Version 2 Westside, the most helpful component of the program was “talking with someone about my concerns” ( $M = .79, SD = .419$ ). The next most helpful components (tied) were “being connected to other resources in the community” and “feeling

supported” ( $M = .74, SD = .452$ ). Item means and standard deviations for versions 1, 2 Eastside and 2 Westside are reported in Tables 6.

Table 6. Post-Satisfaction Survey Means (Standard Deviations) for Version 1, Version 2 Eastside, and Version 2 Westside

Version 1			Version 2 Eastside			Version 2 Westside		
Item	N	M(SD)	Item	N	M(SD)	Item	N	M(SD)
Extent helpful	27	3.70(.542)	Extent helpful	14	4.79(.426)	Extent helpful	19	4.63(.955)
1-not at all	0		0-it didn't help at all	0		0-it didn't help at all	0	
2- slightly	1		1	0		1	1	
3- moderately	6		2	0		2	0	
4- extremely	20		3	0		3	0	
			4	3		4	3	
			5-I got all the	11		5-I got all the	15	



			help I needed			help I needed		
Satisfac tion	28	3.86(.356)	Satisfac tion	14	4.93(.267)	Satisfact ion	19	4.68(1.157)
1-very dissatis fied	0		0-very dissatis fied	0		0-very dissatisfi ed	1	
2- dissatis fied	0		1	0		1	0	
3- satisfie d	4		2	0		2	0	
4-very satisfie d	24		3	0		3	0	
			4	1		4	1	
			5-very satisfie d	13		5-very satisfied	17	
Recom mend	28		Heard	14	4.93(.267)	Heard	19	4.68(1.157)

1-yes	28		0-no, not at all	0		0-no, not at all	1	
2-no	0		1	0		1	0	
			2	0		2	0	
			3	0		3	0	
			4	1		4	1	
			5-yes, absolut ely	13		5-yes, absolute ly	17	
Talking	28		Talking	14		Talking	19	
0-no	3		0-no	2		0-no	4	
1-yes	25		1-yes	12		1-yes	15	
Skills	28		Skills	14		Skills	19	
0-no	17		0-no	4		0-no	9	
1-yes	11		1-yes	10		1-yes	10	
Support ed	28		Support ed	14		Support ed	19	
0-no	10		0-no	2		0-no	5	
1-yes	18		1-yes	12		1-yes	14	
Resour ces	28		Resour ces	14		Resourc es	19	

0-no	9		0-no	2		0-no	5	
1-yes	19		1-yes	12		1-yes	14	
Answer s	28		Answer s	14		Answers	19	
0-no	20		0-no	4		0-no	9	
1-yes	8		1-yes	10		1-yes	10	

## CHAPTER 5: DISCUSSION AND IMPLICATIONS

The study of the Warm Connections program provides useful insight into the development process and pilot phase implementation of an integrated behavioral health intervention. Results highlight both successes and challenges during the development and pilot implementation of this innovative integrated behavioral health intervention. This final section includes a discussion of results and their respective implications for practice, research, and policy, followed by study limitations, next steps, and a project summary.

### **Summary of Results**

#### **Research Aim 1**

Research aim 1 was designed to examine the feasibility and acceptability of Warm Connections. Integrating a behavioral health intervention into WIC that is grounded in the infant mental health framework using an SBIRT approach is a novel way to support the behavioral health of mothers with low socioeconomic status. This study's first evaluation step was identifying to what degree WIC participants and WIC staff agreed on the prioritization of psychosocial needs. Results are mixed, showing that participants and staff for the most part share their perceptions of what WIC families need most, but they rate the urgency of those concerns differently.

Participants identify 1) their children's mood, behavior, and development, 2) their own mood, behavior, and parenting, and 3) accessing community resources as their top three most urgent concerns. Staff have similar perceptions, prioritizing 1) children's

mood, behavior and development along with 2) accessing community resources among the top three most urgent concerns among WIC participants. Staff, however, prioritize children's eating or nutritional needs above parent's mood, behavior and parenting. These findings make sense within an infant mental health framework and within the context of WIC as a nutritional supplement program.

Theoretically, the infant mental health framework asserts that infant/child mental health and maternal/caregiver mental health are almost inextricably linked. When a challenge threatens the health of one member of the dyad, the other experiences that threat in some way, even if subconsciously. That caregivers prioritize their child's mental health first, followed closely by their own mental health and connecting with needed resources aligns with this infant mental health theoretical tenet. It also stands to reason that WIC staff, due to their training and organization's mission, would be concerned about the nutritional health of children.

Both WIC participants and WIC staff acknowledge the importance of meeting basic or practical needs such as accessing community resources (e.g., housing, childcare) alongside behavioral health concerns for children and/or caregivers. The finding that participants and staff highly prioritize accessing community resources supports literature that links social inequality and adverse mental health (Dennis, Janssen, & Singer, 2004; Mounts, 2009). Unmet practical needs such as housing or childcare serve as stressors that may impact psychological well-being. While this finding may seem obvious, it is important because it suggests that meeting practical needs should be considered at least a

piece of effective behavioral health interventions, particularly when working with low-income populations.

Notably, WIC participants and WIC staff also shared perceptions of the least urgent concerns: caregiver substance use and caregiver's personal safety in the home. This finding seems to contradict literature that suggests that substance use and exposure to violence occur at higher rates among families with low socioeconomic status. Response bias may account for WIC participants' answers given possible concerns about social desirability. However, WIC staff responses seem to support WIC participant responses. This suggests a need for continued research in these areas.

While participants and staff mostly share perceptions of the most salient concerns among WIC participants, they did not agree on the extent of urgency of those concerns. WIC participants were more discriminant overall in identifying psychosocial needs. On the psychosocial needs assessment with response options rating from "strongly disagree" to "strongly agree", participants responded "strongly disagree" and "disagree" on many items while WIC staff were much less likely to respond "strongly disagree" or "disagree" across items. In other words, WIC staff perceived many needs to be a concern to some degree while WIC participants did not. This finding may be due to measurement approaches. WIC participants rated their own individual experience and needs, whereas WIC staff rates their perceptions of WIC participants as a broad population. This finding may also point to an intensity in number and magnitude of psychosocial stressors among WIC families. Additionally, it may reflect the resilience of families with low socioeconomic status. In the midst of potentially overwhelming stressors or concerns,

WIC families may have developed effective ways to manage those stressors and are able to prioritize concerns most important to them.

### **Research Aim 2**

Research aim 2 examined two measurement approaches for detecting pre-and post-intervention change. The hypothesis was that version 2 would detect more change in caregiver distress and caregiver confidence than version 1. In order to evaluate this aim, reliability was tested for the distress and confidence variables for each version, followed by paired sample t-test analyses of distress, confidence, and individual items.

Version 1 was patterned after a survey used from another program associated with the University of Colorado Harris Infant Mental Health Program. The overall survey objectives were to measure caregiver distress and caregiver confidence, with the hope that the post intervention survey would reflect reductions in caregiver distress and an increase in caregiver confidence. During the Warm Connections planning phase, validated measures of distress and confidence constructs were suggested. However, members of the planning task force voiced concerns about the level of participant burden and wanted to limit the number of survey items. Additionally, the construct of “distress” was not operationalized clearly. In task force minutes, distress is defined literally as stress or distress in some places but in other places is conceptualized as postpartum depression, anxiety, or trauma.

Cronbach’s alpha results demonstrate poor scale reliability of the distress variable but adequate reliability of the confidence variable in version 1 of the pre-post intervention survey. This finding is supported by anecdotal participant feedback.

Participants found it difficult to relate to or understand certain phrases or word choices such as “close and connected to my baby/child” and “distress.” They also reported the response options were confusing. For example, if a participant reported they were concerned about their child’s behavior and rated their concern on a scale of “strongly disagree, disagree, agree, strongly agree”, the follow up question of “how distressed do you feel about this concern” seemed confusing and redundant for some participants.

This feedback shaped modifications for version 2 of the pre-post intervention survey, which includes different response options, phrases, and more direct language. For example, “concern” replaces “distress” and response options change from a 4-point to 6-point scale ranging from “0-I’m not concerned about it at all” to “5-I am extremely concerned about it.” Survey modifications for version 2 resulted in an improved, albeit still weak, Cronbach alpha for the distress variable. Cronbach’s alpha for the confidence variable for version 2 improved slightly. Results suggest that version 2 may be superior to version 1 in terms of scale reliability for distress and confidence.

Paired sample t-tests were conducted for individual items, as well as the distress and confidence variables for each version to determine which survey detected the most change. Findings were mixed in that version 2 piloted at the Eastside clinic seemed superior to both version 1 and version 2 piloted at the Westside clinic in its capacity to detect statistically significant change across individual items and the distress and confidence variables. However, version 1 seemed to detect more statistically significant change compared to version 2 piloted at the Westside clinic. This finding is curious because the pre-post intervention survey version 2 was formatted and administered



identically between the Eastside and Westside sites. Potential explanations may be illuminated by comparing sample characteristics and/or differences between Warm Connections specialists' implementation of the program. Notably, sample sizes for each version were small, which could make the surveys extremely sensitive to outliers.

Overall, results reflect that both versions detected statistically significant change in the desired direction for most individual items. For the variables of distress and confidence, the second version appeared to detect more change than version 1. In addition, version 2 measures the constructs of distress and confidence with more reliability than version 1. Taking Cronbach's alpha levels and results of paired sample t-tests into consideration, version 2 appears to detect change more reliably and somewhat more sensitively than version 1.

### **Research Aim 3**

Research aim 3 is to determine pre-post intervention effects on levels of distress and levels of confidence, as well as to compare results of post-satisfaction items for each version of the pre-post intervention survey. This study hypothesized that the pre-post intervention surveys will show effects on levels of caregiver confidence but not on caregiver distress and that post-intervention satisfaction reports will indicate that participants perceive the Warm Connections program positively.

Similarly to research aim 2, effect size analyses yielded mixed findings. Results showed that version 1 had large effect size for both distress and confidence but that version 2 Eastside had an even larger effect size on distress and confidence. Version 2 piloted at Westside had a large effect size for the distress variable, albeit smaller relative

to Version 1 and Version 2 piloted at Eastside. Version 2 piloted at Westside had a medium effect size for the confidence variable. Thus, effect sizes were found for both distress and confidence for all versions, suggesting that the Warm Connections intervention reduced caregiver distress and increased caregiver confidence for those participants.

Research aim 3's hypothesis also predicted that post-intervention surveys would show positive post-satisfaction results. Findings support this hypothesis by demonstrating overwhelmingly positive results for each item measuring satisfaction. Notably, participants for each site and survey version indicated that having someone to talk to about their concerns was the most positive aspect of Warm Connections, followed by being connected to resources in the community and feeling supported. This finding fits with results of research aim 1, which indicate that the top three psychosocial needs among WIC families include concerns about their children's socioemotional development, their own socioemotional development as parents, and accessing community resources. The finding that Warm Connections supports the socioemotional development of children and their parents along with helping families identify and access community resources suggests that Warm Connections may meet multiple urgent concerns among this population.

### **Implications**

The results of this dissertation study have implications for social work practice, research, and policy. From a practice perspective, findings that WIC families and WIC staff prioritize meeting practical needs alongside psychosocial needs fits theoretically

within social work and infant mental health practice frameworks and should continue to shape practice with under-resourced families. Social work's person-in-environment theoretical framework prompts social workers to consider a client's comprehensive ecology for individualizing assessment and treatment. When a caregiver considers her most pressing needs and rates finding housing nearly as important (if not more important) as addressing concerns about her own mood or parenting, this affirms an ecological practice perspective. This perspective leads social workers to "start where the client is at", meaning that social workers assess what clients prioritize as urgent or salient and begin addressing those priorities. In a WIC context, meeting a client where she is at may very well include meeting basic, practical needs such as locating housing or exploring childcare options.

Two primary tenets of the infant mental health framework are to 1) acknowledge the primacy of a supportive caregiver-child relationship for optimal development and 2) understand development in the context of the social environment. Infant mental health practitioners consider the caregiver-child dyad as interdependent and almost inextricably linked. From this practice framework, supporting caregivers with their psychosocial needs is, in effect, therapeutically supporting children. Because the infant mental health framework places optimal development in the context of the social environment, practitioners must employ a wide set of skills. For example, infant mental health interventions could range from helping a caregiver identify childcare options or manage employment concerns to providing in-depth therapeutic support to a caregiver

experiencing loss or postpartum depression. Infant mental health practitioners refer to this flexibility and breadth of skills as being able to “climb up and down a ladder of skills.”

Thus, this study’s findings affirm social work and infant mental health’s shared practice value on understanding and supporting social and ecological needs. In essence, meeting practical needs *is* a behavioral health intervention in and of itself. Practitioners should possess a wide array of skills to address multiple levels of a client’s ecology. Additionally, both social work and infant mental health view interventions that support caregivers as interventions that support children. While individual work with children certainly has value in the cannon of therapeutic approaches, practitioners should continue to view work with caregivers as a strategy to positively impact the socioemotional well-being of children. Infant mental health explicitly articulates a value for dyadic work with caregivers and children, whereas social work implies this value through its foundations in family systems and person-in-environment perspectives. This study’s findings support a dyadic approach and prompt social work to consider adopting a more explicit position and training on dyadic work with caregivers and children.

The finding that WIC staff ranked every psychosocial need item with more urgency than WIC participants may have practice implications. This finding may be the result of staff observing needs from a less personal perspective. Perhaps staff perceive the amount and degree of stressors under-resourced families encounter as more intense than WIC participants themselves because their vantage point provides the opportunity of detachment. On the other hand, families with low socioeconomic status may be more resilient or resourceful than staff perceive. Another alternative explanation could be that

under-resourced families are able to discriminate more accurately what needs are most vital to address. Whatever the cause, practitioners may consider a “triage” approach to assessment and intervention with this population given the number and range in intensity of priority needs. Perhaps most importantly, practitioners are wise to defer to participants’ definition of stressors and remember resilience often persists even in the midst of crisis.

Post-satisfaction reports affirm the key social work value of privileging the worker-client relationship over other more technical aspects of clinical work. Participants ranked receiving support from the Warm Connections specialist high on the list of what components of the program were most helpful to them. In fact, receiving support, along with talking with someone about their concerns and being connected to community resources, was ranked higher than other more technical aspects of the program such as receiving skill-based training and problem-solving. This finding serves as a reminder to social work practitioners and educators that building rapport and maintaining a therapeutic relationship is paramount to effective clinical social work.

Study results also provide research implications, especially for scholars interested in community-engaged research and/or research involving maternal and child health disparities. Results from this project affirm both the opportunities and challenges of community-engaged research. Overall, WIC appears to be an excellent community partner for an innovative, integrated behavioral health intervention. The finding that WIC staff and WIC participants mostly prioritize the same needs (i.e., child well-being and access to community resources) is a strength of the project, suggesting that an integrated

behavioral health intervention co-located in WIC is both acceptable and feasible. It also highlights the importance of integrating behavioral health interventions in well-established locations in the community. WIC appears to understand their community and consumer context relatively well, which benefitted Warm Connections. In the search for culturally-responsive approaches, partnering with entities such as WIC may remove the arguably underemphasized and understudied construct of understanding a research or client population from their own perspective.

This finding also identifies the importance of understanding the host context when developing innovative integrated behavioral health projects. In this study, WIC staff understandably perceive child nutrition as a high priority for WIC participants, but WIC families did not share this level of priority. When conducting integrated behavioral health work, scholars must capitalize on common goals and strategize when goals may be unique to a host context.

Results point to the strengths and challenges of conducting interdisciplinary, community-engaged research. A highly collaborative, multi-disciplinary planning process required a considerable time commitment from each member of the task force but facilitated vital feedback about where to house the intervention, acceptable levels of integration, funding opportunities, clinical implementation, and administrative insight. Challenges also emerged as task force members expressed conflicting or competing needs. For example, some task force members felt use of validated scales presented an unacceptable amount of participant burden because of too many questions with invasive content. Navigating this concern proved challenging to the research rigor of the project.

Regardless, interdisciplinary research provides tremendous opportunities for team members to leverage strengths to the overall benefit of the project. This approach deepens the pool of strengths research teams may access for funding, clinical and administrative expertise, and community partnerships. A strength of this project was the shared value of social justice between interdisciplinary team members. Although actualized uniquely according to each discipline, the overarching mission to support marginalized families provided synergy and focus throughout the intervention development process.

Study findings suggest continued study of links between maternal and infant health outcomes, as well as the impact of interventions designed to reduce social inequality on maternal and child health. Existing literature supports associations between maternal physical health and infant health. More extensive study of how maternal mental health impacts infant and child development may help maternal and child health advocates in their efforts to reduce disparities. Extant research supports the positive impact of interventions designed to remove barriers to social equality on maternal and child health (Northrup, Evans, Lillie, & Tyso, 2016). However, more research is needed to illuminate what types of interventions are most effective. Perhaps most importantly, scholars should consider framing these interventions as behavioral health and health care strategies.

From a policy perspective, this study supports a paradigm shift in how policy-makers conceptualize behavioral health care. Providers, scholars, and policy-makers must broaden their understanding of what contributes to overall socioemotional well-being and support policies that respect the primacy of the caregiver-infant dyad. This study adds to

a body of literature that frames policies that address issues of social inequality such as housing, childcare, and parental leave as behavioral health interventions with short-and long-term effects (Greenfield & Klawetter, 2015; Trickett & Beehler, 2013). Such a paradigm shift may lead to policy approaches that dissolve artificial and at times arbitrary silos including individual behavioral health treatment, social services, child welfare, and public health. This study suggests that agencies, organizations, and academic institutions even with different missions can collaborate effectively.

### **Limitations**

This study's limitations include sampling and measurement issues related mostly to where this project is in the intervention development process. The sample for this study was small and collected using a convenience sampling approach. Small sample sizes are sensitive to outliers and may not be acceptable for more sophisticated statistical analyses. Convenience sampling does not yield a representative sample and may lead to sampling bias. For this study, a true comparison group did not exist to aid in analyses. Additionally, this study was unable to precisely describe sample characteristics or between-clinic sample characteristics. Each of these limitations challenge the generalization of study results.

Validated scales were not used for this study, which led to multiple threats to reliability and validity. For this interdisciplinary and innovative project, the priority was exploring feasibility and acceptability of a unique approach in a new setting. However, this priority conflicted at times with the reliability and validity of survey instruments. The fact that participants completed pre-post intervention surveys in the presence of the



Warm Connections specialists may also threaten survey reliability and validity. Another measurement limitation relates to Warm Connections' individualized, flexible treatment approach. Warm Connections aims to individualize intervention techniques based on assessment of each participant's needs, which reflects SBIRT and infant mental health approaches of meeting clients at the point of their most urgent concerns. Some participants received brief interventions while others received more in-depth therapeutic support. Ideally, an intervention study would examine which facets of the intervention are most or least helpful. While post-satisfaction reports provide insight into what participants found most helpful, methodology for this intervention development study did not allow for rigorous evaluation of individual components of Warm Connections.

### **Next Steps**

As Warm Connections progresses, efforts to refine both the intervention and evaluation plan continue. Currently, Warm Connections exists in two Denver WIC clinics. Long-term goals include integrating Warm Connections into eight Denver-area clinics. Evaluation plans include improving measurement issues and broadening the scope of data collection. First steps will include a collaborative task force discussion to better operationalize the construct of "distress" and decide upon a measurement strategy. This may include using previously validated scales or scale items, or it may include refining Warm Connections' existing pre-post intervention survey.

After making modifications to the pre-post intervention survey, an application will be resubmitted to COMIRB requesting permission to collect more extensive data relevant to Warm Connections. Specifically, this application will seek to collect

participant-specific sociodemographic information, clinic-specific characteristics, follow-up data, and WIC staff information. Expanded data collection will allow for a more rigorous evaluation of Warm Connections' short-and longer-term impact on caregiver distress and confidence, as well as its impact on WIC staff job satisfaction and stress.

## **Conclusion**

This dissertation study described the initial planning and pilot phase implementation of Warm Connections, an integrated behavioral health intervention aimed at reducing caregiver distress and increasing caregiver confidence. Warm Connections, in partnership with WIC, represents an innovative behavioral health approach to supporting the psychosocial well-being of families with low socioeconomic status. While challenges exist in intervention development studies, such innovative projects are exciting and have the potential to deliver meaningful and fresh perspectives. This study demonstrates the importance of collaborative interdisciplinary partnerships, needs assessments, and pilot phases in research. The use of needs assessments and pilot phase implementation invited feedback from WIC participants, Warm Connections participants, and task force members and provided opportunities to make modifications.

Findings from the needs assessment portion of this study reflect the importance of understanding the priorities or needs of research populations from their own perspectives. A key takeaway from this project echoes the key social work tenet of “starting where the client is at” and theoretical underpinning in a person-in-environment framework.

Additionally, measurement aspects of this project reinforce the necessity of reducing participant burden wherever possible. Language for questions and response

items must be clear, concise, and culturally relevant. Survey structure (i.e., use of skip patterns or branching logic) should be considered carefully. Arguably, measurement issues presented the most significant challenges to this project. This experience highlights the necessity of delicately negotiating roles and competing needs in community-engaged research.

This study demonstrates the feasibility of innovative approaches to integrated behavioral health interventions and interdisciplinary research partnerships. While multiple strategies exist to reduce behavioral health care stigma, location may be a key way to increase access to behavioral health care. Potential host sites should include locations that are well-established and have a good understanding of community needs and priorities. Interdisciplinary partnerships allow research teams to draw upon the expertise and spheres of influence of individual team members.

This dissertation study affirms that social work can and should be participating in community-engaged, interdisciplinary research. For this project, social work was a key voice in the development, implementation, and evaluation process. Social work skills, in part, promoted a positive interdisciplinary team experience through building rapport with team members, facilitating communication, contributing clinical expertise, and shaping the evaluation plan. For this project, research was perceived as a social work advocacy tool. Collaborating with partners committed to promoting social justice for women and children created a shared mission throughout the development and pilot phases of the work.

In conclusion, integrating a behavioral health intervention using an infant mental health approach with WIC was feasible and acceptable. Measurement of key constructs and pre-post intervention change presented challenges and learning opportunities.

Exploring how to address these challenges is vitally important given population needs and the connections between maternal mental health and infant well-being being across the life course.

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## APPENDIX A

### WIC Participant Needs Assessment

Thank you for agreeing to participate in our survey. We appreciate your time. Please answer

the following questions to the best of your ability.

1) At which clinic are you completing this survey?

- Eastside
- Westside

2) I would like help and support with my baby/child's difficult behavior.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

3) I would like help and support to understand my baby/child's cues and needs.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

4) I would like help and support with my baby/child's mood (sadness, anger, worry, irritability,

etc.).

- Strongly disagree

- Disagree
- Agree
- Strongly agree

5) I would like help and support with my baby/child's fussiness.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

6) I would like help and support with my baby/child's development.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

7) I would like help and support with my baby/child's sleep.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

8) I would like help and support with my baby/child's eating.

- Strongly disagree
- Disagree
- Agree

- Strongly agree

9) I would like help and support with my mood (sadness, anger, worry, irritability, etc.).

- Strongly disagree
- Disagree
- Agree
- Strongly agree

10) I would like help and support with my relationship with my partner.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

11) I would like to ask questions about alcohol, marijuana, or other substance use.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

12) I would like help and support to manage conflict with my baby/child's other caregivers.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

13) I would like help and support to handle past traumas/events that continue to impact me.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

14) I would like help and support in order to feel safe at home.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

15) I would like help and support to manage stress related to taking care of adult family members.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

16) I would like help and support to manage stress related to taking care of other babies/children.

- Strongly disagree
- Disagree
- Agree



- Strongly agree

17) I would like help and support with how to discipline my baby/child.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

18) I would like help and support to manage when other people tell me how to care for my baby/child.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

19) I would like help and support to manage stressful experiences happening in my life right now.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

20) I would like help and support to access assistance with housing, childcare, and/or transportation.

- Strongly disagree
- Disagree

- Agree
- Strongly agree

21) I would like help with something else. (Please tell us.)

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## APPENDIX B

### WIC Staff Needs Assessment

Thank you for agreeing to complete this brief survey. We appreciate your time. Please answer

the following questions about what you think and/or believe are WIC Participants' most urgent

needs.

1) At which clinic are you mainly located?

- Eastside
- Lowry
- Montbello
- Peña
- Westside

2) WIC Participants need help and support with their baby/child's difficult behavior.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

3) WIC Participants need help and support to understand their baby/child's cues and needs.

- Strongly disagree
- Disagree

- Agree
- Strongly agree

4) WIC Participants need help and support with their baby/child's mood (sadness, anger, worry, irritability, etc.).

- Strongly disagree
- Disagree
- Agree
- Strongly agree

5) WIC Participants need help and support with their baby/child's fussiness.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

6) WIC Participants need help and support with their baby/child's development.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

7) WIC Participants need help and support with their baby/child's sleep.

- Strongly disagree
- Disagree
- Agree

- Strongly agree

8) WIC Participants need help and support with their baby/child's eating.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

9) WIC Participants need help and support with their own mood (sadness, anger, worry, irritability, etc.).

- Strongly disagree
- Disagree
- Agree
- Strongly agree

10) WIC Participants need help and support with their relationship with their partner.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

11) WIC Participants need help with alcohol, marijuana, or other substance use.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

12) WIC Participants need help and support to manage conflict with their baby/child's other caregivers.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

13) WIC Participants need help and support to handle past traumas/events that continue to impact them.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

14) WIC Participants need help and support in order to feel safe at home.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

15) WIC Participants need help and support to manage stress related to taking care of adult family members.

- Strongly disagree
- Disagree
- Agree

- Strongly agree

16) WIC Participants need help and support to manage stress related to taking care of other babies/children.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

17) WIC Participants need help and support with how to discipline their baby/child.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

18) WIC Participants need help and support to manage when other people tell them how to care for their baby/child.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

19) WIC Participants need help and support to manage stressful experiences happening in their lives right now.

- Strongly disagree
- Disagree

- Agree
- Strongly agree

20) WIC Participants need help and support to access assistance with housing, childcare, and/or transportation.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

21) WIC Participants need help with something else. (Please tell us.)

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## APPENDIX C

### Pre-Post Intervention Survey Version 1

#### Warm Connection Pre-Assessment

Thank you for agreeing to participate with the Warm Connections program. In order to best

serve you, please answer the following questions to the best of your ability.

1) I have a concern about my baby/child's mood, behavior, or development.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

2) On a scale of 1 to 4, how distressed do you feel about this issue?

- 1(not at all)
- 2(slightly)
- 3(moderately)
- 4(extremely)

3) I have a concern about finding and/or using community resources. Examples might be childcare, housing, and/or counseling.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

4) On a scale of 1 to 4, how distressed do you feel about this issue?

- 1(not at all)
- 2(slightly)
- 3(moderately)
- 4(extremely)

5) I have a concern about my own mood, behavior, or parenting.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

6) On a scale of 1 to 4, how distressed do you feel about this issue?

- 1(not at all)
- 2(slightly)
- 3(moderately)
- 4(extremely)

7) I feel like I am a good parent/caregiver to my baby/child.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

8) I feel close and connected to my baby/child.

- Strongly disagree

- Disagree
- Agree
- Strongly agree

9) I feel I have enough support to deal with my concerns.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

10) Would you like to be connected with additional supports or resources in the community?

- Yes
- No

#### Warm Connections Post-Assessment

Please answer the following questions about your experience with the Warm Connections program.

1) I have a concern about my baby/child's mood, behavior, or development.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

2) On a scale of 1 to 4, how distressed do you feel about this issue now?

- 1(not at all)

- 2(slightly)
- 3(moderately)
- 4(extremely)

3) I have a concern about finding and/or using community resources. Examples might be childcare, housing, and/or counseling.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

4) On a scale of 1 to 4, how distressed do you feel about this issue now?

- 1(not at all)
- 2(slightly)
- 3(moderately)
- 4(extremely)

5) I have a concern about my own mood, behavior, or parenting.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

6) On a scale of 1 to 4, how distressed do you feel about this issue now?

- 1(not at all)
- 2(slightly)

- 3(moderately)
- 4(extremely)

7) I feel like I am a good parent/caregiver to my baby/child.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

8) I feel close and connected to my baby/child.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

9) I feel I have enough support to deal with my concerns.

- Strongly disagree
- Disagree
- Agree
- Strongly agree

10) Did you receive referrals for additional support resources from Warm Connections?

- Yes
- No

11) Do you feel that you have all the information you need to access these additional supports and resources?

- Yes
- No

12) If not, what other information would have been helpful for you to access additional support?

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13) To what extent do you feel that Warm Connections helped you to cope with your distress today?

- 1(not at all)
- 2(slightly)
- 3(moderately)
- 4(extremely)

14) Overall, how satisfied are you with the Warm Connections program?

- Very dissatisfied
- Dissatisfied
- Satisfied
- Very satisfied

15) What do you think was most helpful about Warm Connections? Select all that apply.

- Talking with someone about my concerns
- Learning ways to help myself or my child
- Feeling supported
- Being connected with other resources in the community
- Receiving answers to questions I had

- Other

16) What else was helpful about Warm Connections?

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17) Was there anything about Warm Connections that wasn't helpful or felt stressful today?

- Yes
- No

18) If YES, please share your experience with us:

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19) Would you tell other families to get support from Warm Connections?

- Yes
- No

20) If NO, why not? Please share your response here:

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## APPENDIX D

### Pre-Post Intervention Survey Version 2

#### Warm Connection Pre-Assessment

Thank you for agreeing to participate with the Warm Connections program. In order to best

serve you, please answer the following questions to the best of your ability.

1) I have a concern about my baby/child's mood, behavior, or development.

- 0 = I'm not concerned about it at all
- 1
- 2
- 3
- 4
- 5 = I am extremely concerned about it

2) Do you know what to do about this concern?

- 0 = I have no idea what to do
- 1
- 2
- 3
- 4
- 5 = I know exactly what to do

3) I have a concern about finding and/or using community resources. Examples might be childcare, housing, and/or counseling.



- 0 = I'm not concerned about it at all
- 1
- 2
- 3
- 4
- 5 = I am extremely concerned about it

4) Do you know what to do about this concern?

- 0 = I have no idea what to do
- 1
- 2
- 3
- 4
- 5 = I know exactly what to do

5) I have a concern about my own mood, behavior, or parenting.

- 0 = I'm not concerned about it at all
- 1
- 2
- 3
- 4
- 5 = I am extremely concerned about it

6) Do you know what to do about this concern?

- 0 = I have no idea what to do

- 1
- 2
- 3
- 4
- 5 = I know exactly what to do

7) Do you feel like a good parent to your baby/child?

- 0 = I don't feel like a good parent at all right now
- 1
- 2
- 3
- 4
- 5 = I feel like a great parent right now

8) Do you believe that you and your baby/child have a good interaction with each other?

- 0 = My child and I don't get along well
- 1
- 2
- 3
- 4
- 5 = My child and I get along great

9) I feel I have enough support to deal with my concerns.

- 0 = I don't feel like I have any support
- 1

- 2
- 3
- 4
- 5 = I have plenty of support

10) Would you like to be connected with additional supports or resources in the community?

- Yes
- No

#### Warm Connections Post-Assessment

Please answer the following questions about your experience with the Warm Connections program.

1) How concerned are you about your baby/child's mood, behavior, or development NOW?

- 0 = I'm not concerned about it at all
- 1
- 2
- 3
- 4
- 5 = I am extremely concerned about it

2) Do you know what to do about this concern NOW?

- 0 = I have no idea what to do
- 1

- 2
- 3
- 4
- 5 = I know exactly what to do

3) How concerned are you about finding and/or using community resources. Examples might be childcare, housing, and/or counseling NOW?

- 0 = I'm not concerned about it at all
- 1
- 2
- 3
- 4
- 5 = I am extremely concerned about it

4) Do you know what to do about this concern NOW?

- 0 = I have no idea what to do
- 1
- 2
- 3
- 4
- 5 = I know exactly what to do

5) How concerned are you about your own mood, behavior, or parenting NOW?

- 0 = I'm not concerned about it at all
- 1

- 2
- 3
- 4
- 5 = I am extremely concerned about it

6) Do you know what to do about this concern NOW?

- 0 = I have no idea what to do
- 1
- 2
- 3
- 4
- 5 = I know exactly what to do

7) Do you feel like a good parent to your baby/child NOW?

- 0 = I don't feel like a good parent at all right now
- 1
- 2
- 3
- 4
- 5 = I feel like a great parent right now

8) Do you believe that you and your baby/child have a good interaction with each other NOW?

- 0 = My child and I don't get along well
- 1

- 2
- 3
- 4
- 5 = My child and I get along great

9) I feel I have enough support to deal with my concerns NOW.

- 0 = I don't feel like I have any support
- 1
- 2
- 3
- 4
- 5 = I have plenty of support

10) Did you receive referrals for additional support resources from Warm Connections?

- Yes
- No

11) How well did Warm Connections help you address your concerns today?

- 0 = It didn't help at all
- 1
- 2
- 3
- 4
- 5 = I got all the help I needed

12) Overall, how satisfied are you with the Warm Connections program?

- 0 = Very dissatisfied
- 1
- 2
- 3
- 4
- 5 = Very satisfied

13) I felt the Warm Connections Specialist heard, respected and understood my concerns today.

- 0 = No, not at all
- 1
- 2
- 3
- 4
- 5 = Yes, absolutely

14) What do you think was most helpful about Warm Connections? Select all that apply.

- Talking with someone about my concerns
- Learning ways to help myself or my child
- Feeling supported
- Being connected with other resources in the community
- Receiving answers to questions I had
- Other