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The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Director of Graduate Studies (DGS), on behalf of the program; we verify that this is the final, approved version of the student's capstone including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Tan Frison, Student

Dr. Corrine Williams, Committee Chair

Dr. Sarah Wackerbarth, Director of Graduate Studies

**IMPLEMENTING THE MOTHERS AND BABIES PROGRAM TO REDUCE PRETERM
AND LOW BIRTHWEIGH DELIVERIES**

CAPSTONE PROJECT PAPER

A paper submitted in partial fulfillment of the
requirements for the degree of
Master of Public Health
In the
University of Kentucky College of Public Health

By Tan Frison
Portal, Georgia

Lexington, Kentucky
April 15, 2021

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Dr. Corrine Williams

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Abstract

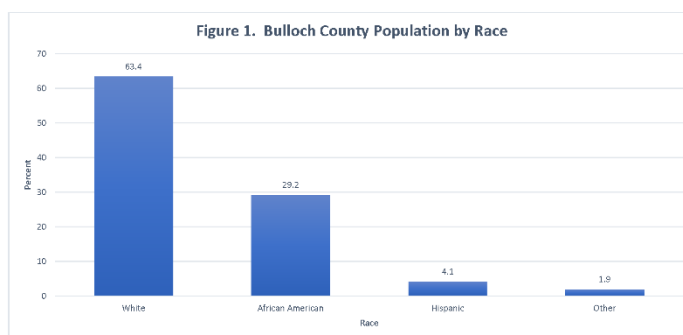
Georgia ranks fourth (4th) in the nation for the highest low birthweight rate at 10%, and sixth (6th) in the nation for preterm birth rate at 11.7%, among the states. Based on statistical data Bulloch county has maintained an average low birthweight statistic of 10% for over a decade. In 2019, there were 107 preterm and 79 low weight births in Bulloch county, Georgia. These numbers confirm there is a need for more preventive resources for mothers and children within this community. To address this burden, the Bulloch County health department has decided to implement the Mothers and Babies prenatal and postpartum intervention program into three existing women's health programs. This intervention will address the issue from a mental health perspective. Research has shown that added stress during pregnancy can attribute to an increased risk of preterm labor and low birthweight deliveries. Through the Mothers and Babies intervention individuals will be educated on the effects of stress, anxiety, and depression on mother and infant health, equipped with coping strategies to identify their stressors and ways to handle those throughout their daily lives, and finally, encouraged to increase their social network and social support by interacting with individuals within the group. Individuals will be assessed using the Hamilton Depression Scale and the Perceived Stress Scale at baseline, 3-month, 6-month, and post-delivery at 6 and 12-month intervals. Assessing attendance, sitting in on random sessions, and satisfaction questionnaires will help to ensure the fidelity of the program. Several local organizations and professionals will collaborate and partner with the health department to make this a success in the community. The short-term outcomes include increased knowledge on the effects of stress, anxiety, and depression on health, increased knowledge of coping strategies, and an increase in social support and number of close social contacts. The medium-term outcomes include an increase in self-reported use of coping strategies and decreased stress and depression during pregnancy. The long-term outcomes are decreased preterm and low birthweight deliveries. These outcomes will be shared with the partner organizations and professionals as well as other state and national organizations, including the Society for Maternal-Fetal Medicine (SMFM) and the Association for Women's Health, Obstetrics, and Neonatal Nurses (AWHONN).

TARGET POPULATION AND NEED

Bulloch County Demographics

The community that we will serve is located in Bulloch County, Georgia, the eighth largest county in Georgia by area (Bureau, 2020). Bulloch County is located in the southeastern region of the state covering 672.9 square miles. The county seat is located in the city of Statesboro, but the county also includes the cities of Brooklet, Portal, and Register.

Bulloch County is home to approximately 79,720 residents (Review, 2020). In 2017, the median age of the population was 28.1 (USA, 2017). Based on 2020 county health rankings, 20.0% of persons are below the age of 18 and 11.5% of persons are age 65 or older. Females make up 50.9% of the population, with males accounting for only 49.1%. According to the graph this is a fairly diverse population (County Health Rankings & Roadmaps, 2020).



This community consists of a large rural population at 48.3%, with 53.2% of the total population owning their home. Although less than half of the population rents, ownership is much lower than the national average of 63% (County Health Rankings & Roadmaps, 2020). There is a 28.7% poverty rate, which more than doubles the national rate of 13.1%. Of this group the largest in poverty are males 18-24, followed by females 18-24, and females 25-34 (County Health Rankings & Roadmaps, 2020).

This community is home to two universities, Georgia Southern University and East Georgia State College and one technical college, Ogeechee Technical College. There are also three high schools, three middle schools, and nine elementary schools in the county. The 2019 high school graduation rate was 79.9%, which was a significant decrease from the previous year at 85.1%

(Achievement, 2019). High school graduation rates by ethnicity are, 86% White, 71% African American/ Black, 71.2%

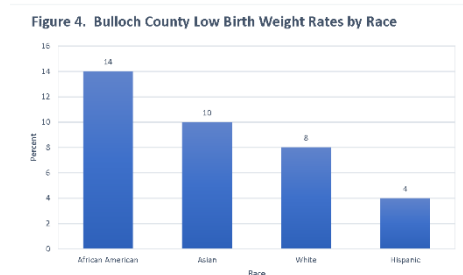
Hispanic/Latino, 84.4% Multiracial (Review, 2020). The educational attainment for the county is 86.9% being a high school graduate or above (USA, 2017).



Households have a median income of \$43,800. This is significantly lower than the state median household income of \$58,600. Median incomes by ethnicity shows a sizeable gap with the median household income of \$48,400 for White, \$48,200 for Asian, \$28,400 for African American/Black and \$19,600 for Hispanic/Latino. The unemployment rate for the county is 4.2% compared to the state at 3.9% (County Health Rankings & Roadmaps, 2020).

Population Need

Based on statistical data from the Center for Disease Control and Prevention (CDC) and reporting system for the state of Georgia, we have determined that there is a need for an intervention for mothers and



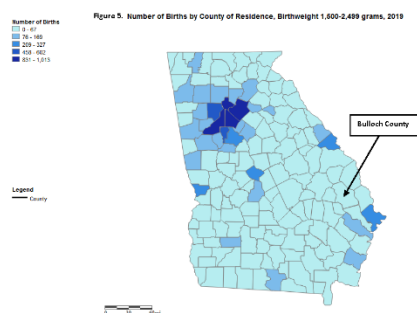
children within this community. According to statistics, in 2019, there were 107 preterm and 79 low weight births in Bulloch county, Georgia (Online Analytical Statistical Information System,

2020). Bulloch County's low birthweight percentage exceeds the national percentage for low birthweight babies at 10% compared to 8.3% for the national average (CDC, 2018). Bulloch County has maintained a 9-10% low birthweight statistic over the past decade (County Health Rankings & Roadmaps, 2020). This alone indicates a need for more preventive resources.

Low-birth-weight

Low birth weight (LBW) is a term used to describe babies who are born weighing less than 5 pounds, 8 ounces (2,500 grams). An average newborn usually weighs about 8 pounds. Even at a smaller weight, a low birthweight baby may still be healthy. However, a low birthweight baby can also have serious health problems (Stanford Children's Health, 2021). Low birthweight is most often caused by being born too early, defined as prior to 37 weeks of pregnancy. As much of a baby's weight is gained during the last weeks of pregnancy, a premature baby has less time in the mother's womb to grow and gain weight (Stanford Children's Health, 2021).

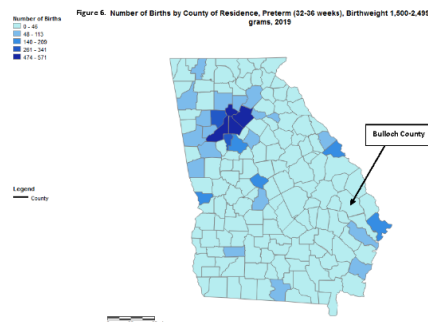
Low birthweight by race shows that the overall numbers for African American infants are almost double those of white infants. In 2019 white individuals gave birth to 27 low birthweight babies (Online Analytical Statistical Information System, 2020), while African American individuals gave birth to 49 low birthweight babies. This is significant considering the fact that African American persons make up less than half of the population of White persons (29.6% and 66.6% respectively), (County Health Rankings & Roadmaps, 2020), yet they still have nearly double the number of low birthweight deliveries and still considerably more preterm births. The number of preterm births were closer, white persons gave birth to 51 preterm babies during 2019



while African American persons gave birth to 66 preterm births (Online Analytical Statistical Information System, 2020).

Preterm Birth

Preterm birth is when a baby is born too early, prior to 37 weeks of pregnancy. In 2019, preterm birth affected 1 of every 10 infants born in the United States (Reproductive Health, 2020). The preterm birth rate rose for the fifth straight year from 2014 to 2019, and differences between racial and ethnic groups persisted. In 2019, the rate of preterm births among African American persons (14.4%) was about 50 percent higher than that among white or Hispanic persons (9.3% and 10% respectively) (Reproductive Health, 2020). Since the brain, lungs, and liver need the final weeks of pregnancy to fully develop, babies born too early have higher rates of death and disability. In 2018, preterm birth and low birthweight accounted for about 17% of infant deaths (deaths before 1 year of age) (Reproductive Health, 2020).



Social Determinants

We believe several social determinants play a role in these disparities. Overall, Bulloch county ranks 68 out of 159 in health outcomes and 61 in health factors (County Health Rankings & Roadmaps, 2020). Of these, 30% of the adult population is burdened with obesity (County Health Rankings & Roadmaps, 2020). Sixty-one percent of the children in this community are eligible to receive free or reduced lunch. There are also 20% of adult and 7% of children in the community who are uninsured (County Health Rankings & Roadmaps,

Table 1. Social Determinants of Health		
	State of Georgia	Bulloch County
Food insecurity	14%	20%
Children Living in Poverty	21%	24%
Children in Single Parent Household	37%	39%
Diabetes Prevalence	11%	13%
Adult Smokers	18%	22%
Adult Mental Health Days > 14	12%	14%

2020). Teen births have been reported at a rate of 18 per 1,000 overall, while the numbers based on ethnicity are 58 per 1,000 for Hispanic individuals, 28 per 1,000 for Black individuals, and 12 per 1,000 for White individuals (County Health Rankings & Roadmaps, 2020).

Mental health is a key determinant in the health of both the parent and infant, and we propose that the pregnant person's mental health is a key component when looking at and preventing low birth weight and preterm births. Persons who had preterm births had higher Center for Epidemiological Studies-Depression (CES-D) scores and also used avoidance coping compared to persons with normal-birth-weight infants (Giurgescu, Engeland, & Templin, 2015). Compared to persons with normal-birth-weight infants, persons who may become pregnant with low birthweight infants had higher levels of cortisol and were 7 times more likely to have low birthweight infants (Giurgescu, Engeland, & Templin, 2015).

The proposed program would be a complement to the existing programs by providing that additional resource in the area of mental health for mothers in both the perinatal and postnatal stages of pregnancy. Some research has shown that certain external stressors, as well as the lack of proper coping skills, can result in a low birthweight delivery (Bryant Borders, et al., 2007). Stress is known to activate the hypothalamic-pituitary-adrenal axis stress response, resulting in increased corticotropin-releasing hormone and increased levels of estrogen. It has been proposed that these increases in hormone levels may be linked to the onset of preterm contractions and labor (Bryant Borders, et al., 2007).

Additionally, persons who may become pregnant who have increased risk for clinical depression are 16 times more likely to have preterm birth and 4 times more likely to have low birthweight infants (Giurgescu, Engeland, & Templin, 2015). Currently there are a small number of resources located in the county to address maternal and child health/health issues of the population. The ratio of population to mental health providers for the county is 1,270:1, compared

to the state ratio of 830:1. The county is currently high in areas that would predispose mothers and infants to the risk of these issues.

Existing Programs

Based on current research, there is no one thing that can be addressed as the root cause of low birthweight infants and preterm births. However, offering key programs, such as educating individuals who may become pregnant, providing the necessary resources, and making sure they have access to these resources, may help to reduce these numbers and will not only benefit the family, but also the community. Our goal is to work with existing programs within Bulloch County to offer a targeted focus on mental health among pregnant individuals and those who may become pregnant.

One program currently offered in Bulloch County is Perinatal Case Management (PCM), whose major goal is to reduce infant illness and death by improving pregnancy outcomes. Personalized services can provide individualized assessments, plans, assistance to services and follow-up. This program begins in early stages of pregnancy to build support systems for needed resources (Health, 2018). This program is comprehensive and utilizes assessment and planning to address economic, nutritional, psychosocial, educational, and medical/health areas of care throughout the pregnancy and into the postpartum period.

Perinatal Health Partners (PHP) program is an in-home nursing case management program for medically diagnosed high-risk pregnant persons. The major goal of the program is to maximize pregnancy outcomes for mothers and their newborns and decrease the infant and maternal mortality rate in 11 rural southeast Georgia counties. This can be accomplished by earlier identification of high-risk prenatal and inter-conceptual patients along with partnering with local OB/GYNs, local birthing hospitals, and county health departments to provide a regionally coordinated system of

perinatal care, which includes referrals, perinatology consult, and Level II ultrasounds.

Finally, the Women, Infants, & Children (WIC) program provides nutrition education counseling, breastfeeding support and counseling, health and dietary assessments and supplemental food to eligible clients. The target population is pregnant, breastfeeding, and postpartum persons who may become pregnant, infants, and children under the age of 5 who are both income eligible and nutritionally at risk (Health, 2018).

Program Reach

In 2019, there were 899 total births in Bulloch County (Online Analytical Statistical Information System, 2020). Of those births 66 were born at low birthweight and 107 were preterm births (Online Analytical Statistical Information System, 2020). Based on service capacity, we anticipate the opportunity to assist at least 300 persons who may become pregnant each year. This is based on the availability of the counselor who will be leading group sessions six times per month, with approximately 15-20 people per group. This number also aligns with the number at risk for either a preterm birth or delivery of a low birthweight infant, given data on the current demographics of Bulloch County.

We will make our program available to all persons who are of child-bearing age. Since our goal is to focus on prevention, we want to serve individuals as early as possible, even prior to becoming pregnant. With that logic, we hope to have more individuals entering into pregnancy as healthy as possible, both physically and mentally.

PROGRAM APPROACH

Evidence-Based Program

We propose to incorporate an intervention, Mothers & Babies, that would complement the services currently available, by providing more cognitive-behavioral and psychoeducational skills to prevent depression during pregnancy and through the postpartum period. This program is designed for prenatal and postpartum persons who may become pregnant, with the intent of delivering the content during the perinatal period. Mothers & Babies focuses on three specific areas: encouraging more engagement in pleasant activities, improving social support, and promoting healthier ways of thinking. This program will provide these individuals with the skills essential to observe their mood, make a note of factors affecting their mood, and make changes in their daily lives to positively impact those areas (Babies, 2020).

Based on principles of cognitive- behavioral therapy (CBT), attachment theory, and psychoeducation, individuals are offered approaches to be able to observe their mood, note factors affecting their mood, and make the necessary daily changes to positively impact these areas. The program is designed to be delivered by clinic or community-based providers from a variety of educational and professional backgrounds in a group setting or a one-on-one format. (Babies, 2020). The interventions can be delivered in prenatal clinics, through home visiting, WIC programs, or county health departments.

In an individual format, Mothers and Babies includes nine sessions, while the group format consists of six sessions and then two follow-up booster sessions. The booster sessions can also be completed as a self-study at home. Individuals will have guided help from the workbook provided, which also has worksheets as added resources. Facilitators are also provided a very informative guide designed to address the topics to be discussed as well as anticipated concerns. Topics for these are outlined in Table 2 below.

During these sessions, mothers will have the opportunity to participate in activities that will give them tools and confidence to address and reduce stress in their daily lives. Additionally,

Table 2. Mother and Baby Session Topics		
	Individual Sessions	Group Sessions
Session 1	Introduction to the Mothers and Babies Course; Introduction to Mindfulness; How MB Can Help You	Introduction to the Mothers and Babies Program
Session 2	Pleasant Activities and Your Mood: What We Do Affects How We Feel	Pleasant Activities Help Make a Healthy Reality for My Baby and Me
Session 3	Pleasant Activities and Your Baby: Engaging in Pleasant Activities	Thoughts and My Mood
Session 4	Thoughts and How They Affect Our Mood	Fighting Harmful Thoughts and Increasing Helpful Thoughts
Session 5	Identifying Helpful and Unhelpful Thoughts; Ways to Change Our Thoughts	Contact with Others
Session 6	Relationship between Your Mood, Thoughts, and Future; Promoting Child's Healthy Thinking	Interpersonal Relationships and My Mood & Graduation
Session 7	Contact with Others: Relationship Between Mood and Interactions with Others	3-month Booster Session
Session 8	Contact with Others: The People in My Life and the Ways They Support Me and My	6-month Booster Session
Session 9	Contact with Others: Communication Style and Your Mood; MB Course Review	

individuals will participate in activities to teach skills necessary to identify and cope with stress, anxiety, and depression. There will be opportunities for questions and concerns to be addressed, ideas to be shared among participants and time for social bonding. Also, aspects of psychoeducation to foster self-awareness and self-efficacy, as well as promotion of healthy bonding and developmentally appropriate mother-infant interactions (Babies, 2020).

Participants will also be assigned take-home activities to practice new skills and reinforce the key concepts as applied to their daily lives.

As an additional component of this program, we would like to use a text messaging intervention, Mothers & Babies Text (MB-TXT) to complement the program and provide

additional social support. Through this app mothers will receive information that focuses on skill reinforcement, homework reminders, and self-monitoring (Babies, 2020). This component will not only serve as a resource for a wealth of information, but also as a constant to reduce the likelihood of feelings of loneliness.

Evidence-Basis of Mothers and Babies

In 2014, a randomized controlled trial was conducted. Seventy-eight women who were pregnant or had a child less than 6 months of age and who were assessed as at risk for perinatal depression (PD) were randomized to the Mothers and Babies intervention or usual home visiting services (Tandon, 2014). Depressive symptoms were assessed at baseline and 1-week, 3- and 6-months post-intervention (Tandon, 2014). Depressive episodes were assessed with a clinical interview at the 6-month follow-up (Tandon, 2014). The Center for Epidemiological Studies Depression (CES-D) Scale was used to screen for current depressive symptoms and the Maternal Mood Screener (MMS) was used to assess current and lifetime major depressive episode (Tandon, 2014). Tandon et al. determined that depressive symptoms declined at a significantly greater rate for intervention participants than usual care participants (Tandon, 2014). At the six-month follow-up, 15% of women who received the Mothers and Babies intervention had experienced a major depressive episode as compared with 32% of women receiving usual care (Tandon, 2014). In addition, a study was done by Mendelson et al. to determine the impact of perinatal depression on mood regulation. It was determined that the intervention group experienced a 16% greater growth in mood from baseline to 6-month follow-up compared to the usual care group (Mendelson, 2013).

Recent findings suggest that elevated stress levels during the pre- and postpartum period are related to poor maternal and infant health outcomes; yet few studies have prospectively examined the efficacy of stress management interventions on regulating stress levels among mothers and their

infants (Urizar Jr. & Munoz, 2011). This study examined whether a prenatal cognitive behavioral stress management (CBSM) intervention would be effective in regulating salivary cortisol (a biological marker of stress) and self-reported stress levels among mothers and their infants at six and 18 months postpartum, relative to two control groups (Urizar Jr. & Munoz, 2011). The results of the study suggest that prenatal CBSM interventions may be efficacious in regulating biological markers of stress among mothers and their infants, thereby decreasing their risk for developing health complications over time (Urizar Jr. & Munoz, 2011).

Program Implementation

The proposed program will be implemented by the Georgia Department of Public Health Southeast Health District, in the Bulloch County facility. This is to be in conjunction with existing programs designed to assist mothers and infants, to supplement current programming and better serve the population of individuals who are pregnant, have recently given birth, or are planning to become pregnant. Building the team will be a process involving many members of the community. We plan to recruit graduate level mental health, nursing, psychology, and sociology students and offer internships that will be paid. This will provide us with the help we need and also afford them the opportunity for experience in their area of interest. We would also like to partner with local mental health professionals and nurses, who will provide expert advice. The graduate students will work alongside these experienced mental health professionals. Each team member will also be required to attend the training for this particular program.

The implementation of the program is expected to take 6-12 months for completion. Intervention providers will receive high-quality training as well as ongoing support to be able to implement the Mothers and Babies intervention effectively and with fidelity (Babies, 2020). In order to be sure that every client is receiving the same quality care, there will be initial training for

every staff member who will be assessing and leading sessions. Training will be provided in person or in a virtual setting. Virtual training will consist of a 3-session series of live webinars lasting 3 hours each with multiple Master MB Trainers. In person training consists of a 1.5-2-day training, typically held at the host program location (Babies, 2020). This ensures consistency and uniformity in the delivery of the services. In addition to the necessary training for staff we plan to do mock sessions so that everyone has an opportunity to be both the client and provider. This way we can address potential problems as well as give everyone the opportunity to put into practice the training they have received. This will also afford us the opportunity to evaluate any potential problems.

In order to foster an atmosphere of inclusion and support and networking, we would want all of the participants to try to take part in group sessions. Individuals will also have the opportunity, and be strongly encouraged, to network with others so that they increase their circle of social support and can make connections with others and form friendships that can last even after pregnancy. They are all in this together and perhaps could be a resource to each other.

There will also be nine (9) individual sessions available for clients. These sessions can be scheduled in between group session meetings or as needed for urgent appointments. The participant would meet with the mental health counselor for a 30-minute session to discuss any needs or concerns.

We will also offer in-home services done by our trained nurse professional. Home visits will initially be for clients who will be utilizing the 1-on1 format due to lack of transportation or medical reasons, including high-risk pregnancy, being post-partum, etc. These sessions will also be available in English and Spanish.

Throughout the program clients will also be receiving text messages to encourage skill reinforcement, provide homework reminders, and self-monitoring (Babies, 2020). These personalized messages will be delivered three times per week with motivational, informative, and

encouraging texts. This will provide that extra support and possibly answer many questions that may arise outside of group or private sessions. This will also help to curb feelings of depression and loneliness during and after pregnancy, so that the clients have assurance and a reminder that they are not in this alone. For those who are receiving services via home visits, messages may be received in person or through hand-written notes.

Program Recruitment

Based on current research, there is no one thing that can be addressed as the root cause of low birthweight infants and preterm births. However, offering key programs, such as educating individuals who may become pregnant, providing the necessary resources, and making sure they have access to these resources, may help to reduce these numbers and will not only benefit the family, but also the community. We plan to implement the Mothers and Babies program using the three existing programs currently serving pregnant individuals, those who may have recently given birth, or those who may become pregnant: Perinatal Case Management, Perinatal Health Partners program, and the Women, Infants, & Children (WIC) program. With these programs, we would like to engage persons who may become pregnant as early as possible so that they are able to receive the education and tools necessary for a healthy body, mind, and lifestyle which will give them the confidence of a healthy pregnancy.

In order to be more inclusive, we will begin by offering the services in English and Spanish, as these are the languages in which the program is currently available. This program will be designed to assist individuals who may become pregnant, and we would be sure to market in a way that is not offensive or stigmatizing. This includes the use of positive wording and images to attract the targeted population.

Program Retention

To ensure the success of the program we will need strategic incentives for participants to continue in the program. Not only will they receive educational information and direct coaching regarding mental health and stress, but we will be providing childcare during the group sessions. We would like to utilize graduate students to assist with group session and home visit childcare. This will ensure that the mothers are able to focus on the sessions without distraction.

We would also like to be able to provide meals during the group sessions so that takes the worry out of dinner for that evening. We will work with local restaurants to provide healthy meals for the mothers and children in attendance. Our aim is to assist in making this program experience as stress free as possible. As another incentive to continue the program, we would like to provide a car seat for those who complete the program through their delivery. For those individuals who are not yet pregnant, we will provide them with a monetary incentive that is equivalent to the value of the car seat. We anticipate this incentive being in the \$60-\$80 range. In addition, we will work to provide coupons for diapers and formula.

Fidelity Monitoring

Monitoring the program will be an ongoing process. First, assessing attendance in all aspects of the program will be vital. It is important to know if participants are actually coming to scheduled sessions and how often. We would also plan for the program director to sit in on random sessions. This will serve to ensure that sessions are being administered as training and protocol has indicated and that all established processes are running smoothly.

We plan to administer a short questionnaire periodically to ask participants if they feel as though they are moving toward the goal(s) of the program, once at the beginning of the second and third trimesters. We will also include a couple questions regarding their satisfaction with the

program. It is important to know if we are achieving our goals, but also equally important is if we are meeting the expectations of the participants.

Community Advisory Board

When establishing a Community Advisory Group, we would welcome input from the directors and/or coordinators of the existing programs at the local health department that are serving persons who may become pregnant and children. Their expertise would be valuable since they are experienced with programs that are already up and running. They would be able to advise on the do's and don'ts when establishing a new program, advise on policies and procedures for admission, provide knowledge on state regulations and guidelines, and help with promotion and advertising ideas that foster inclusion.

We would also like to have the group include the following professionals:

- **Bulloch County Health Department:** Provide guidance and leadership regarding the policies and procedures of the organization. Oversee the overall daily operations.
- **WIC, PCM, and PHP Program Directors:** Provide leadership and guidance about the current operating policies and procedures for existing programs. Also provide insight regarding the local community and target population.
- **Mental Health Professional:** Provide an expert opinion on recognizing and properly addressing any mental health issues that may currently exist or may arise in clients.
- **Nurse:** Provides guidance on patient care and guidelines for home visits. Offer expertise on proper practices
- **OB/GYN:** Provides guidelines and other information regarding preterm births and low birthweight risks and outcomes. Assists with developing guidelines and information to help assist mothers with a healthy pregnancy.

- **Georgia Southern University:** An individual from the Department of Nursing will serve as the university representative. This person will serve to provide guidance in selecting graduate students to participate in the program.
- **Georgia Southern University:** An individual from the Department of Graduate Studies will serve as the university representative. This person will serve to provide guidance in selecting graduate students to participate in the program.
- **Mothers from Bulloch County (2):** Individuals who have previously experienced a preterm birth and/or low birthweight delivery will serve to provide first-hand input. Their valued perspective will be key in shaping our program planning for participants in the program.

We are confident that these members also share our passion about infant health and birth outcomes. With the community advisory board in place, we have no doubt that the program could be sustained in the community. This will allow for members of the community to continue to provide services, as necessary. We will commit to meeting monthly to discuss the progress, successes, and necessary adjustments to the program.

Anticipated Challenges

We anticipate that some individuals will be reluctant at first since the topics of stress, anxiety, and depression do not often come up in the conversation around pregnancy, until it is an issue. Since this is a preventive measure, some individuals may not feel the need to use the service. Subsequently, there are certain stigmas about services through the local health department that may prevent individuals from utilizing this service as well. If necessary, we will explore the possibility of utilizing virtual group settings that would give individuals some sense of privacy and group interaction at the same time.

Lastly, but most important, is the challenge of including or excluding persons who may

become pregnant based on their mental health history. We will want to know their mental health history, but we want to be careful of bias when considering the fact that some individuals will have pre-existing mental health diagnoses. This means that we will need to be prepared to meet those needs by having additional resources for referrals to specialized mental health practitioners if necessary.

PERFORMANCE MEASURES AND EVALUATION

Process Evaluation

We plan to pilot the program with a small number of individuals who will be recruited from local obstetrician's offices and health department programs. Persons referred from these providers will likely be those already medically high-risk cases. We would also like to pilot the program with persons who are actively planning to become pregnant as well as persons who are currently in their first trimester of pregnancy. The pilot will include at least 25 pregnant individuals or those who may become pregnant. This pilot will be conducted for six months. During this time, we will be working to streamline any issues of concern that were noted during the mock sessions as well as any that may occur during the pilot. We will take tedious notes with each client and each session and document all concerns, things that work, and things that can be improved. We would also like to get feedback from the clients to know if they are receiving the expected results from the program. We will obtain this information through a short anonymous survey of satisfaction.

As aforementioned, we will recruit persons who may become pregnant through local programs and healthcare providers by using in-office flyers, social media notifications, and referrals. We plan to begin implementation of the program at the midpoint of the pilot. That way we will have already addressed any issues and made progress with current enrollees.

Along with the pilot of the program will be an evaluation of the processes and

procedures. We will keep meticulous records of attendance for both group sessions as well as attendance for the individual format. Even though homework, in the form of workbook readings and worksheets, will not be graded we will take note of completion. This will help us to have some measure of participant engagement and participation. We will note any issues within the process and suggestions on how to address it. As we work through the process we will also note and build upon successes.

In order to be sure that we are continuing to meet the needs of this community, we would propose a survey at the beginning of the second trimester to determine the satisfaction of current services available and also to receive community input on what services are desired for the area. We would like to know what is working, what is not working, and where there can be improvements to provide better service.

Outcome Evaluation

We will administer the Perceived Stress Scale questionnaire, and Hamilton Depression Scale assessment so that we have baseline information to compare at trimester increments and post-delivery. We will use these measurements along with other self-reported observations in order to monitor progress within the program. These data will be collected and reported by gender and race/ethnicity. This will allow us to be better able to make sure that the specific needs of each individual are being met.

The outcome goals are to educate mothers on the importance of good mental health during pregnancy and ways to cope with daily stress. Also included in the outcome goals is the decrease in preterm and low birthweight deliveries. By equipping the mothers with the tools needed to reduce and/or manage stress they will be able to carry each pregnancy to term. An additional outcome goal is to help mothers build a network of support and resources to help with necessities during and

after the pregnancy.

It is our hope to use a health management information system to aid in monitoring and evaluating the program. In addition to gender and race/ethnicity, we will use information such as number of attendees for group sessions, number of attendees for one-on-one sessions, number of total births, infant weight at birth, weeks of gestation at birth, age of persons who may become pregnant, depression assessment, and perceived stress levels. We will have a graduate student customize the data systems to include details on the characteristics of our clients, so that the data will provide the information we need to help with our assessment of the program.

We would also stay abreast of the statistical data for this population to monitor changes. Mothers will complete the Hamilton Depression at baseline and set intervals throughout the pregnancy, according to the schedule. The internal consistency reliability of this scale correlated at $r=.94$ according to a review by Reynolds and Kobak (Reynolds & Kobak, 1995). This will allow us to determine if the intervention is effective and at what levels. Included in the outcome evaluation will be questions to determine if they feel

supported within a network. The most telling outcome will be if the baby is carried to term and the birth weight at the time of delivery is normal. It is my hope that the majority of the individuals in the program will deliver a healthy weight baby at full term.

Participants will also complete the Perceived Stress Scale according to the schedule. This self-reported, 10-item scale is one of the more popular tools for measuring psychological stress (Lee, 2012). The scale was designed to measure “the degree to which individuals appraise

Table 3. Evaluation Schedule

Frequency	Measure
Baseline	Perceived Stress Scale
	Hamilton Depression Scale
3-month	Perceived Stress Scale
	Hamilton Depression Scale
6-month	Perceived Stress Scale
	Hamilton Depression Scale
Post-delivery (6-month)	Perceived Stress Scale
	Hamilton Depression Scale
Post-delivery (12-month)	Perceived Stress Scale
	Hamilton Depression Scale

situations in their lives as stressful” (Lee, 2012). It correlated at $r=0.74$ in a previous study involving pregnant and postpartum women (Lee, 2012).

CAPACITY AND EXPERIENCE OF THE APPLICANT ORGANIZATION

The Bulloch County Health Department (BCHD) is located in the southeast district, where the district office is located in Waycross, Georgia. The southeast district includes Appling, Bulloch, Coffee, Tattnall, Atkinson, Candler, Evans, Toombs, Bacon, Charlton, Jeff Davis, Ware, Brantley, Clinch, Pierce, and Wayne counties. Among these sixteen counties are an array of services and experience in providing programming to serve diverse populations within the communities.

Many of the individual departments, including BCHD, offer much of the same services. However, there are also certain areas of service that are available at select departments. In order to provide the best care, these departments are networked so that an individual can receive referrals and service from any health department within the district. This helps to reassure us that there is a strong foundation established that can implement, maintain, and sustain our program within the community. The programs we will work with receive much of their funding through the state department of public health Title V Block Grant and other federally funded programs.

The BCHD has been a community resource for many years. With the vast number of long-lasting programs that are offered through the health department, we are confident that they have the necessary experience and expertise to successfully implement and sustain this program. We will be functioning as a complement to the already established programs that currently serve mothers and babies within the community. Children 1st, Perinatal Case Management, Women’s Health, and the Women, Infants & Children (WIC) programs are the current programs that we will partner with to provide added support.

The existing programs have a long history in the community. They are instrumental in providing services, support, and necessary referrals to clients. The dedication and commitment to serve is reflected in the mission statement of the department. It reads: “Our mission is to promote and protect the health of people in Southeast Georgia, wherever they live, work and play, uniting with individuals, families and communities to improve and enhance their quality of life.”

In order to ensure that there is equal opportunity and services provided for everyone, the department has implemented a nondiscrimination policy in accordance with Federal civil rights law and the U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs. This policy states that the department is prohibited from discriminating based on race, color, national origin, sex, disability, age, or reprisal or retaliation for prior civil rights activity in any program or activity conducted or funded by USDA (Georgia Department of Public Health, 2019). We will work to ensure that this is implemented as expected so that everyone has a fair opportunity to receive services.

PARTNERSHIPS AND COLLABORATION

We feel that the diversity of the community provides abundant opportunities for partnerships and collaboration. One of the most significant partnerships would be with the local university, 2-year college, and technical college. We want our partnerships to not only benefit our program, but to also be of benefit to our partners. When working with the university and other colleges in the community, we envision a close working relationship that would offer internships to select students. We plan to work closely with early childhood education, sociology, public health related majors, and psychology students who are interested in mental health. While this process would contribute to the sustainability of our program, it would also provide guided, hands on

experience to up and coming professionals in the public health field.

Professional partners within the community will also play an integral part in the success of the program. We know the importance of networking and partnering with a diverse group of community supporters. This not only ensures that we have resources to keep us abreast of current issues and findings within the area of maternal and child health, but also links us with individuals and organizations who can offer expertise advise and hands-on assistance. Our partners represent an array of professionals reflected below.

- **Bulloch County Health Department:** Since our program is parallel to several of the existing programs that currently serve persons who may become pregnant and children, this partner will serve closely with our team to provide guidance in implementing, maintaining, and sustaining our program.
- **Georgia Southern University:** The institution will provide graduate level students for internships. Students will work closely with professionals to gain hands-on experience in their area of interest within this project. Also, a representative from the Department of Nursing will serve on the advisory board.
- **Statesboro Women’s Health Specialists:** One physician will serve to be the representative for obstetrics and gynecology. He/she will be able to provide expertise advice as it relates to perinatal and postnatal depression, and low-birth-weight and preterm deliveries.
- **East Georgia Regional Medical Center:** A representative will serve to be included with what is happening with the program. They will be provided with statistics and other health outcomes as it relates to our clients.
- **Refocus Counseling & Consulting:** Will provide expertise and advice regarding education on recognizing and properly addressing any mental health issues that may

be currently existing or may arise in clients. These partners will also be used to refer clients for additional treatment(s) as needed.

- **Society for Maternal-Fetal Medicine (SMFM):** Will serve as a resource for information and guidance, sustainability, and recipient of statistics and other health outcomes as it relates to our clients.
- **Association for Women’s Health, Obstetrics, and Neonatal Nurses (AWHONN):** Will serve as a resource for information and guidance, sustainability, and recipient of statistics and other health outcomes as it relates to our clients.
- **Centers for Disease Control and Prevention:** Will serve as a resource for information and guidance, sustainability, and recipient of statistics and other health outcomes as it relates to our clients.
- **Northland Cable News:** Will serve as a media outlet to get information out to the public regarding the program and upcoming events.
- **City Council Member:** Will serve as a resource/partner to be a voice for the program’s needs and sustainability efforts through the city.

PROJECT MANAGEMENT

Dr. Miranda Bailey, Primary Investigator. The director of the health department will serve as the principal investigator on this project. During the first year of the grant, she will commit 20% of her time to the Mothers and Babies program, followed by 15% in years 2 and 3. Her experience within the community makes her a valuable member of this team. She will be primarily responsible for overseeing the implementation of the program and the management of everyone involved in the execution of the program.

Tan Frison, MPH, Project Director. Tan Frison will serve as the project director and will oversee the daily operations of the program, ensuring the delivery of the program as planned. This will include data collection, dissemination of incentives, administration of surveys, and process/outcome evaluations. She will also be responsible for conducting meetings with the principal investigator, interns, group session leaders (mental health counselors and licensed psychologist), and community advisory board members to ensure that progress is made to achieve the goals established for the program.

Dr. Meredith Grey, Mental Health Counselor. The mental health counselor will dedicate 100% of her time to leading the group sessions for the programs. She will be responsible for providing mothers with direct coaching regarding mental health and stress. Her extensive experience in the area of mental health makes them the ideal person for this portion of the program. This will include educational materials, activities, and techniques that will allow mothers to feel comfortable and capable when facing stressful situations.

Maggie Pierce, Nurse. The nurse will commit 50% of time to the program. She will serve to provide guidance on patient care and guidelines for home visits and offer expertise on proper practices for best healthcare. Also, she will be responsible for providing direct coaching for participants enrolled for home visits.

Dr. Derek Shepherd, Biostatistician. The biostatistician will dedicate 10% of his time for the duration of the grant. He will serve to monitor data collection processes and will be responsible for assisting in producing statistical reports and survey data.

Interns (Graduate Students), Georgia Southern University. The graduate students will serve as paid interns to gain hands on experience. These individuals will spend up to 20 hours per week on the project. These graduate students will be selected from early childhood education, sociology, public health related majors, and psychology students who are interested in mental health. These students will work under the direction of the project director, assisting with group sessions, childcare, data collection and interpretation, dissemination of participant incentives, generation of reports, and survey administration.

There is a low turnover rate for the health department and with regular rotations of interns, staffing for the program should not be of concern for the duration of the program. In addition to the expertise that each staff member brings, they will be trained on the specifics of this program to ensure that the program is implemented as planned. This will ensure that the process and outcome of the program is effective and successful.

BUDGET JUSTIFICATION

A. Personnel

Position	% FTE	Annual Salary	Salary Requested	Fringe Requested	Total Requested
Primary Investigator	20%	\$70,000 Y1	\$14,000	\$4,211	\$18,211
	15%	\$72,100 Y2	\$10,815	\$3,253	\$14,068
	15%	\$74,263 Y3	\$11,139	\$3,351	\$14,490
Project Director	80%	\$45,000	\$36,000	\$12,594	\$48,594
	80%	\$46,350	\$37,080	\$12,972	\$50,052
	80%	\$47,741	\$38,192	\$13,361	\$51,553
MPH GRA (up to 50%)	50%	\$26,000	\$13,000	\$5,853	\$18,853
	50%	\$26,780	\$13,390	\$6,028	\$19,418
	50%	\$27,583	\$13,792	\$6,209	\$20,001
MPH GRA (up to 50%)	50%	\$26,000	\$13,000	\$5,853	\$18,853
	50%	\$26,780	\$13,390	\$6,028	\$19,418
	50%	\$27,583	\$13,792	\$6,209	\$20,001

	10%	\$60,000	\$6,000	\$1,893	\$7,893
	10%	\$61,800	\$6,180	\$1,950	\$8,130
Biostatistician – MPH Level	10%	\$63,654	\$6,365	\$2,008	\$8,374
		\$227,000	\$82,000	\$30,403	\$112,403
		\$233,810	\$80,855	\$30,231	\$111,086
Total		\$240,824	\$83,281	\$31,138	\$114,418

**Salaries increase 3% per year.

B. Consultants

Position	Year One	Year Two	Year Three
Mental Health Counselor	\$84,993	\$87,542	\$90,169
Nurse	\$33,403	\$34,405	\$35,437
Total	\$118,395	\$121,947	\$125,606

C. Supplies

	Year One	Year Two	Year Three
Participant meals (monthly)	\$800	\$1,000	\$1,500
iPads (3) @\$350 each	\$1,050	-	-
Training and materials	\$5,000	-	-
Participant Incentives	\$3,000	\$4,800	\$6,000
Total	\$9,850	\$5,800	\$7,500

Supplies are needed for the implementation of the program in the form of educational and training materials. The mental health counselor and nurse will be provided an iPad to enter data, track attendance and monitor the progress of participants. These will also be used by the graduate

students who will be assisting them. As we actively move to help reduce stress for the participants, we will provide meals during the sessions.

D. Travel

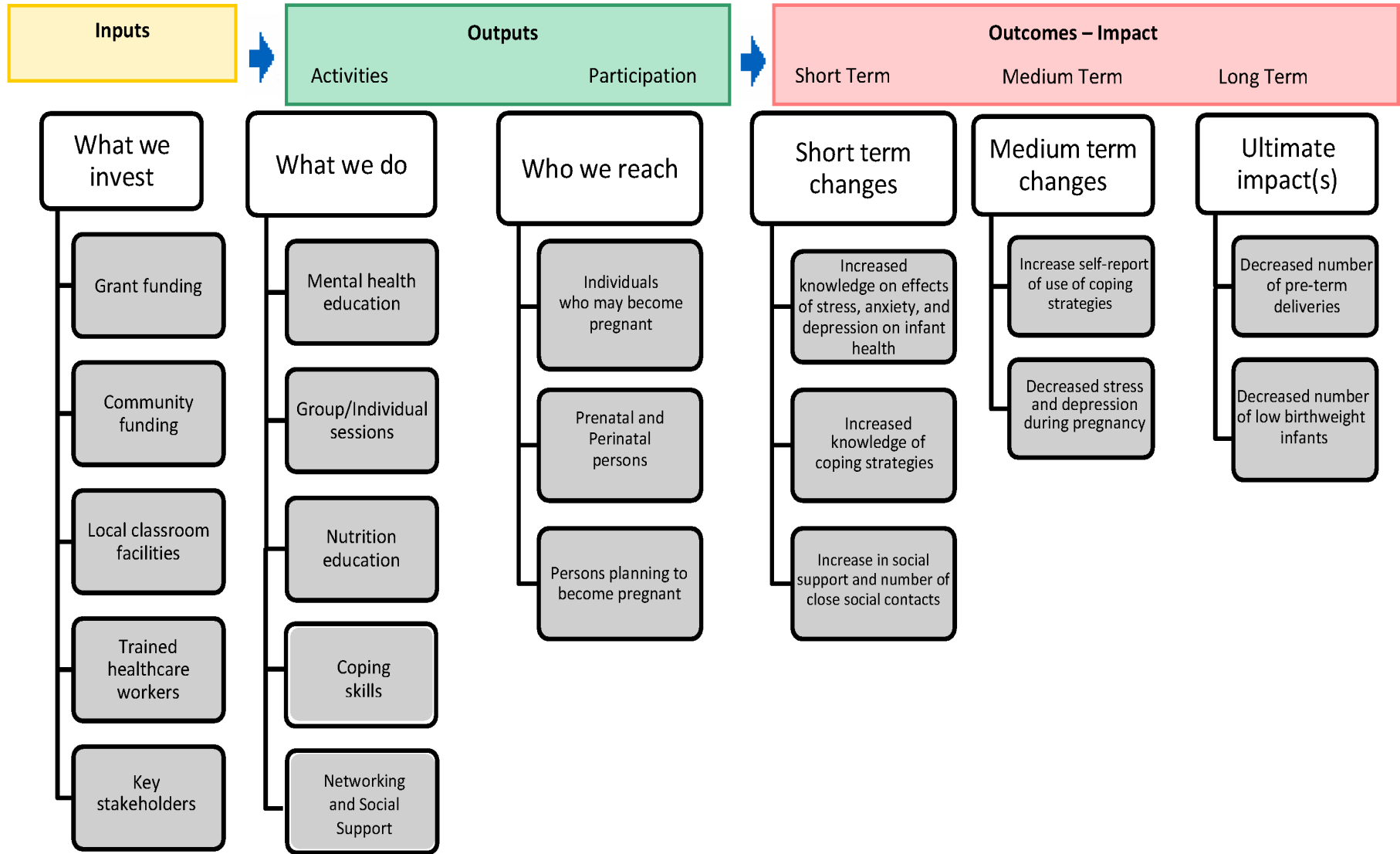
	Year One	Year Two	Year Three
Local Travel -Nurse home visits	\$250	\$250	\$250
Per Diem	\$200	\$400	\$400
Airfare	\$600	\$1,200	\$1,200
Hotel Accommodations	\$400	\$800	\$800
Total	\$1,450	\$2,650	\$2,650

The nurse will be reimbursed for travel to and from home visits. According to the Georgia State Accounting Office, the reimbursement rate is \$0.56 per mile (State Accounting Office, 2021). We have also allotted monies for the project director to travel to Washington, DC in the first year and the staff to travel to the regional conference in Atlanta, GA in years two and three.

E. Total Budget

	Year One	Year Two	Year Three
Personnel	\$112,403	\$111,086	\$114,418
Consultants	\$118,395	\$121,947	\$125,606
Supplies	\$9,850	\$5,800	\$7,500
Travel	\$1,450	\$2,650	\$2650
Total	\$242,098	\$241,483	\$250,174

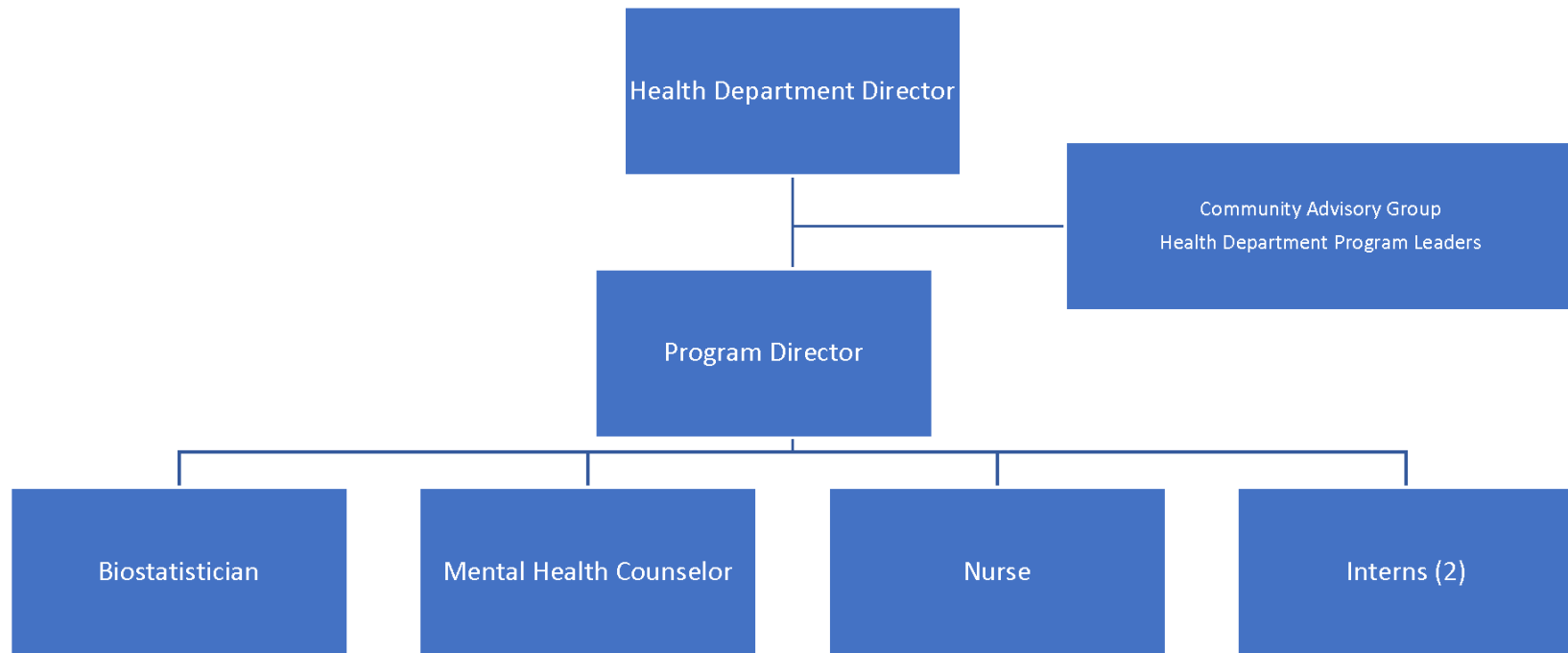
Logic Model to Reduce Low birthweight and Preterm Births



GANTT CHART

	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Development												
Hire Mental Health Counselors												
Hire Group Leaders												
Interview and hire Interns												
Train Interns												
Train Group Leaders												
Acquire educational materials												
Purchase participant incentives												
Program Implementation												
Collect baseline data												
Pilot program												
Recruit participants												
Partner/CAG meetings												
Program Evaluation												
Surveys at baseline, end of each trimester, and postpartum												
Activity and Attendance logs												
Observe group sessions												
Final analysis												
Final report												

Project Management



Perceived Stress Scale

A more precise measure of personal stress can be determined by using a variety of instruments that have been designed to help measure individual stress levels. The first of these is called the **Perceived Stress Scale**.

The Perceived Stress Scale (PSS) is a classic stress assessment instrument. The tool, while originally developed in 1983, remains a popular choice for helping us understand how different situations affect our feelings and our perceived stress. The questions in this scale ask about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don't try to count up the number of times you felt a particular way; rather indicate the alternative that seems like a reasonable estimate.

For each question choose from the following alternatives:

0 - never 1 - almost never 2 - sometimes 3 - fairly often 4 - very often

- _____ 1. In the last month, how often have you been upset because of something that happened unexpectedly?
- _____ 2. In the last month, how often have you felt that you were unable to control the important things in your life?
- _____ 3. In the last month, how often have you felt nervous and stressed?
- _____ 4. In the last month, how often have you felt confident about your ability to handle your personal problems?
- _____ 5. In the last month, how often have you felt that things were going your way?
- _____ 6. In the last month, how often have you found that you could not cope with all the things that you had to do?
- _____ 7. In the last month, how often have you been able to control irritations in your life?
- _____ 8. In the last month, how often have you felt that you were on top of things?
- _____ 9. In the last month, how often have you been angered because of things that happened that were outside of your control?
- _____ 10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Figuring Your PSS Score

You can determine your PSS score by following these directions:

- First, reverse your scores for questions 4, 5, 7, and 8. On these 4 questions, change the scores like this:

$$0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0.$$

- Now add up your scores for each item to get a total. **My total score is _____.**
- Individual scores on the PSS can range from 0 to 40 with higher scores indicating higher perceived stress.
 - ▶ Scores ranging from 0-13 would be considered low stress.
 - ▶ Scores ranging from 14-26 would be considered moderate stress.
 - ▶ Scores ranging from 27-40 would be considered high perceived stress.

The Perceived Stress Scale is interesting and important because your perception of what is happening in your life is most important. Consider the idea that two individuals could have the exact same events and experiences in their lives for the past month. Depending on their perception, total score could put one of those individuals in the low stress category and the total score could put the second person in the high stress category.

***Disclaimer:** The scores on the following self-assessment do not reflect any particular diagnosis or course of treatment. They are meant as a tool to help assess your level of stress. If you have any further concerns about your current well being, you may contact EAP and talk confidentially to one of our specialists.*

State of New Hampshire
Employee Assistance Program



HAMILTON DEPRESSION RATING SCALE (HAM-D)

(To be administered by a health care professional)

Patient Name _____ Today's Date _____

The HAM-D is designed to rate the severity of depression in patients. Although it contains 21 areas, calculate the patient's score on the first 17 answers.

- | | |
|--|--|
| <p><input type="checkbox"/> 1. DEPRESSED MOOD
(Gloomy attitude, pessimism about the future, feeling of sadness, tendency to weep)
0 = Absent
1 = Sadness, etc.
2 = Occasional weeping
3 = Frequent weeping
4 = Extreme symptoms</p> | <p><input type="checkbox"/> 6. INSOMNIA - Delayed
(Waking in early hours of the morning and unable to fall asleep again)
0 = Absent
1 = Occasional
2 = Frequent</p> |
| <p><input type="checkbox"/> 2. FEELINGS OF GUILT
0 = Absent
1 = Self-reproach, feels he/she has let people down
2 = Ideas of guilt
3 = Present illness is a punishment; delusions of guilt
4 = Hallucinations of guilt</p> | <p><input type="checkbox"/> 7. WORK AND INTERESTS
0 = No difficulty
1 = Feelings of incapacity, listlessness, indecision and vacillation
2 = Loss of interest in hobbies, decreased social activities
3 = Productivity decreased
4 = Unable to work. Stopped working because of present illness only. (Absence from work after treatment or recovery may rate a lower score).</p> |
| <p><input type="checkbox"/> 3. SUICIDE
0 = Absent
1 = Feels life is not worth living
2 = Wishes he/she were dead
3 = Suicidal ideas or gestures
4 = Attempts at suicide</p> | <p><input type="checkbox"/> 8. RETARDATION
(Slowness of thought, speech, and activity; apathy; stupor.)
0 = Absent
1 = Slight retardation at interview
2 = Obvious retardation at interview
3 = Interview difficult
4 = Complete stupor</p> |
| <p><input type="checkbox"/> 4. INSOMNIA - Initial
(Difficulty in falling asleep)
0 = Absent
1 = Occasional
2 = Frequent</p> | <p><input type="checkbox"/> 9. AGITATION
(Restlessness associated with anxiety.)
0 = Absent
1 = Occasional
2 = Frequent</p> |
| <p><input type="checkbox"/> 5. INSOMNIA - Middle
(Complains of being restless and disturbed during the night. Waking during the night.)
0 = Absent
1 = Occasional
2 = Frequent</p> | <p><input type="checkbox"/> 10. ANXIETY - PSYCHIC
0 = No difficulty
1 = Tension and irritability
2 = Worrying about minor matters
3 = Apprehensive attitude
4 = Fears</p> |

HAMILTON DEPRESSION RATING SCALE (HAM-D)

(To be administered by a health care professional)

11. **ANXIETY - SOMATIC**
Gastrointestinal, indigestion
Cardiovascular, palpitation, Headaches
Respiratory, Genito-urinary, etc.
0 = Absent
1 = Mild
2 = Moderate
3 = Severe
4 = Incapacitating

12. **SOMATIC SYMPTOMS - GASTROINTESTINAL**
(Loss of appetite, heavy feeling in abdomen; constipation)
0 = Absent
1 = Mild
2 = Severe

13. **SOMATIC SYMPTOMS - GENERAL**
(Heaviness in limbs, back or head; diffuse backache; loss of energy and fatigability)
0 = Absent
1 = Mild
2 = Severe

14. **GENITAL SYMPTOMS**
(Loss of libido, menstrual disturbances)
0 = Absent
1 = Mild
2 = Severe

15. **HYPOCHONDRIASIS**
0 = Not present
1 = Self-absorption (bodily)
2 = Preoccupation with health
3 = Querulous attitude
4 = Hypochondriacal delusions

16. **WEIGHT LOSS**
0 = No weight loss
1 = Slight
2 = Obvious or severe

17. **INSIGHT**
(Insight must be interpreted in terms of patient's understanding and background.)
0 = No loss
1 = Partial or doubtful loss
2 = Loss of insight

TOTAL ITEMS 1 TO 17: _____
0 - 7 = Normal
8 - 13 = Mild Depression
14 - 18 = Moderate Depression
19 - 22 = Severe Depression
≥ 23 = Very Severe Depression

18. **DIURNAL VARIATION**
(Symptoms worse in morning or evening. Note which it is.)
0 = No variation
1 = Mild variation; AM () PM ()
2 = Severe variation; AM () PM ()

19. **DEPERSONALIZATION AND DEREALIZATION**
(feelings of unreality, nihilistic ideas)
0 = Absent
1 = Mild
2 = Moderate
3 = Severe
4 = Incapacitating

20. **PARANOID SYMPTOMS**
(Not with a depressive quality)
0 = None
1 = Suspicious
2 = Ideas of reference
3 = Delusions of reference and persecution
4 = Hallucinations, persecutory

21. **OBSESSIVE SYMPTOMS**
(Obsessive thoughts and compulsions against which the patient struggles)
0 = Absent
1 = Mild
2 = Severe

* Adapted from Hamilton, M. *Journal of Neurology, Neurosurgery, and Psychiatry*, 23:56-62, 1960.

References

- Achievement, G. O. (2019). *Georgia School Grades Reports*. Retrieved September 11, 2020, from <https://schoolgrades.georgia.gov/bulloch-county>
- Babies, M. &. (2020). *Mothers & Babies*. Retrieved September 9, 2020, from <https://www.mothersandbabiesprogram.org/providers-interventionists/>
- Bryant Borders, A. E. (2007, February). Chronic Stress and Low Birth Weight Neonates in a Low-Income Population of Women. *American College of Obstetricians and Gynecologists*, 109(2), 331-338.
doi:10.1097/01.AOG.0000250535.97920.b5
- Bureau, U. C. (2020, August). *Census.gov*. Retrieved from <https://www.census.gov/quickfacts/fact/table/bullochcountygeorgia,GA/PST045219>.
- CDC. (2018). *Centers for Disease Control and Prevention*. Retrieved from National Center for Health Statistics:
<https://www.cdc.gov/nchs/pressroom/states/georgia/georgia.htm>
- County Health Rankings & Roadmaps. (2020). Retrieved from 2020 County Health Rankings-State Reports:
<https://www.countyhealthrankings.org/app/georgia/2020/rankings/bulloch/county/outcomes/overall/snapshot>
- Georgia Department of Public Health. (2019). Retrieved from https://dph.georgia.gov/search?search=non+discrimination&sm_site_name=dph
- Giurgescu, C., Engeland, C. G., & Templin, T. N. (2015, September/October). Symptoms of Depression Predict Negative Birth Outcomes in African American Women: A Pilot Study. *Journal of Midwifery & Women's Health*, 60(5), 570-577.
doi:doi:10.1111/jmwh.12337
- Kotch, J. (2013). Maternal and Child Health: Programs, Problems, and Policy in Public Health. In J. Kotch, *Maternal and Child Health: Programs, Problems, and Policy in Public Health* (3rd ed., p. 463). Jones & Bartlett Learning.
- Lee, E.-H. (2012). Review of the Psychometric Evidence of the Perceived Stress Scale. *Asian Nursing Research*, 6(4), 121-127.
doi:<https://doi.org/10.1016/j.anr.2012.08.004>
- Mendelson, T. L. (2013). Impact of a preventive intervention for perinatal depression on mood regulation, social support, and coping. *Archives of women's mental health*, 16(3), 211-218. doi:<https://doi.org/10.1007/s00737-013-0332-4>
- Online Analytical Statistical Information System. (2020). Retrieved from Tools for Public Health and Public Policy Data: <https://oasis.state.ga.us/>
- Rankings, A. H. (2020). *United Health Foundation*. Retrieved September 11, 2020, from <https://www.americashealthrankings.org/explore/annual/measure/birthweight/stat e/GA?edition-year=2019>
- Review, W. P. (2020). *Bulloch County, Georgia Population 2020*. Retrieved September 9, 2020, from <https://worldpopulationreview.com/us-counties/ga/bulloch->

county- population

- Reproductive Health*. (2020). Retrieved from Centers for Disease Control and Prevention:
<https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm>
- Reynolds, W., & Kobak, K. A. (1995). Reliability and Validity of the Hamilton Depression Inventory: A Paper-and-Pencil Version of the Hamilton Depression Rating Scale Clinical Interview. *Psychological Assessment*, 7(4), 472-483. doi:10.1037/1040-3590.7.4.472
- Stanford Children's Health*. (2021). Retrieved from
<https://www.stanfordchildrens.org/en/topic/default?id=low-birthweight-90-P02382>
- State Accounting Office*. (2021). Retrieved from State Travel Policy:
<https://sao.georgia.gov/travel/state-travel-policy>
- Tandon, S. L. (2014). Six-month outcomes from a randomized controlled trial to prevent perinatal depression in low-income home visiting clients. *Maternal and Child Health Journal*, 18(4), 873-881. doi:<https://doi.org/10.1007/s10995-013-1313-y>
- Urizar Jr., G. G., & Munoz, R. F. (2011). *Impact of a prenatal cognitive-behavioral stress management intervention on salivary cortisol levels in low-income mothers and their infants*. doi:10.1016/j.psyneuen.2011.04.002
- USA, D. (2017). *DATA USA: Bulloch County, GA*. Retrieved September 11, 2020, from <https://datausa.io/profile/geo/bulloch-county-ga#covid>
- USDSS*. (2021). Retrieved from Center for Disease Control and Prevention:
<https://gis.cdc.gov/grasp/diabetes/DiabetesAtlas.html#>