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Resilience in the Face of Socioeconomic Adversity: A Study of Motherhood in the Early  
Postpartum

JESSICA SANTUCCI  
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Reviewed and approved\* by the following:

Douglas M. Teti, Ph.D.  
Head, Department of Human Development and Family Studies and Professor of Human  
Development and Family Studies, Psychology, and Pediatrics  
Thesis Supervisor

Alyssa A. Gamaldo, Ph.D.  
Associate Professor of Human Development and Family Studies  
Honors Adviser

\* Electronic approvals are on file.

## ABSTRACT

**Introduction:** Much of society is financially strained, so more value is being placed on “free” support resources. Becoming a mother is stressful, let alone for the financially strained, bringing the utilization of “free” support resources to the forefront of research. This study evaluates the well-being of at-risk mothers to determine if support from broad and/or intimate support resources buffer the negative effects of living in low socioeconomic circumstances.

**Methods:** This cross-sectional study uses data from the larger Project SIESTA, supported by the National Institute of Child Health and Human Development. Predictors of maternal well-being were availability of maternal attachment figures, marital quality, and quality of positive coparenting. The outcome variables were maternal distress and quality of mothering at daytime or bedtime. Pearson correlations and linear regressions were conducted to explore whether social and intimate support measurements relates to maternal distress and quality of mothering.

**Results:** Correlations revealed that support from the broader ecological environment was not significantly associated with any measure of well-being, except for quality of daytime mothering. All measures of intimate partner support were significantly associated with maternal distress/quality of daytime mothering; no measures were significantly associated with quality of bedtime mothering. Linear regressions also showed support from intimates was a better predictor of maternal well-being than support from the broader environment.

**Discussion:** The results support existing literature in exemplifying the positive effects of support from intimate partners on buffering the negative effects of stress on mental health during the transition to parenthood. To bring the field forward, this study builds on existing literature by including mothers that are at socioeconomic risk.

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## Chapter 1

### Introduction

Resilience in the face of socioeconomic adversity is typically defined as the propensity of groups or individuals to overcome the negative mental, physical, and social impacts of living in high-risk environments (Rutter, 2007; Mikhail, 2017; Rutter, 1987). Social scientists are increasingly accepting of the idea that resilience is not a static trait but rather a result of an interaction between environmental and genetic factors (Ungar, 2010; Hobfoll & Lilly, 1993; Kelly, 1986). Despite being an innate part of human nature, the ability to cope with stressors can be molded by interactions at the individual, familial, and community levels (Ungar, 2005; Walsh, 2003). As a result, resilience research has the unique ability to enhance already-existing resources and relationships to better position at-risk individuals to achieve familial and marital harmony, particularly during the stressful time of transitioning to parenthood.

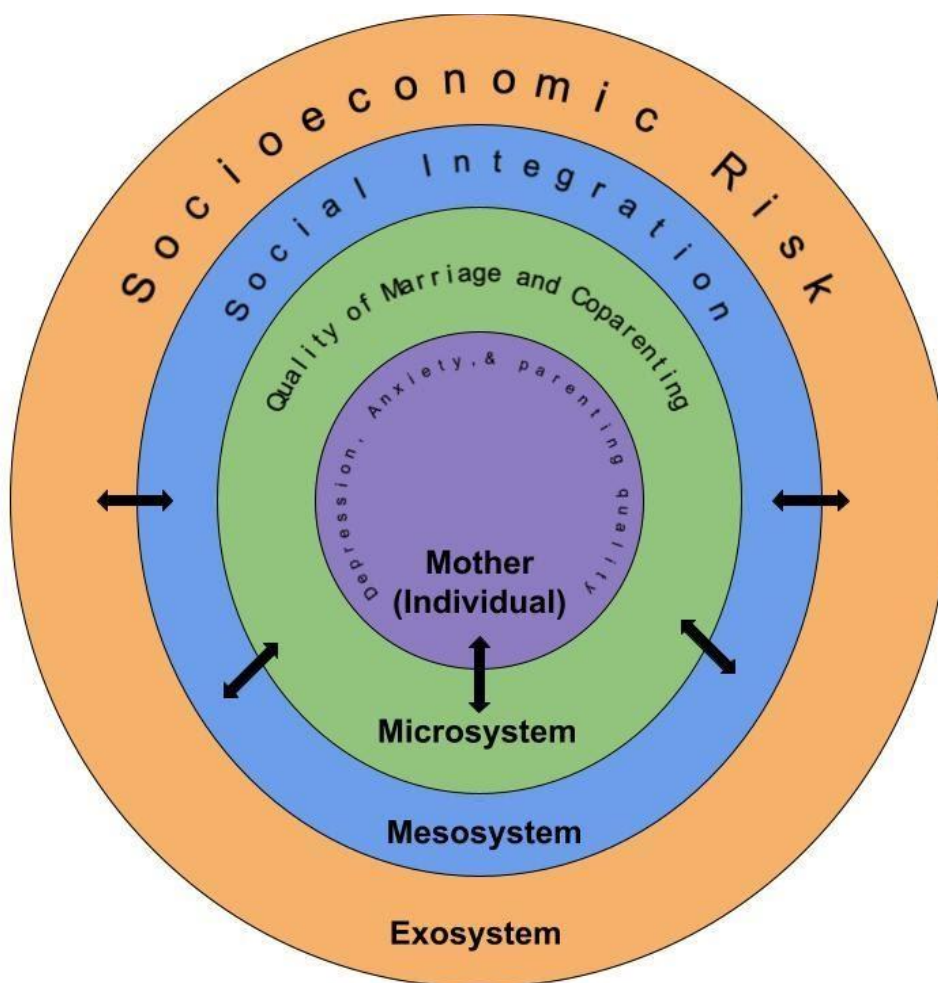
Families living in unfavorable socioeconomic conditions have an increased risk for experiencing unfavorable ecological circumstances. Some of these circumstances include: poor levels of intimate/neighborhood support and poor quality of marriage/ coparenting; each of these realities have detrimental impacts on individual parenting and mental health (Teti & Black, 2011; Gibson-Davis et al. 2005; Antonucci and Akiyama 1987; Séguin et al., 1999 ; Goyal et al., 2010; Distelberg & Taylor, 2013). Rising above these factors can be overwhelming for individuals, especially those with limited knowledge on how to manage such burdens. How one *perceives* risk, as opposed to the actual presence of threats, is associated with negative outcomes. This reality hinders these individual's and familial abilities to deal with stressors (Cooper et al.,

2009). Furthermore, the challenges associated with new motherhood adds yet another level of stress to this already-susceptible population. Additional stressors associated with motherhood include incremental physiological, psychological, marital, and financial strains (Duvall, 1971; Ryder, 1973). Families that experience chronic stress but lack the knowledge/resources to overcome it are more likely to mentally amplify the negative effects of these daily stressors. For example, social support is a crucial aspect of resilience (Focht-Birkerts & Beardslee, 2004). In the absence of spousal support, a new mother may feel their parenting skills are lackluster. This reality may negatively affect their views of parent-child, parent-grandparent, and parent-friend relationships. The negative consequences of mishandling stress impacts a network of people. As a result, an emphasis must be placed on the creation and utilization of marital, personal, and social support resources to reduce the impact of stress on at-risk mothers.

Bronfenbrenner's bioecological theory explains that the ability to exhibit resilience in the face of adversity is a function of distal and proximal factors in one's socio-ecological niche (Bronfenbrenner, 1986). As seen in **Figure 1**, proximal factors are interacted with daily and, as a result, are expected to have immediate outcomes for the individual. Examples of these factors include social support and marital/coparenting quality. These qualities are used to predict outcomes, such as maternal depression/anxiety, as well as quality of mothering. Distal factors are not necessarily encountered daily, but they impact all layers of the bioecological model through diffusion. Examples of these include social integration through interactions with neighbors/colleagues, cultural customs, and neighborhood support. Those living in multi-risk populations have shown that quality of parent-child relationships is negatively correlated with distal and proximal risk factors (Teti & Black, 2011). As a result, it is crucial to examine multiple proximal and distal factors when considering how families, specifically mothers, can



position themselves to exhibit resilience in the face of opposition, such as in times of economic, social, and educational hardship. Thus, this study evaluates how at-risk mothers can effectively utilize their resources to support positive life outcomes, specifically when handling the newfound stress that accompanies the early postpartum months.



**Figure 1: The Distal and Proximal Factors of Bronfenbrenner's Bioecological Theory**

The interaction between personal and broad social support systems for socioeconomic at-risk mothers is underexplored. This leaves room for additional research into how mothers can

best utilize their relationships to overcome adverse circumstances during the already-stressful transition to motherhood in the early postpartum period. The aim of this study is to look at individual resilience in mothers in response to socioeconomic adversity. This study focuses on multiple aspects of the social ecology (social support from the broader environment, availability of maternal attachment figures, co-parenting quality, and marital quality) that explain individual variances in resilience (maternal distress and individual daytime/bedtime mothering quality) for mothers who have experienced a recent birth. Resilience is indicated by lower levels of maternal distress and higher levels of mothering quality, both during daytime and bedtime parenting practices.

## **Parent Social Ecology: Risk and Protective Factors**

### **Social Supports**

The importance of maintaining broad social networks throughout stressful life scenarios, such as chronic illnesses, adolescent pregnancies, and military deployments, has been recently addressed in the literature (Feinberg et al., 2019; Gritz, Wellisch, Siau, & Wang, 1990; Easterbrooks et al., 2016). Possessing a quality support structure, such as living in secure neighborhoods or receiving reassurance from intimates has shown to buffer the negative effects of these stressful life events. This structure also boosts mental health quality in these at-risk individuals (Shuey & Leventhal, 2017; Crnic et al., 1983). More specifically, maintaining social support networks has been linked with improved emotional support, instrumental assistance, and social expectations, allowing for the ability to thrive in the face of risk and promote increased parenting quality (Belsky, 1984). At-risk mothers are more likely to have longer-lasting impacts; “at-risk” is defined as those that live in unsafe home environments, lack job stability, or have incomes insufficient to provide ample care for families (Benzies & Mychasiuk, 2009; Newland et al., 2013). Regardless of socioeconomic standing, the stress of major life events, such as transitioning to motherhood, is commonplace. Likewise, mothers in good socioeconomic standing experience stress during the early postpartum months as well.

Stress during the early postpartum months may be mitigated by well-educated, well-resourced parents, but may persist far beyond the postpartum among parents who lack educational resources and assistance from others. Risk and protective factors lie along a continuum in which susceptible individuals are prone to exhibit stronger or weaker responses to stress. Risks depend on multiple factors, such as levels of overall life stress. As stress levels increase, the utilization of social support becomes increasingly more important (Paykel et al.,

1996; Cosco et al., 2018; Crnic, 1983). When these social networks provide quality support, general life and parenting satisfaction/confidence also increase (Murry et al., 2001; Luthar & Cicolla, 2015; Updegraff & Taylor, 2000). The presence of reliable and positive support from churches, colleagues, and spouses have shown to improve outcomes at the individual and familial levels (Lowe, Rhodes, & Waters, 2015; Crnic, 1983; Carveth & Gottlieb, 1979; Luthar et al., 2017). Therefore, social support must be evaluated in this study, given the crucial role it holds in promoting resilience across many domains of life.

### **Marital Quality**

High quality spousal support has shown to improve maternal outcomes in families that experienced the death of a child, military deployments, and victims of natural disasters (Cohan & Cole, 2002; Lehman, Lang, Wortman, & Sorenson, 1989; Orthner & Rose, 2006). Specifically, strong marital relationships and communication have shown to increase resilience in mothers placed in socioeconomic at-risk environments (Kok et al., 2018; Woods-Jaeger, 2018). The emphasis of strong marital relationships should be stressed in resilience literature, because of their effects on the entire family. Children exposed to psychological adversity and social isolation were found to have higher distress levels as adults (Franck, Molyneux, & Parkinson, 2016; Valtorta, Kanaan, Gilbody, Ronzi, & Hanratty, 2016). Consequently, the lasting effects of parental social networks have shown to impact both adults and children in familial units.

Simply having a marital partner is not enough to promote resilience in the face of risk. Partners prone to resilience generally exhibit strong problem-solving/communication skills and are less likely to internalize problems; these partners also have the ability to adapt to stressful or changing environments (Brody et al., 2013; Yancey, 2008; Stiel, Estrella, Wang, & Distelberg,

2014). These qualities result in high levels of confidence in parenting skills, which prompt positive parent-child relationships and more trusting marital relationships (Holahan & Moos, 1986; Jones & Prinz, 2005; Belsky, 1984). On the contrary, mothers that lack these positive marital/familial relationships are more susceptible to the adverse effects of stress by experiencing additional mental anguish (Noor & Alwi, 2013).

### **Coparenting**

Coparenting is a specific type of relationship described as “the manner in which parents work together to raise their children” (Teti, Reader, & Cleveland, 2017; McHale, 1995).

Coparenting couples in socioeconomic at-risk environments have shown to exhibit resilience by: sharing childcare duties, keeping conflicts to a minimum, and utilizing resources effectively (Jamison, Ganong, & Proulx, 2017). Similarly, mothers that have developed strong relationship qualities prior to giving birth have exhibited better postpartum coparenting qualities (Le et al., 2016; McHale et al., 2004). While the effects of stressful life scenarios on children have been well documented in the literature, there has been less emphasis on the impact of maternal relationships and coparenting in families of newborns (Easterbrooks et al., 2016; Asselmann et al., 2015; Deater-Deckard et al., 2019; Holmes et al., 2019; Herbers et al., 2019). Forty to fifty percent of marital relationships decrease in quality after the birth of a child. Consequently, this reality is crucial to research further as marital dissatisfaction often leads to a deterioration in maternal mental health (Doss et al., 2009). Likewise, additional research is also required to analyze how coparenting contributes to resilience development in comparison to other social factors for new mothers.

## **Individual Parental Functioning:**

### **Mental Health**

Fifteen to twenty-five percent of mothers experience depression in the two years following childbirth. These rates have been noted to double in the face of socioeconomic risk due to the stress of living in chaotic and unsafe home environments (Evans et al., 2001; Mora et al., 2009). Mothers with compromised mental health have children with increased rates of behavioral, learning, health, and social adjustment issues. These challenges have shown to hinder the formation of familial and maternal resilience (Hammen, 2003; Lovejoy et al., 2000; Lieb et al., 2002). Maternal risk factors are not limited to depression. Regardless of socioeconomic status, elevated depression/anxiety levels, and compromised marital relationships are commonplace in families during the early postpartum period (Matthey et al., 2000; Simpson, Rholes, & Campbell, 2003).

Despite these realities, women in at-risk socioeconomic situations avoid having compromised mental health by establishing positive self-images/ self-control, partaking in social support groups, establishing better lines of spousal communication, and establishing parental confidence (Cutrona, 1984; Cobb, 1979; Gailliot et al., 2007; Oaten & Cheng, 2006; Hjemdal et al., 2011; Skodol, 2010). Prior studies focus on resilience against depression and anxiety, but these studies specify resilience in terms of children/families impacted by chronic illnesses (Chen & Kovacs, 2013; Focht-Birkerts & Beardslee, 2000; Fortinsky, Tennen, & Steffens, 2013; Manning, Carr, & Kail, 2016). Currently, there are a limited number of studies examining resilience against depression in newborn mothers, especially those living in socioeconomic at-risk environments. Existing literature suggests that secure parent-child and marital relationships mitigate the negative effects of chaos and stress associated with facing adverse circumstances

(Borja et al., 2019; Poleshuck et al., 2019). Although both parents are at-risk during the transition to parenthood, current studies are primarily focused on maternal mental health, because mothers are mostly seen as the primary caregivers for their families.

### **Quality of Parenting**

The quality of individual mothering is influenced by coparenting quality. This validates the importance of support from intimates in buffering the negative effects of stress on new parents (Feinberg, 2002). Likewise, the emotional and physical wellbeing of mothers during the postpartum period has a positive correlation with their parental competence and parenting behavior (Gelfand & Teti, 1990; Teti & Gelfand, 1991). This reality, in turn, has shown to result in more familial security, even when living in physically unsafe or disorganized homes (McHale & Rasmussen, 1998; Dorsey, Forehand, & Brody, 2007; Karreman, van Tuijl, van Aken, & Dekovic, 2008; Stright & Neitzel, 2003). Mothers that exhibit poor parenting quality often experience high levels of stress in other facets of their lives. How well one functions as a parent is a strong predictor of how one is doing on a personal level. Mothers experiencing more depressive symptoms are less apt to provide attention to their child's behavioral and emotional needs (Forman et al., 2007). Therefore, establishing a solid sense of maternal well-being by creating robust support systems and enhancing mental health is crucial in promoting resilience. New parental responsibilities affect maternal functioning during the first few months of their infant's life. Adjusting to realities such as new sleep schedules and breastfeeding complications frequently leads to feelings of being overwhelmed. These challenges, especially while establishing mother-child relationship roles, have potential to be a growing area of research interest.

### **Literature Gaps and Current Study:**

A lot of research has focused on the personal, familial, and environmental impacts of childhood adversity, but much less is known about the impacts on adult mothers (Luthar, Sawyer, & Brown, 2006), especially during the foreign territory of transitioning to motherhood. This is an important aspect of future research, because facing stressors early in life can accumulate and lead to poor developmental outcomes later in life (Terry, 1991; Borja et al., 2019). The transition to motherhood can add another layer of stress to already-susceptible individuals, making this topic a pressing issue. Of the studies addressing social support during the transition to parenthood, most articles lack data specifically on socioeconomically at-risk families (Biehle & Mickelson, 2011; Hughes et al., 2020; Tietjen & Bradley, 1985).

Prior research has validated social support beyond that of the immediate family at mitigating stress (Wandersman, 1980). However, studies may not fully represent the needs of mothers during today's climate of innovations and shifting societal values. For example, technology usage is becoming a social normality; it is used in classrooms, workplaces, and homes. In fact, ninety-five percent of adults in the United States have and frequently utilize technology, such as cellphones and tablets (Pew Research Center, 2018). McDaniel and Drouin coined the term “technofence” in which couple interactions are severely disrupted by the presence of technology (McDaniel & Drouin, 2019). Their findings suggest that high levels of technofence predict lower ratings of relationship satisfaction, lower overall mood ratings, and more conflicts related to technology usage. Higher levels of distress between dyadic units have shown to be related to higher levels of technofence (Chotpitayasunondh & Douglas, 2018). This research indicates that technology may be used at the expense of human relationships. With this in mind, it is of interest to re-evaluate the transition to motherhood in light of these societal



developments to see whether the predictors of maternal mental health and parenting quality have varied.

There is a plethora of literature that addresses the impact of support from intimate partners versus the broader ecological environment, but the results are conflicting. This research highlights the idea that social support does not universally explain differences amongst social class as it relates to resilience (Cosco, Cooper, Kuh, & Stafford, 2017). Conversely, another study showed that mothers who were highly resourced displayed higher levels of adaptability in response to stress. This adaptability stemmed from the utilization of more social support than those from low individual, relational, and contextual classes (Decker et al., 2020). Furthermore, the availability and adequacy of support from attachment figures through social integration has shown to be key in predicting maternal mental wellbeing (Noor & Alwi, 2013). It is evident that the impacts of marital and broad social support systems during the early postpartum months for socioeconomic at-risk mothers need to be further investigated to determine the effects on individual maternal functioning. More specifically, this study aims at evaluating social support, availability of maternal attachment figures, co-parenting quality, and marital quality as predictors of maternal distress and daytime/bedtime parenting quality in this at-risk population of mothers.

Thus, the current study will be testing three specific aims. The first aim will explore how **social support from the broader ecological environment** relates to **maternal well-being** regarding mothers at socioeconomic risk. It is hypothesized that among mothers living in adverse environmental circumstances (at socioeconomic risk), mothers who are better socially integrated will be more likely to show better maternal well-being (lower distress symptoms and higher mothering quality during bedtime and daytime interactions with baby) than mothers who do not report strong social integration. The second aim will explore how **support from intimate**

**partners** relates to **maternal well-being** regarding mothers at socioeconomic risk. It is hypothesized that among mothers at socioeconomic risk, mothers who report greater adequacy of support from intimates (more availability of attachment figures, better marital quality, and better coparenting) will be more likely to show better maternal well-being (lower distress symptoms and higher quality mothering during bedtime and daytime interactions with baby) than mothers who do not report strong support from intimates. The third aim will explore how **social support from the broader ecological environment** compares to **support from intimates** to ultimately see which more strongly predicts **well-being among mothers** at socioeconomic risk. It is hypothesized that among mothers at socioeconomic risk, stronger prediction of individual maternal well-being will be obtained from support from intimates, rather than from the broader social environment.

## Chapter 2

### Methods

#### Participants

The current study included participants that were involved in Project SIESTA (Study of Infants' Emergent Sleep Trajectories) (Douglas M. Teti, Principal Investigator). Participant inclusion criteria included: parents must be 18 years or older, babies must have no major medical complications at birth, families must speak English, and families must live independently. Some examples of factors examined in the larger Project SIESTA study include: infantile sleep, coparenting quality, infantile development, and parenting quality. Mothers of infants were given information about the study at various hospitals in central Pennsylvania between 24-48 hours after giving birth. After discussing the study with their significant others, parents opted to participate in the study in exchange for monetary compensation after each timepoint check-in.

This is a secondary data analysis from Project SIESTA. The original study involved 167 mothers. However, eighty-two participants were evaluated in this study. The mean age was 27.46 years old ( $SD = 5.23$ , range= 40-18). Most mothers obtained a high school diploma ( $n = 49$ , 59.8%) but did not graduate college with an associate or bachelor degree ( $n = 26$ , 31.7%). The average yearly income of the sample was \$45,240.95 ( $SD = \$23,127.78$ , range= \$0.00 - \$95,000.00). The majority of the participants were living with a partner ( $n = 67$ , 90.5%) and were white ( $n = 66$ , 82.5%). Furthermore, most mothers were employed at 1 month postpartum ( $n = 48$ , 58.5%). Most mothers did not report being depressed ( $SD = 6.68$ , range = 28.00) or having anxiety ( $SD = 4.73$ , range = 29.00). Most mothers had positive perceptions of their marital quality ( $SD = 26.07$ , range = 138.00). Also, most mothers reported having positive

perceptions of coparenting quality ( $SD = 6.97$ , range = 28.00). Additional demographic information is presented in Table 1.

**Table 1. Sociodemographic Characteristics of the Final Sample (N = 82)**

Variable	N (%)	Range	M ( <i>SD</i> )
Race			
Caucasian	66 (82.5)	—	—
Black/African American	3 (3.8)	—	—
Asian American	2 (2.5)	—	—
Latino	6 (7.5)	—	—
“Other” Race	3 (3.8)	—	—
Age (Years)	—	40 - 18	5.233
Employment Status			
Employed	48 (58.5)	—	—
Unemployed	34 (41.5)	—	—
Marital Status			
Living with Partner	67 (90.5)	—	—
Not Living with Partner	7 (9.5)	—	—
Level of Education			
No High School Diploma	2 (2.4)	—	—
High School Diploma	49 (59.8)	—	—
Associate/Bachelor’s Degree	26 (31.7)	—	—
Graduate Degree	5 (6.1)	—	—
Family Yearly Income	—	\$95,000 - \$0.00	\$23,127.78
Depression	—	28.00	6.68
Anxiety	—	29.00	4.73
Quality of Mothering	—	17.73	3.57
Support from the Environment	—	29.14	6.86
Support from Intimate Partners			
Marital Quality	—	138.00	26.07
Quality of Negative Coparenting	—	28.00	6.97

*Note:* M = Mean. *SD* = Standard Deviation

## Measures

*Sociodemographics and Socioeconomic Risk.* In this study, socioeconomic risk was determined by maternal education level and family income per year. Lower parental education level and income per year was indicated as having higher risk, as indicated by previous research connecting these ideas (Campbell et al., 2020). The reversed z-score was used to ultimately calculate the socioeconomic risk score. Higher scores indicated that the family, more specifically the mother, was at higher socioeconomic risk. Therefore, mothers were considered to be “high risk” when they were above the median socioeconomic risk z-score of -0.12, since 50% of the sample had socioeconomic risk scores above and below this value. Thus, a total of 82 mothers were examined in this study.

*Social Support from the broader ecological environment.* The Interview Schedule for Social Interaction was made into a questionnaire (Henderson, Bryne, & Duncan-Jones, 1981). The results from the questionnaire indicate the following: availability of social integration and adequacy of social integration. Availability of social integration is scored from 0 - 6, with higher scores indicating better availability of social integration; adequacy of social integration is scored from 0-8, with higher scores indicating more adequate social integration; The scores were standardized/summed and used to create a composite score. Higher composite scores are positively correlated with more positive perceptions of social support systems (Brunt & Hansson, 2002). On the other hand, lower scores are negatively correlated with issues pertaining to mental health, specifically depression and thus giving an adequate picture of social support throughout the familial system (Eklund, Bengtsson-Tops, & Lindstedt, 2007).

*Social Support Intimate Partners: Availability of Attachment Figures.* The Interview Schedule for Social Interaction was made into a questionnaire (Henderson, Bryne, & Duncan-

Jones, 1981). The results from the questionnaire indicate the availability of maternal attachment. Availability of attachment is scored from 0-6, with higher scores integrating more availability of attachment. Higher scores are positively correlated with more positive perceptions of social support systems (Brunt & Hansson, 2002). On the other hand, lower scores are negatively correlated with issues pertaining to mental health, specifically depression and thus giving an adequate picture of social support throughout the familial system (Eklund, Bengtsson-Tops, & Lindstedt, 2007). The scores were standardized/summed and used to create a composite score.

*Social Support Intimate Partners: Marital Quality.* The Dyadic Adjustment Scale (DAS) is respected in the literature as a reliable method of distinguishing marital satisfaction versus dissatisfaction (Bagarozzi, 1985; Carey et al, 1985; Spanier & Thompson, 1982). This scale measures marital discord, which reports values such as handling money for the family, determining how to spend free-time, feeling content with sexual relationships, opinions about in-laws, dealing with fights, expressing feelings to each other, etc. (Spanier, 1976). The Locke-Wallace Marital Adjustment Test is another well-validated marital adjustment assessment that is commonly used to assess marital quality by addressing religious matters, aims, goals, and items that are valued as being important, distribution of household tasks, and how making high-impact decisions occurs in addition to the standard DAS topics (MAT; Locke & Wallace, 1959). Taking all of these factors into account with the newly adjusted scale, this study is able to create a comprehensive measure of marital quality. This utilized 19 items that were assessed via a Likert scale. The first two items were measured on a scale from 0 to 35 and the remainder of the items were measured on a scale from 0 to 6. The scores were standardized/summed and used to create a composite score. Higher values represented better marital quality.

*Social Support Intimate Partners: Coparenting Quality.* The Coparenting Relationships Scale (CRS; Feinberg, 2012) was used to measure coparenting quality. This utilized 35 items that were assessed via a scale ranging from 0 to 6. Mothers and fathers rated their abilities to work as a team to properly perform their duties as parents by examining factors such as: open communication and patience. The coparenting items were summed to create an overall positive coparenting value, where higher scores correlated to better coparenting.

*Maternal Wellbeing: Maternal Distress Symptoms.* The SCL-90-R is used as a measure of psychological health (Derogatis, 1994). This study utilized the depression subscale, consisting of 7 items. Mothers were asked questions about their depression levels across the course of the past week. This subscale items range from 0 to 4, which correspond to *not at all* or *extremely*, respectively; these answers were in regards to topics such as feeling lonely and feeling like everything takes effort. The SCL-90-R is once again used as a measure of psychological health, except this time the SCL-90-R is used as an indicator of anxiety levels (Derogatis, 1994). Mothers were asked questions about their anxiety levels across the course of the past week. The anxiety subscale consisted of 7 items. Scale items ranged from 0 to 4, with a score of 0 indicating the parent was *not at all* bothered by the specific problem addressed in the prompt, and a score of 4 indicating the parent was *extremely* bothered by the problem addressed in the prompt. The prompts addressed parental feelings of nervousness and tenseness across their typical day. A sum total is then estimated across all of the items in which higher values represent more anxiety and depression, an indication of higher maternal distress.

*Maternal Wellbeing: Mothering Quality During Bedtime.* Members of the SIESTA project were able to set up recording devices and microphones the day of the recording, but they were not present when actual bedtime footage was being captured. Instead, parents were tasked



with starting the video footage one hour before their infant's bedtime and ending the footage after the night had concluded and the infant awoke for a new day. A Bosch Divar XF digital video recorder (DHR-0800B-150A; Bosch Security Systems), Infrared Color CCD night-vision camera (C420BCVFIR; ARM Electronics), Channel Vision 5104 microphones (CV-5104MIC; Channel Vision), and portable DVD player (A299-1040; Audiovox D9000) were all utilized to capture the video data. The cameras were positioned to capture videos of where the baby sleeps and places where parents interact with their baby prior to bedtime, such as a rocking chair or changing table. A maximum of four video cameras and microphones were set-up in homes and recorded familial interactions. Parents were prompted to turn on the cameras one hour before bedtime and turned off the camera when the baby awoke in the morning. Bedtime was defined as starting when the infant and parents were on screen for a minimum of two minutes and ending when the infant appeared to be asleep with their eyes closed and motionless for a minimum of five minutes. A paper written by Teti and Kim (2014) provides a more detailed explanation on how video recordings were conducted in the Project SIESTA.

Quality of mothering was addressed by evaluating the emotional availability of the mother at bedtime using an adjusted scale. At each checkpoint, members of the SIESTA lab were able to collect video footage of mother-father, mother-child, and father-child interactions prior to bedtime. Familial interactions during an infant's bedtime were assessed to ultimately determine emotional availability, which includes the constructs of sensitivity, structuring, non-intrusiveness, non-hostility, and warmth. Sensitivity was measured on a scale from 1 to 9, with 9 indicating that a mother is "highly sensitive" and 1 indicating that the mother is not "highly insensitive." Structuring was measured on a scale from 1 to 5, with 5 indicating "optimal structuring" and 1 indicating "inadequate structuring." Non-intrusiveness was measured on a

scale from 1 to 5, with 5 indicating “non-intrusive” and one indicating “highly intrusive.” Non-hostility was measured on a scale of 1 to 5, with 5 indicating no hostility and 1 indicating an extremely hostile couple. As a result, the sensitivity, structuring, non-intrusiveness, non-hostility, and warmth scores were summed and then a standardized z-score was taken in order to generate a composite emotional availability score. Inter-rater reliability on this composite (intraclass correlation), based on 35% of the sample, ranged from .80 to 1.00.

*Maternal Wellbeing: Mothering Quality During Daytime.* Maternal emotional availability towards their infants was collected once again using a Bosch Divar XF digital video recorder (DHR-0800B-150A; Bosch Security Systems), Infrared Color CCD night-vision camera (C420BCVFIR; ARM Electronics), Channel Vision 5104 microphones (CV-5104MIC; Channel Vision), and portable DVD player (A299-1040; Audiovox D9000) during their daytime interactions. More specifically, mother and baby were recorded in ten-to-fifteen-minute intervals as they were doing their daily “play” activities. Formally trained Project SIESTA coders then coded these videos after they were collected to measure maternal emotional availability. These coders partook in rigorous training and completed an ample number of training courses and videos to ensure their reliability. The Emotional Availability Scale (EAS; Biringen et al., 1998) assessed emotional availability, which includes the constructs of sensitivity, structuring, non-intrusiveness, non-hostility, and warmth. Sensitivity was measured on a scale from 1 to 9, with 9 indicating that a mother is “highly sensitive” and 1 indicating that the mother is not “highly insensitive.” Structuring was measured on a scale from 1 to 5, with 5 indicating “optimal structuring” and 1 indicating “inadequate structuring.” Non-intrusiveness was measured on a scale from 1 to 5, with 5 indicating “non-intrusive” and one indicating “highly intrusive.” Non-hostility was measured on a scale of 1 to 5, with 5 indicating no hostility and 1 indicating an

extremely hostile couple. As a result, the sensitivity, structuring, non-intrusiveness, non-hostility, and warmth scores were summed and then a standardized z-score was taken in order to generate a composite emotional availability score for maternal daytime interactions with their baby. Interrater reliability (intraclass correlation), based on 35 percent of the sample, ranged from .89 to .96,

## **Procedure**

At-home visits were carried out 4-6 weeks after the mothers gave birth to their child(ren) and were continued at 1, 3, 6, 9, 12, 18, and 24 months old. For this particular study, factors were examined at 3-months of infant life to examine the transition to motherhood. Data was drawn from the sample about social supports, availability of attachment figures, marital quality, and coparenting quality, which were used as predictors of maternal distress, and mothering quality during daytime and bedtime interactions; all of the aforementioned variables were measured at the 3-month time point while utilizing at-home interviews and questionnaires, as well as video footage from Project SIESTA data (as described in measures section above).

## **Statistical Analyses**

To test aim 1, a correlation was conducted to examine the association between social support from the broader ecological environment and maternal well-being (maternal distress and quality of mothering at daytime or bedtime). To test aim 2, a correlation was conducted to examine the association between support from intimate partners (availability of maternal attachment figures, marital quality, and coparenting quality) and maternal well-being (maternal distress and quality of mothering at daytime or bedtime). To test aim 3, linear regressions were conducted to separately test the 3 dependent variables of interest, which are the proxies of

maternal well-being (maternal distress and quality of mothering at daytime or bedtime). However, for each regression model, four independent predictors (availability of attachment figures, co-parenting quality, marital quality, and social support from the broader ecological environment) were included to analyze the impacts of support from intimates and social support from the broader ecological environment.

## Chapter 3

### Results

#### **Correlation Between Social support from Broader Ecological Environment and Maternal Well-Being**

Results from the correlation can be seen in Table 2. Social Support from the broader ecological environment was not significantly correlated with maternal distress ( $p = 0.06$ ) or quality of mothering at bedtime ( $p = 0.68$ ). However, social support from the broader ecological environment was significantly and positively correlated with quality of mothering during daytime interactions ( $p = 0.02$ ).

#### **Correlation Between Support from Intimate Partners and Maternal Well-being**

Results from the correlation can be seen in Table 2. Availability of maternal attachment was not significantly correlated with quality of mothering at bedtime ( $p = 0.99$ ). However, availability of maternal attachment was significantly and negatively correlated with maternal distress ( $p < 0.001$ ) and significantly and positively correlated with quality of mothering during daytime interactions ( $p < 0.001$ ). Marital quality was not significantly correlated with quality of mothering at bedtime ( $p = 0.29$ ). However, marital quality was significantly and negatively correlated with maternal distress ( $p < 0.001$ ) and significantly and positively correlated with quality of mothering during daytime interactions ( $p < 0.001$ ). Positive coparenting was not significantly correlated with quality of mothering at bedtime ( $p = 0.30$ ). However, positive coparenting was significantly and negatively correlated with maternal distress ( $p = 0.004$ ) and significantly and positively correlated with quality of mothering during daytime interactions ( $p < 0.001$ ).

**Table 2. Correlation Between Social Support and Maternal Well-Being.**

Variable	1	2	3	4	5	6	7
1. Social Support from the Broader Ecological Environment	1.00						
2. Positive Coparenting	0.01	1.00					
3. Marital Quality	-0.02	0.64	1.00				
4. Availability of Attachment Figures	0.34	0.34	0.32	1.00			
5. Maternal Distress	-0.22	-0.33**	-0.42**	-0.52**	1.00		
6. Quality of Daytime Mothering	0.33*	0.47**	0.47**	0.47**	-0.35*	1.00	
7. Quality of Bedtime Mothering	-0.06	0.16	0.16	-0.00	-0.02	0.28	1.00

Note: \*\* $p < 0.01$ , \* $p < .05$

### **Support from Intimate Partners Is a Better Predictor of Maternal Well-Being Than Social Support from the Broader Ecological Environment**

Separate linear regressions for each marker for maternal well-being were conducted and can be seen in Table 3.

Maternal Well-Being: Maternal Attachment Figures vs. Boarder Ecological Environment. In the model using *maternal distress* as an outcome, availability of maternal attachment figures was a better predictor of distress in comparison to broader social support; availability of maternal attachment figures significantly predicted maternal distress ( $p < 0.001$ ) whereas social support from the broader environment did not ( $p = 0.681$ ). In the model using *quality of mothering during the daytime* as an outcome, availability of maternal attachment figures was a better predictor of quality of daytime mothering in comparison to broader social support, as maternal attachment figures significantly predicted quality of daytime mothering ( $p = 0.005$ ) whereas

social support from the broader environment did not ( $p = 0.155$ ). In the model using *quality of mothering during bedtime* as an outcome, neither availability of maternal attachment figures nor support from the broader ecological environment was a better predictor of quality of bedtime mothering. Availability of maternal attachment figures did not significantly predict quality of bedtime mothering ( $p = 0.912$ ) or social support ( $p = 0.674$ ).

**Maternal Well-Being: Marital Quality vs. Boarder Ecological Environment.** In the model using *maternal distress* as an outcome, marital quality was a better predictor of quality of daytime mothering in comparison to broader social support, as marital quality approached significance when predicting maternal distress ( $p = 0.050$ ) whereas social support from the broader environment did not ( $p = 0.312$ ). In the model using *quality of mothering during the daytime* as an outcome, marital quality was a better predictor of quality of daytime mothering in comparison to broader social support, as marital quality approached significance when predicting maternal distress ( $p = 0.005$ ) whereas social support from the broader environment did not ( $p = 0.067$ ). In the model using *quality of mothering during bedtime* as an outcome, neither marital quality or support from the broader ecological environment was a better predictor of quality of bedtime mothering, as marital quality did not significantly predict quality of bedtime mothering ( $p = 0.310$ ) and social support from the broader environment did not either ( $p = 0.660$ ).

**Maternal Well-Being: Quality of Positive Coparenting vs. Boarder Ecological Environment.** In the model using *maternal distress* as an outcome, neither quality of positive coparenting or support from the broader ecological environment was a better predictor of quality of bedtime mothering, as quality of positive coparenting did not significantly predict maternal distress ( $p = 0.347$ ) and social support from the broader environment did not either ( $p = 0.181$ ). In the model using *quality of mothering during the daytime* as an outcome, quality of positive

coparenting was a better predictor of quality of daytime mothering in comparison to broader social support, as marital quality significantly predicted quality of mothering during the day ( $p = 0.006$ ) whereas social support from the broader environment did not ( $p = 0.096$ ). In the model using quality of *mothering during bedtime* as an outcome, neither quality of positive coparenting or support from the broader ecological environment was a better predictor of quality of bedtime mothering, as quality of positive coparenting did not significantly predict quality of mothering at bedtime ( $p = 0.281$ ) and social support from the broader ecological environment did not either ( $p = 0.557$ ).

**Table 3. Summary of Regression Analysis of Maternal Well-Being**

Variable	<i>B</i>	<i>SE</i>	$\beta$
<b>Maternal Distress</b>			
Positive Coparenting	-0.048	0.035	-0.161
Marital Quality	-0.081*	0.040	-0.234
Availability of Attachment Figures	-6.433**	1.379	-0.505
<b>Quality of Daytime Mothering</b>			
Positive Coparenting	0.092**	0.032	0.387
Marital Quality	0.116**	0.039	0.395
Availability of Attachment Figures	3.410**	1.151	0.404
<b>Quality of Bedtime Mothering</b>			
Positive Coparenting	0.027	0.025	0.171
Marital Quality	0.026	0.025	0.159
Availability of Attachment Figures	0.111	0.997	0.018

Note: \*\* $p < 0.01$ , \* $p < .05$ . *B* = unstandardized coefficient, *SE* = Standard Error,  $\beta$  = Standardized Coefficient.



## Chapter 4

### Discussion

Overall, support from intimate partners showed to be a better predictor of maternal well-being than support from the broader ecological environment, as better marital quality was associated with less maternal distress and better quality of daytime mothering, quality of positive coparenting was associated with better quality of daytime mothering, and availability of maternal attachment figures was associated with less maternal distress and better quality of daytime mothering. The remainder of the findings regarding support from intimate partners were non-significant, and social support from the broader ecological environment was not associated with maternal well-being. Overall, support from broad and intimate socioecological niches need to be further investigated for at-risk populations, since the results from the study suggest the post-partum time is a significant timepoint to be predictive of maternal well-being.

There is a plethora of research supporting the idea that the utilization of social support resources, no matter if it is from an intimate partner, church, or neighborhood, can buffer negative mental health effects (Shuey & Leventhal, 2017; Crnic et al., 1983; Kok et al., 2018; Woods-Jaeger, 2018). However, most of this literature does not specifically address socioeconomic at-risk individuals, allowing room for further expansion in this study. The data from this study are reflective of the reality the literature paints, with most predictors pertaining to support from intimates being significantly associated with maternal well-being. However, some insignificant findings, specifically regarding quality of mothering at bedtime, may be due to the fact that the data was drawn during early post-partum months; mothers are still likely readjusting to life with a newborn, including hosting in-laws, accepting meals from neighbors, and

readjusting to new sleep schedules. There is still a lot of perturbation in the home at three months after birth.

Taking these factors into account, more accurate measurements for the predictors of maternal well-being may be obtained in later postpartum months, where mothers have had the chance to establish more of a routine with their intimate partners, broader environment, and infant (Whitesell, et. al., 2015). Interestingly, the literature suggests that as time increases across the first year of parenthood, household chaos increases (Whitesell, et. al., 2015), possibly leading to more significant impacts of support on maternal well-being. Despite this reality, the significant association between availability of maternal attachment figures/marital quality and maternal distress, as well as availability of maternal attachment figures/marital quality/quality of positive coparenting and quality of daytime mothering at three months postpartum speaks to the fact that support from intimate partners, especially in the face of life transitions, should be emphasized in current research. More specifically, encouraging positive spousal support is a low-cost solution to buffering the negative effects regarding depression and anxiety that are commonly associated with being at socioeconomic risk and a new mother (Doss et al., 2009).

Reasonings as to why quality of daytime mothering was significant but quality of mothering during nighttime was not significant remain unclear. Clearly, support mattered for daytime mothering, but it did not seem to matter at bedtime. A possible reason may be that mothers are fatigued from the longevity of their day during bedtime. As a result, the impacts from their support systems are less clearly felt when mothers are tired. Additionally, mothers are still establishing solid bedtime routines three months after giving birth, leading to additional chaos that may not be present at other points throughout the day. A lack of breast/bottle feeding routines, rocking the baby to sleep, or reading to the baby all contribute to possible sources of

stress and lack of structure during bedtime; these same factors may be more manageable/more time can be allotted to each activity during the day.

Although the association between the utilization of social support resources and increased quality in mental health for at-risk individuals has been established, there have been some conflicting results in the literature. Cosco, Cooper, Kuh, and Stafford (2017) found that social support does not explain differences amongst social class and resilience. However, another study showed that mothers that belonged to high individual, relational, and contextual classes displayed higher levels of adaptability and resilience through the utilization of more social support than those in the low individual, relational, and contextual classes (Decker et al., 2020). This study supports that utilizing support from intimate partners does indeed make a difference in maternal well-being, as evident by the significant findings described above regarding decreased levels of distress and better quality of mothering during daytime practices.

The current study had multiple limitations. This study was cross-sectional and obtained data through surveying mothers at one time point. In order to more accurately obtain data regarding the transition to parenthood, the literature could benefit from a longitudinal approach to the same topics of discussion; more specifically data regarding social support and maternal well-being should be evaluated both in the pre- and post-partum months. Furthermore, obtaining data through surveys always leaves room for inherent recall bias from the perspective of the mothers answering the questions. Additionally, the sample was mostly white, and most couples were heterosexual, so the findings cannot be generalized to a wide range of ethnic minorities and/or non-heterosexual couples. Lastly, the at-risk sample in this study is still considered affluent in comparison to the national average of individuals at socioeconomic risk; the average income for this sample was \$45,240.95 whereas the national average for low-income brackets

was \$28,700 in 2018 (Horowitz et al., 2020). Furthermore, a mother reported having \$0.00 in income, because the father was the sole earner for the family, possibly skewing the data for this at-risk population.

Looking to the future, more research needs to be focused on the specific workings of the interplay between personal and broad social support systems for socioeconomic at-risk mothers. It is clear that support from intimate partners plays a role in promoting the mental health and well-being of new mothers, but the extent to which this is beneficial is still left unclear. In particular, more at-risk study populations should be evaluated in the future to get a more accurate picture of how social support systems can buffer the negative impacts of living in socioeconomic at-risk environments. Furthermore, this study has left many unanswered questions in regards to the extent to which support from intimate partners is able to impact maternal well-being during the transition to motherhood for socioeconomic at-risk individuals. Future research should specifically address the influence technology has on intimate and broad social relationships for at-risk individuals in order to establish future prevention strategies for new mothers to not succumb to adverse mental health issues.

## **Chapter 5**

### **Conclusion**

The current literature regarding maternal well-being during the transition to parenthood is lacking data on socioeconomic at-risk mothers, and this study addressed that literature gap. The findings support the premise that support from intimate partners has a greater influence on maternal well-being in comparison to support from the broader ecological environment, as support from the broader ecological environment was unable to predict maternal well-being in most domains: maternal distress or quality of mothering during daytime and bedtime. On the other hand, availability of maternal attachment figures significantly predicted maternal distress and quality of daytime mothering. Marital quality significantly predicted maternal distress and quality of daytime mothering, and quality of positive coparenting significantly predicted quality of daytime mothering. Interestingly, quality of mothering at bedtime did not significantly predict any measure of maternal well-being. A possible reason for this finding may be due to increased maternal fatigue and the lack of stability in bedtime routines during the transition to parenthood, leading to a source of maternal stress as opposed to a sense of comfort.

The results of this study propel the field forward by providing useful information on socioeconomic at-risk mothers that have been historically neglected in previous literature. Previous research has made it clear that the transition to parenthood is a time of extreme uncertainty and stress for parents, leading to a lot of chaos in the home. Thus, it is vital to evaluate factors that can smooth-out this transition to make it less stressful for new parents, so as they can focus on building positive relationships with their spouse and new child.

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Publishing.

## ACADEMIC VITA

# JESSICA SANTUCCI

jessiesantucci@icloud.com

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### EDUCATION

MAY, 2022

**BIOCHEMISTRY AND MOLECULAR BIOLOGY, B.S. · HUMAN DEVELOPMENT AND FAMILY STUDIES MINOR · THE PENNSYLVANIA STATE UNIVERSITY SCHREYER HONORS COLLEGE**

- Distinction of honors in Human Development and Family Studies, The Presidential Award (Fall, 2018)
- *Dean's List* (7/7 Semesters), Featured Child Study Center Student of the Year (2022)

### EXPERIENCE

NOVEMBER, 2018 – JANUARY, 2020

**TISSUE CULTURE INTERN, THE PENNSYLVANIA STATE UNIVERSITY**

- Examined whether cancer cells have an impaired ability to maintain energetic homeostasis during migration through challenging physical environments. Observed the activation of stress response pathways as normal cells and cancer cells are induced to migrate and navigate model 3-dimensional tumor microenvironments.
- **Learned skills:** confocal microscopy, image analysis methods using Microsoft Excel and Fiji, usage of biochemical assays and fluorescent biosensors, and Western blotting

JUNE, 2020 – MAY, 2022

**SLEEP TRAJECTORY RESEARCHER, THE PENNSYLVANIA STATE UNIVERSITY**

- Coded behavioral routine data into Microsoft Excel. Scored variables regarding co-parenting qualities from in-home video recordings of parental interactions prior to putting their children to sleep.
- In the process of authoring a thesis "Resilience in the Face of Socioeconomic Risk: A Study of Motherhood in the Early Postpartum." This research examines mothers during the transition to parenthood and how they respond to various socioeconomic factors that put them at risk for adverse familial relationships.
- **Learned skills:** Microsoft Word, TeamViewer Software

JUNE, 2019 – AUGUST, 2021 (SUMMERS)

**DEAN'S SUMMER RESEARCH PROGRAM INTERN, THE UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE**

- Presented at the UPMC Summer Research Symposium the qualitative factors that contribute to the rate of readmissions at UPMC Children's Hospital of Pittsburgh in order to establish future prevention strategies by utilizing in-person and phone interviews with patient caregivers.
- Researched signs of urinary tract infections in febrile infants. Studied patient chart data, including CSF, blood, and urine cultures to differentiate causes of sepsis, meningitis, bacteremia, and UTIs to help better define protocol for febrile infants. Presented findings at the UPMC Summer Research Symposium.
- Utilized *Cerner* and *RedCap* to evaluate the safety of direct admissions versus admitting patients through the emergency department. Reviewed patient charts and transcribed primary care physicians' opinions of direct admissions.
- **Learned skills:** Extensive chart review via Cerner, managed online surveys and data through REDcap

## SERVICE

**MAY, 2019**

**DAYS FOR GIRLS ADVOCATE, MOROGORRO, TANZANIA**

- 15 Schreyer scholars traveled to Africa to collaborate with *Modern Girl*, a female empowerment program run by Tanzanian women, in efforts to break negative stigmas about young women and menstruation. Engaged with nearly 100 students from *SEGA Girls School* to instruct basic feminine hygiene principles, self defense mechanisms, and distribute sustainable menstrual kits made by fellow scholars.
- Selected by University President, Eric Barron, as the group representative to speak in front of 300 Penn State alumni, faculty, and high-profile donors to spread the *Modern Girl* message.

**AUGUST, 2019 – MAY, 2022**

**OPERATIONS TEAM LEADER – DAYS FOR GIRLS, THE PENNSYLVANIA STATE UNIVERSITY**

- A founding member of this service-based organization dedicated to furthering the mission of *Modern Girl*. Our work advocates for menstrual equity and raises awareness of the intersectionality between female and reproductive health.
- Completed an extensive Ambassador of Women's Health training program aimed at providing essential knowledge about menstruation and the necessity of menstrual equity for communities to thrive.

**AUGUST, 2019 – AUGUST, 2021 (SUMMERS)**

**ORIENTATION MENTOR, THE PENNSYLVANIA STATE UNIVERSITY**

- Selected as 1 of 50 Schreyer Honors College students to organize an orientation program for new Schreyer students. Created community building exercises and established social connections with new scholars to foster a collaborative living community.

**AUGUST, 2020 – MAY, 2022**

**LIFELINK PSU STUDENT MENTOR, THE PENNSYLVANIA STATE UNIVERSITY**

- Provided mentorship guidance for special needs students in the State College area by helping them shape their personal, academic, and social goals. Engaged students amidst the COVID-19 pandemic with "late night" activities that encouraged a virtual social community with other *LifeLink* members.

## LEADERSHIP

**SEPTEMBER, 2018 – MAY, 2022**

**WHIPLASH DANCE TEAM PRESIDENT, THE PENNSYLVANIA STATE UNIVERSITY**

- Team president/choreographer in hip hop, tap, and contemporary that led to first place finish at the Penn State Homecoming Competition, third place finishes at Penn State's Best Dance Crew and THON Showcase
- Performed in front of 40,000 people at THON to help raise a team total of \$48,000 for pediatric cancer research

**JANUARY, 2021 – MAY, 2022**

**CO-FOUNDER OF ETHICS IN SCIENCE AND MEDICINE, THE PENNSYLVANIA STATE UNIVERSITY**

- Hosted discussion-based forums on topics such as the illegal organ trade, vaccine distribution, human/animal research participants, and case studies to encourage discussions regarding bioethics in the community.

**AUGUST, 2019 – DECEMBER, 2019**

**CALCULUS II LEARNING ASSISTANT, THE PENNSYLVANIA STATE UNIVERSITY**

- Taught *Calculus II* to students by leading in-class examples and holding weekly individual learning sessions for students in need of extra tutoring.