

ECONOMICS OF ACADEMIC ACHIEVEMENT AMONG ADOLESCENT MOTHERS

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Leyan deBorja

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This thesis was presented

by

Leyan deBorja

It was defended on

December 5, 2016

and approved by

Thesis Advisor:

Martha Ann Terry, PhD

Associate Professor

Behavioral and Community Health Sciences

Graduate School of Public Health

University of Pittsburgh

Committee Member:

Jeannette E. South-Paul, MD

Andrew W. Mathieson Professor Department Chair

Department of Family Medicine

University of Pittsburgh

Committee Member:

Elizabeth M. Felter, DrPH,

Assistant Professor

Behavioral and Community Health Science

Graduate School of Public Health

University of Pittsburgh

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Martha Ann Terry, PhD

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Leyan deBorja, MPH

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ABSTRACT

Adolescent pregnancy is a significant issue that needs to be addressed in the United States. Although the rates of teen pregnancy have steadily declined, they are still high compared to other developed nations, such as the United Kingdom and Canada. Adolescent parenthood has a great impact and can result in negative outcomes for young mothers and their children.

Educational aspirations and achievement are delayed and hindered by adolescent pregnancy, but are very important in mitigating negative outcomes, specifically financial instability and low socioeconomic status. Research has found that young mothers can be highly resilient and are aware of the importance of education in improving their lives as well as the lives of their children. However, the statistics illustrating educational attainment among teen mothers paint a dismal picture. Factors that influence the academic goals and achievement of adolescent mothers include competing responsibilities, repeat pregnancy, social support, stigma and discrimination, cultural and societal norms as well as policy.

Programs serving teenage mothers are reviewed in addition to identifying factors that affect educational achievement among adolescent mothers. Common components and services are recognized. The program components highlighted are individualized services, wrap around services, post-secondary education encouragement and support, family engagement, collaborations between organizations, life-skills education, and peer mentorship.

The Maikuru Program, a mentorship program for teen mothers, has shown success in reducing repeat teen pregnancy and increasing the rates of educational attainment among participants. Other outcomes from the Maikuru Program are discussed and recommendations to increase the positive impact of the Maikuru Program are offered. The recommendations include community collaboration, case management, family engagement, peer mentorship, qualitative evaluation, and advocacy for policy reform.

Supporting the population of adolescent mothers has profound public health significance. Helping adolescent mothers set and accomplish realistic educational goals that improve their chances and increase their opportunities to be successful in the work force could reduce the costs of adolescent pregnancy, while also helping teen mothers become financially stable. Financial stability will go a long way in improving the quality and outcome of the lives of adolescent mothers and their children and reduce likelihood dependence on financial aid.

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PREFACE

I would like to thank the committee members for their guidance in the process of developing and writing my thesis. I would also like to thank them for the support and opportunities they have provided me throughout my academic career at the University of Pittsburgh's Graduate School of Public Health.

Thank you to Dr. Jeanette South-Paul and Dr. Yassmin Al Aaraj for giving me the opportunity to be a part of the Maikuru Program and observe how it functions in its quest to help young mothers from the Pittsburgh community.

1.0 INTRODUCTION

Though adolescent pregnancy rates have steadily declined in the United States from 61.8 births per 1,000 women aged 15 to 19 in 1991 to 24.2 in 2014, teen pregnancy in the United States is staggeringly high compared to other industrialized nations, such as the United Kingdom and Canada (Bhattacharya et al., 2012; Riler, 2012). Adolescent pregnancy rates reported between 2010 and 2011 for the United States, England and Wales, and Canada were 57, 47, and 28 per 1,000 females aged 15 to 19 respectively (Sedgh, Finer, Bankole, Eilers, & Singh, 2015). This is an important issue that the nation needs to address with preventative measures targeting adolescents at risk of becoming pregnant as well as interventions for the current population of young mothers. In 2014, statistics revealed that approximately 17% of births to 15-19 year old women were subsequent pregnancies ("Vital signs: Repeat births among teens - United States, 2007-2010," 2013). Having a second child at such a young age has the potential to compound the risks of negative outcomes that face adolescent parents and their children ("Vital signs: Repeat births among teens - United States, 2007-2010," 2013). Therefore, it is important to address the obstacles and barriers faced by adolescent mothers in developing productive lives and environment, while keeping in sight the goal of decreasing the likelihood that these young women will face a second pregnancy before they are ready.

Educational completion is an important factor in mitigating the negative effects of adolescent parenthood (Romo & Segura, 2010). The level of education an individual acquires is

strongly associated with socioeconomic status (Romo & Segura, 2010). Academic achievement opens many opportunities for young mothers and gives them a better chance of being self-sufficient and financially stable (Costello & Institute for Women's Policy, 2014). Although young mothers can be very resilient and work toward success, a significant proportion of teen mothers are unable to complete their academic goals (Barto, Lambert, & Brott, 2015; Costello & Institute for Women's Policy, 2014; Romo & Segura, 2010). There is a significant gap between teen mothers and their non-parenting counterparts in the rates of high school and college completion (Basch, 2011). About 50% of adolescent mothers complete their high school education by the time they are in their early twenties compared to 90% of their non-parenting peers ("About Teen Pregnancy," ;Costello & Institute for Women's Policy, 2014; Letourneau, Stewart, & Barnfather, 2004). The percentage of adolescent mothers that receive a four-year college degree by the time that they are 30 years old is dismal, approximately 3% (Costello & Institute for Women's Policy, 2014).

Adolescent mothers deserve an equal opportunity for success to create a quality life for themselves as well as their children. In order to understand program design of interventions serving adolescent mothers and whether program components are effective, a literature review was conducted. Chapter 2 provides background information on adolescent pregnancy and discusses the barriers that hinder academic achievement of adolescent mothers. Chapter 3 outlines the methods used to identify programs for review. In chapter 4, program evaluations and reports were then reviewed to determine program components that were effective in reducing the effects of the discussed barriers. Chapter 5 discusses the Maikuru Program, a mentor program for adolescent mothers, and some of the results from analysis of collected data.

Lastly, Chapter 6 discusses recommendations of program modifications for the Maikuru Program.

2.0 BACKGROUND

Parenthood at any age is momentous and life altering. For teenage mothers, parenthood thrusts them into adulthood, which many are not prepared for. There are many associated consequences that could negatively impact adolescent mothers and their children. The responsibilities and burden of parenthood may have a negative bearing on young mothers' lives, which many will be unable to escape from and must struggle with later in life.

Many negative outcomes are associated with adolescent pregnancy for both the young mothers and their children, including negative educational and health outcomes ("Negative Impacts of Teen Childbearing," ;"Vital signs: Repeat births among teens - United States, 2007-2010," 2013). An increase in the likelihood of dropping out of school is associated with adolescent motherhood ("Negative Impacts of Teen Childbearing,"). Some consequences of the lack of educational achievement are the inability to find stable employment and to be financially independent. Financial instability can lead young mothers to either fall into or remain at a low socioeconomic level ("Vital signs: Repeat births among teens - United States, 2007-2010," 2013). With the inability to support themselves or their children, it is difficult to construct a healthy environment in which their children can develop and be afforded opportunities that could allow them to break the cycle of poverty and adolescent parenthood.

Young women who are socioeconomically disadvantaged are at greater risk of having an adolescent pregnancy ("About Teen Pregnancy," ;Hurd & Zimmerman, 2010). The

economically disadvantaged are not the only sub-population that bears a greater burden of teen pregnancy. Minority groups are also disproportionately affected by teen pregnancy ("About Teen Pregnancy,"). The rates of teen pregnancy among non-Hispanic black and Hispanic teenage girls aged 15 to 19 are 11% and 9% respectively, compared to the 7% among non-Hispanic white females aged 15 to 19 ("About Teen Pregnancy,").

The importance of education is not only recognized by professionals designing programs to aid adolescent mothers. Studies have found that adolescent mothers also understand the importance of an education in achieving stability (Costello & Institute for Women's Policy, 2014;Herrman, 2006;Smithbattle, 2006). Many of these young women have set goals for themselves and have thought about careers they would like to have in the future (Costello & Institute for Women's Policy, 2014;Herrman, 2006;Smithbattle, 2006). For many of the desired careers, some level of higher education is needed. Though adolescent mothers recognize the importance of education and have the drive and motivation to continue with their education, statistics paint a dismal picture. The gap in educational achievement between adolescent mothers and women who delayed childbirth extends beyond the initial years after teen mothers have their children (Basch, 2011). At the age of 30, adolescent mothers have completed on average two years fewer of education than their counterparts who deferred childbearing until after their teen years (Basch, 2011). Therefore, it is imperative that programs serving this population understand and recognize the barriers to educational completion and career planning, in order to develop effective strategies to increase rates of academic success.

Education correlates with socioeconomic status (Lam, 2014). As previously discussed, without education, adolescent mothers may not be able to compete in the workforce, and in turn be unable to financially survive and thrive. Therefore, they will likely be socioeconomically

disadvantaged long-term and unlikely to improve their economic status. Socioeconomic status is associated with many life outcomes and has a significant effect on an individual's quality of life (McLeod & Kessler, 1990). For example, lower socioeconomic status is correlated with poor health outcomes (Fein, 1995;Feinstein, 1993). There may be many reasons for this relationship, however it is clear that resources, such as money, or lack thereof has a prodigious bearing on the opportunities and services that could increase the quality of life and improve life outcomes.

The educational status that adolescent mothers achieve may also impact their children. Research has shown that the level of maternal education is a predictor of children's academic success and other life outcomes such as health (Carneiro, Meghir, & Parey, 2013;Wamani, Tylleskär, Åstrøm, Tumwine, & Peterson, 2004). In addition to educational and health outcomes, maternal education has a bearing on the behavioral outcomes among children (Carneiro et al., 2013). This point may be illustrated through increased risk of teenage pregnancy among young women whose mothers were adolescent parents (Meade, Kershaw, & Ickovics, 2008). The negative impacts of adolescent pregnancy can extend to the children of teenage mothers and perpetuate the cycle of teenage pregnancy and poverty.

Adolescent pregnancy does not only have a detrimental impact on the lives of adolescent mothers and their children, but also presents significant costs to the nation. In 2010, it was reported that approximately \$9.4 billion dollars of federal, state, and local funds were spent on adolescent pregnancy and its associated consequences (*Counting It Up, The Public Costs of Teen Childbearing: Key Data*). Thus, serving and supporting this population is not only in the best interest of these young families, but also an economically sound strategy for the nation.

2.1 FACTORS RELATED TO ACADEMIC ACHIEVEMENT

Adolescent mothers face many barriers and obstacles on the journey to receiving their high school diploma, even more for the completion of higher education. It is important to identify these barriers in order to determine the best mode of intervention. These barriers include time/responsibility constraints (H. Barto, S. F. Lambert, & P. E. Brott, 2015;Smithbattle, 2007a), stigma of being an adolescent mother (Smithbattle, 2013;Welsh, 2016), and lack of knowledge pertaining to the educational system (Pillow, 2004) as well as financial barriers (Smithbattle, 2007a). Though there may be many other barriers that contribute to the issue of low academic progress among this population, these obstacles are in the forefront and are possible targets for intervention.

2.1.1 Social Factors

Teenage pregnancy and parenthood has a significant impact on the lives of young mothers. There are many social factors that can make or break a young woman's experience as a teenage parent and alter the pathway of their life for better or worse. Social factors discussed in this section are competing responsibilities, repeat pregnancy, social support, stigma and discrimination as well as cultural and societal norms.

2.1.1.1 Competing Responsibilities

The responsibility of becoming a parent can be a daunting task for anyone, let alone a young woman who has been thrust into adulthood at an early age by becoming a mother. Raising a child is a full-time commitment and is hard to manage while attempting to continue and

complete an education. The negative impact of the competing demands of early pregnancy and parenthood on academic focus and completion of high school, as well as the continuation onto post-secondary educational opportunities, has long been demonstrated in the literature (Costello & Institute for Women's Policy, 2014; Herrman, 2006; Smithbattle, 2007a). School attendance as well as assigned school work may suffer due to time and focus being diverted to parenting responsibilities and other issues, such as financial security. Therefore, if not properly supported, mothers may become disengaged from school and be more likely to drop out or delay their educational pursuits. Constraints on a young mother's time and attention is a significant factor in whether or not an adolescent mother terminates or continues her education (Smithbattle, 2007a).

Research has shown that many young mothers come from socially disadvantaged backgrounds (Basch, 2011). This has caused some debate and conflict within the literature as to whether the existing environmental factors, such as socioeconomic status, have a greater impact on school completion rates among pregnant and parenting adolescent mothers (Basch, 2011). However, a report by the National Campaign to Prevent Teen and Unplanned Pregnancy stated that pregnancy or parenthood was specified as a reason by 30% of teenaged girls who dropped out of high school (*Why It Matters: Teen Childbearing, Education, and Economic Wellbeing*, 2012). Other research considers these external factors, and has still found that a significant proportion of adolescent mothers forgo completion of their education due to their pregnant or parenting status (Basch, 2011).

Pre-existing issues are not insignificant, however, when considering the competing demands on an adolescent mother's time and focus (Smithbattle, 2007a). As previously stated many adolescent mothers come from economically disadvantaged backgrounds with limited resources ("About Teen Pregnancy," ;Hurd & Zimmerman, 2010). Issues that plagued

adolescent mothers before their pregnancy remain as significant problems after they have become parents (Smithbattle, 2007a). Parenthood may only add to the strains on their time and focus and present as the final wedge between young mothers and academic participation and engagement. In addition to parental responsibilities to their own child, in many cases they have siblings to help care for (Pillow, 2004;Smithbattle, 2006). It is obvious that many adolescent mothers have competing demands on their time and attention. Without support from family, friends, mentors, teachers, or other school faculty, dealing with these demands and completing school becomes an impossible challenge to many (Costello & Institute for Women's Policy, 2014;McDonell, Limber, & Connor-Godbey, 2007).

2.1.1.2 Repeat Pregnancy

Repeat adolescent pregnancies may compound the effects of other challenges and barriers that adolescent mothers face, such as the competing and conflicting demands on their attention and time (Black et al., 2006;Bull & Hogue, 1998). The issue of subsequent adolescent pregnancies is multifaceted; some research focusing on adolescent mothers has found that in some communities, specifically low-income ones, becoming pregnant and even having multiple children during their adolescent years is a desired outcome. It has been found that in such populations, where others expect little of teenage mothers, and young mothers have low expectations of themselves around academic and occupational opportunities, adolescent parenthood is viewed as a positive event (Black et al., 2006). Parenthood may provide fulfillment in their lives and give them a sense of accomplishment due to the lack of alternative opportunities presented to them. A study comparing the outcomes of adolescent mothers who have subsequent births and those who do not found that those who had repeat pregnancies scored higher on self-esteem assessments (Black et al., 2006).

It is important to look at the reasons for repeat pregnancies as potential barriers to educational continuation and completion in and of themselves. In addition to the potential desire for children, it has been shown that adolescent mothers in relationships and living with their partners are more likely to not use birth control and to have subsequent teenage pregnancies (McDonnell et al., 2007). Therefore, the issues of family planning and contraceptive use among adolescent mothers and their partners are also important to acknowledge when seeking to prevent further pregnancies that may compound the impact of early motherhood on educational success.

Community culture may also play a crucial role in the incidence of subsequent adolescent pregnancies. A study observing risk factors associated with repeat adolescent pregnancy found that the odds of becoming pregnant with another child during adolescence increased when study subjects reported that they had a friend who was currently pregnant (Gillmore, Lewis, Lohr, Spencer, & White, 1997). A qualitative study conducted in an Oregon high school where teen pregnancy was identified as a growing issue, found that students recognized the normalization of adolescent parenthood. A quote cited by the authors illustrates this theme: “Babies are the new accessory, like a Gucci Bag” (Little, Henderson, Pedersen, & Stoneciphe, 2010, p. 340). Once teenage pregnancy becomes a normal and common occurrence in the community, it may seem either an inevitable or positive event. The core issues and factors behind the incidence of subsequent pregnancies need to be addressed in order to reduce the likelihood of these young women having more children before they have completed their education, achieved their career goals, or are set on a stable path to success that will not be completely disrupted by the addition of another child.

2.1.1.3 Social Support

Social support is an important resource, whether the support one receives is emotional or more tangible in nature (Herrman, 2006). An ethnographic study that explored the experiences of teen mothers found that support in the form of parents, extended relatives, significant others, friends, and religious faith helped in alleviating stress or the effects of stress due to their life experiences and circumstances (Herrman, 2006). Social support has also been cited as a crucial component for promoting and achieving success among adolescent mothers (Letourneau et al., 2004; Welsh, 2016).

Social support can provide positivity in the lives of adolescent mothers and aid them in coping with the responsibilities of being a young parent with the many competing demands on their time (Costello & Institute for Women's Policy, 2014; Letourneau et al., 2004; Smithbattle, 2007a). Research has demonstrated the association between social support and positive outcomes for teen mothers, such as the decreased likelihood of developing depression, increased confidence in parenting skills and other areas of their lives (Brown, Harris, Woods, Buman, & Cox, 2012; Letourneau et al., 2004). It has been found that young mothers with social connections, such as parents, mentors, and career mentors, had higher expectations about and confidence in reaching their educational aspirations (Phipps, Salak, Nunes, & Rosengard, 2011). The presence of these connections in their lives may offer them emotional support, as well as models to emulate and view as attainable futures in areas, such as their parenting skills, relationship goals, and educational and career aspirations (Letourneau et al., 2004; Phipps et al., 2011; Welsh, 2016).

Social connections and interactions help ground teen mothers emotionally (Costello & Institute for Women's Policy, 2014), allowing young mothers to develop more effective and

positive ways of coping with the issues and realities of their lives, as well as supporting positive parenting skills (Costello & Institute for Women's Policy, 2014;Letourneau et al., 2004). Parents and close relatives appear to be the most effective and important form of support to adolescent mothers (Brosh, Weigel, & Evans, 2009;Brown et al., 2012;Letourneau et al., 2004). Specifically, mothers or mother figures of adolescent mothers are an important source of parenting advice for adolescent mothers (Letourneau et al., 2004).

Having a positive support system may increase adolescent mothers' belief in themselves and what they are able to accomplish (Black et al., 2006). This could have a bearing on motivation to continue their education and to set lofty career goals that perhaps otherwise they might have perceived to be out of reach. The absence of social support can hinder the development of healthy and productive coping mechanisms and limit adolescent mothers' confidence in their own abilities to successfully complete their education.

2.1.1.4 Stigma and Discrimination

Stigma is an important concept to address when working with adolescent mothers. The fact that they have become parents at such a young age has marked them as troubled or part of an at-risk population (Pillow, 2004). Though it is true that they are a population that faces many obstacles and barriers to success and fulfillment in many areas of life, it has been shown that this population is extremely resilient (Barto et al., 2015;Smithbattle, 2006). For many teen mothers, the experience of motherhood is the catalyst for change and the fire of determination to achieve success in some form or another. Many adolescent mothers, for example, understand the importance of education as a path to a stable career and financial independence; they want to progress with their educations, but with other factors, including previously discussed barriers, their academic pathway is strewn with hurdles to overcome (Smithbattle, 2006).

Attitudes toward adolescent parents do not help in overcoming the obstacles this population faces. Their experience with early parenthood makes them different from their peers, and thus they can feel isolated. This feeling of isolation may be perpetuated through the pressure to attend separate educational programs that are provided under the provision of Title IX, legislation developed to protect peoples' rights to education (McDonnell et al., 2007;Pillow, 2004). Though some may feel more comfortable in a separate environment from their non-parenting counterparts, some young mothers may be losing out on the connections they could make in a more traditional academic setting, which could increase their social networks and therefore increase the social capital that they could gain through these connections (Pillow, 2004).

Even among the organizations that are created to aid adolescent mothers, terminology utilized in conjunction with this population and their situation can in itself be stigmatizing. For example, a stated purpose of the Temporary Assistance for Needy Families (TANF) program, a financial assistance program, is to reduce the number of births outside of wedlock (*The Education/Training Requirement For TANF Teen Parents*, 2003). Though this goal may be intended to be seen as a step toward strengthening families and encouraging commitment between partners to create a stable foundation for families, the language and terminology used is stigmatizing and casts a negative light on teenage parents. The negative placed on the situations that teen mothers find themselves is observed and noted by teen mothers; one article reported that teen mothers had negative reactions to the term "problem" in relation to their status as a young parent. Rather, they preferred terms such as "situation" in reference to their pregnant or parenting status (Smithbattle, 2007a). Another study conducted focus groups with high school students, including male and female students, as well as pregnant or parenting students and non-

pregnant students (Little et al., 2010). These focus groups addressed the perceptions of teen pregnancy among adolescents. One topic addressed among the groups was the negative impact of adolescent pregnancy. Three of the four focus groups identified negative impacts to their reputation and negative reactions of others as undesirable aspects of teenage pregnancy (Little et al., 2010).

Teen pregnancy has been shown to hinder many aspects of these youths' lives and requires sacrifices not made by their counterparts (Hanna, 2001;Smithbattle, 2006), but framing their lives in negative terms does not lend itself to hope or encouragement for positive events in their futures. The stigmatization of adolescent mothers is not only present among peers and people in their community that shun teenage mothers or set them aside, but is also in the research looking to help understand the issues affecting them and improve their social and health outcomes. Stigmatization runs deep and is something hard to address and change, but it is something that can be a great hindrance to increased levels of self-esteem and perceived self-efficacy among adolescent mothers (Smithbattle, 2006).

2.1.1.5 Cultural and Societal Norms

Cultural and societal norms influence and guide the actions of individuals living within any society. The societal perceptions of the typical family perpetuate the need to be married to have children. The emphasis placed on the need to be a married parent to have and maintain a respectable reputation and status influences the way in which adolescent mothers view relationships with their partners or the fathers of their children (Kulkarni, 2007).

In some cases, the importance young mothers place on their romantic relationships may overshadow other aspects of their lives including school. In the case of one woman who was interviewed for an ethnographic qualitative study, she left school due to the pressure and control

that the father of her child placed on her (Kulkarni, 2007). The importance of this relationship may be linked to the need to be a part of a parental unit rather than a single parent or a component of a dysfunctional family. For example, another interviewee from the same study found it difficult to end the relationship with her child's father due to her beliefs that to have a child you needed to be married or in a committed relationship (Kulkarni, 2007).

As previously noted, federal and state legislation promotes the belief that appropriate child bearing and rearing occurs within the context of marriage (*The Education/Training Requirement For TANF Teen Parents*, 2003). This perception has the potential to lead adolescent parents to continue unhealthy or unstable relationships to attain what societal norms views as a successful family (Kulkarni, 2007). Therefore, societal norms concerning parenthood and marriage may in some cases be harmful to the growth and development of adolescent mothers. In the case previously discussed it led to the involvement of a young mother in an abusive relationship and termination of her participation in educational activities.

Abusive relationships and intimate partner violence have been associated with increased likelihood of repeat pregnancies (Kulkarni, 2007;Rowlands, 2010). Even among cases of non-abusive relationships, the likelihood of a subsequent pregnancy among adolescents increases if they are living with a significant other; this may be due to increased sexual activity, as well as decreased or improper birth control use (Pfitzner, Hoff, & McElligott, 2003;Rowlands, 2010). A policy statement issued by the American Academy of Pediatrics reported that about 50% of adolescents who became pregnant did not use a method of birth control (Breuner et al., 2014). Among those who did not use birth control, 24% stated that the motivation behind this decision was that their partner refused to utilize birth control (Breuner et al., 2014).

Though the picture of a typical family comprised of a mother and a father with their children is what our society views as a normal, positive unit, in some cases trying to achieve this may lead to a detrimental situation for an adolescent mother. The romanticized fantasy of relationships may hinder future educational and career prospects when the importance of a romantic relationship overshadows other critical aspects of their lives.

2.1.2 Policy Factors

Teenage mothers have been found to be resilient (Barto et al., 2015;Costello & Institute for Women's Policy, 2014;Romo & Segura, 2010). In some cases, the birth of a child is a catalyst for positive change in the lives of young mothers and encourages them to reprioritize aspects of their lives, such as educational and career aspirations (Barto et al., 2015;Romo & Segura, 2010). It is important to make sure not to encourage young girls to become teenage parents or present becoming a teenage parent as a viable and positive outcome. However, capitalizing upon the resiliency or motivation that a young mother may possess after the birth of their child would be an effective strategy in helping teenage parents build a fulfilling, productive life for themselves and their children. It has been found that a significant proportion of individuals dependent on welfare were adolescent mothers (Sangalang, 2006). Therefore, supporting teenage mothers early on would have a great impact on their lives and decrease the likelihood that they will be dependent on welfare later in their lives. In order to do this, it is critical to address the policy that impacts teen mothers when looking to support their academic and career opportunities. There are many policies and governmental programs that affect teen mothers. This section focuses on the Title IX and the Temporary Assistance for Needy Families (TANF) program due to emphasis placed on them in the literature.

2.1.2.1 Title IX

In 1972, Title IX legislation was passed and went into effect in 1975. Title IX was designed to prevent academic discrimination based on sex and protect the educational rights of individuals regardless of their gender. This legislation has also been interpreted and understood to protect the educational rights of young mothers (Costello & Institute for Women's Policy, 2014;Pillow, 2004;Smithbattle, 2006). Provisions under Title IX prevent adolescent mothers from being denied access to federally funded educational programs, which means it prevents schools from expelling young women based on their pregnant or parenting status (Pillow, 2004).

Adolescent mothers are often left behind in educational systems; policy protects their rights to education, but does not always lend itself to providing the necessary support to succeed. In addition to protecting teen mothers' rights to access federally funded educational programs, Title IX allows for the option of alternative or separate educational programs (Pillow, 2004). The alternative programs cited in the legislation are supposed to be equal to traditional high school programs. Even though alternative programs are meant to offer the same opportunity for academic progress and growth, in many districts this is not the case (Pillow, 2004). Adolescent mothers are often placed or pressured into enrolling in alternative programs. In many cases, alternative programs do not provide enriching and engaging curricula that provides encouragement or truly prepare them for the next steps in the academic or career worlds (Pillow, 2004;Smithbattle, 2006). The lack of support and guidance in a system that can be difficult to navigate, whether that be finishing high school, completing applications for higher education institutions, finding programs that fit with a parent's demanding schedule, or figuring out financial aid options, is a great barrier to further education, a good career, and financial stability.

Many educators, academic administrators, and counselors are not always aware of or knowledgeable about the resources available to pregnant or parenting teen mothers (Pillow, 2004). Policy is not fully understood or enforced and this affects the guidance and knowledge that are passed on to teen mothers. Adolescent mothers are then at a disadvantage when attempting to pursue educational opportunities without clear direction.

Without the assistance of academic professionals or academic administrators many young mothers are detrimentally affected in terms of understanding their rights and the educational system. In many cases of adolescent pregnancy, the teenager's parents may not have a high educational level, and therefore, may be unable to advise or effectively help their daughter through the process of achieving educational success (H. Barto et al., 2015; Smithbattle, 2007a). The absence of guidance from professionals has even more impact due to the lack of knowledge and understanding of the educational system among other people in their lives.

Though Title IX has been in place since 1975, the lack of understanding or adherence to this legislation is widespread (Pillow, 2004). Title IX was passed in order to reduce discrimination, yet discrimination is still apparent in academic settings. One author found that school employees and administrators were unaware of the rights that teen mothers had under Title IX (Pillow, 2004). If professional educators are unaware of or consciously negligent about enforcing policy affecting and protecting teen mothers, then adolescent mothers have little chance of receiving the crucial support and counseling they need to remain connected and engaged in academic programs. Without help in planning out their educational and career pathways, young mothers will be challenged with the problem of finding a career that provides a sufficient and stable income.

Although Title IX legislation seeks to protect adolescent mothers in the academic world and increase the rates of educational attainment among this population, the lack of knowledge and understanding of the policy stands as a potential barrier to a high school education, as well as continuing on to post-secondary programs and institutions (Pillow, 2004;Smithbattle, 2006). Though Title IX has good intentions, it does not completely protect the educational opportunities of the adolescent mother population or make provisions for their needs (Pillow, 2004). Without providing strict guidelines for school districts to follow or enforce the vision of what the policy is supposed to entail, there is the potential and reality that school districts will not go out of their way to support adolescent mothers in a way that will allow them achieve future success and stability.

2.1.2.2 Temporary Assistance for Needy Families (TANF)

The purpose of the Temporary Assistance for Needy Families is to provide aid for those in need, and also focuses to reduce dependency on welfare and promoting self-sufficiency (*The Education/Training Requirement For TANF Teen Parents*, 2003;Pillow, 2004). The current welfare provisions for TANF that place conditions upon the receipt of financial assistance, may actually have unintended consequences, which include counteracting efforts to keep adolescent mothers in school (*The Education/Training Requirement For TANF Teen Parents*, 2003;Sangalang, 2006;Smithbattle, 2006).

TANF requirements and eligibility regulations are determined by the states, which have to establish regulations within the bounds of federal law (*The Education/Training Requirement For TANF Teen Parents*, 2003). TANF federal law includes a mandate that prohibits the use of TANF federal funds to be used for minor, unmarried parents who do not reside with an adult guardian. Although exceptions can be made for individual cases, such as in the case of minor,

unmarried parents not having the option of living with an adult guardian (*The Education/Training Requirement For TANF Teen Parents*, 2003). However, applying for an exemption or reprieve may be difficult in the face of those who do not understand the legislation or application process.

Another important provision of the TANF legislation is the time limit on the receipt of TANF assistance, which is 60 months (*The Education/Training Requirement For TANF Teen Parents*, 2003). This time limit is the federal maximum and varies by state. In the case of minor adolescent parents, the time limit for the receipt of financial assistance through TANF goes into effect if the states establish that they are heads of households or married to a head of household (*The Education/Training Requirement For TANF Teen Parents*, 2003). This may limit the amount of time they can receive funds to support themselves and their children while trying to complete educational goals. Though the time limit is understandable and necessary to reduce dependence on this financial aid and promote self-sufficiency, the difficult situations in which teen parents find themselves, such as balancing work, parenting, and school are not always taken into account.

In order to encourage teenage parents to stay in school and prevent dependence on public assistance, an education and training requirement was included in the legislation (*The Education/Training Requirement For TANF Teen Parents*, 2003). For minor, unmarried parents to receive funds they must attend school or a state authorized alternative education program. The time-limit regulation previously mentioned goes into effect while teenage parents are attending a school or alternative program and may potentially discourage them for applying for funds while still in school (*The Education/Training Requirement For TANF Teen Parents*, 2003). The time limit can potentially put the future need for income at odds with completion of an education

(Costello & Institute for Women's Policy, 2014; *The Education/Training Requirement For TANF Teen Parents*, 2003).

For teenage mothers who are not minors a work participation requirement is a factor in the receipt of TANF assistance (Costello & Institute for Women's Policy, 2014). Although it is important to encourage those to work and to become financially stable, the stipulated provision does not allow for the completion of higher education, which is crucial to being qualified for higher paying employment. The need for higher education was considered by legislators in 2008, when a new provision stating that the pursuit of post-secondary education, including undergraduate, graduate, and vocational education courses could count as applicable work activities (Costello & Institute for Women's Policy, 2014). However, there is a 12-month time limit on how long participation in post-secondary education programs can be counted as work activities. After 12 months, to be eligible to receive financial assistance, an individual must work at least 20 hours a week (Costello & Institute for Women's Policy, 2014). Many post-secondary programs and degrees require the completion of more than one year's worth of course work. Therefore, young mothers may once again have to consider further delaying their education or quitting altogether to receive enough funds to support themselves and their families.

To complete an education, teen mothers need support, including financial support for themselves and their children. Teen parenthood complicates family finances due to the need to support their child with income received from working; however, an education is important for achieving stable and quality employment that is associated with a higher income (Basch, 2011). Therefore, as previously discussed the financial necessity of a job may interfere with educational activities and requirements, which will hinder a teen mother's future success and self-sufficiency. The working and educational requirements for TANF recipients encourage

participation in educational or vocational training; however, other provisions may lead to the unintended consequence of incomplete education (Costello & Institute for Women's Policy, 2014;*The Education/Training Requirement For TANF Teen Parents*, 2003).

In addition to the policy itself being a hindrance, the absence of true understanding of the regulations, or the absence of a transition period for ineligible teens, may lead to the denial of needed financial support for teen mothers. A survey conducted by the Center for Impact Research found that in some cases, teen parents who applied for TANF funds but did not meet all the eligibility requirements were immediately denied assistance (*The Education/Training Requirement For TANF Teen Parents*, 2003). The study discovered that among teen parents who made inquiries about TANF funds, between 16 to 47% were told that they did not meet eligibility requirements and did not attempt to file an application. Case workers assessing these cases did not work with them to understand the requirements and come into compliance with the regulations in order to receive assistance (*The Education/Training Requirement For TANF Teen Parents*, 2003). TANF support could lessen financial stress and help teen parents overcome obstacles and competing demands that diminish their chances of completing their educations. Therefore, it is important that they understand the regulations to obtain necessary financial support. However, their needs and right to access financial support may go unmet without proper help from case workers.

3.0 METHODS

This thesis is based in part on a literature review of articles describing design, evaluation, and impact of programs serving adolescent mothers. To conduct this literature review, the terms *adolescent, adolescent mothers, adolescent parenthood, repeat pregnancies, education, education attainment, counseling, mentor, program design, and program evaluation* were utilized. Variations of these terms and combinations of these key words were used with differing results and success. Potential candidates for inclusion were then reviewed.

The databases used in the literature search were EBSCO, SCOPUS, and PsycInfo. Access to the databases was gained through the University of Pittsburgh Health Sciences Library System. Google and Google Scholar were also used to locate articles through use of the search terms and queries.

Inclusion criteria for research and program evaluations were that (1) pregnant or parenting adolescents were the focus of the program or research, (2) education, career, or repeat pregnancy outcomes were reported (3) the research was to be published after 1993, and (4) programs were implemented or research conducted in the United States. The relevance of research from the 1990s is due to the high rate of teenage pregnancy reported in 1991. The years following were potentially a time of increased research about this population and programs developed and implemented.

Papers looking at the initial prevention of teenage pregnancy were not included, due to differences in the circumstances affecting pregnant or parenting teens and non-pregnant or parenting teens. These two populations although overlapping in age, are different in respect to a major life event that could change outlook on life and behavior. In addition, resources and services had the potential to be different between the programs that worked with these two populations.

The scope of the search was not limited to solely mentorship programs, although many of the programs include some form of mentorship. This was not a point of exclusion because of the potential to miss additional programmatic components that might be effective in meeting the goals of reducing repeat pregnancies among adolescents, as well promoting academic achievement and in turn financial stability. The programs and research included in this literature review home-based or community-based, clinic-based, and school-based. Again, the search was not limited to one type of program in order to capture as many effective components as possible that have the potential to positively impact teenage mothers.

4.0 RESULTS

Twelve articles met the inclusion criteria. One was a report from the Institute for Women's Policy Research, two were review articles, and the remaining nine articles evaluated a single program.

4.1 THEORETICAL FRAMEWORK

To achieve positive change or outcomes in the lives of teen mothers, programs used different theoretical approaches to guide the design of their interventions. Many of the programs, though not explicitly stated, utilize interpersonal-level theories as the conceptual foundation for the program design. The use of the constructs and principles of the social cognitive (Wood & Bandura, 1989), social network (Israel, 1982) and support theories (Cassel, 1976) illustrates the understanding that adolescent mothers benefit from strong support and positive role models to emulate. Focusing on strengthening adolescent mothers' support systems, while providing help and resources that they may not have, creates opportunities that they might not have had otherwise.

The social cognitive theory (Wood & Bandura, 1989) states that an individual's behavior is based on the interchange that he or she has with his or her environment (McAlister, Perry, & Parcel, 2008). The social cognitive theory states that behavior is influenced by the expectations

that an individual has of the potential outcomes as a result of their actions (McAlister et al., 2008). These perceptions may be formed through observation, learning, and experience. Another key concept of this theory is that self-efficacy influences the perceptions of potential outcomes (McAlister et al., 2008). Increasing self-efficacy has the potential to yield positive change in an adolescent mother's life, such as increasing confidence in family planning and their abilities to utilize contraception or other methods to prevent subsequent teenage pregnancies. Other programs utilized mentors to be positive role models (Black et al., 2006). Some programs reviewed included services such as educational workshops to teach parenting skills or other life-skills in order to increase adolescent mothers' confidence in different aspects of their lives (Costello & Institute for Women's Policy, 2014;McDonell et al., 2007;Romo & Segura, 2010). Mentors can use their experiences and success to demonstrate the types of behaviors and actions that result in positive outcomes, namely success in areas such as education and employment.

The constructs of the social network (Israel, 1982) and support theories (Cassel, 1976) are closely linked and reflected in many adolescent parent programs. Research has found that social networks have many different functions in our lives (Heaney & Israel, 2008). Social networks and connections may provide different types of support, including emotional, instrumental, informational, and appraisal support (Heaney & Israel, 2008). Social support can be both tangible, such as instrumental support and informational support, and intangible, emotional and appraisal support. All forms of social support are important and may go a long way in effecting positive outcomes and mitigating the negative effects of challenging situations. For example, adolescent mothers need support from teachers and academic administrators in order to obtain the necessary information to plan and apply for future educational pursuits.

The connections within social networks have a great bearing on thoughts, actions, and beliefs of individuals (Heaney & Israel, 2008). Therefore, social networks offer a plethora of potential intervention points. Interventionists use the characteristics of social networks in different ways to develop programs. A social network is characterized by density, homogeneity, and geographic dispersion (Heaney & Israel, 2008). Density refers to the quantity as well as the quality of interpersonal interactions. Homogeneity refers to how similar connections in an individual's social network are to each other. It can refer to characteristics such as race, socioeconomic status, or level of education obtained. Geographic dispersion refers to the physical proximity of members within a social network (Heaney & Israel, 2008). In many cases the underlying goal is to strengthen existing connections within an adolescent mother's life to provide her with increased social capital, whether it be connections to resources, such as financial aid and information on career planning, or increasing emotional support.

The strengths perspective or resilience theory (Greene, Galambos, & Lee, 2004; Saleebey, 1996; Van Breda, 2001) was also cited in the literature. The resiliency theory focuses on the strengths and assets rather than the disabilities and problems of the target population (Van Breda, 2001). The construct behind the resilience theory is that everyone has strengths and capabilities that go unrecognized. By focusing on the strengths someone already possesses, it encourages her to utilize her assets to build on her abilities, cultivate new ones, and overcome the challenges she faces (Van Breda, 2001). Interventionists tapped into participants' resilience and strength through showing participants their own capabilities and sought to increase participants' self-confidence. One program utilized life-skills education, such as child care and parenting classes, to show participants' that they were capable of mastering the presented skills (Griffin, 1998). The experience of being successful would increase participants' belief in themselves as well as

their abilities, and the strength they possessed. With a positive perception of their abilities, the program participants would then develop confidence in other areas of their lives (Griffin, 1998). The focus on positive aspects of who they are, what they have, and what they are capable of encourages adolescent mothers to believe in themselves and their own abilities to succeed.

The Transtheoretical model (Prochaska, Redding, & Evers, 2008) was the foundation for one of the programs reviewed (Barnet et al., 2009). The Transtheoretical model describes the process by which people change their behavior. Key constructs of the theory are the stages of change, decisional balance, and self-efficacy (Prochaska et al., 2008). It postulates that people go through discrete stages over time until they reach a point at which they are willing to act and change their behavior. Interventionists utilizing the Transtheoretical model, used the stages of change to tailor the services provided to participants (Barnet et al., 2009). Counseling sessions that promoted family planning and the delay of subsequent pregnancies were tailored to the participants' stage of change (Barnet et al., 2009). It also states that the perceptions of pros and cons of changing will affect people's decision to act or not act and change. Self-efficacy also plays a role in the decision to change (Prochaska et al., 2008). If a person has confidence in her ability to change, then she may be more inclined to act.

4.2 PROGRAM ELEMENTS

Though results of studies and program evaluations have varied, a number of program elements stand out as having positive effects on adolescent mothers, specifically in the area of education attainment, career planning, and prevention of repeat adolescent pregnancies. In general, these components address the different issues facing adolescent mothers and seek to alleviate the

barriers that these women are challenged with on the road to academic and career success and stability.

In total, 14 programs were reviewed. The programs were categorized into three major groups: community or home-based programs, clinic-based programs, and school-based programs. The number of participants in each of the program evaluations varied greatly from 28 to 30,000. The larger participant numbers are associated with programs at the institutional level, specifically the programs designed and implemented at the state level (Costello & Institute for Women's Policy, 2014;Romo & Segura, 2010). The variability in participant numbers may affect the results and analysis of success.

The majority of the programs focused on urban areas. One program offered services to adolescent mothers in a rural setting (McDonnell et al., 2007). The state issued School-Age Families Education (Cal-SAFE) program was not focused on urban or rural areas; rather it focused on the integration of services in schools throughout the districts of California (Costello & Institute for Women's Policy, 2014;Romo & Segura, 2010). Most of the participants enrolled in the Cal-SAFE program were from large urban areas (Costello & Institute for Women's Policy, 2014).

The racial and ethnic makeup of the participant populations for the programs also varied. Six programs reported that the majority of the participants were African American (Barnet et al., 2009;Black et al., 2006;Costello & Institute for Women's Policy, 2014;Key, Barbosa, & Owens, 2001;McDonnell et al., 2007). Two programs reported that the majority of the participants were Hispanic (Costello & Institute for Women's Policy, 2014). Two programs reported that the majority of the participants were white (Costello & Institute for Women's Policy, 2014;Donnelly & Davis-Berman, 1994). The Family Growth Center program reported that the majority of

participants served belonged to a minority group, but did not specify race or ethnicity (Solomon & Liefeld, 1998). The Young Parent Program reported that the participant population had about an equal number of non-Hispanic white and black participants, and only about 0.6% of the participants were reported as Hispanic (Omar, Fowler, & McClanahan, 2008). The Raising Adolescent Families Together program reported that the majority of the participants were either African American or Latina (Ruedinger & Cox, 2012). The percentages of African American and Latina participants were approximately equal, 41.4% and 39.2% respectively (Ruedinger & Cox, 2012). The article that outlined the Teen Parent Support program did not report the racial or ethnic makeup of the participant population (Griffin, 1998).

The majority of the programs included case management or counseling services (Barnet et al., 2009;Costello & Institute for Women's Policy, 2014;Donnelly & Davis-Berman, 1994;Griffin, 1998;Key et al., 2001;McDonell et al., 2007;Omar et al., 2008;Ruedinger & Cox, 2012). These case management services were utilized in different ways. Some programs used case managers for individual counseling and guidance (Costello & Institute for Women's Policy, 2014), while others used case managers and counselors to encourage family involvement and strengthen the adolescent mothers' close social ties (Costello & Institute for Women's Policy, 2014;Romo & Segura, 2010). Contraceptive (Omar et al., 2008;Ruedinger & Cox, 2012), career (Costello & Institute for Women's Policy, 2014;Griffin, 1998;Romo & Segura, 2010), and educational counseling (Costello & Institute for Women's Policy, 2014;Griffin, 1998) were also specified among the programs.

The provision of wrap-around services was also a focus for many of the programs. Specifically noted services were free or affordable child care, health care, and in some cases tutoring. The school-based programs were especially interested in providing wrap-around

services that included academic support, as well services to promote healthy lives outside of the teen mothers' academic pursuits. These comprehensive services sought to lessen as many of the barriers that teen parents experience when attempting to complete an education. This was done primarily through providing child care, and in some cases, financial awards for successfully completing classes and credits (Costello & Institute for Women's Policy, 2014).

Outcome measures varied across school-based programs. The programs reported high school graduation (Costello & Institute for Women's Policy, 2014;Romo & Segura, 2010), repeat teen pregnancy rates (Costello & Institute for Women's Policy, 2014;Key et al., 2001;Romo & Segura, 2010), proportion of participants who had plans to pursue higher education (Costello & Institute for Women's Policy, 2014;Romo & Segura, 2010), GED completion, and academic performance, school attendance rates, and employment (Costello & Institute for Women's Policy, 2014).

Home-based and community-based interventions are grouped together since they both occur in a community setting, whether it be a private residence of a participant or a central community location. Common components of the community-based program interventions included home visits, case management services, group sessions, individual counseling, family counseling, and parenting and life skills education. Many of these programs utilized two or more of these components in the interventions.

The focus and overall goals also varied from program to program. All the programs included the focus of reducing or preventing second or subsequent adolescent pregnancy. Others also reported objectives of increasing academic achievement, promoting parenting skills and confidence, and increasing economic self-sufficiency. The measurements utilized by the programs to determine the impact of the interventions included high school completion (Costello

& Institute for Women's Policy, 2014;Griffin, 1998;McDonnell et al., 2007;Solomon & Liefeld, 1998), continuation of high school education (Costello & Institute for Women's Policy, 2014;Donnelly & Davis-Berman, 1994), academic performance (McDonnell et al., 2007), safe sexual behavior (Costello & Institute for Women's Policy, 2014), and perceived levels of social support (McDonnell et al., 2007).

Results of each program showed a positive impact on participant populations. For instance, one program implemented in Baltimore found that those who did not receive home visits from the interventionists were 2.5 times more likely to have a subsequent adolescent pregnancy (Black et al., 2006).

Clinic-based programs offer a site for medical services for both young parents and their children. These programs are usually termed as teen tot programs (Ruedinger & Cox, 2012). They focus on providing care and services for the family as a whole to yield the best outcomes for all family members. The clinic-based programs (Omar et al., 2008;Ruedinger & Cox, 2012) shared many program elements with school and community-based programs, namely the case-management services and other wrap-around services, such as access to contraception, help with health insurance issues, transportation vouchers, and other services to reduce the barriers to program participation.

The period of time over which the data was collected for the program evaluations varied between two and 12 years. The Teen Parent Support program reported on program outcomes in the fourth year of the program, and reported on some of the accomplishments of graduated students (Griffin, 1998). Three of the program utilized a randomized control design to test the impact of the intervention on the reported objectives (Barnet et al., 2009;Black et al., 2006;McDonnell et al., 2007). Four utilized a specified control group for comparison (Costello &

Institute for Women's Policy, 2014;Donnelly & Davis-Berman, 1994;Key et al., 2001;Romo & Segura, 2010;Solomon & Liefeld, 1998). Seven did not identify a formal control or comparison group (Costello & Institute for Women's Policy, 2014;Griffin, 1998;Omar et al., 2008;Ruedinger & Cox, 2012).

Another important factor is funding affiliations, particularly a program's affiliation with federal funding. One of the programs reported receiving federal funding, and noted that the federal eligibility requirements dictated the eligibility requirements of program participants (Black et al., 2006).

Table 1 names the programs that were reviewed and their affiliated sources. It lays out the summaries of the program components and outcomes.

Table 1. Program Components

<i>Program Component</i>	<i>Program Description</i>
<p>Individualized Attention and Services</p> <ul style="list-style-type: none"> • Case Management • Counseling Services • Mentorship Services • Home visits • Continuity of care and service providers 	<p>Community based: Name; source; brief description of services and outcome</p> <ul style="list-style-type: none"> • <i>A Chance to Grow Project</i>; (Donnelly & Davis-Berman, 1994); increased school retention, economic self-sufficiency, and safe sexual behavior. • <i>Family Growth Center and the Program Archive on Sexuality, Health, and Adolescence (PASHA)</i>; (Romo & Segura, 2010; Solomon & Liefeld, 1998); Lower rates of subsequent pregnancies and higher rates high school achievement • <i>Pathways Teen Mother Support Project</i>; (McDonell et al., 2007); Lower rates of subsequent pregnancies, higher graduation rates and academic performance, and reported higher levels of reported social support. • <i>Teen Parent Support Program</i>; (Griffin, 1998; Letourneau et al., 2004); 82% of participants graduated from high school and delayed a subsequent pregnancy until they graduated. • <i>Motivational Intervention to Reduce Rapid Subsequent Births to Adolescent Mothers</i>; (Barnet et al., 2009); Lower rates of repeat adolescent births. • <i>Three Generations Project</i>; (Costello & Institute for Women's Policy, 2014); Higher rate of high school retention and graduation. Positive trends in improving condom use. • <i>Delaying Second Births Among Adolescent Mothers</i>; (Black et al., 2006) Decreased likelihood of subsequent adolescent pregnancies.

Table 1 Continued

Clinic based:

- *The Young Parents Program; (Omar et al., 2008);*
Decreased rate of repeat adolescent pregnancy.
- *Project Raising Adolescent Families Together; (Ruedinger & Cox, 2012);*
Increased use of condoms, lower rate of repeat pregnancy, increased rate of school retention, and increased employment.

School-based:

- *California School Age Families Education (Cal-SAFE) Program; (Romo & Segura, 2010);*
75% of participants graduated from high school. Significant proportion of participants planned to pursue higher education. Reduced rates of subsequent pregnancies.
- *The Second Chance Club; (Key et al., 2001);*
Reduced rate of repeat adolescent pregnancies.
- *The Care Center; (Costello & Institute for Women's Policy, 2014);*
75% of participants complete their GED and continue on to college. 44% of participants who enrolled in college completed one semester and approximately 22% completed a second semester
- *New Heights; (Costello & Institute for Women's Policy, 2014);*
High rate of high school graduation, increased school attendance rates, and low rate of subsequent adolescent pregnancies.
- *Keys to Degrees; (Costello & Institute for Women's Policy, 2014);*
High rates of participant employment and pursuit of further education.

Table 1 Continued

<p>Wrap Around Services</p> <ul style="list-style-type: none"> • Child Care • Health Care • Housing • Academic assistance • Financial aid or incentives 	<p>Community based:</p> <ul style="list-style-type: none"> • <i>Teen Parent Support Program; (Griffin, 1998; Letourneau et al., 2004)</i> <p>Clinic-based:</p> <ul style="list-style-type: none"> • <i>The Young Parents Program; (Omar et al., 2008)</i> • <i>Project Raising Adolescent Families Together; (Ruedinger & Cox, 2012);</i> <p>School-based:</p> <ul style="list-style-type: none"> • <i>California School Age Families Education (Cal-SAFE) Program; (Romo & Segura, 2010)</i> • <i>The Second Chance Club; (Key et al., 2001);</i> • <i>The Care Center; (Costello & Institute for Women's Policy, 2014)</i> • <i>New Heights; (Costello & Institute for Women's Policy, 2014)</i> • <i>Keys to Degrees; (Costello & Institute for Women's Policy, 2014)</i>
<p>Post-Secondary Encouragement and Support</p> <ul style="list-style-type: none"> • GED preparation • Transition to college courses and programs • Connection to college counseling 	<p>School-based:</p> <ul style="list-style-type: none"> • <i>California School Age Families Education (Cal-SAFE) Program; (Romo & Segura, 2010)</i> • <i>The Care Center; (Costello & Institute for Women's Policy, 2014)</i> • <i>New Heights; (Costello & Institute for Women's Policy, 2014)</i> • <i>Keys to Degrees; (Costello & Institute for Women's Policy, 2014)</i>
<p>Family Engagement and Involvement</p>	<p>Community-based:</p> <ul style="list-style-type: none"> • <i>A Chance to Grow Project; (Donnelly & Davis-Berman, 1994)</i>

Table 1 Continued

<ul style="list-style-type: none">• Emphasis on family members of adolescent mothers as program participants• Family counseling services	<ul style="list-style-type: none">• <i>Family Growth Center and the Program Archive on Sexuality, Health, and Adolescence (PASHA)</i>; (Romo & Segura, 2010; Solomon & Liefeld, 1998)• <i>Pathways Teen Mother Support Project</i>; (McDonnell et al., 2007)• <i>Teen Parent Support Program</i>; (Griffin, 1998; Letourneau et al., 2004) <p>Clinic-based:</p> <ul style="list-style-type: none">• <i>The Young Parents Program</i>; (Omar et al., 2008)• <i>Project Raising Adolescent Families Together</i>; (Ruedinger & Cox, 2012)
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Table 1 Continued

<p>Collaborations Between Organizations</p> <ul style="list-style-type: none"> • Linkage to resources and services • Out-reach to other organizations to reach target population 	<p>Community-based:</p> <ul style="list-style-type: none"> • <i>Pathways Teen Mother Support Project</i>; (McDonnell et al., 2007) • <i>Teen Support Program</i>; (Griffin, 1998;Letourneau et al., 2004) <p>Clinic-based:</p> <ul style="list-style-type: none"> • <i>The Young Parents Program</i>; (Omar et al., 2008) • <i>Project Raising Adolescent Families Together</i>; (Ruedinger & Cox, 2012) <p>School-based:</p> <ul style="list-style-type: none"> • <i>California School Age Families Education (Cal-SAFE) Program</i>; (Romo & Segura, 2010) • <i>The Care Center</i>; (Costello & Institute for Women's Policy, 2014) • <i>New Heights</i>; (Costello & Institute for Women's Policy, 2014) • <i>Keys to Degrees</i>; (Costello & Institute for Women's Policy, 2014)
<p>Life-skills Education</p> <ul style="list-style-type: none"> • Parenting skills • Family planning • Leadership skills 	<p>Community-based</p> <ul style="list-style-type: none"> • <i>Pathways Teen Mother Support Project</i>; (McDonnell et al., 2007) • <i>Teen Parent Support Program</i>; (Griffin, 1998;Letourneau et al., 2004) • <i>Three Generations Project</i>; (Costello & Institute for Women's Policy, 2014) • <i>Delaying Second Births Among Adolescent Mothers</i>; (Black et al., 2006) <p>Clinic-based:</p> <ul style="list-style-type: none"> • <i>The Young Parents Program</i>; (Omar et al., 2008) • <i>Project Raising Adolescent Families Together</i>; (Ruedinger & Cox, 2012)

Table 1 Continued

	<p>School-based:</p> <ul style="list-style-type: none">• <i>California School Age Families Education (Cal-SAFE) Program; (Romo & Segura, 2010)</i>• <i>The Care Center; (Costello & Institute for Women's Policy, 2014)</i>• <i>New Heights; (Costello & Institute for Women's Policy, 2014)</i>
<p>Peer Mentorship and Support</p> <ul style="list-style-type: none">• Group meetings and support• Adolescent mother participant interactions and relationships	<p>Community-based:</p> <ul style="list-style-type: none">• <i>Pathways Teen Mother Support Project; (McDonnell et al., 2007)</i>• <i>Teen Parent Support Program; (Griffin, 1998; Letourneau et al., 2004)</i>

4.3 DISCUSSION OF FINDINGS AND RESEARCH

To be successful in increasing educational attainment, including both high school and post-secondary levels, interventions must look to alleviate the effects of the many barriers that adolescent mothers face. There are many ways to accomplish this goal, and programs have utilized different methods and implemented interventions in different settings. It is difficult to compare programs due to the significant variability in the number of participants served, and outcome and impact measures, as well as the lack of standard forms and rigor of evaluation. Though it is difficult in some cases to compare the results of the programs, potentially effective program components emerged from the literature. These included personalized services, such as case management, counseling, and mentorship, incorporation of life skills education, access to wrap-around services, family engagement, encouragement of post-secondary education and organization collaborations to provide the necessary comprehensive services.

Many programs reviewed specifically geared toward academic achievement were school-based programs. This makes sense due to the academic resources available and the general purpose of these institutions. Making services available and engaging young mothers in these settings may help encourage and effectively support educational aspirations. The accessibility of education through the reduction of barriers is the main focus of these school-based programs. However, the reach of the program to the population of adolescent mothers is a limitation of programs implemented in a school setting (Ruedinger & Cox, 2012). Since it has been recognized that a significant proportion of adolescent mothers drop out of high school both

before and after they become pregnant, the school-based programs may not have a broad impact (Ruedinger & Cox, 2012). Though this may be an issue for school-based programs, they provide a great opportunity to provide necessary resources, for academic completion and planning for future pursuits.

The issue of impact that school-based programs can make on the adolescent mother population can be mitigated through the partnerships with other organizations. Connecting with organizations working in the community may help reach a broader population that is at greater risk of not returning to school and in turn completing a high school education. Comprehensive program designs have been recognized as the most effective methods of serving the adolescent parent population (Costello & Institute for Women's Policy, 2014;Griffin, 1998;Omar et al., 2008;Ruedinger & Cox, 2012). The Cal-SAFE program recognized that it was important that school-based programs connect with organizations in the community to both reach the target population, as well as provide the broad spectrum of services needed (Costello & Institute for Women's Policy, 2014;Romo & Segura, 2010).

Many of the programs provided mentorship support, counseling, and case-management services. For these individualized services to have an impact on adolescent mothers, interventionists understood the need for strong relationships between those who deliver services and the participants in the program. Relationships between interventionists and participants is important to engage participants and keep them motivated to partake in program activities, as well as providing a positive role model that participants can relate to and strive to emulate.

A few of the programs reviewed clarified that the program interventionists were closely matched to the participant population. For one program that worked with a population of mostly African-American adolescent mothers, the interventionists were college-educated African-

American women who themselves had children at a young age (Black et al., 2006). These women had dealt with some of the same difficulties that the program participants faced as adolescent mothers. They had the ability to connect with the participants through shared experiences and perhaps provide the teenage mothers with a picture of success and hope that they could eventually obtain the same success. Feeling closer to interventionists could encourage mothers to be open about their situations and discuss what they would like to achieve and in turn increase communications about planning and actions to take in order to reach success.

The clinic-based programs also recognized the importance of strong relationships between participants and interventionists. Though the authors did not note that the interventionists were chosen to look like participants, they stressed the importance of establishing continuity of care for the participants in their program design (Omar et al., 2008; Ruedinger & Cox, 2012). They felt that it was important to have the same health care and social service providers for the participants in order to establish trust and close relationships to better understand what participants needed and improve the outcomes for both young parents and their children.

A single program utilized motivational interviewing to reduce the rates of subsequent pregnancies among adolescent mothers (Barnet et al., 2009). Although clear evidence for the effectiveness of this method in working with teenage mothers is lacking, the program evaluation presented positive results among the intervention group in terms of preventing subsequent adolescent pregnancies. The motivational interviewing method, which is grounded in the stages of change theory, has previously been used to prevent the initial incidence of adolescent pregnancy (Barnet et al., 2009). Programs promoting contraception use among non-parenting teens have shown promising results (Gold et al., 2016; Petersen, Albright, Garrett, & Curtis,

2007;Wilson et al., 2015) The caveat presented by the program evaluations utilizing this technique is that the impact of the program decreases over time, which calls for the need to reinforce the program curriculum over time (Gold et al., 2016;Petersen et al., 2007;Wilson et al., 2015). It remains unclear whether this is a worthwhile method to use when it comes to working with adolescent mothers. However, it is important to acknowledge the possibilities that a motivational intervention offers.

The program which utilized motivational interviewing first established the participants' stage of change (Barnet et al., 2009). Next, counseling and curriculum were tailored to the participants' determined stages of change (Barnet et al., 2009). Although the effectiveness of motivational counseling is not clear, the positive results associated with the intervention provides further evidence that programs delivering individualized services can have an impact on adolescent mothers.

Social support was another important issue to address when serving adolescent mothers. It was the basis for many programs reviewed. These programs recognized that social support can go a long way in mitigating negative outcomes for teenage mothers and their children. Social support has been shown to decrease the likelihood of mothers developing anxiety and depression, as well as contributing to increased self-esteem and confidence in parenting skills (Brown et al., 2012;Letourneau et al., 2004). A number of the programs included in this review emphasized the importance of the relationships that adolescent mothers had with their families. Therefore, they included family members and close social ties in their programmatic design. Many of the programs offered some form of family counseling or engagement activity (Donnelly & Davis-Berman, 1994;Griffin, 1998;McDonell et al., 2007;Omar et al., 2008;Ruedinger & Cox, 2012). The Family Growth Center program recruited family members of adolescent mothers with the

stated goal of supporting the adolescent mothers as they are becoming parents (Solomon & Liefeld, 1998).

The community-based programs explicitly included family participation in the program design. This increases the importance of partnerships between community-based programs and the school-based programs. To provide services such as family counseling, in conjunction with the services that may be most effectively delivered in school settings, partnerships between programs is important in providing services that address different aspects of adolescent mothers' lives.

Adolescent mothers have many needs, and to best support them and their goals, comprehensive services are needed. Many of the programs understood that services to reduce the barriers in the lives of adolescent mothers were essential to contributing to their academic success. Therefore, many programs offered a broad range of services to provide for adolescent mothers' basic needs, such as child care, housing, academic help, and financial aid. A program conducted through Endicott College focuses on providing housing for young parents and their children (Costello & Institute for Women's Policy, 2014). This program also provides other support services in order to allow young parents to focus on completing their education and setting them up for career success and financial independence (Costello & Institute for Women's Policy, 2014). Lessening the strain of other essential issues in the lives of young parents allows them to spend more time and focus the necessary attention on completing their education.

It was clear that perceptions of adolescent mothers and structural changes needed to be made in order to reframe the issue of teen pregnancy. Instead of focusing on teen pregnancy as a problem, it seemed important to focus on positive aspects, specifically the resiliency of teen mothers. Many reports looking at this population found that teen mothers were very resilient,

that parenthood made them reevaluate their priorities and motivated them to find ways, including completing their educations, to make life better for themselves and their children (Herrman, 2006;Smithbattle, 2007a).

Although teen pregnancy can make life difficult for a young woman, once in the situation of being a young parent, finding and working with the positives aspects appear to be much more effective and appreciated than focusing on the negative. The resiliency of adolescent mothers was cited by one of the programs as very important to recognize when working with adolescent mothers (Griffin, 1998). Research recognizes that adolescent mothers are resilient and many respond well and remain strong when facing the hardships associated with early parenthood (Barto et al., 2015;Griffin, 1998;Romo & Segura, 2010). To take advantage of the resilient way young mothers perceive their transition into parenthood and adulthood, programs that support their basic needs and alleviate obstacles to academic pursuits may increase their academic success, self-esteem, and self-efficacy. Having a positive impact on academic success, self-esteem, and self-efficacy will allow adolescent mothers to build a strong career and become finically stable and independent.

Focusing on teen mothers' resiliency and motivation to build a stable and productive life would not only create a much more positive experience for adolescent mothers, but would also work towards reducing the stigma associated with early parenthood and in turn reduce discrimination and its detrimental consequences. The reduction of stigma surrounding the situation of adolescent parents may go far in changing the attitudes that can be present in academic institutions. As one author found, educators and school administrators would pressure adolescent mothers to enroll in alternative programs (Pillow, 2004). Alternative programs,

which by law should be equal to traditional high school programs, in many cases do not provide a challenging and engaging curriculum (Pillow, 2004).

In addition to the pressure teenage mothers feel to leave their school and attend an alternative program that may not fully support or recognize their educational needs, the educators tasked to help them plan their educational pathway may not hold high expectations for adolescent mothers' educational future. It is important to acknowledge that schools which adolescent mothers attended before they became pregnant may not have offered an enriching academic experience or provided valuable guidance or opportunities to continue to post-secondary institutions. However, the limited options and resources may have diminished even further after they became teenage mothers. Therefore, young mothers are at risk of being underestimated due to the great obstacles they face, and left to navigate the complexities of educational and career planning without the knowledge and support to succeed.

Terminology used in reference to adolescent mothers may also strengthen the stigma associated with their situation. A specific way in which professionals and researchers frame this population is as the "single" or "unmarried" parent (*The Education/Training Requirement For TANF Teen Parents*, 2003; Phipps et al., 2011; Romo & Segura, 2010). Reference to marital or relationship status or lack thereof in a way degrades their situation further, as if the status of being an unwed mother is an albatross around their necks that will doom them to a life of poverty, low education attainment, and poor health. Although language and attitudes should not encourage adolescents to become mothers at an early age or ignore the need for a strong family foundation, the manner in which this population is referenced and identified through terminology is significant when seeking to positively impact their lives. Young mothers understand the difficulties that they face as an adolescent parent, and it is important that they are supported in

order to overcome the obstacles in their lives instead of being perceived as deviant and therefore disregarded.

A limitation to some of the programs reviewed and to potentially many others not discussed is the restrictions on the eligibility requirements associated with the use of federal funds. As previously discussed, restrictions are in place that dictate how and for whom funds can be used. The requirements that need to be met in order to receive and use federal funds may limit the reach of a program and many young mothers may not have a chance to access beneficial programs and services.

More work toward understanding the population of young mothers and the impact of interventions is needed. There are notable gaps in the literature. These include evaluation of the long-term impact of interventions. Programs mainly reported measured outcomes from or conducted evaluations over a two to three-year span of time (Barnet et al., 2009;Black et al., 2006;Costello & Institute for Women's Policy, 2014;Donnelly & Davis-Berman, 1994;Key et al., 2001;McDonell et al., 2007;Omar et al., 2008;Ruedinger & Cox, 2012;Solomon & Liefeld, 1998). Due to the short span of time, the program evaluations lack the ability to comment on the effect these programs have on participants later in their lives. As previously stated, the lag in educational achievement can be present even as the teenage mothers enter their 30s (Smithbattle, 2007b). Therefore, it would be very useful to determine which program designs and components have longer lasting effects in the lives of adolescent mothers. Along with the long-term effects of programs for adolescent mothers, many programs use completion of high school as the measure for educational attainment. A high school education is crucial, but interventionists should not stop there. Though interventionists understand the importance of a post-secondary

education, there is little evaluation of a program's impact on increasing the rates of adolescent mothers completing higher education (Costello & Institute for Women's Policy, 2014).

This is key because a high school education, though important, does not open career opportunities that allow an adolescent mother to sufficiently support herself and her children (Costello & Institute for Women's Policy, 2014). In recent years the earnings associated with a high school education have significantly dropped. In 2011, a high school graduate could expect to earn on average \$19,400 per year. This figure represents an approximately 12% decrease from the early 2000s (Costello & Institute for Women's Policy, 2014). More research is being done in the area of supporting adolescent mothers in post-secondary programs (Costello & Institute for Women's Policy, 2014); however, academic professionals and administrators need to better understand the resources available for teenage mothers. This is crucial in reducing the disadvantage in knowledge or planning for higher educational levels among adolescent mothers. They deserve and need support in planning their academic pathways in order to set achievable goals. Without emotional, academic, and resource support these women will not be given an equitable chance at success.

In addition to evaluation of the long-term impact of programs, the use of qualitative data was also lacking. Few programs included qualitative responses from participants on how the program affected their lives, and what participants thought about program components. Learning about a participant's experience in greater detail may allow interventionists to better understand which program elements are perceived as having the greatest effect on adolescent mothers' lives. Allowing participants to elaborate on their program experiences will provide greater support for quantitative measures, as well as give participants a chance to voice their opinions and play a larger part in modifying programs to better serve other adolescent mothers.

Understanding and addressing the complex needs of adolescent mothers are crucial when designing and implementing assistance programs. Having a comprehensive plan to address the needs of teen mothers was recognized by many of the evaluated programs. In addition to providing wrap-around services, such as child care, financial aid, housing, and tutoring, it is imperative to understand the significance of providing and strengthening social support to adolescent mothers from both interventionists and existing social ties, specifically with family members. The pathway to academic achievement and future career and financial success is a complex issue that needs to provide a broad range of services to address the issue as such.

5.0 MAIKURU PROJECT OVERVIEW

One program that works with adolescent mothers in Pittsburgh, PA is the Maikuru Program. The program was developed from the observation that adolescent mothers need more than just access to contraception, and that other factors, specifically guidance and social support were lacking in the lives of the young women.

5.1 DESCRIPTION

The Maikuru Program was initiated in 2009 by Dr. Jeannette South-Paul in the University Pittsburgh's Department of Family Medicine. The program was created to aid adolescent mothers in their journey of becoming a mother and coping with the realities and responsibilities that accompany that role. The program sought to connect with young mothers around the Pittsburgh area. It was designed to offer them information pertaining to practical life skills. Thus far, over the two completed phases the program has served 123 participants. This includes those who did not participate in all intervention activities or complete all questionnaires.

The Maikuru Program is a two-year intervention that consists of two main components. At its core it is a mentorship program; the program's name is the word for "wise woman of the village" in the Shona language from Zimbabwe. The young mothers are assigned to an older mentor, who then attempts to form a bond with her mentee, in order to expand the social network

of the adolescent mother as well as offer another means of social support outside her family and established friend groups. The second component consists of group sessions with both the mentees and their mentors. These sessions provide information on topics such as healthy relationships and nutrition as well as education and career planning. The sessions are conducted by guest speakers recruited by the project team.

Following the five weeks of the program, follow-up group meetings are held monthly for the next two years. This encourages the participants to stay connected with their mentors and the other young mothers as well as the program itself. These follow-up meetings are also used as a platform to disseminate important information that will help young mothers lead a stable and productive life.

The five weekly sessions address the following topics: goal-setting, contraception, healthy and unhealthy relationships, budgeting, and self-concept and spirituality. A guest speaker is brought in for each session to present pertinent information on the specified topic. The guest speakers are experts or professionals in fields associated with the specified topics.

The project team has completed two phases of the program with two separate groups of recruited participants. They are continually looking toward the future and creating new ways in which to help adolescent mothers of the Pittsburgh community and strengthen the families and relationships that make up that community. In the past, the program has mainly focused on and worked with young mothers, but it has recently looked to initiate a new phase in which mentors will work with young mothers and fathers as a couple. Although they have found recruitment and engagement more difficult with couples, the project team is continuing to find effective ways for the program to move forward and garner interest and participation.

5.2 THEORETICAL FRAMEWORK

The framework behind the Maikuru Program is made up of the social network (Israel, 1982) and social support (Cassel, 1976) theoretical models, which are discussed in greater detail in section 4.1. These theories focus on how social connections function within a person's life (Heaney & Israel, 2008). In this case the focus of the project is to expand the participants' social network and increase the social support that they receive and experience. According to the theories, positive social support and feedback from mentors increase feelings of self-worth and self-efficacy, which in turn leads to decreased rates of subsequent adolescent pregnancies and increased rates of educational continuation and completion among the intervention group.

5.3 INTERVENTION/STUDY DESIGN

The Maikuru Program is designed as a pre-post intervention that prospectively follows a recruited cohort of adolescent mothers over a two-year period. The primary outcome measure is repeat adolescent pregnancy. The two completed phases of the program occurred over 2009-2011 and 2011-2013. However, subsequent contact with participants has been made or attempted in 2016.

To be eligible to participate in the program, an individual had to be a teen mother who was 19 years of age or younger when she enrolled in the program. The teen mothers also had to be a parent to a single child or children that resulted from one adolescent pregnancy. The requirements for individuals to become program mentors were that they must be at least 15 years older than the teen mother to whom they were assigned and that they had Act 33/34 clearance.

5.4 DATA COLLECTION METHODS

Data were collected to measure the impact of the program on the lives of the participants, as well as to provide an avenue for research into subjects affecting adolescent mothers. The Maikuru Program used both qualitative and quantitative methods to collect data about the program, participants, and maikurus. The main source of data pertaining to the attitudes and lives of the participants were pre- and post-intervention questionnaires (see Appendix). These questionnaires were administered before the first of the five-weekly group educational meetings. The same questionnaire was then given to participants after the initial five weekly portion of the intervention. These data were then used to identify any changes in attitude toward areas such as school, employment and family planning, as well as changes in self-perception and feelings of self-worth. It also allowed for a comparison of the participants' perceived support network and the state of their reported relationships pre- and post-intervention.

To evaluate the relationship between mentors and mentees, surveys were administered to determine the level of satisfaction with the relationship and prompted individuals to give explanations of survey answers. Follow-up surveys were then utilized to gather records of subsequent pregnancies at three month intervals after the five-week intervention for two years.

Mental health was also measured among both maikurus and the adolescent mothers using the Center for Epidemiologic Studies Depression Scale (CESD-R) (Radloff, 1977). Since the young mothers are technically adolescents the instrument used was the revised scale for children (Radloff, 1991).

Data were collected from former participants over a four-week period in the spring of 2016 through phone, email, and Facebook contact. The data collected pertained to educational and employment status, repeat adolescent pregnancies, and relationship status of former Maikuru

Program participants. The participants were also asked if they would recommend the program to other adolescent mothers.

Program data were managed through the Research Electronic Data Capture (REDCap) application tools hosted at the University of Pittsburgh (Harris et al., 2009).

5.5 DATA AND RESULTS

Maikuru Program team members compared data extracted from the questionnaires administered at the beginning and end of the program intervention with the data collected from the 2016 follow-up survey (Alaaraj & Warshel, 2016). The analysis found that former participants had accomplished success at both high school and college levels. A lower repeat adolescent pregnancy rate among participants compared to the Pennsylvania state statistics was also reported (Alaaraj & Warshel, 2016).

5.5.1 Methods of data analysis

Additional original analysis was done using the data extracted from the baseline and end of intervention questionnaires. The focus of this analysis was the responses to the items pertaining to the level of education desired and the level of education that participants thought they would actually achieve. The secondary focus was the correlation between when participants thought they would have their next child and the level of education they wanted to achieve. The end of intervention data was used to determine the correlation. The pre- and post-questionnaires were given to the Phase II participants. Among the Phase II participants, 37 completed the

questionnaire before and after the intervention. Excel was used to illustrate the comparison between the baseline and end of intervention data as well as the correlation between the level of education desired and when participants thought they would have their next child.

To look at and describe the shift in responses to the questionnaire items pertaining to the level of education participants wanted to achieve and the level of education they thought they would actually achieve, the responses were grouped into three categories: high school, college and vocational education, and beyond college. The high school category included the responses “complete some high school but not graduate” and “graduate from high school.” The college and vocational education category included the responses “completion of some college, vocational or technical school after high school” and “graduate with a Bachelor’s degree.” The beyond college category included the responses “graduate with a Master’s degree,” “completion of some work toward a Ph.D. or professional degree,” and “graduate with a Ph.D. or professional degree.” Two-way tables were then produced using STATA 14.2 to compare the baseline and end of intervention responses among the three groups.

5.5.2 Results

When the baseline educational aspirations were compared to the end of intervention educational aspirations there was a general trend toward lower level educational aspirations post-intervention. This trend is illustrated in Table 2 and Figure 1. Twenty-six point three percent of participants who fell into the *beyond college* category shifted to the *high school* category at the end of the intervention. Sixty-three percent did not shift from the *beyond college category*, while 15.8% moved to the *college and vocational* education category at the end of the intervention. Thirty point eight percent of participants who fell into the *college and vocational category* at

baseline reported that they wanted to achieve levels of education beyond college at the end of the intervention. Forty-six point two percent did not shift to another category, and 23.1% reported wanting to achieve lower levels of education at the end of the intervention. Among those who fell into the *high school* category at baseline, 60% remained in the *high school* category, while the remaining 40% shifted to the *college and vocational education* category.

Table 2. Comparison of Baseline and End of Intervention data pertaining to the level of education participants want to achieve

	Baseline		End of Intervention	
	# of participants	% of total	# of participants	% of total
High School	5	13.1	11	29.7
College and Vocational Education	13	35.1	11	29.7
Beyond College	19	51.4	15	40.5

A negative trend was not as apparent between the baseline and end of intervention with regard to what level of education participants thought they would actually achieve. One individual from the *high school* category shifted to the *college and vocational education* category. Among the participants who were grouped into the *college and vocational* category, 15.8% shifted to the *high school* category and 26.3% shifted to the *beyond college* category the end of the intervention. None of the participants grouped into the *beyond college* category at baseline shifted their educational aspirations below “some college, vocational or technical school

after high school.” Only one of the individuals who originally fell into the *beyond college* category shifted to the *college and vocational education* category.

Table 3. Comparison of Baseline and End of Intervention data pertaining to the level of education participants thought they would actually achieve

	Baseline		End of Intervention	
	# of participants	% of total	# of participants	% of total
High School	5	13.1	7	18.9
College and Vocational Education	19	51.4	13	35.1
Beyond College	13	35.1	17	45.9

COMPARISON OF WHAT EDUCATIONAL LEVEL PARTICIPANTS WANT TO ACHIEVE AND WHAT THEY ACTUALLY THINK THEY WILL ACHIEVE

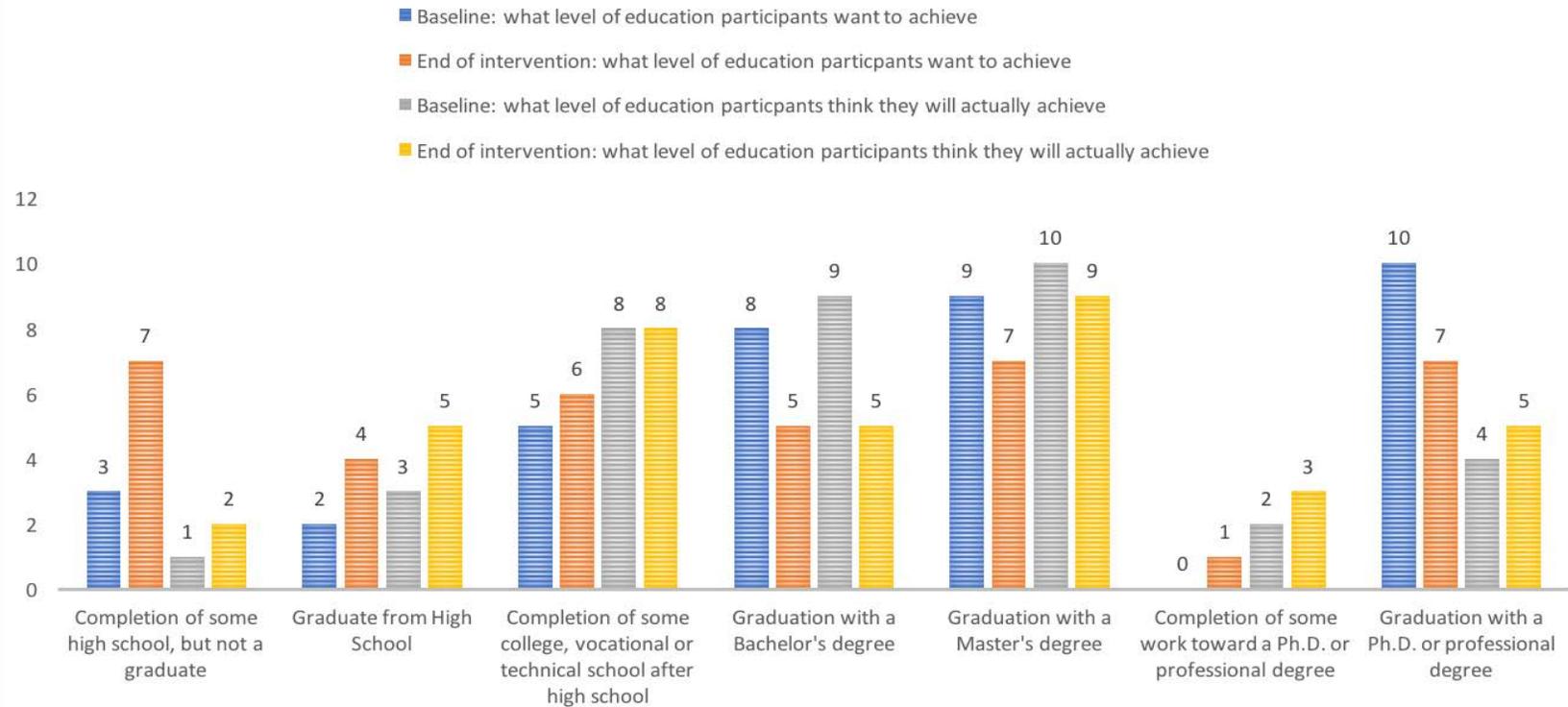


Figure 1. Comparison of baseline and end of intervention questionnaire responses pertaining to the level of education participants want to achieve and what they think they will achieve

Participants were asked about when they thought they would have their next child. The majority of participants answered either two to three years, four to five years, or responded that they did not know. The percentage of individuals answering four to five years and “I do not know” did not change between baseline and end of intervention data, 36.1% and 27.8% respectively. Figure 5 presents the frequencies of the responses.

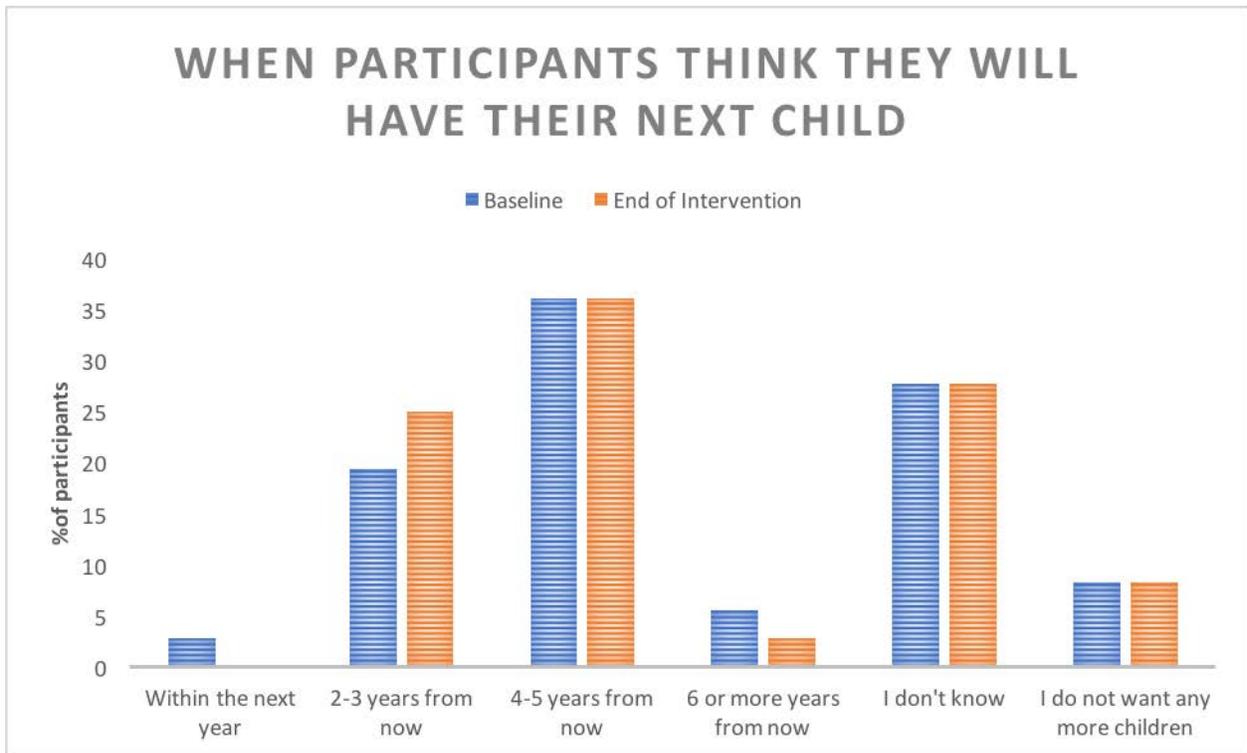


Figure 2. Comparison of Baseline and End of Intervention answers to when participants thought they would have their next child

There was a slight trend in the response to when participants thought they would have their next child and the participants who reported that they wanted to obtain a higher-level education (Bachelor’s degree, Master’s degree, or Ph.D. or professional degree). Among the participants who wanted to graduate with a Bachelor’s degree, 60% thought they would have their next child in the next 2-3 years, while the other 40% responded that they did not know.

Among the participants who wanted to graduate with a Master's degree, 29% thought they would have their next in the next two to three years, 57% responded 4-5 years, and 14% responded that they did not know. Of the participants who wanted to receive a Ph.D. or professional degree 57% responded that they thought they would have their next child in 4-5 years, 29% responded that they did not know, and 14% responded that they did not want any more children. None of the participants who specified that they wanted to graduate with a Bachelor's degree, Master's degree, or Ph.D. or professional degree reported that they thought they thought they would have their next child in six or more years. Figure 6 illustrates the trend in increased time for when participants thought they would have their next child and among those who wanted to obtain a higher education.

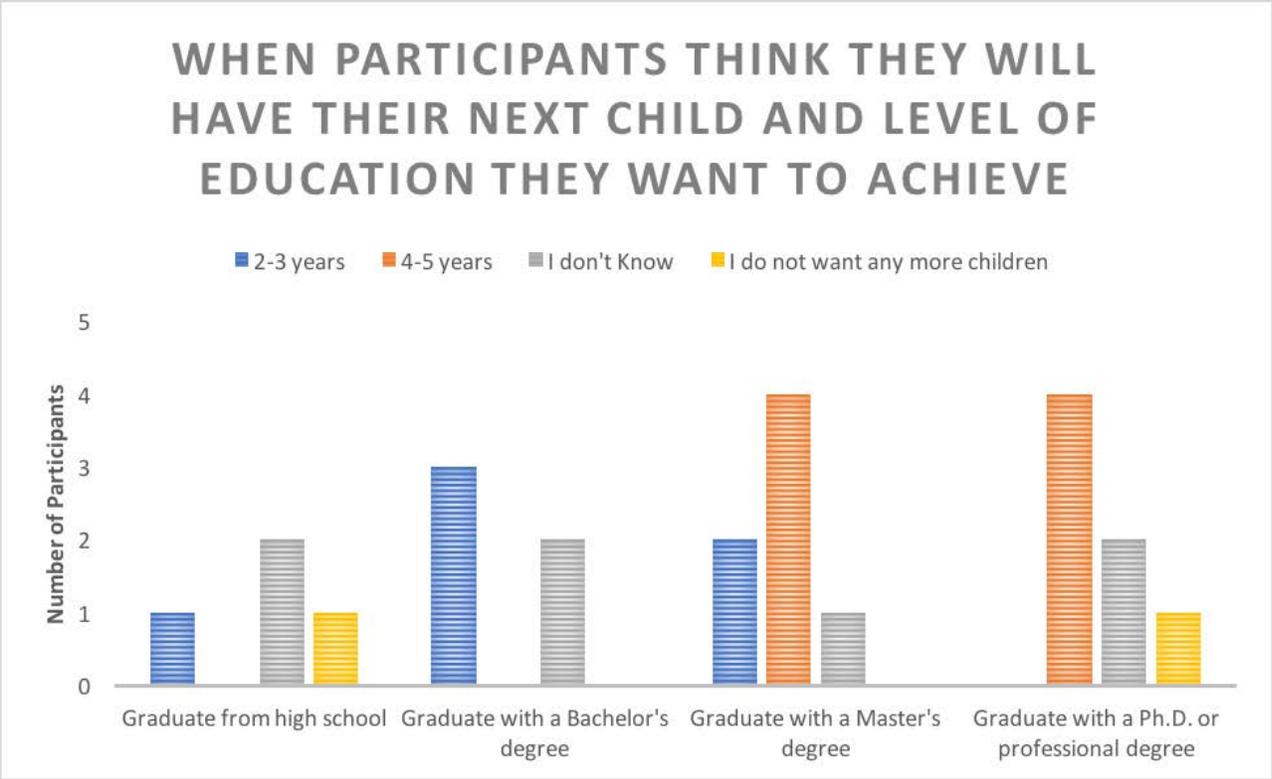


Figure 3. End of intervention data showing the correlation between when participants thought they would have their next child and the level of education they wanted to achieve

5.6 DISCUSSION OF MAIKURU DATA AND RESULTS

Data collected and analyzed by the program team found that many program participants were pursuing and achieving educational goals (Alaaraj & Warshel, 2016). A significant portion of former participants contacted through follow-up communication had completed their high school education, were pursuing a higher education or had already completed a post-secondary level degree. Maikuru Program team members also found that there was a low rate of repeat adolescent pregnancy among the participants that were contacted (Alaaraj & Warshel, 2016).

Additional data collected by the Maikuru Program were used to look at the differences between what level of education participants wanted to achieve and what level of education they believed they would achieve. Many of the participants reported that they desired to achieve high levels of education, including both undergraduate and graduate degrees. This result seems to support the finding that adolescent mothers are very resilient and understand the importance and power of education. However, there was a disparity between what the young mothers wanted to achieve and what they thought they would actually achieve. This illustrates the need to counsel, support, and show the participants that achieving higher levels of education is possible for them.

A negative shift in the level of education participants wanted to achieve and what they thought they would achieve occurred between the pre- and post- intervention surveys. The answer as to why participants reported lower levels of education for both questions at the end of the intervention compared to the base-line answers is not clear. There are many potential explanations, such as the need to work and delay academic pursuits or lack of support and guidance for the specified academic aspirations.

The issue of realistic and attainable goals is a topic that needs to be addressed. Currently, only about 33% of adults in the United States had obtained a four-year college degree (Ryan & Bauman, 2016). Therefore, it may be important to discuss realistic educational ambitions, while still being supportive of academic planning and goal setting. In addition to encouraging realistic academic goals, it would also be beneficial to discuss other potential options, such as trade schools or other types of employment training and preparedness. The shift towards the desire to achieve lower levels of education from participant's pre- and post-intervention responses may have been the result of to the encouragement of the program mentors and staff to set realistic

goals. The Maikuru Program may be able to help participants plan their educational and career pathway as well as assist in finding quality programs and institutions.

Another important finding relates to when participants thought they would have their next child. The majority of participants thought they would have their next child in the next two to three or four to five years. Participants who reported that they wanted to achieve academic degrees higher than a Bachelor's degree tended to think that they would have children later. This seems to indicate that there is an understanding among the participants that having another child could affect their educational aspirations and attainment, and delaying the birth of another child is important in achieving those goals. However, delaying having additional children for four to five years may not be long enough when pursuing a Master's degree, a PhD, or a professional degree. It is also important to acknowledge that careers after the completion of a degree takes time to establish. Therefore, it is important to emphasize the time it takes to achieve educational and career aspirations, and stress the critical role family planning plays in completing their education.

Additional qualitative data could provide a better understanding of the trends presented. The context behind participants' answers would not only be useful in affording answers for data trends, but also offer areas to expand intervention services.

6.0 DISCUSSION

A review of the literature and experience with the Maikuru Program allows for informed recommendations to be made for the program's design. The Maikuru Program data indicate that the program is associated with positive trends in educational success and decreased repeat adolescent pregnancies. However, there may be ways to improve the program activities to increase positive results among the participant population.

6.1.1 Community Partnership and Engagement

Comprehensive programs that address many of the complex and interconnected issues that adolescent mothers face have been shown to be the most effective in increasing the rates of high school graduation and college enrollment (Costello & Institute for Women's Policy, 2014; McDonnell et al., 2007). However, it would be impossible for the Maikuru Program to provide a completely comprehensive program that provides all the different wrap-around services that these adolescent mothers need due to staffing and budget constraints. Therefore, the program must look to what services already exist out in the community and partner with other organizations serving this population to connect these young women with the resources they need to be successful.

One organization with which to potentially partner is the Carnegie Library of Pittsburgh. Many branches are located throughout Pittsburgh, and an Oakland location is conveniently located near the office base of the Maikuru Program. Numerous services and resources provided through the library offer great benefits and opportunities for both the adolescent mothers and their children. In particular, the library offers employment counseling as well as resources for those seeking to continue on to higher education. These resources could be invaluable to the program's participants.

Other partnerships to consider are faith based organizations that have a strong presence and involvement in the community. These organizations have the potential to provide further services to adolescent mothers, as well as promoting a greater connection between program participants and other individuals in the community. A collaboration between faith based organizations may offer a plethora of additional mentors for the young mothers and have a positive impact on their social networks and the social support that they receive.

When seeking to develop and maintain productive community partnerships, there needs to be infrastructure, namely staff, to coordinate events and collaborations. Therefore, it is important to address the need for collaboration and partnerships in program funding. Although there may not be a great cost to the program, it is important to provide monetary incentives to potential community partners. Offering funds to pay for staff time to work with and maintain the partnership with the Maikuru Program could alleviate financial barriers to productive alliances that would make a great impact on participant's lives.

6.1.2 Case Management

Along the same vein as mentorship, case management is a program component that allows for program services to be tailored to the participant. Case management offers an effective method of one-on-one counseling that allows for the program to give the participants the attention they need, while also supplying another source of social support (McDonnell et al., 2007; Sangalang, 2006). This service provides not only emotional support, but also connections to community resources and important information. For example, case managers may support a participant in planning how she will continue her education, through providing aid in identifying educational programs that fit her life best and resources that may help her prepare for admissions or applying for financial aid. These are invaluable services that teenage mothers may not have access to otherwise.

Case managers may also be able to monitor and help foster the mentor-mentee relationships. They may be able to offer advice or coach mentors in ways to better connect with and support their assigned mentees. If conflict arises within the mentor-mentee relationship, case managers may act as mediators to help navigate the issues that may arise between the two individuals. Case management services can function in many different capacities to better serve the participants and ensure that the program activities run efficiently.

As previously discussed, participants need to develop realistic and attainable educational goals. A college education or other traditional post-secondary education may not be the right path for everyone. Therefore, case management services may provide insight into other viable options. These options may include job training or identifying careers that require less post-secondary education, such as an associate's degree.

The need for case management services may offer another opportunity for community partnership. The University of Pittsburgh's School of Social Work may offer a way to affordably incorporate case management services into the program. Utilizing the expertise of staff and students from the School of Social Work may provide aid in developing this program component, while also offering a potential source of staff to fill case management positions. The Maikuru Program could offer a way for social work students to gain experience, while they could provide affordable and quality services to the program.

Case management was a key component of many programs, independent of program setting. It served as a multifunctional program service. Case management was used for service dissemination, connecting participants to community resources as well as providing counseling and mentoring services. Case managers also provided services to promote family engagement and counseling to strengthen social connections. Case management services may increase the impact of the Maikuru Project on reducing barriers that the young mothers face.

6.1.3 Family Engagement

The Maikuru Program team is already taking steps to adapt the program to help strengthen the families of adolescent mothers. A current phase of the program is looking to engage and counsel young mothers with their significant other. Involving adolescent parents as a couple is a step in the direction of strengthening areas of existing social networks and perhaps decreasing the risk of subsequent adolescent pregnancy for teen mothers who are living with their significant others through education in areas such as family planning.

A number of the programs reviewed offering case management services went beyond one-on-one sessions and encouraged family participation in counseling sessions (Costello &

Institute for Women's Policy, 2014;McDonnell et al., 2007;Romo & Segura, 2010). This was done in order to strengthen relationships and create a more supportive environment that promotes and encourages educational success (Romo & Segura, 2010). Relationships in the existing social network of adolescent mothers have been thought of as factors affecting many areas of their lives, such as levels of confidence and self-efficacy, as well as motivation to continue with their academic career (Romo & Segura, 2010).

Family engagement increases perceptions and the actual receipt of social support. Social support is critical in the lives of adolescent mothers. Higher levels of social support alleviate the impact of negative outcomes associated with adolescent pregnancy, such as depression or limited educational resources and knowledge (Letourneau et al., 2004). It has been shown that over time, after a teenage mother has given birth, many adolescent mothers experience a reduction in the quantity and quality of received social support (Brown et al., 2012;Smithbattle, 2013). Therefore, it is important to strengthen the ties between adolescent mothers and their families as well as help family members recognize how critical their support is in the lives of the young mothers.

6.1.4 Peer Mentorship

The literature has illustrated the need for and potential effectiveness of program components that personalize the program activities for the participants (Barto et al., 2015;Costello & Institute for Women's Policy, 2014). Methods that offer a form of personalizing program services include mentorship and peer mentorship.

Formal mentorship is the basis of the Maikuru Program's design. However, the use of peers in the program is limited to group sessions where all the participants come together with

their mentors to take part in educational sessions. These interactions provide an opportunity for the adolescent mothers to connect with other individuals who are experiencing similar events, hardships, and frustrations. They foster more social connections that have the potential to generate much needed social support for the individual participants. This element of peer interaction and bonding is useful, but another layer of peer intervention can be incorporated.

Former participants have the potential to be very effective tools in engaging future and current program participants. A recent follow-up survey done by project team members identified past participants who have been successful in obtaining a college education. They could serve as examples for incoming participants of how to overcome obstacles to educational success. The picture they present may be a motivator for incoming adolescent mothers. The maikurus provide a wealth of experience and knowledge, but participants may relate better to someone closer to their age, especially around the continuation and completion of their education.

One program discussed earlier used two college-educated women who were still in their twenties to carry out the intervention (Black et al., 2006). A review of the program reported that these women acted as “big sisters,” instead of the customary authoritative figures (Black et al., 2006). A less authoritarian figure may be more relatable to the adolescent mothers and perhaps promote the initial connection and participation in the program. The peer mentor-mentee relationship can work in tandem with the mentor-mentee relationship that participants develop with the older maikurus.

The strength of the mentor-mentee relationships is vital to the success of a program. It is recognized that engagement and positive impact can be achieved through stronger relationships between the interventionists and participants (Black et al., 2006). Therefore, including another

interventionist that can relate to the participants on a different level may increase the connectedness between the participants and the program as a whole.

6.1.5 Qualitative Evaluation

Qualitative evaluation can provide the project team a more robust understanding of how the program is impacting the participants. Expanding the scope of the program's qualitative research and evaluation can provide a more comprehensive perspective of the environment the participants are coming from beyond a snapshot of the spread and strength of the participants' social network.

It is especially important for the interventionists to learn more about the educational environment that participants experience. A better understanding of the specific obstacles they face in educational settings, such as stigma and discrimination, can allow insight into the motivation of some of the participants' decisions to drop out of school. It would also benefit the program to learn more about the specific aspirations participants have. Understanding the type of career or course of study that adolescent mothers are interested in would help the program target specific resources and information to pass on to participants to support the fulfillment of their aspirations. There is also a need to find out more about the process that past successful participants went through to achieve their academic goals, whether the Maikuru Program played a part in helping them achieve this goals, and if so, how.

6.1.6 Advocate at a policy level

Policy should be a tool to aid adolescent mothers in their transition to adulthood and support them in their educational and career pursuits. However, as previously discussed some policies that are meant to help these young women become a barrier that obstructs their pathway to academic and ultimately financial success.

Utilizing the experience and understanding of the situation surrounding the Maikuru Program participants, project team members will be able to help further illustrate the need for changes in legislation to policy makers. The Maikuru Program could advise local school districts on services that may best serve the population of adolescent mothers in the area and increase the rate of these individuals completing high school. It would also be imperative to increase the awareness pertaining to policy, such as Title IX, and the rights of adolescent mothers among teachers, school administrators, and other academic professionals that work with or have the potential to work with teenage mothers. Partnering with local school district officials would be crucial in addressing any deficiency in the understanding and enforcement of Title IX provisions.

In order to address the issue at a policy level, legislative bodies need to be made aware of the issues. Contacting local and state officials is the first step in generating change. Policy reviews that clearly state the problem, as well as offering potential solutions could be critical tools in impacting the lives of adolescent mothers in Pittsburgh.

Advocating for policy changes offers another opportunity for community engagement and awareness of this issue. The University of Pittsburgh Graduate School of Public Health houses the Department of Health Policy and Management. This department includes individuals with the knowledge and understanding of policy, and can effectively recognize how legislation

can be changed. Utilizing their expertise could effectively help advocate for change at the policy level, while also garnering interest in the program's efforts and overall goals. Students and faculty may prove to be invaluable resources and partners in fighting for the rights of adolescent mothers at a local level, and potentially at state and national levels as well.

7.0 CONCLUSION

Adolescent pregnancy, though steadily declining in the United States, is still a prevalent issue that leads to many adverse outcomes for young mothers and society in general. Young mothers are less likely to complete their educations and become financially stable later in life (H. Barto et al., 2015;Costello & Institute for Women's Policy, 2014;Romo & Segura, 2010). The literature review discussed many of the barriers that hinder adolescent mothers from achieving academic and career goals. These barriers included competing demands and responsibilities, the risk of repeat adolescent pregnancies, policy, lack of social support, stigma and discrimination, and cultural and societal norms.

To help adolescent mothers achieve academic and career success, programs addressed the obstacles that adolescent mothers face. Strategies reported in the literature included case management, counseling, mentorship, life skills education, family engagement, emphasis on support of post-secondary education, wrap-around services, and collaborative efforts of organizations working with and for teen mothers. Interventions utilized these components in different manners and combinations. However, what appeared to be most effective was a combination of all or a majority of these services. A comprehensive program design seemed to be the most effective in lessening the impact of barriers, allowing for teenage mothers to dedicate attention to their academic pursuits.

Due to constraints of time and resources, a limitation of this work is that not all literature and program evaluations pertaining to the issue of adolescent pregnancy and education have been retrieved and reviewed. Therefore, there could be potential gaps in the interpretation and discussion of the topic. Another limitation of this paper is that it does not contribute new knowledge to this area of study and does not offer original information to the body of work addressing teen pregnancy.

The Maikuru Program has provided beneficial services to adolescent mothers of Pittsburgh. Recognizing the need for more than simply providing contraception to adolescent mothers to prevent subsequent teen pregnancies, the program works to empower teenage mothers to set life goals and encourages them in their endeavors by providing a mentor for social support. Data collected to determine participant outcomes were analyzed. The results, although not statistically significant, show that the program is working in positive ways to encourage and support young mothers in their quest for a productive and stable life for themselves and their families. Even though positive trends are illustrated by the data collected, modifications to the program may still be useful in making a larger impact. Investigation needs to be done to pinpoint the practices or combination of practices that best support the educational and career aspirations of the participants.

Engagement, especially long-term, would be invaluable to the program in following the progress of the participants to determine a longer-term impact, if any on outcomes in their lives. It may also be important to gather more qualitative data from past participants to gather more specific information on how the program supported them or did not support them in their pursuit of education.

A review of the literature has provided a plethora of information and options to utilize in order to increase the impact of the Maikuru Program in the community. The implementation of this knowledge and effective program components could support the Maikuru Program's efforts to be of service to teen mothers, as well as a platform for new knowledge around the issue of adolescent pregnancy and parenthood. Combining different program components may help expand the intervention in efficient ways to generate the greatest impact.

No single magic solution will solve the complex issues and consequences of teen pregnancy and parenthood. Efforts for reducing negative outcomes associated with adolescent pregnancy need to be comprehensive and address the convoluted web of burdens that young mothers face. Efficiently investing time and resources in adolescent mothers will increase their chances of being self-sufficient as they grow older, which will be beneficial for both society as well as improve the lives of adolescent mothers and their children.

The Maikuru Program must look outwards and view itself as a piece of a larger puzzle. The program must find where it fits and what it can offer to complete the overall picture. It cannot accomplish this alone, but must seek out other organizations in the community, whether they are other programs in the community, clinics, academic institutions, or local policy makers to create the best opportunities for this population to succeed and break the cycle of poverty and adolescent pregnancy.

APPENDIX: QUESTIONNAIRE ITEMS

Questionnaire items found in both baseline and end of intervention surveys that were the focus of data analysis.

School and Work

- 1) Indicate the highest level of schooling you **want to achieve**
 1. ___ Completion of some high school, but not a graduate
 2. ___ Graduation from high school
 3. ___ Completion of some college, vocational, or technical school after high school
 4. ___ Graduation with a Bachelor's degree
 5. ___ Graduation with a Master's degree
 6. ___ Completion of some work toward a Ph.D. or professional degree
 7. ___ Graduation with a Ph.D. or professional degree

- 2) Indicate the highest level of schooling you **think you will actually achieve**
 1. ___ Completion of some high school, but not a graduate
 2. ___ Graduation from high school
 3. ___ Completion of some college, vocational, or technical school after high school
 4. ___ Graduation with a Bachelor's degree
 5. ___ Graduation with a Master's degree
 6. ___ Completion of some work toward a Ph.D. or professional degree
 - ___ Graduation with a Ph.D. or professional degree

Planning Your Family

- 3) When do you think you will be ready to have your next baby?
 1. ___ Within the next year
 2. ___ 2-3 years from now
 3. ___ 4-5 years from now
 4. ___ 6 or more years from now
 5. ___ I don't know
 6. ___ I do not want any more children

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