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Social Inclusion Outcomes for an Organization's Adolescent Parent Intervention

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Abstract

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MA, Universidad de Puerto Rico, 2011

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health – Community Health

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Abstract

The study institution is a non-profit organization with a model developed from the continuous implementation of needs assessments of the families of adolescent parents in Puerto Rico, with the purpose of increasing their social inclusion potential. Addressing social exclusion and stigmatization of adolescent parents is vital because it generates a dual benefit for social interactions and growth. The social inclusion concept used and further elaborated for adolescent mothers is described by researchers as the level of access to engaging with institutions and societal relationships. This program evaluation was developed to understand the outcomes and effectiveness of the organization's social inclusion interventions. There is a gap in knowledge for comprehensive and family-centered adolescent parent's programs related to their potential for social inclusion. Guided by complex systems theory, the key research questions were designed to assess the potential gains in social inclusion characteristics for the organization's participants. The study utilized organizational, administrative data and used a pre- and post-test design with a comparison group. McNemar test findings indicated statistically significant increase for the intervention group regarding their social inclusion ($p < .001$); while Wilcoxon test findings indicated statistically significant gain in nurturing family environments ($p = .006$) and socio-economic positions ($p < .001$). Further research is recommended to assess the life-course protective factors' characteristics and the social inclusion pathways. The positive social change includes further understanding of social inclusion for adolescent mothers and its related ecological perspectives.

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Dedication

I dedicate this dissertation study to my Creator, family, and all who in different measures impacted my scholar-practitioner development. To my Lord and Savior, thank you for all the little and big miracles you provide me each day. To my children, Siloé Sofía and Esteban Daniel, whom shared their time and attention for me to complete this program evaluation study and PhD program. I dedicate this dissertation to my husband and mother, for their support and help. To my mentors and colleagues, thank you for sharing your knowledge and experience; which has provided me with a global perspective for public health practice.

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Chapter 1: Introduction

Topic, Justification, and Social Change Implications

Finding acceptance as a singular member of society provides significant reciprocal benefits for those without essential social and financial support. In many communities, however, pregnant adolescents face a particular vulnerability to social dislocation. Ostracism and stereotyping remain constant challenges for adolescent parents (Mills et al., 2012). At the request of the organization, I have used "Evaluated Organization" as a pseudonym to represent the actual organization in all references to keep the identity confidential. Community-based groups like the evaluated organization in Bayamon, Puerto Rico serve adolescents who are parents with the goal of increasing their chances of social inclusion through (a) increasing intervals between pregnancies, (b) building healthy families, (c) facilitating completion of a high school education or vocational training, (d) developing and applying early learning skills for the adolescent parents and their children, and (e) nurturing socio-emotional stability for the adolescent parents and all those living in the same household. For community-based organizations to succeed as support networks for adolescents who are parents and their families, the organizations should assess and address the complexity of the family's needs using purposeful continuums of care. This support must include both comprehensive and family-based approaches (Cox, Buman, Woods, Famakinwa, & Harris, 2012).

Scholars and practitioners have conceptualized social inclusion in the domains of interpersonal relationships and community participation, which also pertain to the quality of life measures within the community (Simplican, Leader, & Kosciulek, 2015). The

social inclusion's process is dependent on the individual's level of achievement of improved socio-economic position and inurement of contextual life factors (De Greef, Segers, and Verté, 2012). These domains are required for social inclusion because they promote social networking, interpersonal relationships, access, and increased involvement in communitarian dynamics (Simplican et al., 2015). In this context, self-realization is essential for achieving social inclusion (Saunders, 2015). The socio-economic security concept pertains to the fulfillment of self-realization and later development of a collective identity, which entails a process of mutually benefiting relationships between an individual and the social institutions (Chow & Lou, 2015; Yaniki, Kushner, & Reutter, 2015).

In this program evaluation study, I focused on addressing the potential social changes of an exposed population of adolescent parents and their families who participated in the continuum of care of a comprehensive family-centered program. This program was developed to lead to social inclusion outcomes that promote participant self-realization, productivity, and general social relationships (Simplican et al., 2015). The empirical evidence I collected, analyzed, and made conclusions about should increase the knowledge and understanding of public health scholar-practitioners related to the real-world application of complex systems, their interactions, and outcomes. Specifically, this study offers insights regarding the emergent model that the evaluated organization developed to address the complex needs for social inclusion and self-realization of adolescent parents and their families from the organization, in Bayamón, Puerto Rico.

Summary of Major Sections of The Chapter

This study is a program evaluation for a comprehensive model of service for adolescent parents and their families. The variables I assessed are related to the mission of the evaluated organization and its logical model's expected outcomes, which are defined and intended as social inclusion characteristics for this special adolescent population and their families. These social inclusion characteristics are consistent with interpersonal relationships and community participation domains, specifically within the ecological conditions pertaining to individual, interpersonal, organizational, community, and socio-political conditions (Simplican et al., 2015). I used a quantitative approach and a complex systems theoretical framework, which led me to recommend further research to understand the interactions of the systems. Given my use of a complex systems approach to evaluate a comprehensive program, this study should also provide knowledge to the public health field regarding gaps that I identified in the scientific literature. To provide an introduction to the topic, this chapter includes sections on the following: introduction, background, problem statement, purpose of the study, research questions and hypotheses, theoretical and conceptual framework for the study, nature of the study, definitions, assumptions, scope and delimitations, limitations, significance, and summary.

Background

The institution is a non-profit organization with a model developed from the continuous implementation of needs-assessments of the families of adolescent parents in Bayamon, Puerto Rico and from the input of multiple content experts and stakeholders. The model of service was named the family incubator model. This model was developed

using a family-centered approach in the design of the continuum of care for the families of adolescent parents. The evaluated organization used it to offer services from the early stages of pregnancy until after children completed their kindergarten years and the family completes its individual service plan. The evaluated organization was created in the year 2000 with a narrow scope of providing child care, social work case-management, and parenting skills services. The experience of service providers and the data from the continuous needs assessments reflected a more multi-systemic issue that required the generation of more complex services per information provided by the evaluated organization . At the early development stages of the organization, some of the adolescent parents who were initially served had been out of school more than 2 years and attempts to reinsert then in the traditional educational system were often unsuccessful. This led to the need for integrating into the services of a specialized alternative school for this special adolescent population.

Throughout this process, the evaluated organization's family incubator model increased in complexity and integrated multiple disciplines to the services. The organization provides comprehensive services to the adolescent parent's families in Bayamon, Puerto Rico, including early learning services for the children, and parenting and early learning education for the parents to act as first educators of in a positive manner. Psychological evaluations and individual and group therapy are provided for couples and family members living within the same household as the adolescent parents. The services also include social work, micro-entrepreneurship skills for all living in the household, high school academic services based on adolescent parents' roles, birthing

and breastfeeding courses, preventive and secondary healthcare services for the household members, spiritual guidance services, and family engagement activities.

The social inclusion concept is described by researchers as the level of access to engaging with institutions and societal relationships, which relates to networks and principles of equality and equity (Yanicki, Kushner, & Reutter, 2015; Simplican et al., 2015). According De Greef, Verté, and Segers (2015), the goal of social inclusion is avoiding or minimizing the mechanisms of exclusion by use of supportive networks, development of individual basic skills, participation, and shared resources. Previous researchers have studied social inclusion for adolescent parent populations using the social inclusion/exclusion concept, which, in addition to the interaction of intrinsic, social, and principled-guided factors, includes the following variables: lack of parenting skills, high depression rates, the competencies for better education, readiness for skill-based economy, financial self-reliability, and self-reliant housing (Cox et al., 2012; Mills et al., 2012).

In addition, germinal social inclusion measures in the research on adolescent parents include: a) personal alienation (such as suicide and alcohol abuse rates), b) family status (related to divorce rates and female head of household), c) socio-economic position (regarding education achievement and employment status), d) average income for household, e) overall minority representation, and f) urbanization (Caldas & Pounder, 1990). The evaluated organization's logical framework is used in this study as a basis for understanding the comprehensive model developed by the organization's founder, with the goals of increasing social inclusion characteristics of adolescent parents and their

families. Targeting interpersonal relationships and community-participation, the evaluated organization designed these goals to improve participants' socio-economic position, develop nurturing micro and meso environments for the family, and bolster life-course protective factor outcomes (Simplican et al., 2015).

The social inclusion model developed by Simplican, Leader, and Kosciulek (2015) conceptualizes the interaction of two social quality domains: interpersonal connections and community involvement. In the social inclusion model, the characteristics that promote social inclusion are a) level of societal contribution, b) contending poverty, c) secure employment, d) adequate healthcare access, e) bettering community's security, and f) guarding from abuse (Simplican et al., 2015). According to Simplican et al.'s (2015) social inclusion model, the researcher should consider socio-economic position, nurturing family environments, and life-course protective factors.

Socio-economic position as a social quality dimension comprises the following domains: a) stability of material, employment and housing resources, and b) preservation of health (Chow & Lou, 2015). Various authors have argued that socio-economic security pertains to an individual's level of access to adequate material and non-material resources through social connections. The minimum attainment of socio-economic security protects from impoverishment, lack of employment, sickness, and other physical needs (De Greef, Verté, & Segers, 2015; Mills et al., 2012). Previous researchers have measured germinal socio-economic position indicators using the following variables: a) secure income, b) secure housing, c) health access, d) occupational security, e) morbidity/mortality rates, and f) access to paid employment (Berman & Phillips, 2000; Monnickendram & Berman,

2007). The socio-economic position indicators related to the logic model of service developed by the evaluated organization include educational achievement, governmental aid dependency, and higher education achievements.

Mills et al. (2012) as well as Chow and Lou (2015) argued that children born into social disadvantage encounter challenges for social inclusion due to their lack of resources and potentially disruptive relationship-building processes in their contexts. Children that are born to adolescents have been identified by researches as being at higher risk for poverty, social deprivation, low academic achievement, and violence, all of which increase their potential for social exclusion and continual disadvantage situations throughout their adult lives (Cox et al., 2012; Edwards, Towle, & Levitz, 2014). The socially disadvantaged contexts of adolescent mothers can be transmitted to their children, thus encouraging poor outcomes (Hodgkinson, Beers, Southammakosane, & Lewin, 2014). Indicators for nurturing micro and meso environments for the family according to the evaluated organization's logic model include (a) reproductive health-related goals such as planned pregnancies, (b) at least two years between pregnancies, (c) healthy family relationship levels regarding domestic violence, (d) the absence of community violence, and (e) the achievement of responsible parenting skills.

According to Cheng and Solomon (2014), the continuity of care needs to be assessed using a lifecycle perspective as well as the fidelity of service. In this program evaluation study, I review the evaluated organization's family-centered practice approach that is to be implemented through the participant's life-course embedded in time and place. I studied the interactions of the processes of change as developmental and

dynamic, which become more complicated when systems or services are added to the continuum (see Cheng & Solomon, 2014). Thus, the life-course protective factors variables related to the characteristics for social inclusion in adolescent parents, according to the evaluated organization's logic model, include: a) empowerment in school, b) responsible parenting skills, c) health prevention, and f) early learning and development outcomes.

Gap in the Public Health Field's Knowledge

Public health practice has been extensively researched, and researchers have roported gaps in programs that use narrow and fragmented approaches for serving adolescent parents, leading researchers to content that it is imperative that services are broad, complete, and comprehensive (Asheer et al., 2014). Researchers should work to provide voices or representation through ethical program evaluations, for adolescents who become pregnant and their families to become agents for social change. However, it is unclear to what extent an ongoing community-based organization (such as the evaluated organization) can foster relational components of social inclusion. My focused evaluation required an innovative, systems approach to provide relevant constructs for capturing the relational contexts of social inclusion in the project's implementation. In addition, understanding the relevance of these constructs from the perspective of families of pregnant or parenting adolescents will be helpful to other socially marginalized populations seeking to become significant agents of their own inclusion in other community-based projects. To augment the scientific knowledge about the relationship between the social inclusion characteristics promoted through a complex array of services

in adolescent parenting programs, the timely and intensive interactions within systems or areas of services were addressed in this study (Patchen, Letorneau, & Berggren, 2013; Walton, 2014). In particular, little is known about the extent to which individual adolescent parents from diverse social contexts select inclusion in the evaluated organization versus an array of other potential options.

Need for the Study

The need for the current study lies primarily in the gap of knowledge I identified in public health practice for programs that serve adolescent parents and their families using comprehensive, complex, and family-centered approaches to increase their potential for social inclusion. According to Chow and Lou (2015), further knowledge is required that addresses the multiple dimensions of social exclusion and their impacts on negative and cyclic outcomes, especially in urban/rural health inequalities. The purpose interaction of these variables must be understood to develop effective interventions. Simplican et al. (2015) also identified a need to assess the social inclusion's levels related to the ecological conditions of the family, which include family culture, socio-economic position, and social capital.

The need to generate empirical evidence through research of underserved populations such as ethnic minorities, women, and children regarding the potential for the promotion of their social inclusion has also been identified as a gap in knowledge (Salgado et al., 2011). Simplican et al. (2015) stated that in order to evidence the effectiveness of programs, the relationship between social inclusion, program outcomes, and ecological circumstances needs to be understood. Thus, this study should provide a

valuable addition to the knowledge gaps in public health practice for the impact to the lives of adolescent parents and their families' population. The empirical data that can inform the program being evaluated could add to the accumulation of evidence needed to sustain the level of effectiveness that comprehensive programs can provide to increase the social inclusion potential for adolescent parents and their families in the future; discarding ineffective interventions with narrow and fragmented models; and sustaining allocation of limited resources to generate continuums of care.

Problem Statement

Researchers have studied the quality of the social bonds in disadvantaged populations (including adolescent parents) and found that social inclusion, socioeconomic position, level of social cohesion, and lack of social empowerment are potentially disruptive underlying risks factors for improved health outcomes (Hartung, Sproesser, & Renner, 2015; Wright & Stickley, 2012). The disruption of social norms by adolescents also affects the origination of mutually beneficial social ties and well-being, further impacting child poverty and increasing potential for parenthood (Caldas & Pounder, 1990; Chow & Lou, 2015). Thus, providing social protection becomes a crucially important response to these childhood adversities (SmithBattle, 2012; UNICEF, 2014).

Adolescent parents (considered as a special population), often lack parenting skills and resources needed for child rearing and other parenting processes (Pasalich, Cyr, Zheng, & McMahon, 2016). Children born to this population are also at increased risks of numerous life adversities including poor emotional and cognitive developments that over time could have far-reaching consequences for broader society (Mollborn, Lawrence,

James-Hawkins, and Fomby, 2014). Public policy rarely prioritizes the needs of this special population, yet addressing their needs is important for tackling multidimensional challenges this group is likely to encounter in society. In addition, the scientific literature has consistently shown that programs targeting this adolescent special population are unable to meet their unique needs, which results in loss of social inclusion factors that are important to promote assertive, resilient behaviors, and identities required for successful transition to adulthood (Gelis, 2015). When these factors are absent in interventions, adolescent special populations are placed in situations of social vulnerability. Further, these narrow programs are also not effective in facilitating social inclusion to this population (Asheer, Berger, Meckstroth, Kisker & Keating, 2014; Patchen et al., 2013).

The literature also shows some key characteristics researchers have considered significant in building social inclusion among adolescent special populations and meeting their needs (Simplican et al., 2015). Successful programs that promote social inclusion for adolescent parents should include the following characteristics: a) institutional capacity for providing support that target the needs of the population, b) ability to develop trusting relationships between the program and recipient populations, and c) the possibility of continuous engagement (Gelis, 2015; UNICEF, 2014). Thus, there is a compelling need to assess the effectiveness of these social domains in meeting social inclusion characteristics to populations in at-risk situations.

Evidence That the Problem is Current, Relevant, and Significant to the Field

The current and more frequent development of public policy at various social systems that include national, state, and community levels evidences the need for further

study of social inclusion promotion of disadvantaged segments of the population (Yanicki et al., 2015; Wright & Stickley, 2012). Adolescents who are parents and their families have been consistently identified within the literature as a disadvantaged segment of the population whose poor health, social, and economic outcomes are linked to their potentially dislocated social relationships (Barto et al., 2015; SmithBattle, 2012). The social relationships dislocations amongst this adolescent special population have been addressed through the provision of comprehensive services that aim to increase their potential for social inclusion (Cox et al., 2012). None the less, the actual understanding about the dynamical interactions and complexity that involve the public health practice for the social inclusion's characteristics and their outcomes is limited (Yanicki et al., 2015; Salgado et al., 2011). Thus, the significance of the current program evaluation study's results to the public health practice field could help filling this gap in knowledge; which should promote promising interventions for the social inclusion of adolescents who parents and their families in the future.

Current Literature Findings Informing the Problem Statement

For researchers in this field, an individual's social inclusion is determined by the level of institutional access and the social connections that a person has (De Greef, Verté, & Segers, 2015). Furthermore, researchers have correlated these metrics to equality and equity standards and structures in broader society (Yanicki et al., 2015). Social inclusion in adolescent parents and their families was initially conceptualized by Singh (1986), who argued that socially integrated communities and social structures promote declining teenage pregnancies and parenting rates (Caldas & Pounder, 1990). In this context,

program evaluations often fail to recognize the numerous challenges associated with the complexity of the systems associated with the unique needs of pregnant or parenting adolescents (Walton, 2014). Additionally, the systematic interactions of the multiple collaborating areas of service within the continuum of care, with multidisciplinary staff, are essential to the evaluation of comprehensive programs (Walton, 2014). Thus, there is a great need to understand the extent to which complex and comprehensive interventions developed to serve adolescent parents and their families will promote better outcomes, and how they adhere to the fidelity of the program to its purpose (Walton, 2014).

Gap in the Current Literature

A meaningful gap in the research literature is related to the lack of complexity in the public health practice when addressing the multiple needs of socially disadvantaged populations such as adolescent parents and their families (Asheer et al., 2014). The use of systemic approaches that address the plurality of conditions through the social environments is required to potentiate a wider participation from all sectors, which in turn should lead to better health outcomes, social inclusion, and social justice (Yanicki et al., 2015). The connection of systems into complex entities that can be easily navigated by individuals, families, communities, and organizations has been the purpose of inter-agencies, national, and international institutions' plans (Child Welfare League of America, 2013; Yanicki et al., 2015). In order to increase social quality parameters, public health workers should use a complex systems approach when designing, developing, and evaluating public health interventions. I used such an approach ito guide this program evaluation study (Sturnmberg, Martin, & Katerndahl, 2014; Walton, 2014).

Thus, addressing social inclusion of adolescent parents and their families is essential for decreasing the negative social and health effects related to a context of deprivation, unemployment, lack of skills, and the like (Chow & Lou, 2015). These social exclusion factors act and strengthen themselves in a cyclic manner, promoting marginalization and stigmatization of the adolescent parents and their families. Thus, I assessed variables that have been linked to promoting social inclusion in this special population (see Chow & Lou, 2015). In-depth studies are required to evaluate the short and long-term impact on adolescent special populations and to determine the longitudinal effects of the organization on at-risk adolescent populations.

Purpose of the Study

The purpose of this study was to assess the relationship between provision of comprehensive services involving social inclusion and the health and social outcomes for adolescent parents. Social inclusion for this adolescent special population requires an upstream approach that addresses the contextual, personal, and socioeconomic structures (SmithBattle, 2012). The evaluated organization is an integrated and comprehensive service-providing organization for adolescent parents and their families; its model aims to increase the potential for social inclusion through services that promote the achievement of better socio-economic position, development of a nurturing micro and meso environments for the family, and life-course protective factors (Cheng & Solomon, 2014; Cox et al., 2012). The evaluated organization's interventions are designed to connect adolescent parents and their families (three generations) with necessary services, and to engaging them in acquiring the skills needed for their special circumstances. The

evaluated organization serves a population where 90% are pregnant, most have dropped-out of school between the 9th and 10th grades, 59% are single adolescent mothers, and 66% of the adolescent parents and their families depend mainly on governmental aids at baseline or entry level.

Quantitative Approach for the Study

I evaluated the organization's program using a quantitative approach to an outcome evaluation. Specifically, I used the quantitative approach to assess the changes in relationships that occurred in participants beginning from baseline to completion of the program regarding social inclusion characteristics' gains, measured through life-course protective factors, socio-economic position, and development of micro and meso environments for the family. I also explored the modifying potential of social inclusion in the relationship between the time of impact and amount of services provided.

Intent and Variables Studied

I developed this outcomes evaluation of the organization's comprehensive program for adolescent parents and their families to increase multiple stakeholders' understanding of the holistic development of this population as they integrate to social dynamics. I measured this holistic development for social inclusion through the following dependent variables: socio-economic position, development of nurturing micro and meso environments for the family, and life-course protective factors outcomes. On one hand, my intent was to compare the relationship between the dependent variables at baseline and post-intervention, and to contrast them with the independent variables of time and intensity of service using an intervention and control group for contrasting outcomes

(thereby inferring causality). On the other hand, I assessed the modifying relationship that social inclusion could have in the baseline and post-intervention outcomes through the context of time and intensity of service.

Research Questions and Hypotheses

I developed the following research questions and hypotheses for this study:

RQ1: Is there a statistically significant change between baseline and post-intervention social inclusion characteristic outcomes such as life-course protective factors (vaccination records up-to date and unwanted pregnancy), socio-economic position (academic achievement, government dependency level, and income level), and nurturing micro and meso environments for the family (co-parenting practices and child maltreatment records) in those who participated?

H_o1: The social inclusion characteristics of life-course protective factors, socio-economic position, and nurturing micro and meso environments for the family will have no statistically significant change between baseline and post-intervention measurements.

$H_1 1$: The social inclusion characteristics of life-course protective factors, socio-economic position, and nurturing micro and meso environments for the family will have statistically significant change between baseline and post-intervention measurements.

RQ2: Is there a statistically significant change between social inclusion at baseline and post-intervention for adolescent parents who participated in the organization at the intervention or control groups?

H_o2: The social inclusion measures will have a statistically significant change at baseline and post-intervention for the organization participant adolescent parents at the intervention group.

$H_1 2$: The social inclusion measures will have no statistically significant change at baseline and post-intervention for the organization participant adolescent parents at the intervention group.

RQ3: Is there a statistically significant relationship between time and intensity of the service among the organization's participants?

H_o3: There is a statistically significant relationship between the time and intensity of service for the organization adolescents who are parents and participants.

$H_1 3$: There is no statistically significant relationship between the time and intensity of service for the organization adolescents who are parents and participants.

RQ4: Did time and intensity of service modify the relationship between baseline and post-intervention social inclusion outcomes for the organization participants at the intervention or control groups?

H_o4: Time and intensity of service will have a modifying relationship between the baseline and post-intervention social inclusion outcomes for the organization's adolescent parent participants at the intervention group.

$H_1 4$: Time and intensity of service will not have a modifying relationship between the baseline and post-intervention social inclusion outcomes for the organization's adolescent parent participants at the intervention group.

Theoretical Foundation for the Study

Theory and its Origin

Bertalanffy et al. initially proposed the general systems theory in the 1950s (Warren et al., 1998). Bertalanffy et al.'s theory and Wiener's cybernetics theory evolved to become the complex systems theory, which entails the work of multiple researchers working in complexity science, self-organization, autopoiesis and adaptation, emergence, dynamics in systems, and the new science of networks (Strumberg, Martin, & Katerndahl, 2014). The use of a complex systems approach provides an alternate explanation to the linearity of cause and effect, were overlapping systems' interactions and patterns generate a context-based understanding of comprehensive and integrated systems (Jolley, 2014; Stumberg et al., 2014).

Major Theoretical Propositions

Complex systems theory is a relevant framework for the outcome evaluation of the organization because this study's context comprises the effects of the complex interventions of the family incubator model, which was developed to act as an integrated and dynamic whole and should not be evaluated by fragmenting or alienating components (Glanz et al., 2015). The complex systems theory is compatible with ecological theories such as the social inclusion ecological model, but it provides special attention to the system's unit interactions while accounting for environmental, spontaneous or unplanned connections, and related behaviors (Glanz et al., 2015; Simplican et al., 2015; Walton, 2014). The essential components of complex systems theory that I identified for this program evaluation included non-linear systems' interactions, outcomes from the

continuums of care, and the results of the inclusion of the programmatic objectives between multiple areas of service (see Glanz et al., 2015; Jolley, 2014; Walton, 2014).

Relationship Between Theory, Research Question, and Methodological Approach

I used the complex systems theory to assess the interactions of a comprehensive and complex model of services developed by the evaluated organization to serve adolescent parent's families, to increase their social inclusion, and to break the social disadvantage cycle (Evaluated Organization, n.d.). The research questions I designed for the study involved assessment of multiple interacting variables related to social inclusion for adolescent parents and their families, such as life-course protective factors, socio-economic position, and nurturing micro and meso environments for the family.

The use of a complex systems approach for the development of the research questions allowed me to understand the variables in a holistic manner. This understanding was based on multiple and constant interaction between the variables' observed patterns for social inclusion in adolescent parents and their families impacted by the evaluated organization's model of service (see Stumberg et al., 2014). The context-based, systems theory approach I used for the program evaluation facilitated a dynamic understanding of the social inclusion variables that interact to increase the potential for this adolescent special population's improved health outcomes and tackling of health inequalities (see Cox et al., 2012; Jolley et al., 2014; Yanicki et al., 2015).

Nature of the Study

Rationale in Design Selection

The organization program is evaluated using a quantitative approach to an outcome evaluation, to assess the changes that occurred in participants through a pre-post intervention design, resulting in the impact of the inclusion of the objectives of the systems as conceptualized in the complex systems theory (Fertman & Allensworth, 2010; Jolley, 2014; Walton, 2014). The research questions detailed above were addressed using a quantitative approach in a quasi-experimental design to longitudinal data using an intervention and control group comparison. The expected changes occurred in the sample group of the organization's participants was evaluated comparing the social inclusion characteristics at baseline and after the program. These changes are conducive to the attainment of the main goal of the program, which is to increase the potential for social inclusion in adolescent parents and their families, and to break the cycle of social disadvantage in these families (Evaluated Organization, n.d.a). Also, the relationship and modifying effects of social inclusion in the context of time lapse and amount of services provided was assessed. There are further questions that I did not addressed but are recommended for future studies. These future questions should be approached using a qualitative methodology to address the unexpected effects of the complex and intensive interventions, as well as to understand the interactions between the objectives of the systems in the evaluated organization.

Key Variables

To address the research questions related to the social inclusion's characteristics such as life-course protective factors, socio-economic position, and nurturing micro and meso environments for the family, I briefly described the key variables under study below. The dependent variables for the study include: life-course protective factors, socio-economic position, and nurturing environments for the family. The dependent variables are resumed into a single measurement for social inclusion characteristics, which was analyzed using baseline and post-intervention data, as well as contrasted between and within each single precursor's measures and comparison groups' outcomes. The independent variables are: time and intensity of service; which were analyzed in comparison for baseline and post-intervention and in relation to the dependent variables. To understand the potential modifying effect between the independent and dependent variables additional statistical analysis was performed.

Methodology Summary

The secondary data used in this study was collected by the evaluated organization as part of their operational reports. The data sets to be analyzed followed confidentiality and proper management protocols, including the de-identifying, storage, and cleaning of the data. The secondary data was analyzed using SPSS software.

Definitions

Variables

The dependent variables related to the social inclusion characteristics include: socio-economic position, development of nurturing environments for the family, and life-

course protective factors. To address the socio-economic position (SEP) indicators, as informed by previous research, could include the following variables: academic level achieved, intended academic level, the amount of governmental aids received, total annual income from governmental subsidies received, college board exam taken, enrollment in an educational institution, job status, and annual household income. The selected variables for measuring SEP in this study are: annual household income level, governmental aids dependency level, and achieved academic level (Table 1). In this case the types of data include baseline and completion of program's measures that was already gathered by the organization for operational purposes for the two comparison groups.

The development of a nurturing micro and meso environments for the family indicators to be measured could include the following variables based on previous studies: the reproductive health-related goals (planned pregnancies and intergenerational intervals between pregnancies), domestic violence, community violence, and responsible parenting skills goals achievements. The two selected variables to measure the development of a nurturing micro and meso environments for the family in this study (Table 1) are: responsible parenting skills achievements (child negligence/abuse records) and co-parenting practices. The secondary data for the nurturing environments for family (micro and macro levels) related to the evaluated organization's logic model could include: amount of planned pregnancies, intergenerational intervals between pregnancies, records of domestic violence from police department, violent crimes records, and child negligence/abuse records from police department.

The life-course protective factors measurements could include the following variables as informed by preceding research: children empowerment in school, responsible parenting skills, health prevention, and early learning and development outcomes. The two-selected life-course protective factors variables are: unwanted pregnancy and health prevention (vaccination records) (Table 1). The secondary data sources for these variables could include: children's academic achievement index, ASQ-3 instrument, Gold Online assessment for Creative Curriculum, and vaccination records.

The independent variables of time and intensity of service was assessed for potential modification of the social inclusion variable. The time lapse or time variable was evaluated according to the total amount of months that a participant was served from time of entry to completion status. The intensity of service was assessed by summing up the total amount of services provided to the participant in the evaluated organization. These two variables did not depend upon the intervention but could have an impact on the social inclusion outcomes in this study.

Table 1

Dependent and Independent Variables Selected for Study

Independent Variables	Social Inclusion Characteristics (Dependent Variables)						
	SEP (Baseline & Post-Intervention)			Protective Factors (Baseline & Post-Intervention)		Nurturing Environment Family (Baseline & Post-Intervention)	
Time & Intensity of service	Income	Academic Achievement	Government aids dependency	Unwanted pregnancy	Vaccine Records	Child malt/negligence records	Co-parenting

Terms with Various Meanings and Definitions

Adolescent parents: Term to identify a specific segment of the population whose age when became pregnant and delivered their first-born child does not exceed 19 years 11 months; has also been referred to as teenage or teen parenting (Center for Disease Control and Prevention [CDC], 2016).

Complex systems theory: The complex systems theory has also been identified as the systems theory in the literature (Glanz, Rimer, & Viswanath, 2015). The complex systems theory is a broad approach to understand the development of systems, interactions between and within the systems' components, and their non-linear dynamics (Jolley, 2014; Walton, 2014).

Comprehensive model: A comprehensive model or comprehensive intervention model is a term used to detail an intervention that entails multiple levels or areas of service that are integrated and holistic. The comprehensive approach promotes that multiple needs are addressed including the ones related to: health, society, education, and economy (Schaffer, Goodhue, Stennes, & Lanigan, 2012).

Family-centered approach: The family-centered approach or practice is a term given to an intervention that provides equitable amount of time and services to all the members of the family in order to support its development (Child Welfare League of America, 2013).

Life-course protective factors: Is a term that combines the formulation of factors that counteract factors that can promote harm in an individual and their impact from early developmental stages through the course of life. The protective factors provided to

children from the womb, will increase their potential for healthier outcomes as understood from an ecological perspective to their development (Edwards et al., 2014).

Logical framework: A logical framework is the map that contemplates the design of an intervention or organization, which is also known as the organizational logic framework, includes the mayor areas that are to be pursued through the mission. This logic framework is a visual representation of the planned relationship between the inputs, outputs, and outcomes of the program (Fertman & Allensworth, 2010).

Nurturing environments for the family: The nurturing environments that impact and are impacted by the family at multiple levels, considered through an ecological perspective, which could provide a positive circumstance for the healthy development and outcomes (Na & Hample, 2016).

Outcome program evaluation: Is a program evaluation focused on the outcomes that are intended by the intervention. In an outcome evaluation, the purpose is the assessment of the effect of the policy or program (Harris, 2010).

Social exclusion: Social exclusion or marginalization is a term that refers to the systematic rejection of particular segments of the society of resources and acknowledgement for absolute social participation (Yanicki et al., 2015).

Socio-economic position: Socio-economic position or status refers to the relative level of access to resources and relations exists; which has been related to the level of quality of social relationships and health outcomes through the degree of social inclusion (Marcus, Echeverria, Holland, Abraido-Lanza, & Passannante, 2016).

Social inclusion: Social inclusion or integration is a concept that describes a just access to social relationships and structures, which also constitutes a social health determinant (Yanicki et al., 2015).

Social quality: Social quality is a term that refers to the assessment of quality of life on a daily basis at the population and individual level, through the economic and social advancement measures to which members of society can participate and improve their well-being and potential (Jung, 2015).

Assumptions

Critical Assumptions for Meaningfulness

In one hand, if the perceptions of illness and health have been interpreted as an individual's complex interaction of its values, expectations, self-image, and relative image where healing is a meaning/sense-making process associated to its context, then social inclusion's characteristics gains for adolescent parent's and their families should be assumed as dependent of the perceptions of each individual's complex interactions and context (Sturnmberg, Martin, & Katerndahl, 2014). In the other hand, the data used in this study was previously collected by the organization to serve its operational purposes. In the current program evaluation study, it was assumed that the data collected from all participants at the baseline and post-intervention were clearly understood and consciously responded based on their perceptions.

Importance of the Assumptions

The perceptions of the evaluated organization's participants as adolescents who are parents and their families related to their social inclusion precursor's gains,

interactions, and contexts' assumptions could be true as restoring an individual's health depends on the achievement of the optimization of the non-linear dynamics; to better adapt to internal and external challenges (Sturnmberg, Martin, & Katerndahl, 2014). In the case of this perceptions they are included as part of this study's assumptions as the expressions or responses from the participants were understood as an impact to their adaptations to internal and external challenges related to their social inclusion, as intended by the mission of the program evaluated.

The assumption of consciousness in response from participants is important to this study in order to establishing a verifiable, trustful, and valid database. The interpretation of a valid database should provide accurate results, interpretations, and recommendations for the current study. The management of such databases should promote an appropriate level of internal validity, to obviate possible factors that could impact the dependent variables (Frankfort-Nachmias & Nachmias, 2008).

Scope and Delimitations

Specific Areas to be Addressed

The specific aspects of the research problem to be addressed in the current study are the social inclusion precursor's outcomes from a comprehensive program to be evaluated. The program evaluated served adolescent who are parents and their families using a complex integration of the areas of services, as it is also has been and are impacted by public policies, external systems, and individual characteristics of each member of the family. The logic framework of the program stipulated that the goal is to increase the potential for social inclusion of adolescents who are parents and their

families; through a set of inputs, outputs, and outcomes. As a standard practice of the program initial and post-intervention data is collected from all the participants, to respond to their operational purposes, which are related directly to the outputs and outcomes detailed in the logical framework. Thus, to address internal validity issues in the outcome evaluation proponed for this program, the baseline and post-intervention data collected was used as secondary data; which was analyzed and concluded for in this study.

Boundaries of the Study

The boundaries of the study include the criteria for inclusion and exclusion of the populations for the study, as well as the theoretical frameworks related to the area of study that were not investigated. On the one hand, the inclusion criteria for the current study include being an organization's participant within the period of 2009 through 2011 for the intervention group and from 2004 through 2005 for the control group, being served for a minimum of 2 years, accessed at least 3 areas of service, and having children that actively and continually participated. The excluded population included the organization's participants that previously were enrolled, abandoned the services, and within the period of inclusion requested to be enrolled again, as well as other adolescent parents that did not access or were not eligible for the organization's services. On the other hand, certain characteristics related to the complex systems theory used in program evaluation were not addressed in this study; such as using a qualitative approach to complement the quantitative data, thus employing a mixed methods approach. Due to the limited representativeness of the sample from a quasi-experimental design such as the one used in the current study, the external validity of this study is compromised; while

the reactive arrangement assures that the real-life conditions characteristic of external validity are present, in a specific context.

Potential Generalizability for Results

The current study has low potential for the generalizability of the results, due to the low representativeness of the sample from the general population of adolescent parents; accounting that the current program evaluation uses a case-control design. In order to increase the potential for generalizability further studies, which random assignment should increase the representativeness of the sample; but not necessarily the reactive arrangement or ethical concerns related to relegating potential participants to a control group.

Limitations

Potential Limitations: Design and Methodological Weaknesses

The selected methodological approach was longitudinal data with the use of a case-control for a quasi-experimental design. The longitudinal design provides a means to evaluating the changes in the dependent variables through time in the same sample group (Frankfort-Nachmias, Nachmias, & DeWaard, 2015) and the comparison between intervention and control groups allows for a causal inference of the results. On one hand, longitudinal data provides a way to study spatial units through time that are more complex than the available information, providing higher variability, lowers multicollinearity, and higher degrees of freedom (Owusu-Edusei & Gift, 2010). On the other hand, the longitudinal design has the following limitations: the respondent's access

over time and potential for post-test response conditioning (Frankfort-Nachmias, Nachmias, & DeWaard, 2015).

The quasi-experimental approach of the current study limits the random assignment of the sample, which could be used to address the post-test response conditioning of participants over time (Frankfort-Nachmias, Nachmias, & DeWaard, 2015). None the less, the current study contains two measures over time to the same sample which restrain the impact that post-test response conditioning could have in the sample selected. The respondent's access over time could be a challenge to this study since adolescents who are parents tend to change telephone numbers and residence address quite often. These methodological weaknesses related to the design of the current study could impact the internal and external validity of the study.

Potential Biases' Influence on Outcomes

Personal bias could be present in this program evaluation study, due to my double responsibility as researcher and an employee of the organization under evaluation. I recognize that this type of bias could be present and might influence the outcomes of the study. Thus, to address the potential for personal bias, the data used and analyzed had been previously collected by field operations personnel without them knowing that it will be used for this study. I performed the analysis of the data using a double check process by additional personnel with knowledge in biostatistics as well as the interpretation of the results, to assure the transparency of the processes.

Reasonable Measures to Address Limitations

Reasonable measures to address the limitations from incomplete data sets when missing any of the two instances of data collection (baseline or post-intervention) was addressed. The data sets with the two instances collected were chosen from the stipulated timeframe for the intervention group in this study (years 2009-2011) and the control group (2004-2005), until the sample size is completed. By choosing the most complete data sets the respondent's access over time limitation was addressed, thus impacting the internal validity of the current study in a positive manner.

Significance

Potential Contributions for Addressing the Problem

The adaptation of the complex systems theory concepts to the social inclusion's measurements provides the framework to understanding the interaction of the systems that impact the economic and social progress of the adolescent parents' family population (Gruber, Titze, & Zapfel, 2014; Walton, 2014). The significance of this study is based on the need to know about the extent to which individual adolescent who is a parent coming from diverse social contexts are expected to be socially included after the comprehensive interventions received by the organization, or the opposite will result if they are excluded.

Potential Contributions to Practice

There is a need to understand complex systems and their outcomes which are increasingly promoted by funding sources and scholar-practitioners (Glanz, Rimer, & Viswanath, 2015). Many funders and scholar-practitioners have realized that narrow and fragmented programs and interventions are not effective in addressing complex needs

such as the ones inherent to adolescents who are parents' populations (Jolley, 2014; Walton, 2014). The outcome evaluation that will be performed should provide an original contribution to practical and real-live interactions that make continuum of care services effective in achieving the purpose of the evaluated organization's comprehensive and complex program.

Potential Social Change: Scope of the Study

The results of this study should promote positive social change as it provides evidence of the implementation for complex systems theory-driven program evaluations, the impact of the outcomes supported by complex interactions between and within systems, and the data to sustain the promotion of comprehensive programs' interventions over narrow and fragmented interventions investments (Glanz et al., 2015).

Summary

Main Points of the Chapter

The main points developed through this first chapter are based on the importance of social inclusion for vulnerable segments of the populations, specifically to adolescent parents and their families to promote their self-realization (De Greef et al., 2015; Salgado et al., 2011). The relevance of the current study to identified gaps in knowledge is related to the understanding of a comprehensive program's outcomes which intend to promote social inclusion's characteristics into adolescents who are parents and their families in Bayamon, Puerto Rico. To provide empirical data about the outcomes promoted by the program being evaluated a quasi-experimental approach with a longitudinal data and case-control design was used to analyze the baseline and post-intervention databases to

conclude about the impact related to the social inclusion's characteristics chosen for this study. The conclusions were informed and addressed by using the complex systems theory.

Transition to Chapter 2

I conducted a review of the scientific and relevant literature to report and summarize previous knowledge from the field related to the purpose of the current program evaluation study. The following literature review chapter includes an overall view of the previous research regarding the purpose, stated research problem, theoretical framework, key variables selected, strategies for searching the literature, and the conclusions from past knowledge's application to the current program evaluation study.

Chapter 2: Literature Review

Problem and Purpose Restatement

Health disparities are exacerbated when segments of the population do not have the means and social connections to contribute to and benefit from social inclusion (Na & Hample, 2016). Social inclusion is the level of community participation and interpersonal relationships that people experience, as individuals and as groups, and that resonate in a reciprocal manner across the multiple levels of society (Simplican et al., 2015). Simplican et al. (2015) developed a social inclusion model for disabled populations, which I operationalized in terms of community participation and interpersonal domains for adolescent parents' populations. I used these social inclusion domains to measure, interpret, and make conclusions about the potential outcomes of adolescent parent participants from the organization. Specifically, I determined the social inclusion level achieved by the organization's participants by measuring various variables categorized as interpersonal relationship or community participation connections using socio-economic position achieved, nurturing family environments experienced, and the life-course protective factors present for these families.

The concept of social inclusion has been associated with the level of marginalization and stigma that adolescent mother's experience (Mills et al., 2012). Researchers have found that the lack of social inclusion for adolescent parents is related to inadequate parenting skills and increased depression rates (Mills et al., 2012). On the one hand, adolescent parents are more likely to suffer from poverty, have diminished academic achievement, and have lower potential for accessing well compensated jobs,

each of which can influence social exclusion (Chow & Lou, 2015; Patchen et al., 2013; Mills et al., 2012). On the other hand, efforts to socially include adolescent parents have included academic skills training, occupational training, financial independence, and autonomous housing, all of which impact their lives in a systematic manner (Cox et al., 2012; Yanicki et al., 2015). To address the vulnerabilities and increase the social inclusion of adolescent parents, a comprehensive and interdisciplinary approach is required.

Social marginalization of adolescent parent's increases poor health and social outcomes and thus the need for comprehensive services. Researchers have extensively document the importance of addressing these complex needs through comprehensive service program evaluations (Cox et al., 2012; Jolley et al., 2014). In order for programs to serve adolescent parents in a way that promotes social inclusion, the use of upstream approaches is essential, as is addressing their interpersonal relationships and community participation development (Simplican et al., 2015; SmithBattle, 2012). Social inclusion benefits society, decreases poverty, reduces unemployment, enhances adequate healthcare, and improves positive attitudes among at-risk population groups (Simplican et al., 2015). Thus, services designed to address socially excluded populations need to enhance and increase social equity and promote social inclusion in other dimensions in a timely and continuous manner (Cox et al., 2012; Simplican et al., 2015).

The purpose of this study was to evaluate the extent to which providing a gamut of comprehensive public health and social interventions to socially excluded adolescents improves their health and social outcomes in later adulthood. Consistent with this

purpose, I also assessed the relationship between program's amount of services and time of impact and outcomes on program recipients (adolescents who are parents and their children) over time.

Current Literature: Relevance of Problem

Need for affiliation within and among groups is a characteristic attribute of humans and other social animals because experiences of social inclusion influence individual and group motivational efforts (De Greef et al., 2015). Specifically, social inclusion provides access social institutions, increased access to groups resources, self-esteem, self-realization, and other benefits (Mills et al., 2012; Simplican et al., 2015). For adolescents who become pregnant and have children to rear, providing a sense of belongingness is important for improving health and social outcomes for the individuals and their children. Adolescents rearing children are vulnerable due to lack of effective social inclusion and ruptured social ties with their existing communities (Marcus, Echeverria, Holland, Abraido-Lanza, & Passannate, 2016; Na & Hample, 2016).

In the United States, the Latino or Hispanic adolescents have a higher pregnancy rate, making this and ethnically- and racially-based health issue (Centers for Disease Control and Prevention [CDC], 2015). This issue has an immediate societal, economic, and health impact, since researchers have found adolescent childbearing to be a determinant for social disadvantage, socio-economic marginalization, and health disparities of their children (Mollborn, Lawrence, James-Hawkins, & Fomby, 2014). Thus, ethnic and racial backgrounds are a factor that impact specific adolescents in the United States population related to their social inclusion potential, specifically as they

become parents. There is a vast amount of literature related to the level of social inclusion that adolescent parents have and their relationship to racial and ethnic factors. This literature has shown that African American and Latino communities are most affected (Chien & East, 2012; Huang, Costeines, Kaufman, & Ayala, 2014). The group of adolescent parents included in this study are Latinos/Hispanics, usually from Puerto Rico.

There are several gaps in the current scientific literature related to the ecological contexts that affect the social inclusion viability for adolescent parents. These include nurturing family environments related to family culture, socio-economic position and social capital associated with community participation, and readiness to establish positive interpersonal relationships (Chien & East, 2012; Huang, Costeines, Kaufman, & Ayala, 2014; Simplican et al., 2015). According to Simplican et al. (2015) the measurement of the relationship between social inclusion, ecological circumstances, and outcomes is essential in demonstrating the effectiveness of a program's interventions. Thus, I determined that a complex systems approach should be used to address the social inclusion characteristics in my program evaluation. Such an approach is especially warranted when there are identified knowledge gaps related to the contexts of the interactions within comprehensive and complex programs that serve special adolescent populations and their families. In such instances, the focus should be on the interdisciplinary, multiple, and integrated units of interactions in order to understand the level of social inclusion accomplished using a complex systems model (Patchen et al., 2013; Walton, 2014). The scientific literature has shown a prevalent and consistent lack

of effectiveness in programs with simplistic and disintegrated services to address the needs of adolescent parents and their families (Asheer et al., 2014).

Chapter's Major Sections

Social inclusion in adolescent parents and their families. Social inclusion constructs include social interaction, social networks, social capital, community participation, self-sustenance, and social support (Simplican et al., 2015). In the literature, researchers have framed social inclusion domains as interpersonal relationships and community participation, each of which occurs within either public or private settings, such as community organizations or agencies and homes respectively (Simplican et al., 2015). Social inclusion domains have been studied and reported within the adolescent parents' population. In their study Barto et al. (2015) found that adolescent mothers had more challenges in communicating, having effective support systems, and perceived less interpersonal relationships connections. These findings regarding the resiliency of adolescent mothers was statistically significant in predicting career adaptability elements (Barto et al., 2015). In Barto et al.'s study, adolescent mothers also reported having immediate needs that presented as barriers to developing their career and education skills, which included: childcare, transportation, limited parenting skills, and healthcare issues.

Multiple researchers have argued that adolescent parents require programs that offer comprehensive services with upstream and integrated approaches (Patchen et al., 2013; SmithBattle, 2012). The complex needs of adolescent parents require that effective programs offer multiple levels and a complex array of services that should include: a)

education, b) sexual and reproductive health care, c) mental health services, d) parenting skills classes, e) economic independence mentoring, and f) transportation (Cox, Buman, Woods, Famakinwa, & Harris, 2012; Barto et al., 2015). In addition, the intervention design process for adolescent parent services should rely on a family-centered approach that considers the multidimensionality and high level of complexity related to meeting their needs and addressing life and parenting skills, social access, and preventive health care (Cox et al., 2012).

The complex needs found in adolescent parent's families require that multilevel and multidisciplinary efforts are generated to connect the members of this segment of the population into self-realization through social inclusion (Mills et al., 2012). Chow and Lou (2015) stated that social inclusion's conceptualization should be framed as the absence of injustice, discrimination, and exclusion. The inclusion of individuals at the multiple levels of the societal systems increases the cohesion and decreases the burden of health and societal problems (Saunders, 2015). The conclusions in the study by Barto et al. (2015) relate to my interest in this study regarding the need to address the complex needs of adolescent parents' families using comprehensive approaches to services to increase their potential for social inclusion (see Simplican et al., 2015).

Earlier researchers have assessed the construct of social inclusion using the social inclusion model, which I applied to fit the special adolescent population in this study (Simplican et al.,2015). Simplican et al.'s (2015) social inclusion model for disabled people provided evidence of the social inclusion mediator's interactions in a diagrammatic and conceptual form. Chow and Lou (2015) similarly developed social

inclusion characteristics applied to migrant populations. Chow and Lou detailed a multi-level, circumstance-dependent, and ecological perspective that emphasizes community and individual interactions. The characteristics of social exclusion related interactions at the community and individual level include multiple dimensions of: living standards, relationship dynamics, time and place factors, external agencies influence, and collective factors (Chow & Lou, 2015). Both Chow and Lou (2015) and Simplican et al. (2015) have used ecological perspectives to detail the social inclusion interactions in the main domains of community participation and interpersonal interactions.

In their social inclusion model, Simplican et al. (2015) envisioned social inclusion as consisting of essential components that are relevant to the populations with intellectual and developmental disabilities, which I adapted to focus on adolescent parents (Simplican et al., 2015). I chose to adapt the Simplican et al. (2015) social inclusion model to the adolescent parents population to explain the nature and complexity of the interactions between and within the social inclusion domains for this population. The Simplican et al. (2015) social inclusion model consists of the interpersonal relationships and community participation domains (each with three main components), which interact continuously within and between each other.

On the one hand, interpersonal relationships components' adaptation to the adolescents who become parent's population should include: category (nature of relationship- family, friends, staff, partner, etc.), structure (social network measures), and function (type of social support) (Simplican et al., 2015). The category component relates to the bonding and/or bridging characteristics of the relationships developed within the

social network, which should provide a means to satisfying the multiple and complex needs of adolescent parents. The structure component that contemplate the interpersonal interactions which promote the support network to develop, stabilize, and remain; which include the: magnitude of the relation, origin, recurrence, who did the contact-initiation, and where the interaction takes place for adolescent parents. The function is related to the type of support that this special adolescent population experience, which include: emotional, instrumental, and informational support. On the other hand, adapting the community participation domain to the adolescent special population include the following components: category (community activity), structure (settings), and level of involvement (level of participation) (Simplican et al., 2015).

The category is the types of community activities which may involve the adolescent parents participation, such as: leisure, political, civic, resource producing, consumption, religious, and/or cultural. The structure pertain to the type of setting were the special adolescent population could be, such as: segregated (immediate family), semi-segregated (community organizations interactions with staff and family members), or integrated (conventional social settings). As the level of involvement refers to the degree to which adolescents who are parents engage in community, which are typified in: presence (entail infrequent or no interaction), encounter (brief and intermittent interactions), and participation (promote generation of interpersonal relationships).

The social inclusion characteristics related to the interpersonal relationships and community participation are continuously interacting within and between the domains. The social inclusion model developed by Simplican et al. (2015) was developed to

address special developmental needs populations, to apply this model to the adolescent parents' population an extrapolation of the concepts is needed. The visualization of such interactions provides a graphic understanding about the pathways that can be generated using a comprehensive model of service, such as the one developed by the evaluated organization, to impact the promotion of social inclusion for adolescent parents and their families (Figure 1). The understanding of such pathways from and within social inclusion characteristics is essential for the current study, as the variables are categorized through the social inclusion domains.

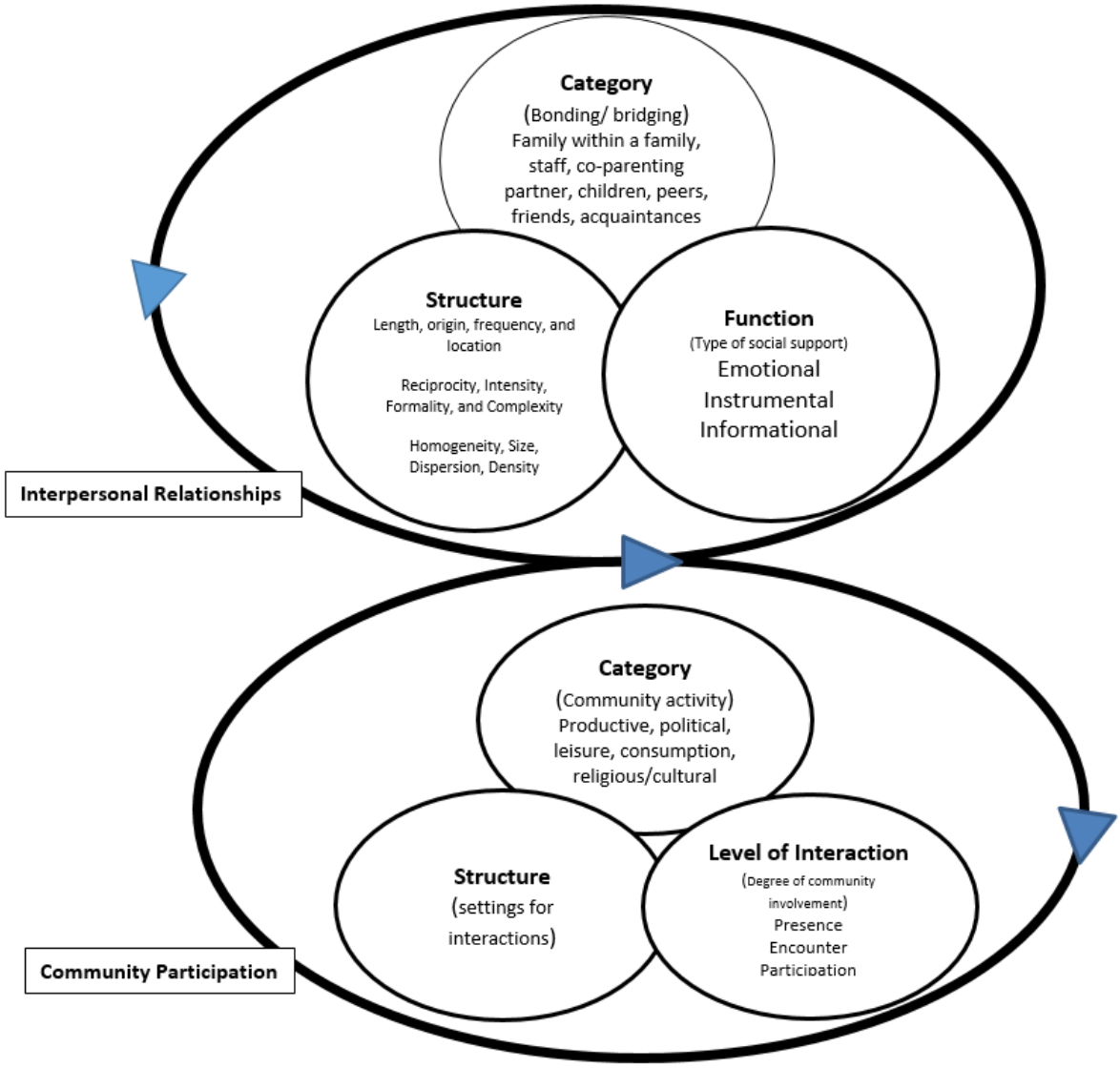

Figure 1. Adaption of social inclusion model: Adolescent parents' populations. The social inclusion model developed by Simplican et al. (2015) was adapted to the organization's impacted population of adolescent parents.

Theoretical framework and program evaluation. In the context of the social inclusion model developed by Simplican et al. (2015) and how it applies to the adolescent parent's population, a systemic perspective was employed. The complex systems theory

takes into consideration the ecological approach for the social inclusion pathways as well as the interactions between the social inclusion domains. The complex systems theory has been used as a framework to evaluate a comprehensive services program, for adolescent parent's and their families (Cox et al., 2012). As described, social inclusion promotion for the special adolescent population addressed in the current study entails complex, comprehensive, and continuum of care that integrate community participation and interpersonal relationship building (Simplican et al., 2015). The complex systems theory provides a foundation for understanding the Simplican et al. (2015) social inclusion model, as the organization's services is visualized through the integrated and complex care interconnections of its non-linear systems' objectives (Jolley, 2014; Walton, 2014).

The complex systems approach was used to understand the social inclusion pathways and interactions that take place within and across individual, interpersonal, organizational, community, and socio-political systems (Simplican et al., 2015; Walton, 2014). On the one hand, the continuum of care should be considered within a lifecycle approach, as the consideration of the areas that provide services are essential when evaluating the integrated and complex care connections; since they provide a time and place reference (Edwards, Towle, & Levitz, 2014). In the case of the model of service used by the organization to impact the adolescent parents and their families, the continuum of care services has a three-generation and ecological approach, where multiple components of the family and its context are considered. The approach for the continuum of care is relevant to understand the characteristics for increase social inclusion, why the variables were selected for the current study, and their level of

interaction. On the other hand, the assessment of the effects of these complex care connections need to be contextualized within a family-centered approach (Cheng & Solomon, 2014). The assessment of the complex and systemic connections within and from the social inclusion domains interactions detailed in Figure 1 will provide an understanding of the application of the social inclusion model to the special adolescent population in the current study.

The organization's logical framework and the variables under study.

Adolescent mothers (15-19 years) account for 17.1% of all the live births in Puerto Rico. (Department of Health of Puerto Rico, 2010). The Department of Health of Puerto Rico (2012) reported that 33.1% of all the live births on the island are to adolescent or young males. The needs identified to these adolescent parents in Puerto Rico include: inability to complete high school, limited job prospects, difficulty in providing child care services, lack of nurturing bonds with their children. To reduce negligence and child maltreatment rates, and other essential services access needs, a model to serve adolescent parents and their families through a complex and family-centered approach model was developed by the evaluated organization in Puerto Rico. The model aims to produce three (3) essential outcomes that include: promotion of socio-economic position, development of nurturing micro and meso-environments for the family, and life-course span protective factors (Evaluated Organization, n.d.a). The purpose of the organization's model through the previously stated outcomes is to interrupt the social disadvantages cycle and to promote the social inclusion of adolescent parents and their families (Evaluated Organization, n.d.a).

According to Berman and Phillips (2000) social exclusion (rather than poverty) has been an exhaustive and flexible concept of social disadvantage which has been widely used throughout the twentieth century by social researchers. It has been recognized that social inclusion is subjective to societal norms, thus marginalized individuals are comprehensively excluded, lacking social support, and register low social quality measures (Chow & Lou, 2015; De Greef et al., 2015). Silver's work stressed that post-modern thinkers are more involved in employing the notions of citizenship and status equality to recognize diversity, inclusion of all groups, and protection from stigma (Berman & Phillips, 2000). Thus, the purpose of the evaluated organization's comprehensive model of service is aligned with scientific evidence related to the effects of social exclusion in the adolescents who become parent's population.

The purpose stated in the evaluated organization's logical model is: to break the cycle of social disadvantage in adolescent parent's families through social inclusion (Evaluated Organization, n.d.). The service model developed by the organization is known as the Family Incubator Model, which visualizes an adolescent who is a parent and its child as a prematurely-born family; whom is inserted within the household of its supporting or immediate family (Evaluated Organization, n.d.). The adolescent parent's family is placed within an already established and supporting family that provides resources, strengths, needs, family engagement, and dynamic and values; which are essential to the emotional, physical, and future development of the premature family (Evaluated Organization, n.d.). The Family Incubator model can be visualized within the social inclusion model's application for the special adolescent population in the current

study, as the components for community participation and interpersonal relationships domains (Figure1).

The evaluated organization's comprehensive, intensive, and complex services are provided in a continuum of care, using an interdisciplinary approach to address the special adolescent population and its family's needs in a pertinent and individualized manner; thus, assuring the relevancy, effectiveness, and timeliness of the intervention (Evaluated Organization, n.d.). The services provided by the organization to the three generations that constitute the adolescents who are parents' families include: early learning center and workshop, breastfeeding, birthing, and parenting classes, psychological and social work support, micro-entrepreneurship classes, specialized high school and post-secondary academic support services, preventive/intervention health care, and supplemental services (transportation, chaplain, home-visiting teacher, and legal advice). The interactions within and from the social inclusion domains and ecological pathways that are present in the organization's logic model are visualized through Simplican et al. (2015) social inclusion model's application as well as the complex systems theory's understanding; to understand the outcomes which aim to increase social inclusion and break the social disadvantage cycles in this population.

The finality of the Family Incubator model's continuum of care service provision is presented in Figure 2 which was developed to promote the following outcomes: acquire responsible parenting skills, reduce unwanted pregnancies, promote children who are successful in school, reduce domestic and community violence, reduce child maltreatment, reduce school drop-out rates, reduce economic dependency on government,

and increase the rate of first generation of college students (Evaluated Organization, n.d.). Other systemic issues are also impacted such as: public policy and legislation formulation, and community resources coordination, to address the multiple needs of the family's three generations served. The outcomes included in the organization's logical model comply with the ecological approach recommended by Simplican et al. (2015) to promote social inclusion. In the same manner, the variables under study were chosen using the relevancy criteria according to the evaluated organization's logic model, the Family Incubator Model's purpose, and the continuum of services' intended outcomes.

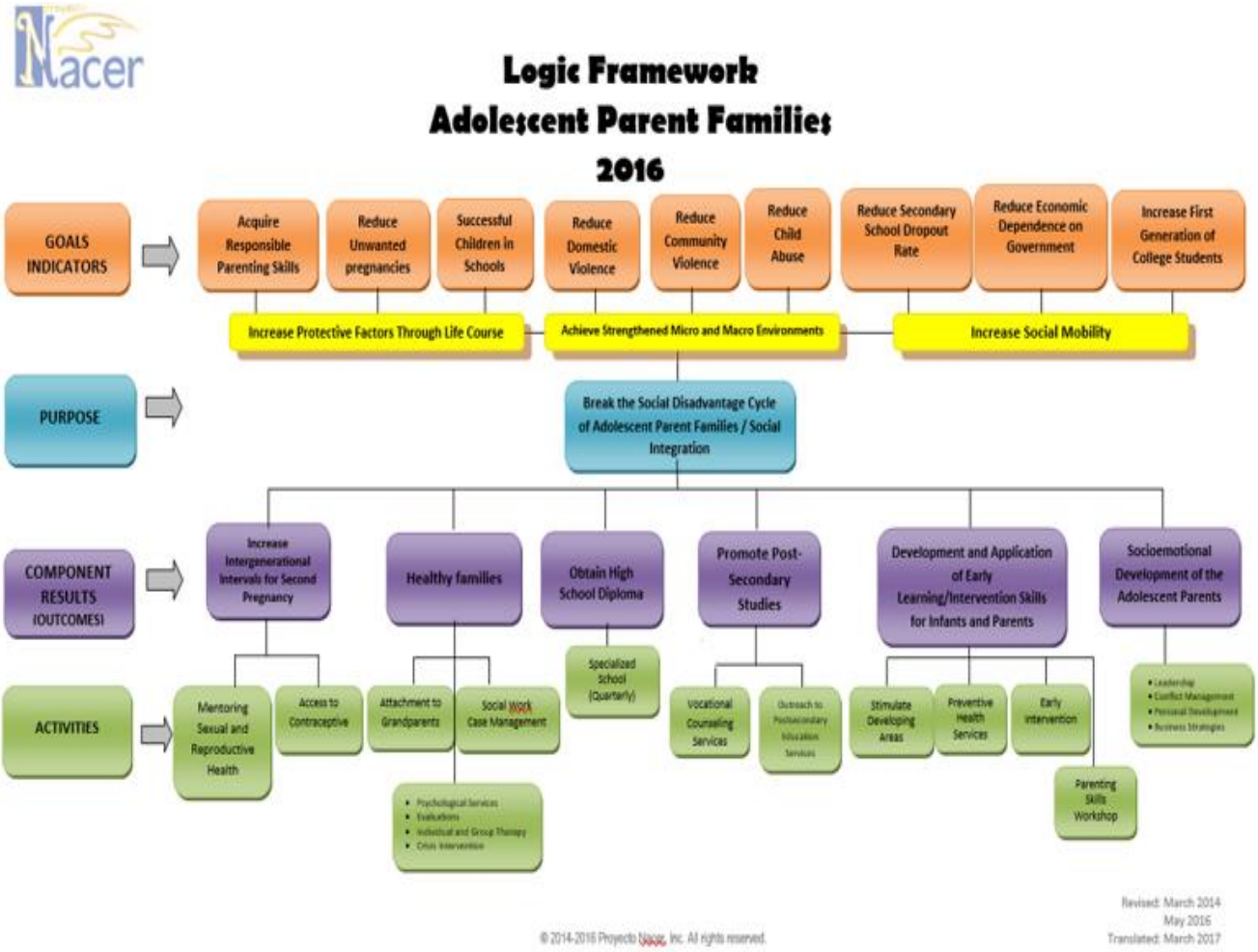

Figure 2. The organization: Logic model.

The logic model developed by the evaluated organization are interpreted under the social inclusion model by Simplican et al. (2015). The social inclusion characteristics defined by the organization's logic model gather the socio-economic position, nurturing family environments, and life-course protective factors through the indicators, which exhibit both interpersonal relationship and community participation domains. The social inclusion variables selected because they promote community participation and interpersonal relationships as described by Simplican et al. (2015) social inclusion model;

thus, these variables are called characteristics since they gather the intended outcomes to increase social inclusion for adolescent parents (Table 2). The socio-economic position characteristics for social inclusion gather the following indicators: reducing the school drop-out rate, increase the first generation of university or college students, and reduce the governmental aids' dependency. The nurturing family environments' characteristics include indicators: reduce domestic violence, child negligence and maltreatment rates, and acquiring responsible-parenting skills. The life-course protective factors characteristics for social inclusion of adolescent parents include indicators such as: health prevention and reducing unwanted pregnancies.

Table 2

Social Inclusion Characteristics in the organization's Logic Model

Social inclusion characteristics	Indicators (The organization logic model)	Variables (Proxy measures)	Social inclusion domains	
			Interpersonal relationship	Community participation
Socio-economic position	• Reduce school drop-out rate • Increase the first generation of university or college students • Reduce governmental aids' dependency	• Academic achievement • Income level • Government aids dependency	Formal and informal networks benefit while acting as bonding or bridging agents for reciprocity (generating resources) and employment outcomes for adolescent parents.	Productive and consumption community activities benefit as they occur at diverse settings and levels of involvement.
Nurturing family environments	• Reduce domestic violence • Reduce child negligence/ maltreatment rates • Reduce community violence	• Co-parenting practices • Child maltreatment/ negligence records	Formal and informal networks (acting as bonding or bridging agents) promote and facilitate that adolescents who are parents develop relationships and community participation (reciprocity and complexity), though family/organizational culture and support.	Religious/cultural, civic, and leisure community activities benefit as multiple settings provide a stage for increased involvement levels from adolescent parents, as they acquire social skills.
Life-course protective factors	• Successful children in schools • Reduce unwanted pregnancies • Acquiring responsible-parenting skills	• Vaccination records up-to date • Unwanted pregnancy	Formal and informal social networks benefit while acting as bonding or bridging agents in intensity (emotional closeness) and formality (source of relationships) for interpersonal relationship readiness in children born to adolescents, thus generating an upstream approach to social inclusion.	All community activities act within various settings to promote community participation readiness for children born to adolescents, thus generating an upstream approach to social inclusion.

Literature Research Strategy

The literature research strategy used to identify the previous knowledge in the public health practitioner's field related to the recognition of gaps and relevancy of the current study is detailed below. To compile the needed studies that demonstrate previous and current knowledge regarding social inclusion for adolescent parents, I used a multiple database search tool as well as three subject-specific databases search engines. Through various key search terms and key term combinations seminal, recent scientific literature, and field work studies were gathered. The topics of the research studies obtained for this literature review included: the concept of social inclusion, the practical application of social inclusion interventions for adolescent parents and their families, and the complex systems theory application in program evaluations.

Databases and Search Engines Used

In the exploratory phases of the literature review I used the Thoreau search tool for the access of a wide collection of databases, which include: Annual Reviews, CINHAL Plus with full text, Cochrane Methodology Register, Education Research Complete, ERIC, General Science Collection, Health and Psychosocial Instruments (HaPI), Health Technology Assessments, MEDLINE with full text, NHS Economic Evaluation Database, PsycINFO, SAGE Knowledge, SAGE Premier, SAGE Research Methods Online, SocINDEX with full text, Taylor and Francis Online, Walden Library books, and Web of Science (Walden University, n.d.).

Three subject-specific databases were selected and used based on their scope and journal type. The Academic Search Complete database used was chosen due to its

multidisciplinary subject range and for being a journal database type. The second subject-specific database selected was Annual Reviews due to its comprehensive inclusion of evidence-based practice subject scope. Finally, the CINHAL Plus with full text database chosen responded to its nursing and allied health scope.

Key Search Terms and Combinations

The key search terms I used separately and in Boolean phrases included: *social inclusion, teen parent, program evaluation, complex system theory, complex theory, measure* and *comprehensive.* The first searches included: *social inclusion AND measure, social inclusion AND teen parent, and social inclusion AND program evaluation* combinations. Other key search terms combinations included*: teen parent AND program evaluation, teen parent AND comprehensive, teen parent AND complex system theory OR complex theory,* and *complex system theory OR complex theory AND program evaluation.*

Scope of Literature Review

The scope of the literature review included the use of an undetermined publication date and peer-reviewed scholarly journals. For most of the social inclusion and complex systems theory key search terms and combinations the scope of the literature review was effective in yielding seminal or original works. The key search terms of: program evaluation, teen parents, and comprehensive, had a restriction generated to gather studies that were published in peer-reviewed journals within the last 5 years. The sources of literature which were searched for this study included: multidisciplinary, evidence-based practice, and nursing and allied health databases scopes.

Theoretical Foundation

Description of Complex Systems Theory

The Complex Systems Theory is a theoretical framework typically used in practice and program evaluations, which provides the understanding to assess the interactions of a comprehensive and complex model of services (Johnston, Matterson, & Finegood, 2014). The concept of Systems or Complex Systems theory has been used in research as equivalent and/or connected concepts (Houchin & MacLean, 2005; Sturnmberg, Martin, & Katerndahl, 2014).

Rationale for Complex Systems Theory Selection

The rationale for selecting the Complex Systems theory responded to the need of providing an adequate context to the results of the dissertation. This theoretical framework provides a mindset and reference to understand the results of a program evaluation for a comprehensive service model (Sturnmberg et al., 2014; Walton, 2014). In terms of the social inclusion characteristics' impact on the outcomes generated by the evaluated organizations's comprehensive model of service for adolescent parents and their families, the use of the Complex Systems theory provides an understanding of the individual's interpersonal relationships and community participation interactions as they occur in ecological pathways (Simplican et al., 2015). The results and interpretations made from this study are based on the integration of the components or systems, the interactions, and the notion that the continuum of care is interdependent within the complex interactions of its parts, thus the outcomes are not isolated or interpreted in a fragmented manner (Walton, 2014). Therefore, the assessment of the relationship

between social inclusion, ecological circumstances, and outcomes that are required to evidence the effectiveness of programs is addressed; as the Complex Systems theory is selected to understand the interaction between and within these components (Simplican et al., 2015).

Complex Systems Theory's Relation to Study and Research Questions

The current study and research questions entail the evaluation of a comprehensive program that serves adolescent parents through the assessment of pre and post-intervention measures related to social inclusion characteristics by using a complex systems approach. On the one hand, Yanicki et al. (2015) stated that social inclusion/exclusion is closely dependent on infrastructure to prevent or minimize exclusion which situates this component throughout the ecological factors of the social quality quadrant; thus, strongly affecting all parts that include: communities, groups/citizens, organizations, and institutions. On the other hand, Simplican etc al. (2015) developed a conceptual ecological model to describe the pathways related to social inclusion which considers the interaction of individual, interpersonal, organizational, community, and socio-political levels' impact on the interpersonal relationships and community participation domains.

The research questions entail the assessment of the social inclusion characteristics, including evaluating the relationship between the social inclusion variables, potential changes in social inclusion characteristics, as well as considering time and intensity of the services provided. It is important to identify statistically significant changes in the outcomes after the comprehensive and continuum of services'

interventions. The Complex Systems theory was chosen as a theoretical framework for this study, since it has been used in previous research to understand the effect of variables from overlapping systems and the interactions between variables; to understand observed patterns of social inclusion gains leading to a potential improvement of the adolescent parents and their families (Sturnmberg et al., 2014).

Literature Review Related to Key Variables and Concepts

Studies Related to Social Quality for Adolescent Parent's Families

The current study has an underlying construct which connects the macro-level benefits of promoting social inclusion for adolescent parents as well as for their families which is social quality. According to the framework for social quality there are four main components for social quality: social cohesion, social inclusion, socio-economic security, and social empowerment (Jung, 2015). The social-economic security and social inclusion components' interaction generate power at the institutional capacity level (Jung, 2015). The social-economic security component of social quality entails the social standing that potentiates the access to resources through time (Jung, 2015). The social inclusion component is described as the extent to which people have access to institutions and social relations, which is associated with equality and equity principles and structures, with the goal of preventing or minimizing the mechanisms of exclusion by using supportive infrastructures, labor conditions, and collective goods (Jung, 2015; Simplican et al., 2015).

The social quality measures chosen for the current study are: social-economic security and social inclusion. On the one hand, the social cohesion component of social

quality is the nature of social relations based on shared identities, values, and norms; which define the establishment of social networks and social infrastructures (Jung, 2015; Simplican et al., 2015). On the other hand, the social empowerment is the extent to which personal capabilities and ability to act are enhanced by social relations of networks and institutions (Simplican et al., 2015). Social cohesion and empowerment were not selected due to the direct relation that the first has with social inclusion and the intrinsic relation within the enhancement of social relations related to the second were considered within the ecological interaction of the systems, as domains of social inclusion (Simplican et al., 2015). The referencing of social quality remained as a key concept which promoted the selection of the variables of interest to measure the social inclusion characteristics, to understand their relationship to the outcomes and the evaluated organization's program effectiveness (Simplican et al., 2015).

Quantitative Approach and Measurements: Evaluation and Social Inclusion Characteristics

On the one hand, to assess past knowledge and current understanding regarding the measurements of social inclusion using a quantitative approach, various studies were reviewed and detailed in the following section. On the other hand, the use of the conceptual adaptation of the complexity theory to the social quality measurements provides an understanding of the interaction of the systems that impact the economic and social progress of the adolescent who are parents' family population (Simplican et al., 2015; Walton, 2014). On previous studies social inclusion has been conceptualized as an independent variable and measured through the frequency and nature of contact within

the relationships with family and friends (Na & Hample, 2016). Within a historical view, Berman and Phillips (2000) had detailed the domains to assess social inclusion within the social quality dimensions, which included: the social security system, labor market, housing market, health service coverage, education system and services, politics, community services, and social status. Other domains of social inclusion have been more recently detailed as including the participation of: citizenship rights, private and public services, and social networks (Yanicki et al., 2015). The social exclusion indicators have been measured by the degree of identification and participation, which are of psychosocial nature related to the consciousness and significance of the interaction and relationship between a person and its identified community; also, social inclusion has been assessed under the level of community participation and interpersonal relationships (Simplican et al., 0215; Wright & Stickley, 2012).

Using a historical review of the measures that past researchers have used for social inclusion, nurturing family environments, socio-economic position, and life-course protective factors, the following paragraphs detail the published quantitative variables. The social inclusion variables which have been measured in previous studies within a quantitative approach include: distribution of access to social security services, low income by demographic variables (inclusion in social security system); distribution of discrimination in access to jobs, full-time and part-time employment by demographic variables (labor market inclusion); distribution of access to neighborhoods, subsidized and protected housing, homelessness by demographic variables (housing market inclusion); distribution of access to health services, mortality by demographic variables

(health service coverage) (Berman & Phillips, 2000). Within the detailed measures for social inclusion, there is a predominant approach to integrate the domains of interpersonal relationships, as many measures are within the access to community participation (Simplican et al., 2015). Additional indicators that had been used to measure social inclusion include: distribution of access to and discrimination in educational and cultural services by demographic variables (inclusion in education system and services); restrictions on eligibility to stand as an elected representative or member of a government (political inclusion); distribution in access to leisure facilities and neighborhood services (inclusion in community services); and equal opportunities, anti-discrimination legislation distribution of access to social and leisure facilities (social status inclusion) (Berman & Phillips, 2000). These additional measures include an ecological pathways approach to and from social inclusion (Simplican et al., 2015).

Veland, Bru, and Idsoe (2015) developed indicators to measure social inclusion of disadvantaged children (foster care, parents with substance use disorders, refugees, and ethnic minorities) in a school setting which included: student's perceived relations with teachers and peers, absence of victimization, socio-economic status, parenting styles, social and academic assimilations. The indicators generated by Veland et al. (2015) are related to the life-course protective factors that impact children's development through social inclusion elements which entail a primary focus on interpersonal relationships but also include community participation domains (Simplican et al., 2015). In addition, social inclusion measures within adolescent parents' research include: personal alienation, family status indicators, socio-economic status, minority ethnic or racial background, and

urbanization (Caldas & Pounder, 1990). In the Caldas and Pounder's study (1990) social inclusion measures included socio-economic status as a control variable due to expected covariance. Caldas and Pounder (1990) measures for addressing the nurturing family environments that impact the social inclusion contexts of adolescent parents and their families aligns with Simplican et al. (2015) social inclusion model as they address interpersonal relationships and community participation elements.

The socio-economic position variable, is a social inclusion characteristic defined and used throughout the current study. This socio-economic position indicator is a social quality component, which has been measured through its conceptual indicators that include: material, job, housing, and health preservation security (Berman & Phillips, 2000). The socio-economic position indicator (dependent variable) was measured previously by combining the following quantitative variables: income security, housing conditions, housing payments, health, work conditions, and access to paid employment (Monnickendram & Berman, 2007). The socio-economic position variables have been further measured by using: distribution of net income (material security); unemployment, employment (part-time or temporary) rates, and occupational injuries (employment security); homelessness, housing security, and lack of amenities (housing security); morbidity and mortality rates (maintenance of health) (Berman & Phillips, 2000). The socio-economic position variables that have been previously used focus primarily on community participation rather than on interpersonal relationships; regarding the social inclusion domains according to Simplican et al. (2015) model for social inclusion.

Previous Program Evaluation's Approach to the Problem: Strengths and Weaknesses

The problem statements about social inclusion in adolescents who are parents and their families has developed through the past fifty years as an issue based on the lack of compliance to societal expectations on adolescents' reproduction and industrialization. Singh has been identified as the first proponent of social inclusion for adolescent parents in 1986 (Caldas & Pounder, 1990). According to Caldas and Pounder (1990) Singh's conclusions about adolescents who are parenting, and their social inclusion interactions were based on Durkheim's work on social inclusion and deviant behavior developed in late nineteenth century; which later evolved through Hirishi (1969) work as the control theory. The control theory states that deviant behaviors' engagement is a consequence of broken social norms ties (Caldas & Pounder, 1990). In other hand, Furstenberg's work (1976) stressed that adolescents who are parents is a deviant behavior from the North American societal norms and expectancies on parenting; which results in reduced social participation abilities due to lower academic achievements and thus lower labor force insertion (Caldas & Pounder, 1990).

The previous problem statements about adolescent parents and their families and their reciprocal negative impact on social inclusion has its strengths and weaknesses. On one hand, the strengths can be mainly linked to the generation of public policy to address the reconstitution of the social ties based on the social determinants to promote better public health and societal quality outcomes (Berman & Phillips, 2000; Wright & Stickley, 2012). On the other hand, due to current declines in rates of adolescent parents

in the United States the problem statements previously proponed could be stated by authors and researchers in a diminished manner; as the public policy issues, may be shifting to the importance of unplanned pregnancies rather than adolescents' specific issues (Sawhill, 2014).

Regarding the statements that increase the problem relevancy to unplanned pregnancies on the general population (Sawhill, 2014) there is vast research and evidence that adolescent's special populations require specific strategies and comprehensive models of service to efficiently address their needs, more so when there are certain segments of the population which are more at risk of becoming parents as adolescents; as it is detailed in the current study's literature review. Thus, the rationale for selecting the social inclusion mediator's variables for this study is addressed in detail to provide evidence of the current state of knowledge and relevance about adolescent parents and their families' social inclusion and program effectiveness.

Selection Rationale of the Social Inclusion's Characteristics Variables

Socio-Economic Position Indicators. Discrimination or social exclusion has been found to be a barrier for socio-economic integration, causing negative health outcomes (Na & Hample, 2016). Meanwhile, social inclusion has been categorized as a health determinant along with education, housing, and socio-economic status (Na & Hample, 2016). Social inclusion and cohesion components have been identified as independent variables that are associated with the family; as sources of socio-economic security (Monnickendram & Berman, 2007). In this sense, career adaptability of adolescents who become mothers has been associated with the level of social support from family and

mentors (Barto, Lambert & Brott, 2015). Also, Smith and Wilson (2014) stated that to achieve financial stability and independence, academic achievement is a determining factor. Thus, evidence regarding the academic achievement and adaptability for adolescent parents is relevant to social inclusion through the engagement of interpersonal relationships and community participation; as they provide access to resources, services, and interaction settings through bonding and/or bridging relationships (Simplican et al., 2015).

Adolescents who become mothers have been found to be negatively impacted by low formal education and low access to financial resources, which sustain and aggravate the reproduction of poverty and early childbearing cycles (Smith & Wilson, 2014). Smith and Wilson (2014) concluded that as the complexity of the services for adolescents who become mothers increased, so did their perceptions of social and family support, income from employment, enhanced relationships with family, academic achievements, and economic stability. These findings reported by Smith and Wilson (2014) are similar to Simplican et al. (2015) conclusions regarding social inclusion's complexity as an issue that implicates individual, economic, social justice and rights, and egalitarian access.

The understanding of the socio-economic position characteristics' variables for the current study was based on the social quality theory. Monnickendram and Berman's study (2007) had the purpose of empirically testing the social quality theory by analyzing the association between social inclusion and social cohesion to socio-economic security; within the framework of collective identities, using the family. Low socio-economic dynamic patterns in adolescent mothers impact their children's development and health

disparities in an exponential increasing manner; which prompts that interventions should be timely and intensive to reduce this potential damaging effect (Mollborn, Lawrence, James-Hawkins, & Fomby, 2014). Thus, to address the complex needs of the adolescent parents and their families though comprehensive approaches that provide ecological pathways as well as individual interactions within and through social inclusion domains shall provide effective program's impact and outcomes (Simplican et al., 2015).

Nurturing Micro and Meso Environments for the Family Indicators. The study by Na and Hample (2016) stressed that social inclusion impact the health outcomes, through psychological pathways that are affected by the social contexts and interactions. A social network model has been used to address social inclusion within an upstream approach through social support, social influence, and access to resources and material means; as the proximate pathways to impact health status (McQuestion, Calle, Drasbek, Harkins, & Sagastume, 2016). The social inclusion model takes into consideration Na and Hample (2016) work regarding the interpersonal interactions and community participation or contexts; as well as McQuestion et al. (2016) use of the social network model to contemplate the ecological pathways (Simplican et al., 2015). On the other hand, the collective identities are contexts that are essential to self-realization facilitation process within the social quality theory, which are classified within an ecological approach and include: political institutions, community/neighborhood, and family; which are also aligned with the ecological pathways to social inclusion (Monnickendram & Berman, 2007; Simplican et al., 2015). Thus, social inclusion is the integration of social being in systems within the context of the collective identity's building block unit, the

family; which is the basis for the current program evaluation study (Monnickendram & Berman, 2007).

Hovdestad, Shields, Williams, and Tonmyr (2015) stressed that the households of adolescents who are mothers were more at risk to: obtain social assistance, being in the child welfare system at early age, abuse alcohol or drugs, cognitive issues, and inadequate social support. According to Hovdestad et al. (2015) adolescents who become mothers are more at risk of child maltreatment as a result of their micro and meso environments. To understand the multidimensional contexts of family-level environmental interactions the ecological pathways to and from social inclusion model is used in the current, which is an adaptation of the Bronfrenbrenner ecological model (Simplican et al., 2015). The ecological pathways model for social inclusion has been used to understand the potential indicators related to the nurturing micro and meso environments for the family of adolescents who are parents as they interact through the social inclusion model's domains (Simplican et al., 2015).

The Bronfrenbrenner ecological model has been concurrently visualized among scholars as a practical framework to guide the envisioning of complex and comprehensive interventions that involve numerous levels of health behaviors' determinants (Glanz, Rimer, & Viswanath, 2015). The ecological perspectives on health behavior have been consistent in the following shared principles: there are multiple levels of influence for health behaviors, the health behaviors can be predicted by the environmental settings, the multiple levels interact to influence behaviors, the effectiveness of the models is related to the specific focus of each behavior, and the

effectiveness of multiple level interventions increase with changing behaviors (Glanz et al., 2015). Thus, the current study benefited from the understanding of the interactions from and within the family and the evaluated organization's staff related to their interpersonal environments, as these facilitate adolescents who are parents to generate and retain relationships as well community participation (Simplican et al., 2015).

Life-Course Protective Factors Measurements. The negative health outcomes to adolescent who become parents have an impact on the early developmental and outcomes for their children; which is why it is essential to serve these children, from the womb through their early years (SmithBattle, 2012). The risk factors associated with early childbearing act in a cumulative manner; increasing potential for harm as children are continually exposed, and the protective factors are not present (Veland et al., 2009). There is substantive scientific evidence about the negative impact that disadvantage, low socio-economic status, and increasing amount of risk factors have on the outcomes in the lives of children which also decreases their chances for social inclusion (Veland et al., 2015). It has been reported that children born to adolescent mothers are at an increased risk of being incarcerated and becoming adolescent parents themselves (Centers for Disease Control and Prevention [CDC], 2016). Thus, entering a cycle of social disadvantage which is linked to social exclusion as well as the need of intensive and comprehensive programs (Chow & Lou, 2015; Cox et al., 2012).

The children born to adolescents are more prone to experiencing social disruption as they develop relationships within disadvantaged contexts (Veland et al., 2015). It has been consistently argued that to address potential transmission of social disadvantage

factors and poor outcomes to the children born to adolescents, the interventions should begin at early development to increase the potential for better later life outcomes (Austerberry &Wiggins, 2007; Mollborn et al., 2014). Mollborn et al. (2014) stressed that cumulative disadvantage processes generated by low socio-economic resources in a prolonged period increases developmental, health, and social negative outcomes in children born to adolescent mothers. There are several studies which state that adolescent parents will eventually achieve the same level of social and individual achievements as their non-parent peers; none the less, the impact of the risk factors on their children through their early years development constitutes a significant negative outcomes source for their health and social inclusion potential (Cheng & Solomon, 2014; Hodgkinson, Beers, Southammakosane, & Lewin, 2014; Cox et al., 2014). Thus, the use of continuum of care is a relevant and effective way to address the needs of the adolescents who are parent's family that include the impact to their individual, family, community, and settings of care (World Health Organization, 2008).

Veland et al. (2015) concluded that to decrease vulnerability from disadvantaged social backgrounds a higher socio-economic status should be achieved. The conclusions made by Veland et al. (2015) can be contrasted by Austerberry and Wiggins work (2007) which argued that social exclusion associated to adolescents who are parents should be addressed by using a broad approach that supports and values: parenting skills development, full-time parenting, the same rights and expectations for mothers disregarding their age or level of vulnerability, and promotes social networks for active engagement of the adolescent parent's own inclusion process. The life-course protective

factors measurements for this study are informed by the Life-course theory, where protective factors that impact the children born to adolescents, the timeliness, and intensive services provided are considered within the comprehensive and continuum of care for this adolescent special population (Edwards, Towle, & Levitz, 2014).

The Life-Course Theory conceptualization is used in this study to increase the understanding of early life risks and protective factors to address the needs of adolescent who are parents and their families, related to the life-course protective factors measurements; in order to promote a preventive approach to potential tertiary interventions (Cheng & Solomon, 2014). The Life-Course Theory considers the cumulative effects of risk factors in sensitive developmental stages, which involve changes in genetic, biological, behavioral, socio-economic contexts that are embedded in cultural and historical events that ultimately affect health outcomes in the individual and population levels (Edwards et al., 2014). The consideration of the life-course protective factors as social inclusion characteristics is consistent with comprehensive programs that aim to decrease the outcomes that could potentially act as promotors for social exclusion (Yanicki et al., 2015; Edwards et al., 2014). Fundamentally the protective factors generate an upstream or preventive approach to early childbearing and social deprivation cycles, as programs address social inclusion model and ecological pathways for social inclusion; as well as the exclusory dynamics (Chow & Lou, 2015; Cox et al., 2012; Simplican et al., 2015).

Social Inclusion Characteristics' Variables in Previous Studies

A previous study stated that the social inclusion/exclusion conceptualization is a complex construct; that occurs in context of specific national and local rights, relevant social ties, and experiences which reflects social detachment and disintegration of social order (Wright & Stickley, 2012). Social inclusion characteristics for adolescent parents and their families include being able to interact and access community-level: positive environments that promote healthy relationships, adequate education and well remunerated jobs, and positive parenting to promote children development and health (Mollborn et al., 2014; Monnickendram & Berman, 2007; Simplican et al., 2015; Veland et al., 2015). On one hand, the social exclusion and inclusion concept state a broader and multiple dimension approach to quality of life than poverty (Chow & Lou, 2015). On the other hand, poverty and disadvantage have the effect of limiting the potential for compliance with socially expected roles (Wright & Stickley, 2012).

The literature reviewed regarding the use of social inclusion mediator's variables validated that social inclusion is a complex issue. The social inclusion concept has been used in political, professional, philosophical, and practice-based rhetoric (Wright & Stickley, 2012; Yanicki et al., 2015). According to the systematic literature review study done by Wright and Stickley (2012) a prevailing amount of studies done regarding social inclusion within a quantitative approach had a community-based setting. The use of social inclusion mediator variables in previous studies could be linked to the interest of governments, political, and policy-makers to address this issue as a matter of social order reinforcement (Wright & Stickley, 2012). Other studies address social inclusion

characteristics as a matter of social justice, which pertains to a social determinant for health (Hartung et al., 2015; Yanicki et al., 2015). Thus, the relevancy of social inclusion characteristics and their relationship to outcomes and ecological considerations, is based on this essential understanding for program effectiveness (Simplican et al., 2015).

Previous Adolescent Parent's Families Program Evaluation Studies Regarding the Research Questions

The research questions stated for the current study include the assessment of the potential changes, relationships, and modifying effects of the program outcomes related to the variables that define social inclusion characteristics for a comprehensive model that serves adolescent parents and their families; also, the time and intensity level of the service provided were evaluated for moderation. Previous program evaluations for comprehensive and complex models of service for adolescent parents, include multiple dimensions that increase social inclusion possibilities as well as a having specific organizational mission to address social exclusion (Asheer, Berger, Meckstroth, Kisker, & Keating, 2014; Cox et al., 2012).

The program evaluation study by Asheer, Berger, Meckstroth, Kisker, and Keating (2014) addressed a research question related to the barriers that could be identified within an intervention developed to reduce repeated pregnancies' time span in adolescent who became mothers, through the comparison of two implementation strategies. The program evaluation used a mixed methods approach were the researchers concluded that practice-based approaches to evaluation demonstrate the need for a complex system theory use to inform comprehensive services for this population (Asheer

et al., 2014). Also, the qualitative program evaluation done by Malin and Morrow (2009) concluded that a comprehensive model to address social exclusion of adolescent parents by providing intensive and complex services is perceived as effective by participants.

The researchers Fuscaldo, Kaye, and Philliber (1998) stated a research question regarding the impact of a comprehensive adolescent parenting program that used a school-based model of service; the variables that were assessed included: emotional stability, self-esteem, parenting skills, repeated pregnancy, and economic independence. The economic self-sufficiency variable was measured through the high school diploma achievement, governmental aids received, adequate health care access for their children, employment status, and post-secondary education achievement (Fuscaldo et al., 1998). Even though the study by Fuscaldo et al. (1998) was not explicitly addressing social inclusion /exclusion related research questions, they did address multiple variables that have been identified in the literature as promoting social inclusion within the adolescent parents and their families' population (Monnickendram & Berman, 2007; Smith & Wilson, 2014).

Summary and Conclusions

Summary of Major Themes in Literature

The literature review provided a setting of the origins and current knowledge of the concepts related to the public health practitioner's field. In summary, the social inclusion concept has been identified within the social quality measures, which influences marginalization, exclusion, and stigma levels; promoting negative outcomes in certain segments of the population that do not fulfill the social expectations or norms. Adolescent

parents and their families have been identified consistently throughout the literature as experiencing negative outcomes as it relates to their social inclusion.

The justification for this study is based on the desire to evaluate a comprehensive and complex program that serves adolescent parents and their families, with the goal of increasing their social inclusion through improved socio-economic position, development of nurturing environments for their families, and gaining life-course protective factors. The social inclusion characteristics selected to measure the effectiveness of the organization program in addressing the comprehensive needs of adolescent parents is framed within the interpersonal and community participation domains of the social inclusion model (Simplican et al., 2015). The current study is consistent with the program effectiveness evaluation where the relationship between social inclusion, ecological pathways, and outcomes are measured (Simplican et al., 2015).

Summary of Knowledge and Gaps

The knowledge of the social inclusion characteristics is based on the social inclusion/ exclusion concept and the social inclusion model. The social inclusion/ exclusion concept has a multiple-factor ecological perspective which involves the impact of communities and interpersonal interactions (Simplican et al., 2015; Yanicki et al., 2015). The literature reviewed regarding the services for adolescent parents, continuously stressed that incomplete and fragmented services are not effective in serving the wide array of needs related to adolescent parents and their families. Thus, the American Academy of Pediatrics recommends that for programs that serve adolescent parent's populations to be effective they need to have certain characteristics that are related to

complex systems through open-access, friendly, and family-centered approaches. In summary, the literature review demonstrated that a gap exists within programs that serve adolescent parents and their families using a narrow and fragmented approach, which do not address the multiple factors that promote social inclusion for this population and increasing their chances for social marginalization and stigma.

Addressing Identified Gap

The current study intended to address the potential changes in social inclusion characteristics of adolescent parents and their families, through the comparison of baseline and post-intervention outcomes of a comprehensive, integrated, and complex program. In the current study, social inclusion is considered as a process that accounts for multiple factors and ecological contexts which can be positively influenced through organizations and community settings. I addressed the identified gap about the meaning in the literature, through quantitative evidence, to assess the hypothesis regarding the level of intensity and timeliness of the interactions; as well as the impact of the complexity of services on the social inclusion characteristics' outcomes for adolescents who are parents served through a comprehensive continuum of care. The social inclusion characteristics were contrasted as before and after measures of comprehensive services, to increase the limited understanding about the impact of the evaluated program; and use of comprehensive approaches to address the needs of adolescent parents and their families regarding their social inclusion possibilities.

Gap in Literature and Methods: Evidence of Social Inclusion's Impact

The current study used a quantitative approach to evaluate a comprehensive program' outcomes for adolescents who are parents and their families, based on the baseline and post-intervention measures as characteristics for social inclusion. Quantitative approaches have been used throughout the literature to measure comprehensive programs outcomes for adolescent parents and their families, and to measure social inclusion measures in disadvantaged populations (Cox et al., 2012; Velad et al., 2009). The quantitative data provided an empirical approach to understanding the outcomes promoted by the program evaluated. The conclusions of the quantitative methods in the current study could later explained by a posterior qualitative study, to explain the interactions within the complex systems approach (Walton, 2014). In conclusion, a quantitative approach to evaluate a comprehensive program that serves adolescents who are parents and their families provided empirical evidence of the social inclusion characteristics' outcomes as the measures and comparisons were analyzed for statistical significance. Through the social inclusion outcomes evaluated in the operationalization achieved by the organization's program and their statistical analysis, the public health practitioners and field will have the availability of evidence that link the use of continuums of care to the potential increase of social inclusion for the adolescent parents' population.

Chapter 3: Methodology

Introduction

The lack of access to programs that provide a continuum of care to address broad needs of adolescent special populations impacts their possibilities for social inclusion and better health outcomes (Cox et al., 2012; Simplican et al., 2015). Social inclusion for adolescent parents and their families is relevant for positive social change because the process entails the generation of positive relationships, access to social ties, and community participation. Social inclusion for adolescent parents and their families increases the potential for positive health outcomes related to decreased social disparities and better outcomes in social determinants of health. Thus, I carried out a program evaluation of one such continuum of care for adolescent parents to understand effective initiatives and outcomes for addressing social inclusion in this population, using a systems approach.

My goal in this chapter is to provide details of empirical procedures I used to evaluate the health and social impacts of social inclusion constructs applied among an adolescent special population participating in a community-based project, the organization, from 2009 through 2011. The chapter starts with analyses of causal inference in determining the impact of social inclusion's mediating interventions experienced by respondents participating in the organization programs. The chapter continues with the review of evaluation designs and their relative weaknesses. I then examine empirical procedures including the type of data, variable description, data gathering, study type and psychometric procedures involved with instrument design, and

analytical procedures used. In the concluding section, I assess key issues in selecting an impact design and determining the program's impact on the adolescent special population. The quantitative approach and longitudinal data design I selected to address the research purpose and questions for this study was aligned with the methodological procedures I describe in this chapter (see Frankfort-Nachmias, Nachmias, & DeWaard, 2015).

Analyses of Causal Inference and Validity: Program Interventions

The core domains of social inclusion outcomes conceptualized in the organization's logic model are socio-economic position achieved, nurturing family environments experienced, and the life-course protective factors present for the participant families. I interpreted these outcomes using the social inclusion model domains developed by Simplican et al. (2015), which include interpersonal relationships and community participation. The adolescent parents and their families who participated in the organization's interventions for social inclusion were exposed to a wide array of services with the purpose of generating the expected outcomes. The expected outcomes for social inclusion are based on the social inclusion model, findings from previous studies, and program evaluations for interventions that focused on adolescent parents and their families. The social inclusion outcome measured consists of a series of characteristics or core domains that need to be present in an adolescent mother and her family to connect or bridge them with community resources and relationships. These connection-driving characteristics or domains have been previously identified as counter-acting factors for social exclusion of the adolescent parents' families.

Among participants receiving the organization's program interventions during the years 2009 to 2011, the amount of dosing varied, but the majority received intervention dosing in three principal areas of service for the family: academic, health, and social work/ psychological support areas. According to the standards for young parents' practice, the services should include a complete range of health, educational, job acquisition, and social impact to address the multiple needs of this special adolescent population (CWLA, 1998). Aligned with this evidence-based promotion of practice, the family-centered model developed by the organization provides a continuum of care, but the services are tailored to each participant family based on their needs. Thus, not all the adolescent parents who participated needed all the services at the same time or at a given point.

The outcomes expected and their relationships to social inclusion characteristics, within and between the social inclusion domains, should result from the ecological interaction of multiple levels and types of services provided by the evaluated organization's interventions (see Figure 3). The family incubator model developed by the organization involves a series of services to potentially generate social inclusion outcomes. In its logic model, the organization describes socio-economic position interventions for social inclusion as consisting of: academic, micro-entrepreneurship, and vocational counseling services. The nurturing family environment include psycho-social and family engagement services. The life-course protective factors for social inclusion include: early development, parenting skills, and reproductive/sexual health services. Thus, I measured the causal inferences regarding the expected gains for social inclusion

of the adolescent special population as the integrated outcomes of the characteristic variables.

Figure 3. Adaptation of the social inclusion model: The organization's interventions and outcomes. The social inclusion characteristics I evaluated were conceptualized using the social inclusion model as blueprint within ecological interactions acting upon the organization’s comprehensive services.

Relationship of Causal Inference and Validity to Evaluation Designs

This study was an outcome evaluation designed to assess the effectiveness of the organization's the logic model. I chose a quasi-experimental design with pre/post comparison design to measure the program's effectiveness (see Figure 4). There are other types of designs such as experimental and pre-experimental, which differ based on the use or lack of a comparison group respectively. In an experimental design, there can be random selection of intervention and comparison groups' participants (Harris, 2010). The pre-experimental design for an outcome evaluation does not include a control group, and therefore the data collected reflect the observed changes within the population served in the intervention. Randomized experimental designs are appropriate for determining causation, but in the case of this study such a design would have been impractical, unethical, and unfeasible because it would have involved randomly assigning adolescent parents to the intervention group or not. Thus, my use of a pre-experimental design was adequate based on the set of situations which limited the potential for random assignment; it was also beneficial since concluding causal inference of the observed outcomes through statistical analyses is possible.

Quasi-experimental studies may use pre/post-test and post-test only designs. Randomization was not possible for this study, which led to several validity issues. To address some of the validity issues, I selected the pre-posttest design and used an intervention and comparison or control group. The comparison group I used was constituted by a sample of the same adolescent parents' population but who did not receive the wide array of services. The comparison group was initially drawn from the

organization participants served during the years 2004-2005, but later the sample included participants from 2002 through 2005. In this program evaluation study, I measured the level of exposure to the program using intensity of service and time variables.

	2009-11		2017
Intervention	**O_1**	**X**	**O_2**
	2002-2005		2017
Comparison	**O_1**		**O_2**

Figure 4. Program evaluation pre-post design: The organization outcomes for social inclusion interventions.

Pre-experimental Design: Threats to Validity

The threats to a valid causal inference for pre-experimental designs are related to observation of the outcomes. The level of validity was determined using statistical analyses for establishing causal inferences, which can be achieved adopting this type of design based on baseline and post-intervention data comparison and adequate statistical parameters. External validity is compromised through this design since there is no potential for generalization of the results. I assessed the pre-experimental design a potential design for this program evaluation study but did not select it because of the availability of a comparison group which could increase the internal validity. I also considered using a pre-experimental approach for this study where I pondered a single sample with a time series design, because it does not require the use of a comparison group, but the validity threats greater than other types of designs. After analyzing the availability and trustworthiness of the organization's data, I determined that the time

series design was no longer a possibility because several measures for the same cohort were needed and unavailable.

Experimental Design: Threats to Validity

Experimental study designs serve as the gold standard for assessing causality in scientific work. These designs are rigorous because randomization of intervention and control groups ensures comparability of both groups. Lack of comparability between treatment or intervention groups serve as a major threat in making valid scientific inference between both intervention and comparison groups. Although randomization of both intervention and control groups provides better external validity, there may be inherent internal validity threats that are still present within this design. These threats might include diffusion, compensatory equalization, and compensatory rivalry (Harris, 2010). However, in this study I did not use an experimental design because of ethical concerns and the fact that my target population was not a "captured" sampled population.

Quasi-experimental Design: Threats to Validity

The internal validity threats in the quasi-experimental design, could include the following: attrition, history, instrumentation, maturation, regression, selection, and statistical conclusion (Harris, 2010). The pre-post comparison design provides the possibility of assessing the potential differences between the outcomes of the two group. On the one hand, the comparison group selected include the evaluated organization's participant adolescent parents and their families from 2002-2005. This comparison group participants did not receive the comprehensive array of services provided by the evaluated organization, which masked this control group one with equivalent

characteristics to the intervention group. On the other hand, another type of contrast will be performed in the current pre-post design configuration selected, since there will be comparison between the outcomes from baseline and post-intervention data between and within the intervention and comparison groups.

This program evaluation study contemplates the assessment of the potential gain in social inclusion as the outcomes related to having healthier family contexts, better socio-economic access, and prevention for negative social outcomes; for increased community participation and improved interpersonal relationships. According to Simplican et al. (2015) social inclusion model's constructs, there are intrinsic factors that include: the individual's genetics, mental health characteristics, and pre-existing conditions; which may affect the overall outcomes indistinctive of the program's impact. Thus, throughout the conceptualization of the current program evaluation study the term used has been potential for social inclusion, which may vary according to each individual's intrinsic characteristics. Nonetheless, the causal inferences for the outcomes that measure the social inclusion potential in this study are inherently threatened. Several of these potential threats may include: impact of other agencies, organizations, or benefits that increased the achievement potential for social inclusion, strong family and social ties already existed at baseline, and historical threats impacting comparison and/or intervention group.

Population

Target population. The target population for the current study is the organization's participants who were served during the period of 2009 through 2011. The

program's evolution process generated an increase in series of services which allowed for a continuum of care to be provided to these adolescent special population and their infants. During the period of 2009 through 2011 the organization had a model whose evolution stage can be described as matured, based on the development and design which is still currently implemented to serve this special adolescent population. Provision of these services by the evaluated organization were developed using continuous needs assessment process for the participating special adolescent population. The evaluated organization as a developmental organization started its programs in 2000 when it was incorporated, and services were first provided in the year 2001. Throughout the maturing process, the organization changed its scope from a narrow and fragmented program for adolescents who became parents and their children. These services included child care, health prevention services, and social work support for the family. Furthermore, the organization also provided a broader scope of services that include high school academic remediation, psychosocial support for the family, parenting skills and birthing classes, micro-entrepreneurship skills, early learning and development services. Other services provided by the organization to the adolescent parent's population include transportation, breastfeeding workshops, chaplain services, academic support, family engagement activities, support groups, and healthcare.

The adolescents who became mothers and their families served by the organization in 2009 through 2011 complied with the eligibility criteria of the program which includes: becoming pregnant with the first child before their 19 years 11 months of age, living in Bayamon and vicinities, lack of high school diploma, and having achieved

the 8th grade. The comparison group selected for this program evaluation study also complied with the abovementioned eligibility criteria. All the selected participants for the current program evaluation study were females, due to the nonexistence of male cases in the control or comparison group; but it is acknowledged that male participants were impacted during the intervention period. The comparison group are the organization's participants through the period of 2004-2005, were the organization did not provide academic services that enabled participants to attain a high school diploma. The narrow scope of the services provided within the 2004 and 2005 period makes the comparison group a comparable cohort of participants to the target population as they were both: adolescents who became mothers and lived in Bayamon or vicinity areas at baseline; but lacked the wide array of services which impacted the 2009 and 2011 participants for social inclusion related outcomes.

Population size. The target population size includes the adolescents who became parents and their families served within the period of 2009 and 2011 in the organization which sums a total of 255 cases or 83 families. The target population comes from the following years: in 2009 the served target population was 73 single counted adolescent parents and children, in the year 2010 was 94, and in 2011 was 88. The total number of the organization's participants served from 2009 through 2011that was detailed in Table 3.

Table 3

Target Population's Distribution Through Selected Period

Participants	2009	2010	2011	Total for period
Adolescent parents	36	46	44	126
Children born to adolescent parents	37	48	44	129
Total per year	73	94	88	255

The current study includes a comparison group of the organization's participants. The comparison group included population served from 2004 and 2005; which included a total of 68 single head count female participants. The total number of adolescent participants for 2004 was 28 and in 2005 was 40 (Table 4). The comparison group obtained from the 2004 through 2005 period consisted of the organization's participants who did not have a high school diploma at entry level. The selected group for the comparison group for this program evaluation consists of all the participants who were: females, did not had a high school diploma, becoming pregnant with the first child before their 19 years 11 months of age, living in Bayamon and vicinities, and having achieved the 8th grade at entry level; whose data was complete and available.

Table 4

Comparison Group Population's Distribution Through Selected Period

Participants	2004	2005	Total for period
Adolescent parents	28	40	68
Children born to adolescent parents	29	42	71
Total per year	57	82	139

Sampling and Sampling Procedures

Type of sampling strategy. All participants enrolled in the program who complied with the inclusion criteria were selected for this study and subsequent analysis. Recruitment of participants to the study involves being enrolled in the evaluated organization which included the following eligibility criteria: being 19 years of age or less at the time of entry, being a pregnant adolescent female, living in Bayamon, Puerto Rico or adjacent municipalities, not having a high school diploma, and having the 8th grade approved.

Statistical analysis. The causal inferences made to address the research questions guiding this program evaluation initially entailed the use of the following statistical tests for analysis and later conclusions: ANOVA tests, logistic regression analysis, and descriptive analysis. The repeated measures ANOVA statistical test for within-between interaction requires a sample size of 10 participants; based on having 2 groups, an effect size of 0.5 (moderate), an alpha of 0.05, a statistical power of 0.80, correlation among repeating measures of 0.5, non-sphericity correlation of 1, and 3 measurements. Initially,

the logistic regression analysis was to be performed using all participants, but later changes had to be made to address statistical assumptions and other best fit concerns.

Archival Data Use

Procedures for recruitment, participation, and data collection. The current program evaluation study involves secondary data analysis. The recruitment, participation, and data collection procedures were guided by the determined inclusion/exclusion criteria and made possible through the cooperation from a community research partner, the evaluated organization. The files for the selected adolescents who became mothers and participated from the evaluated organization's services from 2009 through 2011, as well as from 2004 to 2005 was managed by the Social Work area of the organization. The Social Work area certified the baseline data gathering through the relevant documents contained in the participant's files. The organization's social workers are licensed by the Commonwealth of Puerto Rico, their ethical accountability is managed by law under the "*Colegio de Trabajo Social de Puerto Rico*" or the Social Workers Association. The baseline data gathering process from the participants' files was extracted by the organization's bio-statistician; who signed a confidentiality agreement at the time of recruitment. The post-intervention data was also collected by the organization's staff through telephonic and in-person questionnaires. The bio-statistician collected post-intervention data to the intervention and control or comparison groups, based on the ethical practices that are recommended for public health professionals. These baseline and post-intervention data was de-identified and a database was created using SPSS by the organization's bio-statistician. The database was provided by the

evaluated organization in a de-identified form, as part of the data use agreement with the community research partner.

Access procedures and permissions for database use. The procedure to access the data set included the formal approval of the evaluated organization's Board of Directors, the certification of authenticity from the data drawn from the family files by the Social Work area's supervisor, and the Internal Review Board approval for use of archival data. The data access permission signed by the organization's Chair of the Board of Directors was recorded as part of the board meeting minutes. The Social Work area supervisor verified and certified that all the data provided is reliable and accurate. The Walden University's Internal Review Board (IRB) was provided with the required information regarding the data collection for secondary data protocols including the above-mentioned data access permissions and certifications of authenticity. The data access procedure was approved by the Walden University's Internal Review Board, with the reference number: 10-27-17-0531720; subsequently, the data sets were obtained and analyzed. Once the databases were provided by the evaluated organization the data was stored securely, for at least five years, in an electronic file whose access was limited to me while acting as researcher, a hard-copy form filed in a locked file cabinet, and an electronic copy filed in a flash drive. Copies of the database were not made, unless there is a formal request to replicate or review of the data.

Operationalization

The following section broadly defines the characteristics of the variables for the current study under the social inclusion conceptualization. The factors considered to

measure the potential for social inclusion of an adolescent that is a parent as well as its family, includes their interaction with immediate systems; such as family and to conditions which will protect them from harming factors of the intrinsic, immediate, and external systems. These factors were combined into one measurement to assess the potential for social inclusion, which included: socio-economic position, nurturing family environments, and life-course protective factors. The operational variable definition for the social inclusion's outcomes in this program evaluation study were considered as the factors that have a direct effect on an adolescent who became a parent's access to social networks, institutions, and self-realization; as visualized by the evaluated organization's logic model. The items to assess the social inclusion level that pre-existed in each adolescent who became a parent at baseline, such as socio-economic position, nurturing family environments, and life-course protective factors are included in the organization's instrument named Template for Collecting Baseline Data using File Records: Years 2000-2006. The Template for Collecting Baseline Data using File Records: Years 2000-2006 was developed by the evaluated organization and included the following items for socio-economic position: 1) Does the file contain evidence about the last grade approved moment of entry?; 2) What is the last approved grade that is evidenced in the file at the time of entry?; 3) Data for question # 2 was compiled by reviewing the following document (name the document); 4) Does the file contain evidence about the family's income at baseline?; 5) What is the reported family income at the time of entry?; 6) Data for question # 5 was compiled by reviewing the following document: (name the document); 7) Does the file contain evidence about the governmental financial assistance

received at the time of entry?; 8) Did the participating family receive any financial assistance from the government at the time of entry?; 9) Data for question # 8 was compiled by reviewing the following document: (name the document); 10) Does the file contain evidence about the type of governmental financial aid received at the moment of entry?; 11) What type of governmental financial aid did the participant's family receive at the time of entry?; 12) Data for question # 11 was compiled by reviewing the following document (s): (name the document). The template for baseline data gathered information about the nurturing family environments using the following items: 13) Does the file contain evidence of the participant's co-parenting practices at the time of entry?; 14) Did the adolescents who became parents practiced co-parenting at baseline?; 15) Data for question # 14 was compiled by reviewing the following document: (name the document); 16) Does the file contain evidence of referrals or complaints for child maltreatment / neglect at the time of entry?; 17) Are there any complaints/referrals for child maltreatment or negligence at the time of entry?; 18) Data for question # 17 was compiled by reviewing the following document: (name the document). The life-course protective factors assessed through the template for baseline data used the following items: 19) Does the file contain evidence regarding the up-to date status of the child(ren) standard required vaccines at baseline?; 20) Do the vaccination records from the children born to the participant adolescents up-to date at the time of entry?; 21) Data for question # 20 was compiled by reviewing the following document: (name the document). While the post-intervention potential for social inclusion was assessed by using the evaluated organization's Graduate Questionnaire.

Socio-economic position variable operationalization. On the one hand, the socio-economic position variable is operationalized to measure baseline status through the following selected items: A) What is the last approved grade that is evidenced in the file at the time of entry?, B) What is the reported family income at the time of entry?, C) How many people live in the same household as participant at the time of entry?, D) Did the participating family receive any financial assistance from the government at the time of entry?; and D) What type of governmental financial aid did the participant's family receive at the time of entry? On the other hand, socio-economic position operationalization post-intervention include the following items: A) What is the last grade you completed? B) What are your current income sources?; C) What is your current monthly income?; and D) How many people live with you in the same house? The items used to assess socio-economic position (at both baseline and post-intervention) represent academic achievement, income, and governmental aids dependency levels.

According to Marcus et al. (2016) the logic behind the socio-economic position operationalization is based on the respective level of access to resources and relationships. The applicability of this concept to the adolescents who become parent's population is fundamental to advance the eradication of the impact that poverty and related contexts have on exclusion and marginalization. The socio-economic position (SEP) should provide an idea of the level of access or potential access to physical and material resources which includes the following measures: level of academic achievement (low or high), level of governmental aids dependency (low or high), and annual household's income (below, within, or above minimum wage) (Table 2). A low

academic achievement was considered as lower than high school diploma and a high academic achievement include achieving high school diploma, professional, vocational, or higher learning schooling. The level of governmental aids dependency was categorized as high for 2 or more aids received and low for less than 2. The socio-economic position was classified as high, medium, or low access to physical or material resources.

Nurturing family environments variable operationalization. The nurturing family environments variable has been operationalized to assess the baseline condition of the evaluated organization's participant families at baseline through the following selected items: A) Did the adolescents who became parents practiced co-parenting at baseline? and B) Are there any complaints/referrals for child maltreatment or negligence at the time of entry? The post-intervention assessment for this variable include the items: A) How often is the relationship between the father or mother with the child?, B) Who makes the decisions of the daily life for your first (second, third, and/or fourth) child?, and C) Have you ever been referred to the Department of the Family for negligence or child abuse? In the last item the intention is to assess and corroborate baseline data for child maltreatment records, thus the options included in the graduate questionnaire include: yes or no; if the answer is yes then the participant can explain if it was for child maltreatment, negligence, and if this referral happened before, during, or after participating from the organization.

To measure the nurturing family environment (NFE) the existence or non-existence of child maltreatment (yes/no) and co-parenting practices (yes/no) will be combined to determine a potentially high, medium, or low nurturing environment for the

family. The purpose of measuring the level of nurturing environment for the family is related to the ecological impact that immediate systems have on the most vulnerable members of the family, such as the children born to the adolescents (Table 2). This variable is essential to understand the potential for social inclusion for adolescents who become mothers or fathers, since the family culture and social skills will predict the level of exclusion exerted on the individuals that are part of this special adolescent population (Hovdestad et al., 2015; Simplican et al, 2015). The environmental contexts that impact adolescents who become mothers have been evidenced as factors that affect the family and social interactions; thus social inclusion potential (Simplican et al., 2015).

Life-course protective factors variable operationalization. The life-course protective factors were generated by assessing the baseline items selected below: A) Do the vaccination records from the children born to the participant adolescents up-to date at the time of entry?; B) Was your first (second, third, and/or fourth) pregnancy planned?; C) How many pregnancies have you had?; and D) Can you name each of your children and which of these were participants of "the organization" at some point? The post-intervention items to operationalize the life-course protective factors variable include: A) Does your first (second, third, and/or fourth) child have the primary vaccines up-to date?; B) Was your first (second, third, and/or fourth) pregnancy planned?; C) How many pregnancies have you had?; and D) Can you name each of your children and which of these were participants of "the organization" at some point?

According to Edwards et al. (2014) and Yanicki et al. (2015) the negative contextual and intrinsic factors that impact adolescents who become mothers and their

children act in a cumulative manner; affecting their chances for social inclusion. The life-course protective factors (LCPF) is a variable that intends to assess the potential impact that the organization's services had on the children born to adolescent mothers. The services provided by the evaluated organization aimed to impact through early childhood education, parenting skills, and reproductive/sexual health services (Table 2). This variable will be measured through the assessment of the services impact on: unwanted pregnancy (yes/no) and the up-to date characteristics of their vaccination records (yes/no), which will be categorized as high, medium, or low presence of protective factors.

Social inclusion variable operationalization. As defined and detailed previously in table 1, table 2, and figure 3 the social inclusion variable is measured through the combination of 16 items that are classified into three main categories: Socio-economic position (SEP), Nurturing family environments (NFE), and Life-course protective factors (LCPF). The 16 items used to assess social inclusion included: income, academic achievement, governmental aids dependency, child maltreatment/ negligence, co-parenting, unwanted pregnancy, and vaccination records.

Variable's Scale Score Calculation and Representation

Social inclusion characteristics. The scale score calculation for the social inclusion characteristics or promoters was classified as low or high social inclusion potential. The potential for social inclusion was classified as low or high. A low potential for social inclusion included: medium or low nurturing environment for the family, low presence of life-course protective factors, and a low access to physical and material

resources through socio-economic position. A high potential for social inclusion should be considered as including the following: high nurturing environment for the family, high or medium presence of life-course protective factors, and a high or medium socio-economic position (Table 5).

Table 5

Social Inclusion Characteristics: Scale Score Calculation and Representation

	High	Low
Nurturing environment for the family	High	Low/Medium
Life-course protective factors presence	High/Medium	Low
Socio-economic position access	High/Medium	Low

Nurturing environments for the family. The nurturing environment for the family was calculated using yes (0) or no (1) for the existence of child maltreatment or lack of co-parenting practices. The scale for the nurturing environment for the family was classified as high, medium, or low as none, only one, or both measures are present respectively. Thus, a high nurturing family environment is one without (none) child maltreatment or presence of co-parenting practices, a medium presence was interpreted with either one of the two measures present (child maltreatment or lack of co-parenting practices), a low nurturing environment for the family evidenced having both child maltreatment and lack of co-parenting practices present (Table 6).

Table 6

Nurturing Family Environments: Scale Score Calculation and Representation

	High	Medium (Only one present)	Low
Lack of co-parenting practices	No	Yes/ No	Yes
Child maltreatment present	No	Yes/ No	Yes

Life-course protective factors. The life-course protective factors were calculated through the classification of the unwanted pregnancy (yes/no) and the up-to date status of the vaccination records (yes/no). The scale for the presence of life-course protective factors was classified as high, medium, or low. A high level of protective factors implied that up-to date vaccine records are present and unwanted pregnancy is not present. A medium LCPF consisted of either and only one of the measures being present. In other words, a low presence of life-course protective factors indicated that there is no existence of up-to date vaccination records and the unwanted pregnancy is present (Table 7).

Table 7

Life-course Protective Factors: Scale Score Calculation and Representation

	High	Medium	Low
Unwanted pregnancy	No	Yes/No	Yes
Up-to date vaccination records	Yes	Yes/No	No

Socio-economic position. The socio-economic position's access level scores was calculated through the classification of income as below (0), within (1), or above minimum wage (2), academic achievement as low (0) or high (1), and government aids

dependency level as low (0) or high (1). The scale for the level of access through the socio-economic position of a participant was low, medium, or high.

On one hand, a low access to material or physical resources through the socio-economic position was considered as having: a low academic achievement (0), high governmental aid dependency (1), and an income below minimum wage levels (1). On the other hand, a medium access to resources through SEP contemplates a high academic achievement level (1), low governmental aid dependency (0), and an income below (1) minimum wage. A high socio-economic position will be categorized by the presence of a high academic achievement (1), low governmental aid dependency (0), and an income above minimum wage levels (0) (Table 8).

Table 8

Socio-economic Position: Scale Score Calculation and Representation

	High	Medium	Low
Income level	Above MW	Below MW	Below MW
Academic achievement	High	High	Low
Governmental aids dependency level	Low	Low	High

Data Analysis Plan

Software for analyses. The software used for analyses of the data in this study was the Statistical Package for the Social Sciences (SPSS) Desktop app (version number 23; International Business Machines Corporation (IBM).

Data cleaning and screening procedures. SPSS database to be generated was edited and cleaned for missing and redundant information prior to analysis (Frankfort-Nachmias, Nachmias, & DeWaard, 2015). The data entry process and cleaning included

verifying and removing errors such as implausible data values, missing variables and creating new variables.

Research questions and hypotheses restatement. The research questions and corresponding hypotheses are restated below:

RQ1: Is there a statistically significant change between baseline and post-intervention social inclusion characteristic outcomes such as life-course protective factors (vaccination records up-to date and unwanted pregnancy), socio-economic position (academic achievement, government dependency level, and income level), and nurturing micro and meso environments for the family (co-parenting practices and child maltreatment records) in those who participated?

H_o1: The social inclusion characteristics of life-course protective factors, socio-economic position, and nurturing micro and meso environments for the family will have no statistically significant change between baseline and post-intervention measurements.

$H_1 1$: The social inclusion characteristics of life-course protective factors, socio-economic position, and nurturing micro and meso environments for the family will have statistically significant change between baseline and post-intervention measurements.

RQ2: Is there a statistically significant change between social inclusion at baseline and post-intervention for adolescent parents who participated in the organization at the intervention or control groups?

H_o2: The social inclusion measures will have a statistically significant change at baseline and post-intervention for the organization participant adolescent parents at the intervention group.

$H_1$2: The social inclusion measures will have no statistically significant change at baseline and post-intervention for the organization participant adolescent parents at the intervention group.

RQ3: Is there a statistically significant relationship between time and intensity of the service among the organization's participants?

H_o3: There is a statistically significant relationship between the time and intensity of service for the organization adolescents who are parents and participants.

$H_1$3: There is no statistically significant relationship between the time and intensity of service for the organization adolescents who are parents and participants.

RQ4: Did time and intensity of service modify the relationship between baseline and post-intervention social inclusion outcomes for the organization participants at the intervention or control groups?

H_o4: Time and intensity of service will have a modifying relationship between the baseline and post-intervention social inclusion outcomes for the organization's adolescent parent participants at the intervention group.

$H_1$4: Time and intensity of service will not have a modifying relationship between the baseline and post-intervention social inclusion outcomes for the organization's adolescent parent participants at the intervention group.

Statistical Tests, Procedures, Potential Cofounding Variables, and Results Interpretation's Rationale

The statistical tests to generate causal inferences about the research questions guiding the current program evaluation study included: Wilcoxon test, McNemar test,

Pearson correlation, and Binary Logistic Regression analysis. A descriptive analysis of the social inclusion characteristics and variables was performed, for both comparison and intervention groups. The Wilcoxon test was used for assessing the first hypothesis, thus examining the potential main and interaction effects for the baseline and post-intervention measurements in relation to the social inclusion characteristics of life-course protective factors, socio-economic position, and nurturing micro and meso environments for the family. The second hypothesis was addressed using the McNemar test to understand the main and interaction effects for the baseline and post-intervention measures in relation the social inclusion potential measures, as they are compared between the intervention and the control group. The third hypothesis was assessed by employing the Pearson correlation analysis for the main and interaction effects exhibited by the baseline and post-intervention measures in relation to the time lapse of the service impact and amount of services provided by the evaluated organization. The fourth hypothesis was analyzed through the Bivariate Logistic Regression analysis to assess the potential modifying relationship of time lapse of service impact and amount of services provided to social inclusion at baseline and post-intervention.

Results Divulgation Plan

In terms of the divulgation of the results of the current program evaluation there is no risk related to the direct or indirect disclosure of the participants in the study. The study will be shared with the participant cohorts included, as well as with other stakeholders such as funders, policy makers, and the evaluated organization's staff. The goal in sharing the results with these groups responds to the interest to increase the

knowledge about the program's effectiveness of the outcomes that may increase social inclusion for adolescents who become mothers and their families.

Threats to Validity

Addressing Threats to External Validity

The pre-posttest design for the current quasi-experimental study provides a means to evaluate potential changes in the dependent variables, as well as compare the outcomes from a control group (Frankfort-Nachmias, Nachmias, & DeWaard, 2015). The findings from this study cannot be generalized to all adolescents becoming pregnant because the evaluated organization's sample population is not representative of all adolescents who are likely to be pregnant in Puerto Rico.

Addressing Threats to Internal Validity

The current program evaluation had the goal of assessing the social inclusion characteristics' differences among the intervention and control groups participating in the organization. Due to the program evaluation design, there are several factors that might introduce error to the conclusions of the current study. An example of such internal validity threats is attrition. On the one hand, attrition may occur as the post-intervention test with a higher risk of loss in participants for the control group, since the post-test was done after a period of 12 to 13 years after entering the organization. In the case of the intervention group, the attrition risk of losing participants in the post-test may be lower but still considerable since 6 to 8 years had passed after being introduced to the evaluated organization's interventions. On the other hand, the instrumentation threat is present in this study, since the tools used by the organization on a regular basis to collect the data

have not been assessed for reliability and validity. Throughout the literature review for this study the social inclusion model developed by Simplican et al. (2015) has been adapted through the two mayor concepts of community participation and interpersonal relationship defined as precursors for eliminating exclusion factors. In figure 3 the model of social inclusion developed by Simplican et al. (2015) was applied to the organization's population, through the concepts of: category, structure, and function. Even though the social inclusion model was developed based on a strong scientific foundation, the concepts generated by Simplican et al. (2015) are generalizable to other populations. In regard to the items used to measure social inclusion among the evaluation participants there is no expected internal validity issues as Simplican et al. (2015) social inclusion model was applied to these special adolescent population.

A historical threat is latent due to the time lapse between the control and intervention groups, which reaches a difference of 4 to 7 years; within the times at which the cohorts were admitted. The period from 2004 through 2011, included an economic recession in Puerto Rico that initiated in 2006; which may have impacted the control group cohort in a higher extent since these may be older in age than the intervention group; which also increases the chances for maturation threats to be present. The chances that the control group had to achieve higher socio-economic positions and family environment stability is in theory higher than the ones that the intervention group might have, in the natural course of the maturation process. In conclusion, the relevant threats to internal validity for this study include: differences among groups at the time of entry into

the program (cohort differences), history or period effects, maturation, regression to the mean artifacts, and instrumentatation.

Ethical Procedures

Data access agreements. The data for the study was accessed after an expedite process for secondary data for the Institutional Review Board (IRB) at Walden University was accepted. The IRB application included the data access agreement signed by the evaluated organization's chair of the board of directors.

Treatment of human participants: IRB permissions, approval, and addressing ethical concerns in data collection processes.

Treatment of data: Anonymous or confidential concerns and protections. The data accessed was de-identified and provided by the organization. The data was stored securely and following confidential complying processes for five years after the study is completed and later destroyed. There was not any direct contact with selected participants. I was the only person accessing the data after being provided by the social work area, whom are ethically and law-based regulated in Puerto Rico to assure the confidential management of participants.

Other Ethical Issues

Ethical concerns related to research in one's own workplace were addressed in the data plan, which basically provides checkpoints and confidential processes to protect the identification of participants. The current study was done in consideration of the principles contained on the professional Public Health codes of ethics (Thomas, Sage, Dillenberg, & Guillory, 2002). There were no further potential risks related to this

program evaluation in regard to psychological, relationship, legal, economic/professional, physical, and others; due to the secondary analysis characteristics of the study.

Summary

Summary of Design and Methodology

The research design and rationale were addressed in Chapter 3, to describe the variables and research design's connection with the research questions, resources needed, and areas of knowledge to be filled within the public health practitioner's field. The methodology detailed in this chapter was developed to facilitate potential replications by other researchers, including the description, definition, and/or discussion of the: population, sampling and sampling procedures, archival data use procedures, instrumentation and operationalization of constructs, data analysis plan, potential threats to validity, and ethical procedures.

Transition to Chapter 4

In order to describe, define, and/or discuss the data collection process for the current study the following chapter addresses: time frame for data collection, representativeness of the sample, statistical analysis of the data, and the reporting for the results obtained through appropriate statistical analysis.

Chapter 4: Results

Introduction

This program evaluation is founded on the social inclusion model and its ecological approach (see Simplican et al., 2015). It draws from the social inclusion characteristics that I have identified as gateways for the adolescent special population selected for the study (see Simplican et al., 2015; Smith & Wilson, 2014). For this evaluation, I used the complex systems theory to assess the multi-disciplinary interactions that occur as the organization program is implemented to increase the social inclusion characteristics of the impacted adolescent parents and their families (see Walton, 2014). Thus, I developed the research questions to respond to the need for statistical inference and evidence that the special adolescent population demonstrated some level of change in social inclusion outcomes. The research questions, detailed below, focused on the comparison of social inclusion characteristics' potential gains for control and intervention groups, taking into account effects of time lapse and intensity of services provided to participants.

RQ1: Is there a statistically significant change between baseline and post-intervention social inclusion characteristic outcomes such as life-course protective factors (vaccination records up-to date and unwanted pregnancy), socio-economic position (academic achievement, government dependency level, and income level), and nurturing micro and meso environments for the family (co-parenting practices and child maltreatment records) in those who participated?

H_o1: The social inclusion characteristics of life-course protective factors, socio-economic position, and nurturing micro and meso environments for the family will have no statistically significant change between baseline and post-intervention measurements.

$H_1 1$: The social inclusion characteristics of life-course protective factors, socio-economic position, and nurturing micro and meso environments for the family will have statistically significant change between baseline and post-intervention measurements.

RQ2: Is there a statistically significant change between social inclusion at baseline and post-intervention for adolescent parents who participated in the organization at the intervention or control groups?

H_o2: The social inclusion measures will have a statistically significant change at baseline and post-intervention for the organization participant adolescent parents at the intervention group.

$H_1 2$: The social inclusion measures will have no statistically significant change at baseline and post-intervention for the organization participant adolescent parents at the intervention group.

RQ3: Is there a statistically significant relationship between time and intensity of the service among the organization's participants?

H_o3: There is a statistically significant relationship between the time and intensity of service for the organization adolescents who are parents and participants.

$H_1 3$: There is no statistically significant relationship between the time and intensity of service for the organization adolescents who are parents and participants.

RQ4: Did time and intensity of service modify the relationship between baseline and post-intervention social inclusion outcomes for the organization participants at the intervention or control groups?

H_o4: Time and intensity of service will have a modifying relationship between the baseline and post-intervention social inclusion outcomes for the organization's adolescent parent participants at the intervention group.

$H_1 4$: Time and intensity of service will not have a modifying relationship between the baseline and post-intervention social inclusion outcomes for the organization's adolescent parent participants at the intervention group.

Chapter 4 Preview

In this chapter, I address the processes involved with data collection, statistical analysis, and results. I also discuss implementation of the plans for those sections of the study. Finally, a summary based on the research questions will provide a prelude for the discussion of the findings.

Data Collection

Time Frame, Recruitment, and Response Rates

I used a pre/post design involving an intervention and a control group, for which measurements were taken over a defined time period. These measures included baseline and a post-intervention data collection. The data was collected by individuals at the evaluated organization who acted as my community research partners.

The control group selected included 35 of the organization's adolescent mothers who participated from 2002-2005, complied with all the inclusion criteria for this study,

but did not receive the same intervention as the intervention group because the evaluated organization only provided narrow and fragmented services at their time of entry. The population of participants for this period was 73, but 35 cases were available and selected for the control group sample, which constituted a 47.9% response rate. The control group's baseline data was gathered using existing data in files during April to October 2017. This group's post-intervention data was collected using the organization's graduate questionnaire during the period of June to October 2017. To access the population served during the selected period for the control group, the community partner employed several recruitment efforts that included: home visits, telephone calls to numbers on file, and contact through the Facebook app.

The intervention group consisted of 75 adolescent mother participants who were impacted by the evaluated organization's comprehensive services from 2009-2011. The potential population from which the sample was drawn included 107 cases who had baseline data available on file, from which a 70.1% response rate was achieved. The baseline data was gathered in the period from April to October 2017, and the post-intervention data was collected during the period June to October 2017. The pre-intervention data had to be collected from multiple documents that were parts of the participants' files routinely gathered by the organization. The access channels used by the community partner to contact the intervention group participants included the Facebook app, telephone calls to numbers on files, and references through other cohort colleagues who also participated in the organization's services.

Potential Discrepancies in Data Collection Plan

The data collection plan originally included the evaluated organization's participants from the years 2004 through 2005. Due to the challenges to access these participant mothers, the plan suffered one minor change for the control group's sample were additional participants from the years 2002-2003 were incorporated to provide a minimum of 35 cases. The participants served by the organization from 2002 through 2005 all complied with the specified inclusion/exclusion criteria, thus, I did not need to alter the design nor implementation of the program evaluation.

Baseline Descriptive and Demographic Characteristics of the Sample

The control group included adolescent mothers who participated in the evaluated organization but received different program treatment from the intervention group. Their mean age was 16 at the time of their first-born, the mean age of the fathers of their first-born children was 19 years of age, and 77.1% indicated that they had an unplanned first pregnancy. They lived in a household with a median of 4 members, whose average annual family income was $6,192. Thus the 74.3% of participants lived below the period's federal poverty guidelines. They had accomplished a mode of 11th grade education, where the minimum grade achieved was 8th and maximum was 11th grade at the time of entry.

The intervention group comprised the evaluated organization's adolescent mothers who, at the time of entry, had a mean of 16 years of age at time of first-born child, the mean age of the fathers of their first-born children was 19 years of age, 93.3% had an unplanned first pregnancy, their household was comprised of a 4 median of

members with an annual family income of $7, 200 (median), and 81.3% of the families was below the federal poverty guidelines. Also, this group results included having: achieved on average a 9th grade. So, in essence, the control and intervention groups shared similar background characteristics except that each received separate interventions from the project.

The control and intervention group cohorts had an average of 30.8 years and 23.2 years of age at the time of post-intervention data collection respectively, which is equivalent to an average difference of 7.7 years in age. The control group had a range of 28-35 years of age, mode was 30 years, and a median of 31 years; while the intervention group's range was from 20-28 years, mode was 23 years, and median was 23 years. The difference in average age for the comparison groups at the time of post-intervention data collection was a factor in the internal validity issues I considered for this study.

Representability of the Sample: External Validity

The results of this analysis might not be generalizable to a general adolescent population because the sample was composed of members of a targeted population from the organization. The samples I used were not randomly selected, given the convenience sampling design; thus, all the adolescent mothers served by the organization in two points in time who were able to be contacted were included (control group: 2002-2005; and intervention group: 2009-2011).

Results of Basic Univariate Analyses: Inclusion of Covariates in the Model

On the one hand, I designated social inclusion outcomes as "high" when the nurturing family environment metric was high, the life-course protective factors were

high or medium, and the access to socio-economic position as high or medium. On the other hand, I classified a "low" social inclusion outcome when: a low or medium NFE, low LCPF, and low SEP was present. As demonstrated in table 9, the control group reported 100% low social inclusion at baseline and post-intervention exhibited 48.6% high and 51.4% low potential for social inclusion. The intervention group reported a 100% low social inclusion at baseline and demonstrated a 41.3% high and 58.7% low potential for social inclusion post-intervention.

Table 9

Comparison for Social Inclusion Outcomes per Group

	Control group		Intervention group	
Social inclusion	Baseline	Post-intervention	Baseline	Post-intervention
Low	100%	51.4%	100%	58.7%
High	0%	48.6%	0%	41.3%

To understand the implications of the potential variations that the intervention provided by the organization would mean in the context of the evaluated organization's goal for social inclusion, the intensity of services and time lapse of the services provided are taken into consideration in this study. The services available in the organization at the time that the control group was impacted (years 2002-2005) were limited and included: child care, health prevention, parenting skills, transportation, and social work services for the families. The intervention group was impacted with an intervention that included comprehensive services such as: child care, health prevention and care, social work, high school diploma, psychosocial support, parenting skills, birthing classes, micro-entrepreneurship skills, early learning and development services; as well as:

transportation, breastfeeding workshops, chaplain services, academic support, family engagement activities, and family support groups.

The intensity and time lapse of services' impact variables were assessed to understand if there was any modifying effect for the social inclusion characteristics outcomes in the study (Table 10). On the one hand, the amount of services received by the control group had a median of 3 services. On the other hand, the intervention group exhibited a median of 5 services. The time lapse of service impact to adolescent mothers in the control group had a median of 18 months, mode of 12 months, a variance of 239.1, and standard deviation of 15.5. The intervention group was impacted by the organization's comprehensive services with a median of 17 months, mode of 24 months, a variance of 89.1, and standard deviation of 9.4. The intervention and control groups had different amount of services as well as duration, these facts are consistent with their participation in different levels of the organization's comprehensive approach evolution. Further analysis was performed to understand the interactions and potential modifying effects of the intensity and time lapse of service variables to the social inclusion outcomes.

Table 10

Comparison of Intensity and Time Lapse of Services per Group

	Control group		Intervention group	
	Intensity of services	Time lapse (months)	Intensity of services	Time lapse (months)
Median	3	18	5	17
Mode	2	12	3	24
Variance	1.3	239.1	4.7	89.1
Standard deviation	1.2	15.5	1.9	9.4
Range	1-5	-------	3-8	------

Results

Descriptive Statistics

The social inclusion characteristics used in the study included the analysis of various variables which included: nurturing family environments, life-course protective factors, and socio-economic position. The social inclusion outcomes between and within the groups of study was detailed in the above section. The analysis pertaining to the social inclusion characteristics will be found in the next paragraphs. All the social inclusion characteristics were assessed as qualitative measures that ranged from low, medium, and/or high.

One of the social inclusion characteristics assessed as key measures to understanding the organization's outcomes was nurturing family environments (NFE). NFE consisted of two indicators that sought to evaluate the level of psycho-social and parenting related behavior within the adolescent mothers' nucleus that directly impacted the safety and stability of their children's development environment; thus, their ability to access community participation and interpersonal relationship building processes. This element is essential for social inclusion as one of the foundations for the development of the social inclusion model is related to bettering community safety and guarding against abuse; specifically, through the category, structure, and level components of the model (Figure 2) (Simplican et al., 2015). Nurturing family environments was assessed through the classification of each case's: child maltreatment/negligence records incidence and level of co-parenting practices present in the adolescent families.

The following descriptive statistics for the control and intervention groups were identified for the child maltreatment/negligence indicator: one case at baseline and 7 cases were identified post-intervention which is a 17.1% increase in the control group, while the intervention group had 2 cases at baseline and 11 cases post-intervention which implicates a 12% increase. The co-parenting level identified in the groups included: that 17 cases of the control group informed to have father involvement at baseline and 24 indicated to have father involvement with child post-intervention; which results in a 20% rise in father involvement for co-parenting dynamics. However, the intervention group presented 36 cases pre-intervention and 55 cases post-intervention for co-parenting dynamics levels, which demonstrates a 25.3% increase in co-parenting.

Table 11

Comparison for the Nurturing Family Environment: Descriptive Statistics

		Control group			Intervention group	
		Child maltreatment / negligence	Co-parenting levels		Child maltreatment/ negligence	Co-parenting levels
Baseline	Frequency	1	17	Frequency	2	36
	Percent	2.9%	48.6%	Percent	2.7%	48.0%
Post-intervention	Frequency	7	24	Frequency	11	55
	Percent	20.0%	68.6%	Percent	14.7%	73.3%

The Nurturing Family Environments (NFE) was operationalized and assessed by analyzing the child maltreatment/negligence and co-parenting levels data, which was combined as follows: for a high NFE lack of co-parenting practices and child maltreatment records should not be present, for medium NFE the only one of the negative characteristics should be present, and for a low NFE both child maltreatment/negligence

records and lack of co-parenting had to be present. As presented in figure 5, the control group at baseline demonstrated a NFE where: 48.6% high, 42.9% medium, and low 8.6%; while for the same group post-intervention the NFE was: 54.3% high, 40.0% medium, and low was 5.7%. The intervention group at baseline exhibited an NFE of: 46.7%, medium 34.7%, and low 18.7%; meanwhile the post-intervention data recorded that the intervention group had a: high NFE 61.3%, medium 36.0%, and low 2.7%.

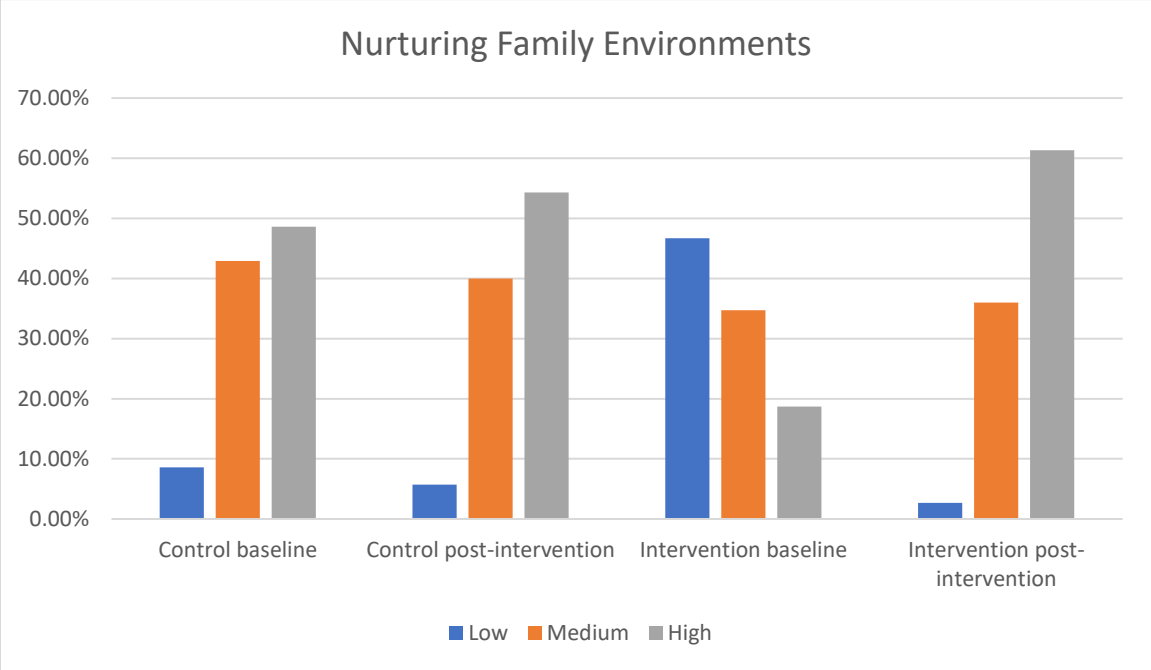

Figure 5. Nurturing family environment level outcomes: Comparison per groups.

Another social inclusion item assessed in this program evaluation study is the Life-course protective factors (LCPF). The LCPF consisted of the analysis of two early life development contexts which may potentially affect the health outcomes of children born to adolescent parents throughout their lifespan; as well as having a potential impact on their families' community and interpersonal connections. Unwanted pregnancies among adolescents and up to date vaccination records are important determinants of

future health of these groups, and therefore are construed as protective factors. This element is basic for the foundation of the social inclusion model as the ability to tackle long-term poor healthcare access as well as skill building, which are essential for community readiness and interpersonal positive relationships (Simplican et al., 2015). The LCPF were evaluated through the following outcomes: unwanted pregnancy and up-to date vaccination records.

The descriptive statistics for the unwanted pregnancy outcomes (Table 12) at baseline for the control group included: 91.4% had an unwanted first pregnancy; while the post-intervention data informed that their subsequent pregnancy after the intervention was unwanted in 77.1% of the cases. For the control group the total number of children reported had a median of 2. The intervention group had an unwanted first pregnancy in 82.7% of the cases at baseline. The post-intervention data reports that the intervention group informed in 81.3% of the cases that their subsequent pregnancies after the intervention were unwanted. The intervention group exhibited a total amount of children with a median of 2.

The vaccination up-to date records demonstrated that the control group's children had up to date vaccine records in 88.6% of the cases and 2.9% did not at baseline; the post-intervention data demonstrated that 100% of the cases of children had up-to date vaccine records. The intervention group reported that their children had their vaccine records up-to date at baseline in 82.7%, and post-intervention these children exhibited: 93.3% of cases with vaccines up-to date and 6.7% was not updated (Table 12).

Table 12

Comparison for the Life-course Protective Factor: Descriptive Statistics

		Control group			Intervention group	
		Unwanted pregnancy	Up-to date vaccines		Unwanted pregnancy	Up-to date vaccines
Baseline	Frequency	32	31	Frequency	62	62
	Percent	91.4%	88.6%	Percent	82.7%	82.7%
Post-intervention	Frequency	27	35	Frequency	61	70
	Percent	77.1%	100%	Percent	81.3%	93.3%

The Life-course protective factors (LCPF) for this program evaluation study included the combination of the unwanted pregnancy and up-to date vaccine records outcomes as follows: for a high LCPF an unwanted pregnancy should not be present, and the vaccine records should be up-to date, medium LCPF contemplated that only one negative outcome was present, and for a low LCPF an unwanted pregnancy had to be present and the child's vaccines were not up-to date. As demonstrated in figure 6 the control group demonstrated a LCPF at baseline where: 8.6% high, 80.0% medium, and low LCPF in 11.4% of the cases; while the post-intervention data reported that this group had: 22.9% high, 77.1% medium, and low 0%. The intervention group had a baseline LCPF were: 16% high, 66.7% medium, and 17.3% was low; while the post-intervention reporting demonstrated: a high LCPF in 14.7% of the cases, 82.7% had medium, and 2.7% low LCPF.

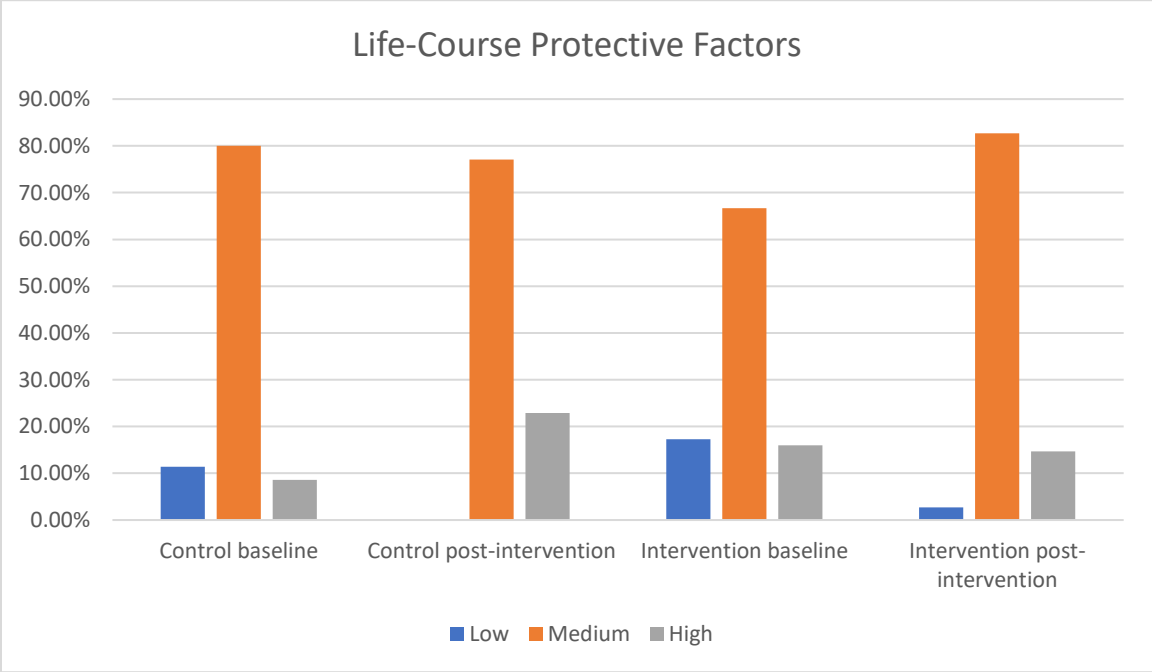

Figure 6. Life-course protective factors outcomes: Comparison per groups

The last of the social inclusion item assessed in this program evaluation study was Socio-economic position (SEP). The SEP is evaluated to understand the potential for accessing resources and economic independence of the adolescent mothers impacted by the organization's services. The Socio-economic position characteristic for social inclusion of adolescent parents was assessed at baseline and post-intervention using the: income level, academic achievement, and level of governmental aids dependency.

The control group's adolescent mothers reported having an income level at baseline below minimum wage was 100%, where all the cases did not have a self-generated income; while at post-intervention this group exhibited 37.1% had minimum wage or less income and 54.3% had above minimum wage. The intervention group reported to have an income level below minimum wage in 100% of the cases at baseline

and post-intervention had 40% minimum wage or below, 40% had above minimum wage, and 20% was missing data due to non-response in the interview process.

On the one hand, the academic achievement outcome for the control group at baseline was in all the cases or 100% low because they had not completed a high school degree and reported to have: 97.1% high and 2.9% had low academic achievement or had less than high school diploma. On the other hand, the adolescent mothers at the intervention group had 100% of the cases achieved less than high school degree at baseline of low academic achievement, while exhibiting: 97.3% was high and 2.7% was low.

The governmental aids dependency level was also assessed throughout the control and intervention groups at baseline and post-intervention. The control group reported to have two or more governmental aids at baseline in 51.4% (high dependency levels), 42.9% had less than 2 governmental aids, and 5.7% was missing data. The post-intervention data demonstrated that 8.6% had high dependency (2 or more governmental aids) and 91.4% had low dependency levels. The governmental aids dependency levels at baseline for the intervention group was 60% high and 37.3% was low, while the post-intervention data reported that 18.7% was high and 81.3% had low dependency.

Table 13

Comparison for the Socio-economic Position: Descriptive Statistics

		Control group				Intervention group		
		Income level	Academic achievement	Gov. Aids dependency		Income level	Academic achievement	Gov. Aids dependency
Baseline	Frequency	35	0	18	Frequency	75	0	45
	Percent	100%	0%	51.4%	Percent	100%	100%	60%
Post-intervention	Frequency	13	34	3	Frequency	30	73	14
	Percent	37.1%	97.1%	8.6%	Percent	40%	97.3%	18.7%

On the one hand, the control group was served during the years 2002 to 2005 and reported a mean to have completed their last degree in the year 2009, which in average took from 7 to 4 years to obtain. The intervention group was impacted by the organization's services from 2009 through 2011, whose participants completed in average their last degree in the year 2012; which produces a range of 1 to 3 years. On the other hand, the control group reported the following last academic achievements in 2017 (post-intervention measures): 45.7% a high school diploma, 20% has a technical degree, 14.3% an associate degree, 17.1% a bachelor's degree, and 2.9% had less than high school. The intervention group reported to have achieved in 2017: 61.3% a high school diploma, 21.3% a technical degree, 10.7% an associate degree, 4% a bachelor's degree, and 2.7% less than high school. The control group reported to be currently enrolled in college in 11.4% of the cases and working in 88.6% respectively; while the intervention group informed to be studying in college in 21.3% of the cases and 56% is currently working.

The socio-economic position was assessed as a social inclusion characteristic and compared between and within the study groups. The high socio-economic position outcome had a combination of: above minimum wage for a high-income level, high academic achievement consisting of high school diploma or higher education, and low governmental aids level. The medium socio-economic position considered: having a below or within minimum wage income, high academic achievement, and low governmental aids dependency levels. While the low socio-economic position was assessed by considering: below minimum wage income level, low academic achievement, and high governmental dependency levels. On the one hand, the control group exhibited at baseline a 100% low socio-economic position and post-intervention this group had 54.4% was high, 34.3% medium, and 14.3% low. On the other hand, the intervention group also reported 100% low socio-economic position at baseline, while at post-intervention this group had: 34.7% had high, 38.7% medium, and 26.7% had low socio-economic position outcomes.

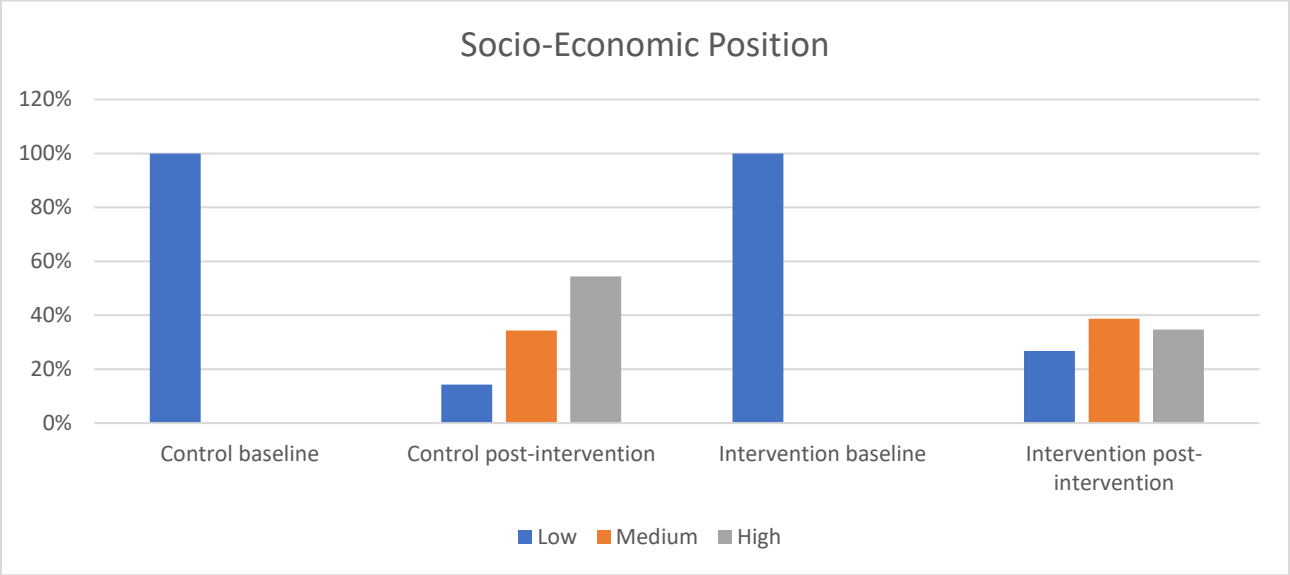

Figure 7. Socio-economic position outcomes: Comparison per groups.

Statistical Assumptions

The Levene ANOVA test's homogeneity of variance analysis for the life-course protective factors' measures intervention group was significant (p =.024), indicative of non-homogeneity which fails to comply with one of the ANOVA assumptions (homogeneity of variance). This result was different for the analysis of the intervention group's homogeneity of the nurturing family environment measures (p=.982) which indicates significance of the p-value and homogeneity assumption can be stated. The control group's Levene test informs of the homogeneity of the variance of the NFE measures (p=.347). The socio-economic position and social inclusion measures could not be analyzed using ANOVA due to the lack of comparison levels since the baseline measures were low level in 100% of the cases.

The noncompliance of the homogeneity of variance assumption for the ANOVA tests for the nurturing family environments and socio-economic position variables can be

resolved using a non-parametric test for analyzing two-related samples known as the Wilcoxon test. Thus, no ANOVA results are reported in the current study. The Wilcoxon test assumptions include: independence in observation scores, sample size should be large (more than 26), as well as continuous and symmetrical distribution of the sample (Green & Salkind, 2014). The McNemar test was also used to analyze the social inclusion measures as dichotomous, categorical, and related groups characteristics that it poses, the assumptions for this test include: independence of scores, mutually exclusiveness, and large sample size (more than 26).

On the one hand, the Pearson correlation test was used to understand the relationship between time of service provided and the amount of services received by the organization's participants, for which the following assumptions were met: bivariate normal distribution (met as scatterplot graph demonstrated linearity), and independence of scores. On the other hand, a bivariate logistic regression was performed to assess the effect of time lapse and amount of services provided on the social inclusion outcomes; for which the Hosmer and Lemeshow test was used to assess the goodness of fit for data which in every model proved to be a good fit (model 1: p=.976; model 2: p=.807; model 3: p=.874); thus, the linearity of the logit was met. Also, the following assumptions for the binary logistic regression were met: linearity of logit and multicollinearity.

Statistical Analysis Findings: Research Questions and Hypotheses

The statistical analyses performed to address the research questions that guided this program evaluation study included: Wilcoxon test, McNemar test, Pearson correlation, and Binary Logistic Regression. The first research question for this study

was: Is there a statistically significant change between baseline and post-intervention social inclusion characteristic outcomes such as life-course protective factors (vaccination records up-to date and unwanted pregnancy), socio-economic position (academic achievement, government dependency level, and income level), and nurturing micro and meso environments for the family (co-parenting practices and child maltreatment records) produced in those who participated? In this case the life-course protective factors, socio-economic position, and nurturing family environments' results were constructed through the classification of levels such as low, medium, or high. The baseline and post-intervention measures for these social inclusion characteristic outcomes was analyzed using the applicable two-related samples Wilcoxon test for each study group (control and intervention).

The Wilcoxon test for the nurturing family environments (NFE) demonstrated for the change between baseline and post-intervention measures to be statistically significant with a medium effect size for the intervention group (z= -2.772, *p*=.006, r= -.320) and non-statistically significant with small effect size for the control group (z= -0.645, *p*=.519, r= -.109). The socio-economic position analysis based on the Wilcoxon test demonstrated that both control and intervention groups had statistically significant changes with large effect size, where the control group had a z-value of -4.540, $p < .001$, and r= -.767 and the intervention group had a z-value of -6.954, $p < .001$, and r= -.803. The life-course protective factors were analyzed by using the Wilcoxon test, which reported a statistically significant change with a medium to large effect size for the control group (z= -2.496, *p*= .013, r= -.422) and for the intervention group there was no

statistically significant change with small to medium effect between the baseline and post-intervention measures (z= -1.591, *p*=.112, r= -.184).

The second research question that was used to guide this study was: Is there a statistically significant change between social inclusion at baseline and post-intervention for adolescent who are parents that participated in the organization at the intervention or control groups? To address this research question a McNemar test was performed which demonstrated that there was statistically significant change between the baseline and post-intervention measures for social inclusion in control and intervention groups, where the $p < .001$ for both groups and the intervention group had a chi-square $\chi_2 = 29.032$. The control group demonstrated a large effect size (r= .486) and the intervention group had a medium to large effect (r= .413).

The third research question for this program evaluation study was: Is there a statistically significant relationship between time lapse of service impact and amount of services provided among the organization's participants? To analyze the current question a Pearson correlation analysis was performed, using time lapse of service's impact as the independent variable (x) and the amount of services received as the dependent variable (y). The Pearson correlation for all the participants that received services, which included the control and intervention group cases (n=110, *df*=108), was *r*(108)= -0.051 and *p*=.599. The control group (n=35; *df*=33) exhibited a Pearson correlation for the relationship between time lapse of service impact and amount of services received of *r*(33)= 0.008 and a *p*= .962; while the intervention group (n=75, *df*= 73) had a Pearson correlation of *r*(73)= -0.103 and a *p*= .377.

The fourth and final research question that guided this study was: Did the time lapse of service impact and amount of services provided modified the relationship between baseline and post-intervention social inclusion outcomes for the organization participants? A bivariate logistic regression was used to analyze the data, where the first model coefficients or covariate models were: amount of services provided (model 1), the second was amount of services and time lapse of services (model 2), and the final model included the components of the second model plus the interaction of the two (model 3). The initial -2 Log likelihood was -2LL= 150.706. The classification of the outcome of low social inclusion cases was: 56.4% for model 1 (only amount of services) and 2 (added months of services hierarchically), and 55.5% for model 3 (included the interaction between amount and time lapse of services). As reported in table 12, the time lapse of service did not significantly modify the relationship between the social inclusion outcomes, b= 0.01, Wald $\chi 2(1)$= 0.02, p=.893. The amount of services provided by the evaluated organization also demonstrated to not significantly modify the relationship between the social inclusion outcomes for this study, b=0.09, Wald $\chi 2$ (1)= 0.20, p=.659. The interaction between the time lapse and the amount of services provided was assessed using the bivariate logistic regression test, which reported to have a non-significant modification relationship with the social inclusion outcomes, b = -0.00, Wald $\chi 2$ (1)= 0.27, p = .604.

Table 14

Parameter Estimates: Models Predicting Time Lapse and Amount of Services' Impact on Social Inclusion Outcomes

							95% CI for Exp (B)	
	B	S.E.	Wald	Df	Sign.	Exp (B)	Lower	Upper
Time lapse	0.005	0.034	0.018	1	0.893	1.005	0.939	1.074
Amount of services	0.086	0.196	0.195	1	0.659	1.090	0.743	1.600
Time lapse by Amount of services	-0.004	0.009	0.268	1	0.604	0.996	0.979	1.012
Constant	-0.351	0.856	0.168	1	0.682	0.704		

Summary

Answers Summary to Research Questions

The current program evaluation study analyzed social inclusion outcomes and characteristics, while comparing the potential gains between a set of comparison groups. In the one hand, the gain in nurturing family environments (NFE) was significant for the intervention group and non-significant for the control group. While the socio-economic position (SEP) gains for was significant for both comparison groups. The control group demonstrated significant gain in life-course protective factors (LCPF) while the intervention group did not. In the other hand, the social inclusion gains were significant for both comparison groups.

The relationship between time lapse and amount of services provided for both control and intervention groups was assessed, where the results for the comparison groups was non-significant. Also, the time lapse and amount of services' variables were

analyzed for potential modification relationships with the social inclusion outcomes. The results demonstrated that no significant modifying effect was present for the time lapse as well as for the amount of services provided and the social inclusion outcomes in this study.

Transition to Chapter 5

To further discuss the results disclosed in this chapter, the following topics were addressed in Chapter 5: interpretation of the findings, limitations, recommendations, and implications of the study. The conclusions for this program evaluation study will also be detailed in Chapter 5.

Chapter 5: Interpretations of the Findings

Introduction

In this program outcome evaluation study, I focused on analyzing improved social inclusion of the organization's adolescent mothers who received a continuum of care based on the model of service developed by this organization, the family incubator model. I used the social inclusion model developed by Simplican et al. (2015) to assess their potential gains of social inclusion characteristics, access to community participation and interpersonal relationship building. The social inclusion characteristics analyzed were chosen because they provided critical information from the initial and post-intervention status of the evaluated organization's adolescent mothers who participated regarding their access and interactions within and between ecological levels of social life. I completed this program evaluation study with the goal of accessing empirical data to understand the outcomes and effectiveness of the interventions provided by the organization's model--evidence that was lacking and that will allow for documentation of this program's impact.

Key Findings Summary

The social inclusion outcomes I have assessed and reported in this study showed that, at baseline, all the cases in the control and intervention groups had a low potential for community participation and interpersonal relationship engagement. The intervention group demonstrated a more rapid attainment of social inclusion characteristics than the control group, which, according to the literature, should impact their children's developmental contexts, future health, and social outcomes. After participating in the organization's services, 41.3% of the intervention group participants reported a high

potential for social inclusion. These findings are key, given that the intervention group showed a statistically significant change of their social inclusion potential after the impact of the service model developed by the evaluated organization. It is important to recognize that the levels of social inclusion achieved by the control group were 48.6%, which is consistent with literature that has shown that adolescent mothers achieve academic goals and other social inclusion characteristics when older, but at a much slower pace than their non-pregnant adolescent counterparts (Cox et al., 2012). Delayed social inclusion of mothers exposes their children to shortcoming contexts at their early development stages, which is associated with the promotion of social disadvantage cycles (Mollborn et al., 2014; Schorr & Schorr, 1989; Smith & Wilson, 2014). It is imperative to recognize that the intervention group's post-intervention measures were gathered 6 to 8 years after their initial service provision, while the control group was assessed after 12 to 15 years after the initial impact. Thus, the social inclusion potential achieved by the intervention group, who were younger (median of 23 years) than the control group (median of 31 years of age), at the time of post-intervention data collection was more rapid and with higher co-parenting incidence, income, and academic achievement levels. Nonetheless, the internal validity issues expected of differences among groups at the time of entry into the program (cohort differences), history or period effects, and maturation might have impacted the results.

Academic achievement is conducive to the attainment of better socio-economic position characteristics associated with social inclusion of adolescent mothers (Barto, Lambert & Brott, 2015). The results for academic achievement at the post-intervention

measures for the intervention group showed a greater potential for higher education in subsequent years, with 21.3% of the adolescent mothers currently studying (who, on average, completed their last degree in the year 2012) versus the 11.4% reported by the control group (who completed their last degree, on average, in 2009). On the one hand, the intervention group's achievements related to better socio-economic position and contextual family's factors and will provide positive progression towards social inclusion (see DeGreef et al., 2012). On the other hand, the exposure of negative factors should be relieved early in the lives of children born to adolescent mothers to provide a positive environment for healthy development including guarding them from: poverty, violence, academic lagging, and lack of social structure access (Edwards et al., 2014).

Interpretation of the Findings

My findings from this program evaluation study are consistent with the peer-reviewed literature on the social inclusion concept and model. According to Simplican et al. (2015), the following characteristics will increase social inclusion potential: contributing to society, fighting poverty, employment, and efficient healthcare access, increase security at the community levels, and protecting from abuse. The findings showed that the socio-economic position gains for the intervention group were statistically significant when comparing participants' entry-level and post-intervention status (after combining the measures for income, academic achievement, and governmental aids dependency). The life-course protective factors in the intervention group showed no statistically significant change, while the measures used to assess these potential gains showed slight improvement within this group for both the up-to date

vaccination of their children and prevention of unwanted pregnancies. The nurturing family environments variable results showed that there was a statistically significant change for the intervention group when comparing their baseline and post-intervention combined measures that assessed the existence of child negligence/maltreatment and their co-parenting levels.

The merger of all the characteristics (SEP, LCPF, and NFE) which can be extrapolated from Simplican et al. (2015) social inclusion model showed that the social inclusion potential for the adolescent mothers served through the evaluated organization's comprehensive model (intervention group) had a statistically significant gain. Thus, it can be concluded that the social inclusion outcomes for the organization's model of service in the intervention group will positively impact their social quality indicators, community-related dynamics, self-realization, access to resources, and family environments (see Cox et al., 2012; De Greef et al., 2015; Mills et al., 2012; Simplican et al. 2015).

Researchers have reported that adolescent mothers in general find ways to complete their high school degrees, but they require more time to do so and have lower income (Cox et al., 2012). My findings confirm this widespread discipline knowledge, showing that the control group that did not receive the organization's comprehensive model of service had a statistically significant change in socio-economic position. The control group's adolescent mothers achieved their academic goals later (5.5 years on average) than the intervention group (2 years average) and had lower income as well. On the one hand, this information is relevant given the time span that the children born to these adolescent mothers are exposed to poverty, lack of resource access, and other

factors that promote social exclusion and adolescent pregnancy generational cycles (Cox et al., 2012; SmithBattle, 2012). On the other hand, the control group (who lacked the intervention of the evaluated organization's comprehensive model) reported to have no statistically significant change in the nurturing family environments characteristics for social inclusion. For Chow and Lou (2015) social exclusion's multi-dimensionality needs to be assessed based on its impact on cyclic and negative outcomes. Thus, adolescent mothers and their children need to be served with models that aim to decrease the potential for inter-generational transmission of these social exclusion risk factors and the time span that children are exposed during their early development.

My program evaluation provides additional knowledge to the field about the impact that the organization's adolescent mothers experienced. The lack of comprehensive intervention for the control group resulted in lower potential for child negligence/abuse and co-parenting levels interaction's gain to the cases assessed in this program evaluation. In the case of the control group, it can be inferred that their children have a higher potential for exposure to risk factors which promote cyclic continuance of negative outcomes in the future (see Chow & Lou, 2015; Cox et al., 2012). The intervention group achieved statistically significant changes in their nurturing family environments. Therefore, the factors that protect children born to adolescent mothers from future negative outcomes increase their chances of breaking the social disadvantage cycles and of achieving social inclusion. These findings provide useful evidence to public health practice given the connections observed between the evaluated organization's comprehensive program outcomes, the potential for social inclusion, and the impact of

ecological contexts (Simplican et al., 2015). Thus, the nurturing family environments outcomes in this program evaluation study provide an understanding about the social ties generated at an early age with immediate family nucleus. These social ties related to the impact that the organization's comprehensive model had on the adolescent mother's families should extend to their future generations.

Analysis and Interpretation of the Findings

The evaluated organization's goal is to break the cycle of social disadvantage in adolescent parent's families in Bayamon, Puerto Rico. The interventions developed by this program entails the interaction of multiple areas of services that connect to provide a continuum of services that would increase the potential for social inclusion of adolescent parents and their families (Evaluated Organization, n.d.). The evaluation of this program has been guided by the Complex Systems theory and its understanding that complex organizations or systems do not act linearly but based on multiple interactions between and within their components; which generates outcomes that cannot be assumed to be caused by any of the components but rather by the interaction of them all (Walton, 2014).

The social inclusion potential achieved by the adolescent mothers and their families after they participated from the evaluated organization's comprehensive and complex model of service (intervention group) had multiple levels and contexts of interactions. Simplican et al. (2015) social inclusion model's application for the organization should be understood through the Complex Systems theory. The social inclusion characteristic of Socio-economic position's outcomes for this program evaluation demonstrated that the intervention group are developing strong formal and

informal connections for resources' production and utilization after being impacted by the organization's model of service. The socio-economic position changes for the intervention group were not only highly probable ($p<.01$) but with a large significance effect and practical importance. The nurturing family environments' outcomes for social inclusion promotion, resulted to be significant only for the intervention group which demonstrates that the evaluated organization's participants and their families are generating positive networks due to their social and parenting skills' gains with a medium meaningful level of effect. These positive networks aid them to access interpersonal relationships and community interactions. The outcomes for life-course protective factors in social inclusion promotion process were not significant and demonstrated a small to medium effect level of practical meaningfulness for the organization's continuum of care model; at the time of the post-intervention measurements, which demonstrates that the ecological contexts' interactions are either untraceable or inexistent for the adolescent mothers currently. The potential for un-traceability or inexistence of the gains for the intervention group's participants is based on the evidence that the control group demonstrated to have significant changes with a medium to large meaningful effect, which contemplated the outcomes for a cohort who experienced more extended periods of time after being an adolescent mother when compared to the intervention group. Even though the levels of emotional attachment and precursors for relationship building could not be identified as having a significant change after the model's impact, the complexity of the contexts of these adolescent mothers should be further analyzed; as based on the Complex Systems theory there should be a holistic understanding of the program

outcomes and their non-linear interaction between and within ecological levels and systems. The research questions, hypothesis, statistical analyses, and conclusions for this study are collected and detailed in table 15.

Table 15

Research Questions, Hypothesis, Statistical Analyses, and Conclusions

Research question	Hypothesis	Conclusions	Statistical test/ results
1. Is there a statistically significant difference between baseline and post-intervention social inclusion characteristic outcomes such as life-course protective factors (vaccination records up-to date and unwanted pregnancy), socio-economic position (academic achievement, government dependency level, and income level), and nurturing micro and meso environments for the family (co-parenting practices and child maltreatment records) produced in those who participated?	H*o*1: The social inclusion characteristics of life-course protective factors, socio-economic position, and nurturing micro and meso environments for the family will have no statistically significant change between baseline and post-intervention measurements.	The outcomes for Life-course protective factors were not significant for post-intervention measurements. Socio-economic position's outcomes for this program evaluation demonstrated that the intervention group are developing strong formal and informal connections for resources' production and utilization after being impacted by the organization's model of service, due to their statistically significant changes. The Nurturing family environments' outcomes resulted to be significant only for the intervention group; which demonstrates that the organization's participants and their families are generating positive networks due to their social and parenting skills' gains, which aid them to access interpersonal relationships and community interactions.	The life-course protective factors were analyzed by using the Wilcoxon test, which reported a statistically significant change for the control group (z= -2.496, *p*= .013, and r= -.42) and for the intervention group there was no statistically significant change between the baseline and post-intervention measures (z = -1.591, *p*=.112, and r= -.18). The socio-economic position analysis based on the Wilcoxon test demonstrated that both control and intervention groups had statistically significant changes, where the control group had a z-value of -4.540, $p < .001$, and r= -.77 and the intervention group had a z-value of -6.954, $p < .001$, and effect size of r= -.80. The Wilcoxon test for the nurturing family environments (NFE) demonstrated for the change between baseline and post-intervention measures to be statistically significant for the intervention group (z= -2.772, *p*=.006, r= -.32) and non-statistically significant for the control group (z= -0.645, *p*=.519, r= -.11).

	Research question	Hypothesis	Conclusions	Statistical test/ results
2.	Is there a statistically significant change between social inclusion at baseline and post-intervention for adolescent who are parents that participated in the organization at the intervention or control groups?	H*o*2: The social inclusion measures will have a statistically significant change at baseline and post-intervention for the organization participant adolescent parents at the intervention group.	The intervention group demonstrated to have a statistically significant social inclusion change from baseline to post-intervention. The intervention group reported a 100% low social inclusion at baseline and demonstrated a 41.3% high and low 58.7% low potential for social inclusion post-intervention.	McNemar test was performed which demonstrated that there was statistically significant change between the baseline and post-intervention measures for social inclusion in control (r= .49) and intervention groups (r = .41), where the $p < .001$ for both groups and the intervention group had a chi-square $\chi 2$= 29.032.
3.	Is there a statistically significant relationship between time lapse of service impact and amount of services provided among the organization's participants?	H*o*3: There is a statistically significant relationship between the time lapse of service impact and amount of services provided for the organization adolescent who are parents and participants.	The relationship between time lapse and amount of services provided for both control and intervention groups was assessed, where the results for the comparison groups was non-significant. Thus, no relationship can be inferred.	The Pearson correlation for all the participants (control and intervention group cases) (n=110, *df*=108), was *r*(108)= -0.051 and p= .599. The control group (n=35; *df*=33) exhibited a Pearson correlation for the relationship between time lapse of service impact and amount of services received of *r*(33)= 0.008 and a *p*=.962; while the intervention group (n=75, *df*= 73) had a Pearson correlation of *r*(73)= -0.103 and a *p*=.377.
4.	Did the time lapse of service impact and amount of services provided modified the relationship between baseline and post-intervention social inclusion outcomes for the organization participants?	H*o*4: The time lapse of service impact and amount of services provided have a statistically significant modifying relationship between the baseline and post-intervention social inclusion outcomes for the organization's adolescent mothers who were participants.	The results demonstrated that no significant modifying effect was present for the time lapse as well as for the amount of services provided and the social inclusion outcomes in this study. Thus, no modification effect can be inferred.	The time lapse of service did not significantly modify the relationship between the social inclusion outcomes, *b*= 0.01, Wald $\chi 2(1)$= 0.02, *p*=.893. The amount of services provided demonstrated to not significantly modify the relationship between the social inclusion outcomes for this study, *b*=0.09, Wald $\chi 2$ (1)= 0.20, *p*=.659. The interaction between the time lapse and the amount of services had a non-significant modification relationship with the social inclusion outcomes, *b*= -0.00, Wald $\chi 2$ (1)= 0.27, *p*=.604.

Limitations of the Study

The current program evaluation study has several limitations including some methodological weaknesses, as a pre/post-test design was used. The access to the control group's participants or responders for post-intervention assessment proved to be a challenge in the study due to changes in information such as: telephonic number and place of residence; also, the Facebook application was used but either they did not an account or did not respond to multiple attempts by the evaluated organization to contact them. To address the limitation of lack of accessibility to the control group, an additional (previous) two years was added to this group's inclusion criteria. Neither the trustworthiness nor validity of the data was impacted by adding this previous two years to the sample.

The differences between the baseline characteristics for the comparison groups is acknowledged, but additional multivariate analyses could have adjusted for potential effect of covariates (such as controlling for academic achievement); which constitutes a weakness to this study. Also, due to the limited sample size available there might be a lack of statistical power in the study. The McNemar test (chi-square) included sparse data in the matrix for several categories related to high social inclusion (were sample size was less than 5) which affects the significance of the effects. Additional Fisher's Exact Test is recommended as an alternative test that accounts for low sample size (less than 5). The generalizability of the results in this study is not possible due to the lack of random assignment selection for the population under study, affecting its external validity; but nonetheless, this study provides the empirical data intended in the purpose of this

program evaluation, which is to understand the effectiveness of the organization's model on the social inclusion potential for their participants.

Recommendations

The evaluated organization's model of service should be further analyzed based on their social inclusion items for adolescent parents and their families, which should always be based on appropriate and relevant social inclusion models and statistical analysis. Additional program evaluations should be conducted to address longitudinal evidence of social inclusion's outcomes and impact to the children born to adolescent parents served by the organization. The Life-course protective factors for social inclusion in the impacted children should be assessed as they become teenagers; to understand their level of social disadvantage cycles' reproduction. Also, a qualitative methodology should be used to understand the interaction pathways for social inclusion as result of the impact provided by the evaluated organization's comprehensive model, such as: community participation and interpersonal relationships; for the same cohorts analyzed in the current program evaluation study (Jolley, 2014; Walton, 2014).

Implications

Positive Social Change

The positive social change that can be contemplated through the current program evaluation ranges from: personal, family, organizational, and social policy. The individuals and families that were assessed to measure their potential social inclusion gains due to the impact of the evaluated organization's services, are stakeholders that will benefit from the acknowledgement of their achievements towards a higher community

participation and positive interpersonal relationship building. This program evaluation study also provides effectiveness and impact evidence for the evaluated organization's social inclusion outcomes and their practice based on the Complex systems theory, which provides empirical data for the internal and external accountability and decision-making processes of the organization. The social inclusion concepts applications generated through the course of this study, as the social inclusion model developed by Simplican et al. (2015) benefit the public health practitioners as knowledge is extended to contemplate the impact to adolescent parents and their families. Also, the findings of this study should allow policy makers and funders to visualize social inclusion outcomes for adolescent parents and their families as essential for increasing their contribution to societal dynamics and economic production, as well as understanding the organization's comprehensive model impact.

Methodological, Theoretical, and Empirical Implications

The American Academy of Pediatrics recommendations for comprehensive and complex services model to serve adolescent parents and their children has been previously used as conceptual framework for program outcomes evaluation studies (Cox et al., 2012). The Cox et al. (2012) program evaluation for the Project Raising Adolescent Families Together, a teen-tot medical home model program that offered comprehensive health and social support services to adolescent parents and their children, was evaluated using a prospective single-cohort study with pre and post-tests design (Cox et al., 2012). The American Academy of Pediatrics promotes several abstract characteristics to be

present at successful programs that address adolescent parents and their families' needs (Cox et al., 2012).

The American Academy of Pediatrics presented the concept of medical home in 1992 as the appropriate practice standards to address the medical needs of infants, children, and adolescents. The definition of a medical home included a minimum amount and outreach in the provision of services that included: preventive, ambulatory and inpatient care, service continuity assurance through prolonged time periods, needs identification and referral for service, to address individual health needs in collaboration with school and community, and the development of an accessible central-record (Dickens, Green, Kohrt, & Pearson, 1992). The practice in medical care was recommended to include: accessible, continuous, comprehensive, family centered, coordinated, and compassionate services (Dickens et al., 1992).

The recommendations for models of service for adolescent parents and their children includes: care continuums and medical home services, use of multidisciplinary and comprehensive approaches that use community resources, coordinate services, promote breastfeeding, contraceptive long-term use, and healthy-lifestyles, stress on the importance of achieving high school diploma and caring for their child (AAP, 2001). Other recommendations where for programs to: assess domestic violence risks, be aware of the optimal child and adolescent parent's development, secure availability of community quality resources, contribute with positive reinforcement, promote further research on adolescent father's interventions and outcome evaluations on adolescent parenting programs (AAP, 2001). The updated recommended characteristics for

adolescent parents' families programs from the AAP published in 2012 extended the ones already stated in 2001, specifically including: advocating for adolescent programs that use upstream and evidence-based methods, promote higher education or vocational training, assess for mental health issues, obtain information about the level of voluntary participation in sexual activity, promote adolescent father's involvement in their children's early age life, and supporting for comprehensive and preventive focuses on serving this population (Pinzon et al., 2012).

The elements of the Family Incubator Model developed by the evaluated organization to promote social inclusion of adolescent parents and their families are based on: accessibility, family-centered approach, continuous, comprehensive, coordinated, compassionate, developmentally appropriate, and culturally sensitive (Cox et al., 2012). The key statements and definitions of the AAP recommendations for adolescent parenting programs were adapted to the organization's model of service (Table 13). The adaptation of the AAP recommendations for care in adolescent parents and their children's programs to the organization's comprehensive model provides the benefit of linking these abstract concepts to the analysis of the organization's program evaluation. The application of the empirical evidence obtained per the current program evaluation study could impact the knowledge in the public health practitioner's field; as it supports and further develops the characteristics for adolescent parents' programs into the social inclusion's outcomes understanding through such implementation.

Table 15

Definitions and Key Elements AAP: Applied to the organization's Model

Accessible	Family-centered	Developmentally appropriate	Continuous
• Participants should live in Bayamon or vicinities • Transportation service is available and free of charge • Flexible schedule for supporting family inclusion • Social workers home visiting services • All the services are free of charge	• Includes a focus of balance between the services provided to each member of the vulnerable family unit (mother, father, and child) in order to potentiate their development and further social mobility • All the people living under the same roof with the teen parents are considered participants	• Highly-trained and professional staff available for each area of expertise • Standardized developmental screening implemented by professionals and parents • Academic education for teen parents in an alternative education setting based on the needs of teen parents; with an individual and multiple intelligences approach • Early learning services for teen parent's children promote protective factors; where the teen parents learn to be their first educators • Psychological evaluations to assess stress and educational comprehension • Supporting family served by multidisciplinary team to increase nurturing environments at home	• Each family has an individualized plan developed by the multidisciplinary team and families; which is amended when needed • Services to connect the program with teen mothers and fathers that cannot be physically present in any given time • Comprehensive team approach • Urgent psycho-social services available • Highly intense academic programs available • Regular services available five days a week from 7am to 5pm. • No special days off and personnel vacations are coordinated with a once-in a year 10 consecutive days shutdown. • Objectives include for the teen parents families to develop the skills to transfer into their household • Supporting family and program are partners in the healthy development of the teen parent's families. • Remote and continual access to children development assessment by using technology

Comprehensive	Coordinated	Compassionate	Culturally sensitive
• Multidisciplinary team provides wraparound services that include: • Family medical care • High school and academic services • Individual, couple and family psychological stabilization/therapy • Social work coordination of resources • Parenting skills • Birthing and lactation classes • Spiritual guidance • Reproductive and sexual health promotion • Early-learning • Micro-entrepreneurship development • Professional development • Emergency resources provision • Community extension services	• Multi-disciplinary team meets on weekly or based on specific needs basis • Individual Family Management document constructed by professionals and families • Program Manager integrates activities using a family-centered approach • Vast presence in community networks	• Staff is trained to care for underserved teen parent's families • Adolescent-friendly environment promotion • Staff is continually trained and evaluated for serving teen parent's families in a compassionate manner • Organizational mission includes serving with love and compassion • Staff is evaluated by participants • A anonymous mailbox is available for participants concerns which is opened by board of director's members and discussed at board meetings	• Staff include male and female professionals • English speaking personnel is available

Recommendations for Practice

The implementation of program evaluation studies using the Complex systems theory as theoretical framework should be pondered by scholar-practitioners who intend to assess comprehensive and complex continuums of care model of services for

adolescent parents and their families. The executives of programs that aim to increase social inclusion outcomes for the population of adolescent parents should further consider the adoption and application of the social inclusion model developed through this program evaluation study; as well as the use of the three main characteristics used to assess social inclusion outcomes: Socio-economic position, Nurturing family environments, and Life-course protective factors. These with the intention to increase the field's knowledge and potential application of the concepts to other sites, due to the limited generalizability of the results discussed in this study.

The organization's comprehensive model should be further evaluated for the current practices that involve Life-course protective factors promotion, which implicates interventions that aim to reduce post-intervention unwanted pregnancies and health-prevention behaviors for the participant adolescent mothers. These future evaluations should be focused on internal and external evaluations, that contemplate immediate, intermediate, and long-term assessment of the Life-course protective factors outcomes and practices. The future evaluations for the organization's social inclusion outcomes should provide additional information about potential changes at the organizational level or to posterior conclusions about the potential social inclusion's characteristics gains for their participants and families.

Conclusion

For Puerto Rico's population where the 17.1% of all life births are to adolescent mothers, 33.1% of all the births are to young fathers, has a 71.5 billion local debt, and with 56% of all the children live under the federal poverty guidelines (Annie E. Casey

Foundation, 2017; Commonwealth of Puerto Rico, 2016; Puerto Rico Department of Health, 2010) interventions that increase the social inclusion potential of marginalized segments are essential for societal progress and coexistence (Yanicki et al., 2015). One of the population segments that is continually excluded of community participation and interpersonal relationship building is the adolescent parents. Thus, public health interventions that can prove that their models of service generate significant change to increase the potential for social inclusion of this special adolescent population and effectiveness are more relevant and essential than before.

The evaluated organization's comprehensive model of service, known as the Family Incubator model, as evidenced throughout this program evaluation study is effective in increasing the potential for social inclusion of adolescent mothers. This complex model of service was demonstrated to produce statistically significant changes to the family contexts, parenting practices, and socio-economic mobility; in shorter periods of time post-intervention when compared to the control group. The social inclusion outcomes assessed throughout of this program evaluation for he organization increases the understanding for policy-makers, funders, staff, and impacted families about the effectiveness of the interventions.

The effectiveness of this program should increase the awareness of the need to support the implementation of the Family Incubator model developed by the organization, to potentiate the social inclusion of adolescent mother's families in Bayamon; which increases socio-economic retribution, productivity, and cohesion in times of high unemployment, poverty rates, and governmental debt. The potential for

social inclusion gained by the adolescent mothers assessed after being impacted by the comprehensive model not only benefited their quality of life but also increased the chances for their children to break the social disadvantage cycles.

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Appendix A: Logic Framework Use Authorization

This "Use of Logic Framework" authorization is provided to Anayra Tua Lopez, in her role as researcher to complement the study: Social Inclusion Outcomes for the organization's Adolescent Parent Intervention. The use of the organization's logic model is strictly adhered to the informational purposes serving this study, which include the use of the diagram generated by the organization.

IN WITNESS WHEREOF, each of the undersigned has caused this Authorization to be duly executed in its name and on its behalf.

DATA PROVIDER	**DATA RECIPIENT**
Signed: _____	Signed: _____
Print Name: Dr. Wilfrido Torres	Print Name: Anayra Túa López
Print Title: Vice-Chair, Board of Directors "Evaluated Organization", Inc.	Print Title: Researcher