SEXUAL HEALTH BEHAVIOR INTERVENTIONS FOR LATINO ADOLESCENTS IN THE UNITED STATES: A SYSTEMATIC REVIEW OF THE LITERATURE

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The purpose of this thesis is to review the literature on behavioral interventions for sexual health promotion that target Latino adolescent in the United States. A systematic review of the literature was conducted using five online databases to identify sexual health behavior interventions in Latino adolescents. Articles were included if they were published between 1993 and 2008, and provided measureable objectives of increasing knowledge; changing attitudes or intentions; or decreasing risky sexual behavior, STD infections and/or pregnancy. The interventions are analyzed for use of a theoretical framework, content, methodology, assessment of measured outcomes, and effectiveness. Additionally, the interventions are classified using the Social Ecological model as a framework to identify the levels (i.e., the individual, interpersonal, community levels) at which they influence health behavior. Fifty three articles were identified, but only 11 are included in the review. Interventions were found to have fundamental similarities and differences between their targeted populations, objectives, theoretical frameworks, content, intervention designs, duration and intensity, participation and attrition rates, mode of outcome assessment, measured outcomes, effects, methodological quality, and limitations. With the exception of two interventions, all studies integrated the established criteria for methodological quality. The most frequently reported limitation was the concern for representativeness of the intervention sample to the United States Latino adolescent population, and insufficient time for

follow-up evaluation. The findings from this literature review suggest that among the behavioral interventions targeting Latino adolescents, very few have addressed adolescent sexual health. In the reviewed interventions, the most common intervention objective was the prevention or reduction of sexually transmitted diseases including HIV/AIDS, focusing on changing behaviors at the individual and the interpersonal levels. Major strengths and weaknesses are discussed about the Latino adolescent sexual health research agenda. Furthermore, the needs are identified in the Latino adolescent sexual health promotion from a social ecological perspective. Adolescent sexual health among United States Latinos is a fairly new field of research with multiple problems of great need and of much public health significance. More research is needed in producing new or validating existing, age-specific, and culturally-sensitive sexual health interventions for Latino adolescents in the United States.

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PREFACE

This thesis is dedicated to Papi Rogelio, Tía Norma, and Tío Julio. In life, you supported and helped to mold me into the person I am today. Your love will forever remain in my heart.

I also dedicate this achievement to my mother, for whom I have the greatest love and admiration. Your fighting spirit has been my ongoing inspiration, and I know that without your courage I could not have made it to this point in life. Thank you for all you have taught me not just through words, but also through actions.

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1.0 INTRODUCTION

Currently, the sexual health status of the overall adolescent population in the United States continues to be alarming in comparison to other developed nations, given the high incidence and prevalence of sexually transmitted diseases (STDs) as well as the increasing adolescent-age pregnancy rates (Centers for Disease Control and Prevention, 2008a; Centers for Disease Control and Prevention, 2009b; Hamilton, 2008; Singh & Darroch, 2000). Research suggests that the lack of effective sexual health interventions may increase the risks for adverse sexual health outcomes in adolescents (Santelli et al., 2006). Latino adolescents belong to the largest and fastest growing ethnic group in the United States; however, very little attention has been focused on their sexual health, which is affected by an interrelation of factors at different levels (i.e., the individual, interpersonal, community, and societal levels) (Pantin et al., 2004; U.S. Census Bureau, 2007a). These factors may serve as determinants, contributors, or protectors against infections with STDs including HIV, and unintended pregnancy (Kohler et al., 2008; Pantin et al., 2004; Santelli et al., 2006).

While a great majority of national data and supporting research reflects the sexual health needs of the overall United States adolescent community, limited research exists concerning the needs of Latino adolescent sexual health (Villarruel et al., 2006b). Research also suggests that health disparities exist in the health of the United States population and that the Latino adolescent community is at greater disadvantage in terms of reproductive health outcomes (Fenton, 2001).

Studies have been conducted in order to understand cultural and socioeconomic factors that may serve as determinants of or contributors to adverse Latino adolescent sexual health (Afable-Munsuz & Brindis, 2006; Bazargan & West, 2006; Fenton, 2001; Gurmán & Borzekowski, 2004; Manning et al., 2000; Prado et al., 2006; Sneed et al., 2001; Warren et al., 2008). Protective and resiliency factors that enable Latino adolescents to maintain healthy sexual lifestyles have also been investigated (Afable-Munsuz & Brindis, 2006; Baumeister et al., 1995; Edwards et al., 2008; Giachello, 2001; Guzmán et al., 2003; Jacobs, 2008; Livaudais et al., 2007; McDonald et al., 2009; Mena et al. 2008; Villarruel et al., 2007). However, very few behavioral intervention studies have been conducted in the United States in order to promote the sexual health of Latino adolescents, in particular. Without effective and culturally-sensitive interventions, the consequences of risky sexual behavior of Latino adolescents can significantly impact their quality of life in adulthood (Flores & Zambrana, 2001).

The purpose of this thesis is to determine what controlled behavioral interventions have been developed and implemented in order to promote sexual health for Latino adolescents in the United States. A systematic literature review was conducted to assess the quantity, quality, and effectiveness of interventions addressing the sexual health needs of Latino adolescents. Gaps in the literature were identified regarding sexual health interventions from a social ecological perspective, which illustrates influential factors to individual health behavior from multiple social levels in the environment. Further, suggestions have been made in order to move the health disparities research agenda forward in reducing the sexual health outcome inequalities for Latino adolescents in the United States.

2.0 ADOLESCENCE

Adolescence is characterized as a transitional period from childhood to adulthood (Adams et al., 1996; Leifer & Hartston, 2004; Steinberg, 1993). However, it is more than just a transition into adulthood. Adolescence is a critical developmental stage that requires particular consideration given the multiple biological (e.g., the genetic and hormonal), physical (e.g., growth in weight and height, and the development of secondary sex characteristics), psychological (e.g., the cognitive and emotional), social changes (e.g., peer group and/or family associations), and societal changes (e.g., educational, political or economic) which individuals experience at this time (Atwater, 1992; Lerner et al., 1996; Lerner et al., 1998). Understanding how all these changing factors interact with one another to influence and shape adolescent healthy and problematic behavior is imperative for researchers and practitioners (Lerner et al., 1998).

Adolescents experience a multitude of developmental changes in a relatively short period of time which culminate in sexual maturation (Steinberg, 1993). The early stage in the sexual maturation process involves pre-pubertal growth spurts in terms of height and weight (Atwater, 1992; Leifer & Hartston, 2004; Steinberg, 1993). During adolescent growth, the rapid secretion of sex-specific hormones signal the onset of puberty, including the growth of reproductive organs (e.g., increase in testicular size for boys, vaginal and uterine growth for girls), and the manifestation of secondary sex characteristic (e.g., growth of body hair, deepening of the voice for boys, and growth of breasts for girls) (Litt, 1990). The culminating point for adolescent

sexual maturation is the attainment of reproductive abilities (Atwater, 1992). For girls, menstruation is the first sign of reproductive ability and it is experienced at approximately 12 or 13 years of age (Atwater, 1992). Boys, in turn, experience erection followed by the first seminal emission, or ejaculation as the first sign of reproductive power at approximately 13 or 14 years of age (Atwater, 1992).

Physical transformations are also accompanied by cognitive changes in adolescence (Thurlow, 2005). Some of these psychosocial factors experienced during adolescence include: 1) the detachment from adults, 2) the establishment of autonomy, 3) the reevaluation of values learned in earlier years, 4) the search for individual identity, 5) the development of sexuality in terms of sexual orientation, 6) an increased intimacy level with peers, and 7) experimentation with new activities such as substance and alcohol use and sexual intercourse, which may or may not be protected, and often involves a feeling of risk (Adams et al., 1996; Leifer & Hartston, 2004; Wills et al., 2001).

2.1 AGE BOUNDARIES OF ADOLESCENCE

The United States continues to experience an increased influx of people from various racial, ethnic, cultural, and socio-demographic backgrounds, and so adolescence experiences vary tremendously depending on these characteristics (e.g., sex, marital status, class, geographic location, religion, and/or cultural context) (World Health Organization, 2003). These characteristics impact the variability in the age boundaries of adolescence (Leifer & Hartston, 2004; World Health Organization, 1993; World Health Organization, 2003). In the United States, the definition of adolescence tends to be arbitrary (Manaster, 1977). However, consensus has

been reached among researchers and the scientific community to recognize adolescence as the period of life which starts with the noticeable onset of puberty and ends with the establishment of characteristics and roles associated with adulthood (e.g., sexual maturity, financial and psychological independence) (Tilton-Weaver & Kakihara, 2007).

Furthermore, different sub-stages exist within adolescence to differentiate the levels of development within adolescence – early, middle, and late adolescence (Steinberg, 1993). Early adolescence constitutes individuals approximately between 10-13 years of age, while middle adolescence is composed of those 14-16 years of age, and late adolescence consists of those who are 17-20 years of age (Leifer & Hartson, 2004; Steinberg, 1993). Different needs and challenges have been identified in these different stages of development (Leifer & Hartston, 2004). The American Academy of Pediatrics considers the developmental stage of adolescence to include individuals of ages 11-21 years (American Academy of Pediatrics, 2009). Thus, for the purpose of this study, adolescence will be defined as individuals who are in the 11-21 years age range.

2.2 ADOLESCENT SEXUAL HEALTH: DEFINITION AND COMPONENTS

The World Health Organization generally defines sexual health as "a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled" (World Health Organization, 2006).

Adolescent sexual health differs significantly from that of adults (World Health Organization, 2003). The various components of the definition of sexual health must be further examined to gain a better understanding of the sexual health needs of adolescents. Essential components of adolescent sexual health include: 1) sexuality, gender identity, and sexual variation, 2) the meaning of sex based on gender differences, 3) attitudes toward sex, 4) peer relationships, 5) sexual behaviors, sexual relations, and risky sexual behaviors, 6) pregnancy and contraception, 7) sexually transmitted diseases including HIV/AIDS, 8) sexual harassment and sexual abuse, and 9) sexual health education (Atwater, 1992; Driscoll et al., 2001; Litt, 1990; Steinberg, 1993).

2.3 SEXUAL HEALTH EDUCATION

Sex and sexuality are very important topics for adolescents; therefore, accurate sexual health information from the appropriate sources may help inform adolescents of responsible choices and decisions pertaining to sexual behavior and sexual health (Leifer & Hartston, 2004). Adolescent sexual health education consists of increasing knowledge and emphasizing risks and consequences of engaging in unsafe sexual practices, addressing decision-making skills, providing abstinence only curricula as well as comprehensive sex education, providing HIV/AIDS education, and promoting self efficacy in order for adolescents to master the skills necessary to prevent risky sexual behaviors (Hoyt & Broom, 2002). Adolescents who receive comprehensive sex education are less likely to engage in vaginal intercourse and have lower risks for teen pregnancy, as opposed to those who receive abstinence-only or no sexual education (Kohler et al., 2008).

The Healthy People 2010 goal (07-02g) is “to increase the proportion of youth receiving sexual health education (e.g. safe sexual practice, STD infection, birth control) in middle/junior, and senior high schools” so that 90% of this population should be educated by the year 2010 (U.S. Department of Health and Human Services, 2008). However, in 2000, only 62% of the entire adolescent population had received some type of sexual health education in school regarding unintended pregnancy and STDs, leaving about one third of the high school population without any educational support pertaining to safe sexual behavior (Centers for Disease Control and Prevention, 2008c).

2.4 RISKY SEXUAL HEALTH BEHAVIOR AND SEXUAL HEALTH OUTCOMES

Recent data of the incidence and prevalence rates of risky sexual behaviors, STDs (including HIV/AIDS), and teen pregnancy reflects the poor sexual health status of United States adolescents (Abma et al., 2004; Centers for Disease Control and Prevention, 2008a; Centers for Disease Control and Prevention, 2008f; Centers for Disease Control and Prevention, 2009b; Weinstock et al., 2004).

2.4.1 Risky sexual behaviors

Risky sexual behaviors are defined by the Youth Behavior Risk Surveillance System (YBRSS), as “vaginal, anal, and oral intercourse which may cause adolescents to become at risk for sexually transmitted diseases (STDs), HIV infection, and in the case of vaginal intercourse, to become at risk for pregnancy” (Centers for Disease Control and Prevention, 2009b). These

behaviors may be first experienced during adolescence and may threaten the health status of young people. Specific behaviors that place adolescents at increased risk for adverse sexual health include: 1) early onset of sexual activity (i.e., before 13 years of age), 2) having multiple (four or more) sexual partners during their lifetime, 3) lack of consistent condom use during sexual intercourse, and 4) lack of a consistent birth control method when having sexual intercourse (Centers for Disease Control and Prevention, 2008b). Without effective intervention, risky sexual behaviors in adolescence have a greater chance of becoming part of adulthood sexuality (Williams & Crispin, 2005).

Since 2003, no significant change has been noted in the trends of risky sexual behavior among United States adolescents (Centers for Disease Control and Prevention, 2008f). The Youth Risk Behavior Surveillance System (Centers for Disease Control and Prevention, 2008f) reported that the percentage of United States high school students who had ever had sexual intercourse in their life was 46.7% in 2003, and 47.8% in 2007. Of the sexually active students, the percentage of those who had sexual intercourse with four or more persons during their life was 14.4% in 2003, and 14.9% in 2007. The percentage of United States high school students who were currently sexually active in 2003 was 34.3%, and 35% in 2007. Among the sexually active, the percentage of students who used condoms during last sexual intercourse was 63.0% in 2003, and 61.5% in 2007.

2.4.2 Sexually transmitted diseases and HIV/AIDS

Sexually transmitted diseases (STDs), including chlamydia, gonorrhea, trichomonas, syphilis, herpes, human papillomavirus (HPV) warts, and HIV/AIDS continue to pose a serious threat to adolescents (Centers for Disease Control and Prevention, 2008a). In 2000, adolescents in the 15-

24 years age group had the highest incidence rate of STDs in the nation, accounting for approximately half of all the 19 million STD cases in the United States (Weinstock et al., 2004). STD clinical manifestations may be localized to the genitalia, but in more serious cases they may also affect the reproductive health and even the central nervous system, the heart, or the immune system (McGough & Handsfield, 2007). Risky sexual behavior during adolescence increases the incidence and prevalence of STDs (McGough & Handsfield, 2007). Therefore, strategies that intend to prevent STD infection among sexually active adolescents must promote healthy behaviors and reduce risky sexual behaviors (Rosenthal et al., 2000; Tilton-Weaver & Kakihara, 2007).

The stigma associated with STDs often prevents adolescents from discussing STDs with clinicians before or after they have become infected (Pillai et al, 2009). Research suggests that sexually active adolescents do not always possess the appropriate knowledge about STDs (Clark & Barnes-Harper, 2004). In order to avoid STDs in adolescents, it is important to provide them with comprehensive and credible information that is relevant to their population, along with the availability of and accessibility to contraceptives and confidential health care services (Akinbami et al., 2003; Elders, 2008; Leukefeld & Haverkos, 1993).

2.4.3 Pregnancy and contraception

Between 2005 and 2007, pregnancy rates rose by 5 percent to a rate of 42.5 births per 1000 for female adolescents aged 15 to 19 years in the United States (Hamilton et al., 2008). This is a significant reason to be concerned about this population, as pregnancy rates of adolescents in the United States have remained considerably high in comparison to other developed nations (Darroch et al., 2001).

Pregnancy may be avoided through several means including, abstinence of sexual activity or with effective and consistent contraceptive use, such as condoms, birth control pills, patch, ring, Depo-Provera injections, intrauterine systems, sub-dermal implants, as well as emergency contraception (Tilton-Weaver & Kakihara, 2007). Sexually active adolescents have multiple options to reduce the risk of pregnancy— long and short term reversible contraceptive methods have been made available and proved to be safe for adolescents (Lara-Torre, 2009). However, contraceptive use among sexually active adolescents remains inadequate (Everett et al., 2000).

Several reasons exist why adolescents may not use contraception and they include inaccessibility to contraceptives, the lack of self-efficacy to use contraceptives, and attitudes and beliefs about low risk for STD infection and/or unintended pregnancy (Astone, 1996; Diiorio et al., 2001; Emans, 1998a). Adolescents may also have a false sense of the risk of pregnancy and may feel that only frequent sexual activity can lead to pregnancy, and pregnancy can only occur during certain times of the month (Emans, 1998a). The longer they are sexually active without becoming pregnant, the more the risk-taking behavior is reinforced and increased among adolescents (Emans, 1998b; Lara-Torre, 2009). On the other hand, adolescents who use contraceptives may stop doing so as they mature because they may doubt the need for contraceptive use (Kinsella et al., 2007).

The desirability of child bearing can be classified as intended or unintended (Santelli et al., 2003). Multiple factors may influence the desirability of child bearing among United States adolescents (e.g., race and ethnicity, cultural norms, socioeconomic status, among others) (Emans, 1998b; Kissin et al., 2008). Nonetheless, a majority of the United States adolescent pregnancy cases has been reported as unintended as a result of unprotected sex, or the ineffectiveness of the contraceptive used (Abma et al., 2004; Tilton-Weaver & Kakihara, 2007).

As a result, pregnancies during adolescence may be unintended; and they can either be classified as mistimed (i.e., occurring before a desired time) or unwanted (i.e., exceeding the number of lifetime births desired) (Abma et al., 2004; Centers for Disease Control and Prevention, 2008d; Finer & Henshaw, 2006).

2.5 HEALTH DISPARITIES IN THE UNITED STATES

In the United States, Hispanic/Latino and Non-Hispanic are the two categories of ethnicity established for the purposes of federal data collection (Office of Management and Budget, 1997). It has been estimated that by the year 2050, ethnic minority groups will significantly increase in the United States and in particular, the Hispanic/Latino population is expected to double its size and reach approximately 24.4% of the total United States population (U.S. Census Bureau, 2007b). The rapid growth of ethnic and racial minority groups in the United States raises serious implications for changes in health indicators, as minority groups oftentimes experience disparities in terms of lower quality of health and inadequate health care (Institutes of Medicine of the National Academies, 2003).

The National Institutes of Health (1999) more clearly defines these disparities as "differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in the United States." More specifically, health disparities are health inequalities that are considered preventable (Mensah & Glover, 2007; Sebastian, 1999). In general, the groups facing health disparities are minorities with regard to race or ethnicity, socioeconomic status, class, income, gender, gender identity, sexual orientation, geographic location and/or physical disability (Mensah & Glover, 2007;

Moss, 2001). The issue of health disparities is complex and involves multiple determinants (e.g., biological, genetic, social, economic factors, and religious) at different social ecological levels (i.e., individual, interpersonal, community and societal levels) that may result in improper health status and health care of specific groups in the United States population (Mayberry et al., 2002; Moss, 2001; Sebastian, 1999).

Research suggests that even after adjusting for socioeconomic differences, racial and ethnic disparities remain (Institutes of Medicine of the National Academies, 2003). While research is continuously being conducted by government, non-governmental, and private organizations or institutions to address minority health disparities, this field is still in a relatively early stage of growth (Lee & Estes, 2001). Efforts, however, have been initiated to address health disparities throughout the nation (Sebastian, 1999). One example is the establishment of the Office of Minority Health in 1986 by the Department of Health of Human Services. Its mission is "to improve and protect the health of racial and ethnic minority populations through the development of health policies and programs that will eliminate health disparities" (U.S. Department of Health and Human Services, 2009).

Measurable goals have also been proposed to drive the health disparities research agenda forward with the Healthy People 2010 overarching goals, which are "1) to help individuals of all ages increase life expectancy and improve their quality of life, and 2) to eliminate health disparities among different segments of the population" (Rue & Xie, 2009; U.S. Department of Health and Human Services, 2000).

2.5.1 Health disparities among United States adolescents

Racial and ethnic minority adolescents represent 43% of the total United States population under the age of 20 years (Pollard, 2008). Research indicates that the health outcomes for United States adolescents are seriously affected by race and cultural differences, regardless of socioeconomic status (Dietrich et al., 2008). Research also suggests that ethnic minorities have less availability of and access to health services (Rue & Xie, 2009). Ethnic minority adolescents have also been shown to receive less of the required health services even when services are available, or the services are of poorer quality in comparison to those given to non-minority groups (Becker & Tsui, 2008; Olfson et al., 2009; Rue & Xie, 2009). To date, research focusing on adolescent minority health disparities in comparison to their White counterparts is still very minimal, particularly relating to sexual health matters (McLoyd, 1998). Several reasons exist why there is a lack of research that has been conducted with minority adolescents: 1) lack of research funding, 2) a desire on behalf of researchers to avoid controversy in terms of ethical and moral risks associated with minority groups, 3) disciplinary shifts to topics less relevant to minority adolescents, and 4) lack of necessary recruitment and retention activities targeting minority research participants (McLoyd, 1998; Villarruel et al., 2006b). Nonetheless, research on adolescent minority groups is feasible when a cultural competence approach is employed in all phases of the research process (Cauce et al., 1998).

2.6 THE UNITED STATES LATINO ADOLESCENTS

The focus of this thesis is the largest of all ethnic minority groups in the United States – Latinos (U.S. Census Bureau, 2007a). The Latino or Hispanic population has been defined by the Office of Management and Budget (1997) as "persons who trace their origin or descent to Mexico, Puerto Rico, Cuba, Central and South America, and other Spanish cultures." The Latino community in the United States is heterogeneous, varying by geographic or nationality sub-grouping, nativity or place of birth, immigration status, language spoken, religion and religiosity, and acculturation (Ebin et al., 2001; Edwards et al., 2008; Hayes-Bautista & Chapa, 2002). Even though Latino adolescents are at greater risk for adverse sexual health outcomes when compared to their non-Latino adolescent counterparts, relatively few etiological studies have been conducted addressing Latino adolescent sexual health (Trejos-Castillo & Vazsonyi, 2008).

In particular, Latino adolescents should be studied given that statistics suggest that they are at high risk for adverse sexual health outcomes (Abma et al., 2004). In 2003, national data indicated that that the birth rate in the Latino adolescent population (82 per 1,000) was significantly higher than White (27 per 1,000) and African American (65 per 1,000) (Martin et al., 2005). Teenage pregnancy is the leading cause to high school dropout in female adolescents, and less frequently the responsibilities of being a male teenage parent can lead to dropout (Freudenberg & Ruglis, 2007). Latino adolescents also have one of the highest school dropout rates in the nation, which generates a serious threat to adolescents' academic achievement and to their sexual health (Freudenberg & Ruglis, 2007; Giachello, 2001). Adolescents are more likely to engage in risky sexual behavior once they drop out (Lohman & Billings, 2008). Since the majority of research studies and interventions addressing adolescent sexual health are school-

based, they often fail to include and do not adequately represent the general United States Latino adolescent population (Driscoll et al., 2001).

2.6.1 The impact of Latino adolescent sexual health disparity on the United States Latino community

The impact of adverse sexual health on the overall physical and psychosocial well-being of Latino adolescents can be measured in terms of physical health, mental health, academic achievement, and economic disadvantage among others (Giachello, 2001). Multiple factors, including lack of comprehensive sex education, and/or access to health care, serve as consistent barriers to the sexual health of Latino adolescents (Flores & Vega, 1998; Kohler et al., 2008). The adverse outcomes of risky behavior among Latino youth impose a significant cost to individuals as well as the future of the adolescent community. The high birth rate to Latino adolescent females increases their risk for lower education attainment, repeat pregnancy during adolescence, female headed households, and dependence on public assistance— all of which are associated with lower health status (Freudenberg & Ruglis, 2007; Manlove, 1998; Strom & Boster, 2007).

Currently, Latinos are the largest ethnic minority group in the United States (U.S. Census Bureau, 2008). However, as with other ethnic minority groups, they are highly affected by sexual health disparities and encounter many barriers that decrease life conditions, which continuously feed the cycle of social inequalities in economic, social, cultural, and health measures (Giachello, 2001). Thus, the consequences of risky sexual behaviors that occur during adolescence may significantly impact the quality of life of Latino adults (Flores & Zambrana, 2001).

2.6.2 Influencing factors to Latino adolescent sexual health

Adolescent sexual health is affected by the social contexts in which individuals live; therefore, consideration of adolescents' ethnic, racial, and cultural background is important when addressing sexual risk-taking behavior (Dryfoos, 1990; Elder, 1985; Low, 2003; Moore, 1988). Among other ethnic groups, Latino adolescents face multiple critical circumstances that may include discrimination, acculturation stressors, and poverty, all of which influence the health of this community (Finch & Vega, 2003; Marin, 2003; Pantin et al., 2004).

The determining factors of adverse sexual health in Latino adolescents are influenced by the practice of risky sexual behaviors, as noted in other adolescent groups (Driscoll et al., 2001). However, the high prevalence of these risky behaviors has remained significantly stable among Latino adolescents in comparison to their non-Latino counterparts (Brindis et al., 1995; Centers for Disease Control and Prevention, 2008f). The determining factors of adverse sexual health include being currently sexually active within the last three months, having younger age at onset of sexual activity, having multiple sexual partners, ineffective and consistent use of contraceptives, and vaginal douching for females (Centers for Disease Control and Preventions, 2008f; McKee et al., 2009).

Contributing factors to adverse sexual health for Latino adolescents have been identified. Examples of these contributing factors include: 1) being of lower socioeconomic status, 2) having lower refusal skills for avoiding sexual activity, 3) increased exposure to media with sexual content, 4) lack of knowledge of available health services specific to adolescent sexual health needs, and 5) concern that accessing services may lead to deportation for immigrant Latinos (Sneed et al., 2001; Cunningham et al., 2006). Other contributing factors to adverse sexual health are: 1) being a recent immigrant in a Spanish-speaking home, 2) having a higher

level of acculturation to United States culture, and 3) being a United States-born Latino (Hussey et al., 2007).

Yet, there are other factors in the lives of Latino adolescents that may protect them from sexual health adversities. Protective and resiliency factors are having a higher socioeconomic status, having effective communication with and receiving sexual information from parents, having an intact family, having high expectations for the future, and viewing religion as important (Driscoll et al., 2001). Additional influencing factors to adverse sexual health in Latino adolescents are included in Table 1.

2.7 ADDRESSING LATINO ADOLESCENT SEXUAL HEALTH: USING A SOCIAL ECOLOGICAL PERSPECTIVE

Ecological approaches have been shown to be an essential component of public health efforts aimed at making long-lasting improvements to complex health problems experienced by community members (Grzywaca & Fuqua, 2000). The Social Ecological model is a multilevel framework that aids in the understanding and solving of complex public health issues from an ecological perspective (Stokols, 1996). By examining the social and physical environments surrounding individuals, this model emphasizes the interconnections and influencing factors to the individual's health status and behavior and provides a framework with which to address health and develop interventions (Adler & Rehkopf, 2007; Glanz et al., 2002c).

The influential factors of Latino adolescent sexual health behavior may be addressed at the individual, interpersonal, community, and societal/political levels of The Social Ecological

model (Pantin et al., 2004; U.S. Department of Health and Human Services, 2005) (See Figure 1).

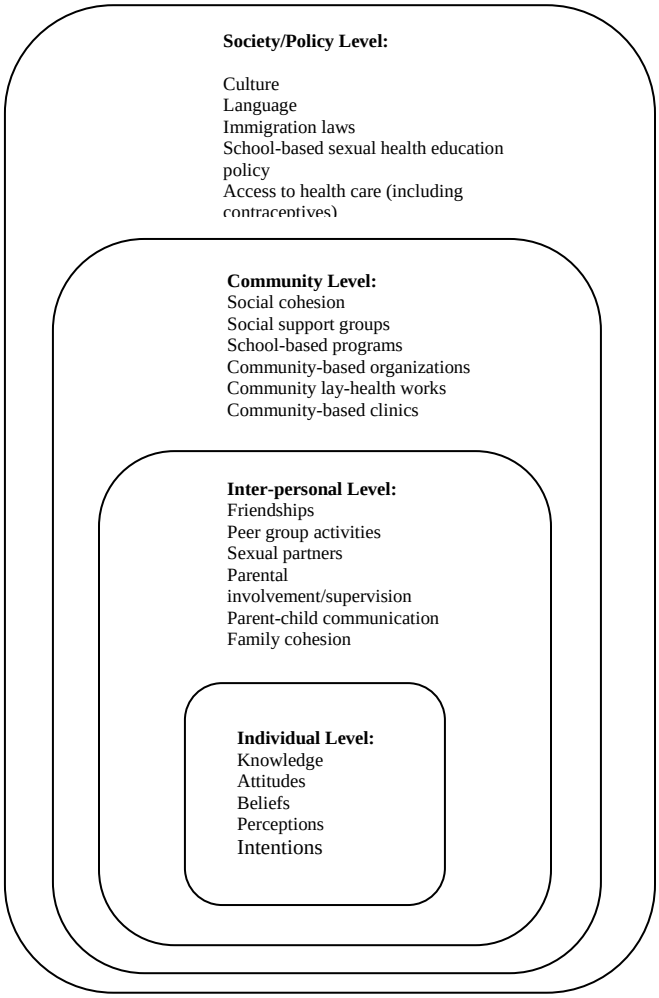

Figure 1. Social Ecological model of influential factors to Latino adolescent sexual health.

At the individual level, there are particular characteristics (e.g., knowledge, attitudes, beliefs, and perceptions, and intentions to engage in risky or healthy sexual activities) that shape Latino adolescent sexual behavior. The meaning of and engagement in sexual activity for an individual

is highly dependent on sex and gender (Atwater, 1992). Gender roles are expressed as masculinity in terms of agency, or the ability to achieve things; and femininity, in terms of emotional, expressive traits (Tilton-Weaver & Kakihara, 2007). Generally, male adolescents perceive early interpersonal sexual experience to be based upon achievement, or "scoring," whereas girls may feel their early interpersonal sexual experience is based on intimate and emotional connections (Steinberg, 1993). The societal assumption is made that males are driven by biological urges and are expected to initiate sexual intercourse, while females are expected to negotiate sexual intercourse, be responsible for contraception, and decide how far the sexual interactions will proceed (Lear, 1997).

Traditional Latino gender roles such as in Machismo in males, an exaggerated sense of masculinity linked to multiple sex partners and risky sexual behavior; and Marianismo in females, sexual submissiveness and lack of knowledge about sex have all contributed to an increased risk for sexual health adversity (Prado et al., 2006; Marin, 1997; Marín et al., 2003). Although United States values may be more liberal than in other Latin American countries, Latino adolescents living in the United States may carry on these traditional views on gender roles and sexual values, which promote risky sexual activity (Deadroff et al., 2008).

The interpersonal level factors include the individual's relationships and interactions with friends, peers, sexual partners, and family members (Gilliam & Hernandez, 2007). In general, peer relationships are the most preferred form of social interaction during adolescence as they provide the opportunity for association and formation of groups with similar interests (Leifer & Hartston, 2004). In relation to sexual behavior, adolescents may feel compelled to give in to peer pressure and engage in unprotected sexual behavior (Buhi & Goodson, 2007; Leifer & Hartston, 2004; Potard et al., 2008). Also, during adolescence there is a change in social interaction, going

from groups of the same sex to mixed groups, which may result in romantic interests and/or potential sexual activity (World Health Organization, 1993).

In the Latino community there is a significant lack of parent-child communication regarding sex, which has been correlated with an increase in adolescent risky sexual behaviors (Benavides et al., 2006; O'Sullivan et al., 1999). Nonetheless, the degree of family cohesion, or familialism, has been shown to be a strong predictor of Latino adolescent resiliency (Benavides et al., 2006; Guiao & Esparza, 1997). The attitudes and behaviors of Latino adolescents are greatly influenced by family relationships (Driscoll et al., 2001). Familialism enables Latino adolescents and all of the members of the family to feel the support of immediate or extended family regardless of the circumstances in life (Benavides et al., 2006). Latinos find it especially difficult to maintain close family ties, as many live below the poverty level, having to work long hours, and sometimes holding multiple jobs to meet financial needs (Pantin et al., 2004). This, in turn, decreases the level of parental involvement in the lives of adolescents, exposing them to increased risk for adverse sexual experiences (Driscoll et al., 2001; Pantin et al., 2004).

The community level of influence includes institutional factors such as social cohesion, social support, and social norms which may exist formally or informally in the community that addresses adolescent sexual health (Mulvaney-Day et al., 2007). Examples of these are school-based programs, community-based organizations, community lay health workers, and community-based health clinics (Hacker et al., 2005; McQuiston & Flaskerud, 2003; Spear, 2002).

Finally, the societal or political level consists of local, state, and federal laws, policies, and regulations that have the potential to impact Latino adolescent sexual health (Pantin et al., 2004; Prado et al., 2006). Adolescents' attitudes toward sex have changed through time because

of social influences and trends (Atwater, 1992; Hoppe et al., 2004). More permissive sexual norms have emerged in adolescence with increased exposure to media replete with sexual content (Brown & L'Engle, 2009; Escobar-Chaves, 2005). This shift in norms has generated greater openness toward sexual matters to such an extent that individuals have become more likely to engage in sexual activity (including oral sex and/or sexual intercourse) in early adolescence (Ashby et al., 2006; Brown & L'Engle, 2009). Other examples of influential factors at the societal/political level include immigration policies, cultural values, language, school-based sexual health education policies, and the availability of and access to health services and contraceptives for adolescents (Duberstein Lindberg et al., 2006; Pantin et al., 2004; Pesa & Matthews, 2000; Prado et al., 2006).

Interventions can be developed that target the first three levels (i.e., the individual, interpersonal, and community levels); however, producing changes at the societal/political level is rarely feasible from a behavioral intervention standpoint (Pantin et al., 2004). Health insurance coverage and school-based sex education policies are some examples of societal/political issues that cannot entirely be addressed from a behavioral perspective (Manlove et al., 2008). Although attention to these particular areas of adolescent sexual health at the societal/political level can be drawn through research evidence from behavioral interventions, changes at this level will only occur through advocacy messages to policymakers and program leaders (Foulkes et al., 2005). Nonetheless, the role of societal and political factors heavily impacts the overall health of the Latino population by directly or indirectly constraining, supporting or promoting healthy factors (Flores & Vega, 1998). While individual- and community-level factors act as predisposing characteristics to particular sexual behaviors, societal/political level factors act as resources that enable adolescents to maintain a healthy sexual lifestyle (Manlove et al., 2008).

2.8 THEORETICAL FRAMEWORKS FOR ADOLESCENT SEXUAL HEALTH BEHAVIOR INTERVENTIONS

The use of a theoretical framework is important for behavioral interventions, as it allows researchers and practitioners to better understand, predict and address problems in adolescent behavior (U.S. Department of Health and Human Services, 2005). In terms of sexual health promotion, theory can be used to address negative or risky sexual behaviors in order to change sexual health outcomes for Latino adolescents. In this literature review, an emphasis is placed on theoretical frameworks for guiding adolescent sexual health interventions. The use of behavioral theories can be applied at the three levels of influence using the Social Ecological model: individual, interpersonal, and community level (U.S. Department of Health and Human Services, 2005).

3.0 METHODOLOGY

3.1 SYSTEMATIC LITERATURE REVIEW STRATEGY

A systematic review of the literature was conducted to identify intervention studies for the promotion of the sexual health of Latino adolescents in the United States. An intervention was considered to be "any kind of planned activity or group of activities (including programs, policies, and laws) designed to prevent disease or injury or promote health in a group of people, about which a single summary conclusion can be drawn" (Centers for Disease Control and Prevention, 2009a). The literature review was limited to articles reported in English. The search terms and Medical Subject Headings used are shown in Table 2. Five online databases were used to search for peer-reviewed articles of behavioral interventions published: CINAHL, Ovid [including OVID Medline(R) and PsychINFO], PubMed, and Scopus. These databases identify articles from journals, books, and other scientific literature in multiple areas of the medical, health, and social sciences.

Based on national data, no significant changes in the risky sexual behaviors of Latino adolescents have been noted in the last ten years (Centers for Disease Control and Prevention, 2008f). Therefore, to focus on recent trends in adolescent sexual health interventions, the literature search included articles from 1998 to 2008. Because of the scarcity of relevant articles

based on their significance and contribution to Latino adolescent sexual health promotion, the search was expanded to include the previous 16 years (1993-2008) of research.

3.2 CRITERIA FOR INCLUSION AND EXCLUSION OF LITERATURE

The aim of the literature review was to assess the quantity and quality of behavioral interventions for Latino adolescent sexual health at the three levels of The Social Ecological model. The target population was Latino adolescents living in the United States within the age range 11-21 years. Behavioral interventions were searched that targeted males and/or females regardless of sexual orientation. Interventions that targeted the following measured outcomes were included: 1) increase in sexual health knowledge, 2) changes of sexual behavior attitudes or beliefs, 3) abstinence from or delay of sexual activity, 4) reduction in engagement in risky sexual behaviors for those who were sexually active, 5) reduction in the number of pregnancies or repeat pregnancies, 6) reduction of the incidence and prevalence of STDs, or 7) mixed outcomes (i.e., having one or more of the previously mentioned desired outcomes).

Articles were excluded if they did not meet the inclusion criteria (i.e., it did not target any of the measured outcomes in sexual health), or if the intervention did not have a sizable proportion of Latino adolescents (60% or more of the sample, unless the measured outcomes for different ethnic groups were analyzed separately). Other articles were excluded because the age range of the intervention samples included both adolescents and adults (i.e., individuals older than 21 years of age). Articles with duplicated information were removed.

3.3 DATA EXTRACTION

The selection of the data from the behavioral intervention studies was guided by data extraction guidelines utilized in previous literature reviews of sexual health interventions for populations other than Latino adolescents (See DiCenso et al., 2002; Higgins & Green, 2008; Oakley et al., 1995; Robin et al., 2004). The data extracted from each article included the following intervention qualities: 1) a description of the targeted population including socio-demographic characteristics, 2) the geographic location of the intervention, 3) the intervention objectives, 4) the theoretical framework, 5) a description of the intervention, 6) the duration and intensity of the intervention, 7) the setting of the intervention (e.g., classrooms, home visits), 8) the strategy of message delivery, 9) the facilitators and languages spoken, 10) the design of intervention, 11) the sample size and attrition rates, 12) the timing at follow-up, 13) the mode of assessment of outcomes, 14) the measures of outcomes, 15) the intervention effects, and 16) the reported intervention limitations. An extraction data table was created to include the intervention qualities and to facilitate a comparison between the reviewed interventions. Although methodological papers did not have outcome data available, they were included in this literature review as evidence of on-going research addressing Latino adolescent sexual health.

3.4 METHODOLOGICAL QUALITY ASSESSMENT

An assessment tool derived by Shepherd et al. (2000) of four methodological qualities was applied to the studies that met inclusion criteria for this review. The interventions reviewed were assessed based on the following qualities in their methodology:

1) Use of control/comparison groups equivalent at baseline to the intervention group on socio-demographic and outcome variables;
2) Report of pre-intervention measureable outcome data for each group;
3) Report of post-intervention measureable outcome data for each group; and
4) Report on all outcomes targeted as indicated in the study aims.

3.5 CLASSIFICATION OF ARTICLES

The theoretical framework was extracted from the reviewed articles in order to classify interventions according to the social ecological level(s) (i.e., the individual, interpersonal, community levels) at which they influence health behavior (U.S. Department of Health and Human Services, 2005). If no theoretical framework was stated in the article, the intervention measures of outcomes were analyzed to identify a specific social ecological level which targeted behavior change.

4.0 RESULTS

Eleven selected interventions (including one methodological paper) devoted to improving the sexual health of adolescents that include Latino adolescents in the United States were examined. The selected interventions for review include: *HIV Prevention Program* (Sellers et al., 1994), *Social Skills Training* (Hovell et al., 1998), *HIV Risk-Reduction Intervention* (Lazebnik et al., 2001), *The GIG* (de Anda, 2002), *California's ASPPP* (*Adolescent Sibling Pregnancy Prevention Program*) (East et al., 2003), *Project CHARM* (*Children's Health and Responsible Mothering*) (Koniak-Griffin et al., 2003), *Building Teen Power* (Talashek et al., 2003), *Baby Think It Over* (de Anda, 2006), *¡Cuídate!* (Villarruel et al., 2006a), *Familias Unidas + PATH* (*Parent Preadolescent Training for HIV Prevention*) (Prado et al., 2007), and *Safer Choices 2* (Tortolero et al., 2008). The details, classification of these interventions and analysis of their methodology are presented in this section.

4.1 SELECTION OF ARTICLES

The literature search from articles published between 1993 and 2008 resulted in 1,287 hits for adolescent sexual health interventions in Latino adolescents. Of these, 83 articles were behavioral interventions. Articles that were found in more than one database were considered duplicates, and after removing the duplicates, 53 articles remained. Of the 53 identified articles,

there were 42 which did not meet the inclusion criteria because of the lack of measureable outcomes for sexual health (n = 2), having samples that included adult-age individuals (n = 14), having less than 50% of the sample size consisted of Latinos (n = 14), intervention targeted outcomes other than sexual health (n = 7). For articles that published information of the same intervention, the article that described and reported evaluation results was selected (n = 2). Finally, 11 met the inclusion criteria for this review: 5 (45%) were located on Scopus, 3 (27%) on PubMed, 2 (18%) on OVID (Medline(R) and PsychINFO), and 1 (9%) on CINAHL. Publication details of articles were stored in a computer reference manager. A summary of the literature search is presented in Table 3.

4.2 CHARACTERISTICS OF INTERVENTIONS

Interventions were found to have fundamental similarities between interventions' target audiences, objectives, theoretical frameworks, content, intervention designs, duration and intensity, participation and attrition rates, mode of assessment of outcomes, measured outcomes, effects, methodological quality, and limitations. A description of each intervention is provided in Table 4. The following sections further explain the differing and similar characteristics of the interventions reviewed. Intervention details are summarized in Table 5.

4.2.1 Target population

Overall, the interventions' targeted population included adolescents from ages 11 to 21 years. One study targeted adolescents from 10 to 15 years, and another from 10 to 22 years. Three

studies focused on broad age ranges in adolescence. Other studies focused on specific adolescent subgroups (e.g., early, early-middle, middle, middle-late, or late adolescence). Only one study had a sample representative of each of the early adolescent, early-middle, or late adolescent stages. With the exception of one (*Project CHARM*), all interventions targeted both male and female adolescents.

The national origin of the samples most frequently represented Mexican Americans and Puerto Ricans, followed by adolescents of Cuban descent. Only two studies included adolescents from Central and South America. Five studies did not specify the national origin of their Latino adolescent participants. Higher-risk populations included in several interventions consisted of adolescents who: were sexually active, previously or currently pregnant or caused a pregnancy, adolescent parents, and alcohol or drug users.

The geographic location of the interventions covered the following regions of the United States: Boston, Massachusetts; Houston and southeast Texas (2 interventions); California (3 interventions); Northeast Philadelphia, Pennsylvania; and Miami Florida. Three interventions made no reference to the geographical location of the intervention.

4.2.2 Intervention objectives

Interventions varied by their objectives in desired sexual behavior change. The objectives or desired outcomes of five interventions were to reduce risk behavior in adolescents to prevent STD infections including HIV/AIDS. Pregnancy prevention/delay of childbearing was the sole objective of one intervention (*Baby Think It Over).* Five other interventions included mixed outcomes that incorporated abstinence and STD prevention, abstinence and pregnancy prevention, or pregnancy and STD prevention (Table 5).

4.2.3 Use of a theoretical framework

The majority of interventions reported a theoretical framework to guide the intervention (n = 7). The most common of these theories was the Social Cognitive Theory. The Social Cognitive Theory in conjunction with the Theory of Reasoned Action was used as a framework for two other interventions. Other theories utilized were the Theory of Planned Behavior/Theory Reasoned Action, the Ecodevelopmental Theory, and the Theory of Cognitive Development with particular focus on the Formal Operational Stage, which starts in adolescence and emphasizes the use of knowledge and interpretation of experiences to shape behavior (Feldman, 2004). Four interventions did not report a theoretical framework.

4.2.4 Description of the interventions

The duration and intensity of the reviewed interventions were fairly diverse (Table 5). The shortest intervention consisted of one session of six hours, while the longest lasted 18 months and included multiple sessions. Some interventions specified the number of sessions and duration of each session, but not the time span of the intervention. Most were usually delivered for a period of hours per week in school settings. However, there were some interventions, particularly the ones which involved counseling services, which did not specify an exact duration of the intervention. In these interventions, the duration and intensity of the intervention was based on the participant's needs; therefore, it varied from participant to participant. Since not all participants received treatment sessions of equal duration, an average time period for intervention duration was provided. An example of this is *California's ASPPP*— an intervention in which the participants received an average of 18 hours of treatment of one-on-one and group

services. It was reported, however, that the duration of the intervention ranged from 45 minutes to 95 hours per participant.

The setting in which the programs were implemented most often were schools (n = 6). The interventions based in school settings included after-school hours, weekends, summer sessions, and alternative schools. Other settings for interventions were community venues (e.g., community organizations, health service agencies, street corners), and the participants' homes.

The interventions contained various strategies of message delivery. All but one study reported a combination of activities that went from didactic group lecturing, interactive and experiential lessons, use of videos, role-playing, to individual and/or dyad (caregiver and adolescent) counseling. *Baby Think It Over* was an intervention that used a computerized simulation infant that was programmed to cry at random times of the day and night to teach adolescents the implications of parental responsibilities. Another example is the *HIV Prevention Program,* which consisted of workshops, group discussions, presentations at schools and to the general community, the distribution of condom kits and pamphlets in street corners, community organizations and health clinics. While most interventions only included adolescents in their intervention, one of the studies (*Familias Unidas + PATH*) included activities involving adolescents' parents or caregivers and their adolescents.

Factual information of different topics and varied quantities was presented in all of the interventions. Recurrent areas of health knowledge taught by the interventions were general adolescent sexuality, STD and HIV/AIDS, implications of pregnancy and infant care, maternal protectiveness (for adolescent mothers), the influence of substance use on risky sexual behavior, contraception, overall health and wellness, and the importance of values, life goals, and family function. Of all the included studies, the *Social Skills Training* intervention purposely provided a

very brief knowledge-based component in order to give more attention to the development of sexual health skills. The desired sexual health skills were effective communication, problem-solving, refusal of unsafe sexual activity, and responsible decision-making, which were measured on a nine-point ordinal scale, and evaluated adolescents' ability to verbalize and communicate assertiveness through and body language (e.g., tone of voice, body and head position, body movements, and eye contact) and lack of anxiety in performing the learned skills.

The facilitators of the interventions were individuals from various backgrounds. Two of the interventions employed peer leaders as intervention facilitators, while the rest were conducted by adults from different professional backgrounds in education, nursing, social work, or other type of clinical experience. The most rigorous description of facilitator training was reported in *Familias Unidas + PATH*, which also assessed and certified the quality of the work of its trainees before they took part in the intervention. Only three of the 11 interventions specifically noted culturally competent facilitators, two in which they were either Latino, and/or bilingual in English and Spanish.

4.2.5 Design of the interventions

A total of five interventions used a randomized control design. Of these, four interventions used the individual as a unit of analysis. Within the randomized trial category there was one modified group-randomized, controlled trial that identified a group of five schools as the unit of analysis. Three other interventions used a one group post-test/pretest design, each identifying either a group or individuals as the unit of analysis. Two interventions employed a quasi-experimental design evaluation. Finally, the methodological paper for a proposed intervention included in the review reported here did not specify its experimental design.

4.2.6 Participation

The samples sizes ranged from 125 to 1,594 individuals, with four studies having more than 500 participants. The majority of interventions used a convenience sample, with the exception of one which used an areal probability sample. Individuals were followed at different time points after the intervention, ranging from immediately after the intervention to 36 months post-intervention. Four studies conducted multiple follow-up sessions that varied by the time span in months. Two of these interventions followed their participants at 3-, 6-, and 12-months period. Another followed its participants at 3-, 6-, and 24-months period, while the other followed its participants at 3-, 12-, and 36-months period. While three studies (including the methodological paper) did not report timing at follow-up, post-intervention assessment activities were implied.

Attrition rates were found to be 20% or less for six interventions, and between 21-50% for three other interventions. Two interventions did not report participation loss over the life time of the intervention. Of the interventions that did report attrition rates, some reported attrition at the first of multiple follow-up sessions, and not thereafter. Furthermore, it is important to note that participant loss in some interventions with high attrition rates was partially due to the exclusion of participants from analysis and not necessarily because of discontinuation of the program (e.g., *High Risk-Reduction Intervention*, and *¡Cuídate!*). Latino and non-Latino individuals participated in the intervention; however, non-Latinos were excluded from the analysis in order to find Latino-specific findings.

The most common modes of outcomes assessment for the interventions were self-reported questionnaires in English and/or Spanish. These were most frequently offered in paper format, but two interventions used electronic formats via private audio computer-assisted interviews. Other forms of outcome assessment included personal interviews with staff. One

intervention used an additional form of outcome assessment to evaluate behavioral skills learned by participant adolescents: videotaped standardized role-play tests that were evaluated by specially-trained staff. The methodological paper did not report mode of outcome assessment.

4.2.7 Measures of outcomes

The measures of outcomes of all interventions were categorized and grouped under themes and subthemes are shown in Table 6. The most frequent category of outcome measures was the change in the incidence and prevalence of risky sexual behaviors in the adolescent's lifetime, and/or in the 30 or 90 days before the intervention. Examples of risky behaviors measured were unprotected sexual intercourse (or non-use of contraceptives), engaging in sexual activities with multiple partners, and substance use at any time point or just before engaging in sexual activities. The second most common category of outcome measures included abstinence from, the delay of, or the reduction in frequency of sexual activities. The third most common category of outcome measures included reported changes in beliefs, perceptions, and attitudes about adolescent sexual health. A few examples are adolescents' beliefs about contraceptives, perceived risk for STD infection, and attitudes about adolescent-age parenting. Among the least common measures were changes in the prevalence and incidence of STD infections, the incidence of pregnancy, skills-based learning, truancy, school attendance, grade point average, and level of family functioning.

4.2.8 Intervention effects

Risky sexual behavior was evaluated by eight interventions: *HIV Prevention Program*, *California's ASPPP*, *Project CHARM*, *Building Teen Power*, *Baby Think It Over*, *Familias*

Unidas + PATH, and *Safer Choices 2*. The effects of these interventions on their measures of outcomes are illustrated in Table 6.

Reduction in unprotected sexual activity was considered effective in *California's ASPPP*, *Project CHARM, Baby Think It Over*, and *¡Cuídate! Familias Unidas + PATH,* and *Safer Choices 2* did not find statistically significant differences between the intervention and the comparison groups. Additionally, the number of multiple partners was effectively reduced by in *Project CHARM, ¡Cuídate!*, and the *HIV Prevention Program* (although the latter was found to be effective in females but not in their male counterparts). Regarding substance use as a risk factor for unprotected sexual activity, *Familias Unidas + PATH* was effective in reducing cigarette use, but not alcohol use. *Safer Choices 2* was found ineffective in reducing cocaine, marijuana, or codeine use.

There were six interventions targeting abstinence, the delay of sexual activity, or a reduction in the frequency of sexual activities. Among these interventions, four were effective in at least one of their measured outcomes. The effective interventions included the HIV *Prevention Program* and *California's ASPPP*, which were only effective in delaying the onset of sexual activity in either male or females, respectively. The ineffective intervention in this particular category was *Safer Choices 2*. *Building Teen Power* was a methodological paper with no outcome data available.

Changes in beliefs, attitudes, and/or perceptions were evaluated and effective in all of them for at least one of the intervention's outcomes. While intentions to remain abstinent or to postpone sexual activity in females was increased in *California's ASPPP*, no difference was found in the pre- and post-test scores of male adolescents' intentions in this category. In the *HIV Risk-Reduction Intervention*, no statistical difference was established between the pre- and post-

test scores in the sexual activity category. Also in this intervention, adolescents were found to have less accurate beliefs about the disease course of HIV/AIDS at the evaluation point.

Four out of five interventions were successful in increasing factual knowledge about sexual health including STDs, substance use and its influence on risky sexual behavior, pregnancy, and parenting responsibilities. The intervention that was found to have no impact in this category was the *HIV Risk-Reduction Intervention*, which demonstrated no differences between the pre- and post-test data on adolescents' knowledge about the impact of alcohol and drug use on sexual behavior.

Among the interventions with the less frequent measures of outcomes, the *Socials Skills Training* intervention was the only one specifically measuring skills-based learning. Two of its three goals – refusal of sexual activity and negotiation of condom use with sexual partners – were found to be significantly improved by the follow-up point. However, the third goal of this intervention was not met, which was to increase adolescents' self-efficacy in obtaining and using condoms effectively. On the contrary, adolescents were less self-efficacious in the post-test than in the pre-test.

California's ASPPP targeted a decrease in the incidence and prevalence rates on STDs, rates adolescent-age pregnancy, and school attendance. This intervention was found to be effective only in females, while no significant differences were noted in male participants of the intervention group at post-test in relation to the comparison group. Another intervention that was ineffective in previously mentioned categories was *Familias Unidas + PATH*; however, the intervention increased the measure of family functioning in its participant dyads in comparison to its two comparison groups. And again, because *Building Teen Power* is an intervention plan

that had not been implemented at the time of its publication, no outcome data was available. Still, this intervention model focused on addressing academic achievement and sexual health.

4.2.9 Reported limitations of interventions

The most frequently reported limitation across the interventions was the concern for representativeness of the sample to the targeted audience (n = 7). Most interventions indicated a concern to represent the United States Latino adolescent population. On the other hand, one of the interventions presented Latino over-representation in their sample as a limitation to generalizability to the United States adolescent population. In this instance, Latino adolescents were not the targeted audience, but did comprise 92% of the sample.

Other limitations involved insufficient time for evaluation and follow-up (n = 4). Many of the intervention researchers claimed more time was needed to improve assessment of long-term effects of the intervention in adolescents. Time was also a constraint for a specific intervention (*California's ASPPP*). In this case, the services regularly provided by the intervention usually last approximately one or more years; however, insufficient time for evaluation and follow-up may have underestimated the effects of the intervention on the targeted population.

Another limitation reported in a few interventions (n = 3) was a high measure of bias as participants may not always respond accurately in an attempt to please the researchers or due to lack of knowledge, or unwillingness to provide confidential information, (e.g., risky sexual behavior, or STD clinical history) in self-reported assessments. The rest of the reported limitations included issues with small sample sizes or samples with self-selected participants; recruitment or retention of participants; assignment of participants to control groups; the lack of

control groups; the lack of no-treatment comparison groups; and the lack of measurement of behavior rather than just beliefs, attitudes, and perceptions. Finally, not assessing the cognitive development stages of adolescents within a sample was reported as a factor that might have had an impact on the effects of the intervention.

4.3 METHODOLOGICAL QUALITY OF INTERVENTIONS

With the exception of two interventions, all studies integrated the established criteria for methodological quality by using control/comparison groups that were equivalent at baseline in terms of socio-demographic and outcome variables (although three interventions used the intervention group at baseline as their own control); reporting pre-intervention measureable outcome data for each intervention group; reporting post-intervention measureable outcome data for each intervention group; and reporting on all outcomes targeted as indicated in the aims of the study. The two exceptions were the *Building Teen Power* (a methodological paper), and *Project CHARM*, in which 70% percent of the intervention group were pregnant at baseline, in comparison to 58% in the control group. This difference in pregnancy percentage among the two groups was thought to impact the risky sexual behavior of adolescents at the baseline of the intervention in the treatment group.

4.4 BEHAVIORAL INTERVENTIONS AND THE SOCIAL ECOLOGICAL MODEL

For the purpose of this thesis, The Social Ecological model was used as a conceptual framework in an effort to determine the types of interventions that have been conducted during the previous 16 years to promote the sexual health of Latino adolescents residing in the United States. The sexual health of these adolescents is very different that the sexual health of adolescents from other countries. There are multiple influential factors that affect Latino adolescence, which have been correlated to risky sexual behavior. Yet, there are also protective and resiliency factors that have been found for Latino adolescents as they relate to sexual health outcomes. The Social Ecological model serves to explain how Latino adolescent sexual health behavior at the individual level may be positively influenced as a result of behavioral interventions at one or multiple levels. An illustration of reviewed interventions by social ecological level is shown in Table 7.

4.4.1 Effective interventions at the individual level

Interventions reported in the literature most frequently addressed sexual health in United States Latino adolescents at the interpersonal level. Theories applied at this level were the Theory of Planned Behavior and the Theory of Reasoned Action. These theories have been known to use motivational factors in order to effect change in the health behavior of individuals (Glanz et al, 2002b). Another theory employed at this level in the reviewed interventions is the Theory of Cognitive Development, particularly at the Formal Operational stage, which refers to the individual's ability to think hypothetically about the consequences of actions (e.g., adolescent-age parenting as a consequence of risky sexual behavior) (Piaget, 1972).

Some interventions failed to report any theoretical framework. For instance, *The GIG* was one of these interventions, but its program activities consisted of individual-level factors for behavior change. Along with the rest of the interventions at this social ecological level, *The GIG* focused on increasing individual knowledge, changing personal attitudes, and promoting more accurate beliefs and perceptions about potential risks for unfavorable outcomes in their sexual and general health.

Most often, individual level interventions addressed STD prevention, followed by the promotion of abstinence from sexual activity, and pregnancy prevention. The interventions that targeted STD prevention were *Social Skills Training*, *High Risk-Reduction Intervention*, *The GIG*, *Project CHARM*, and *¡Cuídate!* Of these interventions, *The GIG*, *Project Charm*, and *¡Cuídate!* were effective interventions at this level of influence by increasing knowledge about sexual health topics, changing attitudes about risks and consequences of adverse sexual health, and intentions to engage in risky sexual behavior.

Two of the interventions reviewed attempted to influence individual behavior using community interventions: the *HIV Prevention Program* and *California's ASPPP*. While the first intervention increased the availability and access to condoms at the community level, the latter provided and promoted access to sexual health and other health-related services. Both interventions consisted of interactions between the individual and schools, health care institutions, and/or community groups.

The ultimate goals of the *HIV Prevention Program* were to increase condom use and to either maintain or decrease engagement (i.e., to not cause an increase in frequency) in sexual activity. According to the researchers, the reason for this stems from the concern that availability of contraceptives may increase the onset and frequency of sexual activity in adolescents. Based

on its findings, Latino adolescents were found to more frequently possess condoms with no significant changes on the likelihood of engaging in, or the frequency of sexual activity. Further, males were less likely to initiate sexual activity, while no effect was seen in females after the intervention. Finally, reported multiple partners were decreased in females, but no effect was seen in males of this intervention.

California's ASPPP was centered in providing high-risk adolescents (i.e., adolescents with siblings who were adolescent-age parents or pregnant) with the availability of sexual health services, while also facilitating access to these services. However, this intervention proved to be more effective in females, than in males. Females were more likely to abstain from, or postpone sexual activity. Females were also more likely to report a decrease in STDs incidence rates, less likely to report pregnancy, and less likely to engage in truant behavior. Both males and females were less likely to engage in unprotected sexual activity, however.

4.4.2 Effective interventions at the interpersonal level

From all the theories applied by the different interventions reviewed, the Social Cognitive Theory was the most common across the literature review of Latino adolescent sexual health behavioral interventions. Additionally, the majority of behavioral interventions at the interpersonal level of influence also targeted STD prevention. The effective interventions at this level were *Project CHARM* and *¡Cuídate!*, which helped in building skills in successfully handling interactions between the individual and his/her peers, sexual partners, and family members. Examples of these skills included self-efficacy in refusing sexual activity, decreasing the number of sexual partners, negotiating condom use with sexual partners, increased sense of

adolescent-maternal protectiveness to reduce risky sexual behavior, and effective parent-adolescent communication about sexual topics.

The Familias Unidas + PATH intervention was partially effective, as its goals in increasing family functioning and parent-child communications were met, but not the ones for decreasing risky sexual behavior. This intervention focused principally on improving parental communication skills with their adolescents about sexual health; however, it did not involve adolescents in learning to communicate with their parents. The intervention also limited the amount of time parents could actually interact and practice their skills with their adolescents.

The Social Skills Training intervention was also partially successful and it increased negotiation skills, but it failed to successfully meet its other skills-based desired outcomes (i.e., refusal of unprotected sex, and self-efficacy in obtaining or purchasing condoms). This intervention did not report a theoretical framework; however, its activities were specifically focused on skills-based learning at the interpersonal level. Interventions that addressed abstinence at the interpersonal level included *Building Teen Power* and *Baby Think It Over* by promoting a broader view of the impact of adverse sexual health outcomes in the lives of family members (e.g., parents of parenting adolescents).

Interventions that tackled pregnancy prevention were *California's ASPPP* and *Safer Choices 2.* Among these interventions, there was only one effective intervention per category: *Baby Think It Over* and *California's ASPPP.* As in the category of STD prevention, they also targeted a reduction in the number of sexual partners and unprotected sexual encounters. These interventions also aimed for a reduction in the age of onset of sexual activity.

4.4.3 Effective interventions at the community level

None of the interventions reviewed were conducted at the community level so as to target community, neighborhood social norms and/or even changes in institutional policies and regulations.

5.0 DISCUSSION

The findings of this literature review suggest that very few behavioral interventions have addressed adolescent sexual health in the Latino adolescent population. Latino adolescents were frequently lumped with either the general adolescent community or with sexual health studies conducted with other ethnic minority adolescents (i.e., they are found as part of a larger target population), but not as the only targeted population. While more than half of the interventions included in this review specifically targeted Latino adolescents, the rest were included because the majority of their sample (60% or more) was represented by Latino adolescents. Comparing Latinos to other groups may determine differences between ethnic groups; however, not tailoring the intervention to specific cultural/ethnic needs may lower the effectiveness of the intervention. For example, *California's ASPPP*, *Project CHARM*, *Building Teen Power*, *Baby Think It Over*, *and Safer Choices 2* were all interventions for which Latino adolescents were not the only targeted audience. Although testing interventions that are not Latino-specific provides significant findings in terms of sexual health intervention validations in Latino adolescents, inconsistency is still found in the effectiveness of these interventions. Among the reviewed interventions that included Latino adolescents in their samples, the most common intervention objective was the prevention of or reduction in STDs including HIV/AIDS. Most of the behavioral interventions were effective in at least one of their measured outcomes.

5.1 ASSESSMENT OF THE BEHAVIORAL INTERVENTIONS RESEARCH AGENDA FOR LATINO ADOLESCENT SEXUAL HEALTH

Based on this literature review, there are several strengths and weaknesses in the research conducted to prevent adversities in the sexual health among United States Latino adolescents. In order to continue moving this research agenda forward, it is important to note the areas of both success and needs. The following section discusses the major findings of the nature of research included in this systematic literature review, as they relate to Latino adolescent sexual health behavioral interventions.

5.1.1 Strengths of the behavioral interventions research for Latino adolescent sexual health

In this literature review five major strengths in the Latino adolescent sexual health research agenda were uncovered. First, interventions have taken on the three main problems in adolescent sexual health: abstinence, pregnancies, and STDs (Centers for Disease Control and Prevention, 2009b). Targeting the public health problem in the sexual health of adolescents requires the attention of all entities involved in their health and education (e.g., parents, clinicians, practitioners, researchers, and policy makers) (World Health Organization, 2006).

Second, interventions' problem-solving approach has been aimed at different social ecological levels in order to effect change in the negative sexual health behavior of Latino adolescents. Ecological approaches using The Social Ecological model require both a micro- and macro level view to allow researchers and practitioners to identify the needs and strengths of complex issues that are specific to the sexual health of Latino adolescents living in the United

States (Grzywaca & Fuqua, 2000). This approach is necessary in order to plan and implement effective interventions that may have not just short-term effects, but can impact Latino adolescent health well into adulthood.

Third, different strategies (e.g., lectures, discussions, role playing, and home visits) and settings (e.g., schools, streets, and clinics) were used by interventions to deliver sexual health messages to adolescents. When targeting a diverse population like the Latino population, it is imperative to conduct interventions that will be made available to individuals of different sub-groups within the population in terms of their socio-demographic characteristics (Ebin et al., 2001; Edwards et al., 2008; Hayes-Bautista & Chapa, 2002).

The fourth strength noted across the reviewed interventions is variety in the design of these interventions. The duration and intensity differed from intervention to intervention. For example, the shorter interventions were usually created to impact individual's knowledge, beliefs, and attitudes. On the other hand, longer interventions were focused on more intricate behavior change, such as skills-based training and personal counseling. Effective interventions of short and long duration are necessary to effect change in the Latino community under different conditions. While there are instances when time is not a constraint, there are, however, instances in which time is a limited resource, such as during the conduct of school-based interventions. Under such circumstances, short interventions have proven to be effective in providing the necessary activities to impact adolescent sexual health given the time available to do so.

A fifth strength was the geographical location within the United States where the interventions were conducted. This literature review showed interventions were predominantly conducted in the northeast, southeast, mid-south, and west coast areas. These are areas with concentrated Latino communities; therefore, representation of Latino adolescents from these

regions is an important starting point to conduct sexual health interventions and obtain significant findings.

5.1.2 Weaknesses of the behavioral interventions research for Latino adolescent sexual health

Many weaknesses have been noted in the research conducted to impact Latino adolescents' sexual health. Additionally, several needs have been noted in the Latino adolescent sexual health promotion from a social ecological perspective. The first weakness is the small quantity of behavioral interventions that specifically targeted Latino adolescent sexual health promotion. In 16 years, only 11 Latino adolescent sexual health behavioral interventions were identified by this systematic literature review. In order to effect change, interventions must be generated, replicated, and specifically tailored to the Latino adolescent sexual health needs.

Secondly, there was an overall lack of cultural sensitivity in the Latino adolescent sexual health interventions. Addressing sexual health from a culturally sensitive approach involves using strategies of message delivery that are appropriate for the Latino community. The involvement of celebrities and Spanish-language messages to educate viewers of sexual health adversities through *novelas* or *mini-novelas*, which are the most popular form of Latino television programs, can be successful strategies in promoting sexual health (Rios-Ellis et al., 2008). Additionally, addressing topics that are relevant to the sexual health of Latinos (e.g, machismo, marianismo, and sexual health communication with family members) is also something that would increase the cultural sensitivity of interventions (Rios-Ellis et al., 2008).

A third weakness is not all of the reviewed interventions specifically targeted Latinos. As a result, not all interventions reported important Latino-specific, socio-demographic

characteristics (e.g., national origin, socio-economic status, language spoken, immigration status, and religious beliefs). Though these may be more sensitive data variables to collect from participants and they may prove to be difficult to obtain from participants, they may help to generate more culturally and linguistically appropriate interventions (Paul-Ebhohimhen et al. 2008; Rios-Ellis et al., 2008). The collection of these variables may also help to direct research in terms of subgroups that are being targeted and those which are not (e.g., individuals from different national origin, individuals from high versus low socioeconomic status, illegal immigrants, individual with low academic achievement, adolescents with delinquent or incarcerated history, and adolescent workers). The need for incorporation of the socio-demographic characteristics for behavioral interventions has been demonstrated, and more attention should be placed on their collection and reporting to allow researchers and practitioners to understand the needs in the sexual health of United States Latino adolescents (Rios-Ellis et al., 2008).

A fourth weakness was that no interventions were conducted in geographical regions other than the ones with a high Latino population concentration. The Latino community is fast-growing, and its growth has been noted in regions other than the northeast, southeast, mid-south, and west coast of the United States. Approximately two thirds of the recent growth of the Latino population has taken place in geographical areas with traditionally lower percentages of Latinos, where access to health care for Latino immigrants may be more difficult because of multiple barriers (e.g., difference in language, culture, and the lack of health insurance coverage) (Cunningham et al., 2006). Therefore, research is needed in these newly populated areas of the United States, and continual research in the areas that have been highlighted in this literature review

A fifth weakness is that a small number of the sexual health interventions for Latino adolescents addressed sexual health problems from a top-down approach. This approach produces changes in the societal context that may impact the environment in which adolescents develop, so as to decrease risk for adverse sexual health (Pantin et al., 2004). The majority of behavioral interventions focused at the individual and interpersonal levels, while very few addressed sexual health from the community level. Adolescent behavior is a result of not just individual and interpersonal factors; it is also a result of the social and physical environments in which they live (Pantin et al., 2004). Targeting environmental change can help shape the behaviors of Latino adolescents since they are often subjected to social norms, in spite of their individual disposition for exercising healthy sexual behaviors. The influence of media (e.g., movies, music videos, and television) with sexual content has been shown to cause adolescents to become more accepting of sexual activity at a younger age and at increased risk for adverse sexual health (Chandra et al., 2008). None of the interventions reported here targeted media literacy to help adolescents understand the implications of media and its influence on sexual behavior. Another area in need for effective interventions is the United States school-based sexual health education policy, which currently consists of abstinence-only curriculum (Santelli et al., 2006). However, research has shown that in addition to abstinence promotion, comprehensive sexual health programs are necessary in order to reduce the sexual health adversities in adolescents (Hoyt & Broom, 2002; Kohler et al., 2008).

A sixth weakness is the lack of theoretical frameworks used to guide some interventions. Although many interventions used at least one theory, several tended to omit this significant element. There is great value in the use of theory for the promotion of health education and health behavior (Glanz et al., 2002a; Kinzie et al., 2005). Using a theory to guide an intervention

helps researchers understand what particular aspect of the intervention works when replicating the intervention. Although not necessary for effective interventions, theories must continue to be validated in Latino adolescents to better explain the nature of adolescent sexual behavior and to produce replicable, evidence-based interventions.

A seventh weakness was the sampling techniques of the interventions, which oftentimes consisted of using convenience samples. While this type of sampling can be cost-, and time-effective, it may also produce samples that are not population-based, therefore, making the sample highly unrepresentative of the larger Latino United States adolescent community (Neuman, 2006). Using different sampling techniques is necessary in research that provides significant and generalizable findings to the greater Latino adolescent community in the United States. One creative sampling technique that can be utilized is snowball sampling, which involves chain referral sampling for recruitment of participants into research studies (Neuman, 2006). Respondent-driven sampling is another sampling technique that uses a probability calculation employing study participants as "seeds" for recruitment of other respondents in their social networks who engage in similar behaviors (Magnani et al., 2005). These strategies have been shown to work for populations that are hard to reach or identify within the minority community (Magnani et al., 2005). Another important consideration would be to permit the waiver of parental consent for mature adolescents who would otherwise refrain from participating in studies because they do not want to disclose specific sexual behavior or conditions to their parents or guardians that are addressed in the intervention (Friedman Ross, 2006).

The lack of community capacity-building vis-à-vis training of peer leaders as intervention facilitators was an eighth weakness. A pre-existing relationship of the facilitators to the

community was not reported in any of the interventions. Additionally, only two of the interventions trained peer leaders to become intervention facilitators. The rest of the interventions employed adults or recent college graduates. The employment of peer leaders as facilitators in interventions, particularly of the same gender as the participants, have been proven to give better results in the delivery of sensitive sexual health messages (Brindis et al., 2005). Furthermore, in this review of interventions only one addressed capacity-building of parents as educators for their adolescents. Building capacity in parents as sexual health educators is an important component for the Latino adolescent sexual health, as effective parent-child communication has been correlated with positive effects in the sexual health outcomes of adolescents (Wagner & Clayton, 1999). Other community members that must be involved in the all phases of the intervention (including planning, implementation, evaluation, and dissemination of findings) are well-trusted and influential individuals (e.g., health practitioners, teachers, and community organizers) that not only may serve as gatekeepers to the community, but may also help to increase the community's acceptability of the intervention and its components, and guide researchers in the development of a culturally appropriate interventions (Russell et al., 2004).

A ninth weakness was the lack of community collaboration and/or partnership in implementation of any of the interventions. Interventions focusing on partnerships with the community tend to engage the community before and after the intervention. Involving the community at all phases of research has revealed great success in providing more sustainable interventions and it also increases the self-sufficiency in the community (Minkler & Wallerstein, 2003). By teaching the community how to conduct the intervention, and all of the components essential for its sustainability (e.g., funding, needs and strengths assessment, evaluation), the intervention could be transitioned into the hands of the community, eliminating ongoing

dependence on researchers and practitioners for community health improvements. Teaching participant adolescents the importance of passing down their knowledge to other individuals in their community is important. The ultimate goal would be to teach the adolescent community to be self-dependent in making positive changes and improving their community's sexual health status, not just in the present time, but for also for future generations.

A tenth weakness is that not many of the reviewed interventions obtained their desired outcomes. Findings suggest that replication is needed, and perhaps the use of a different methodology should be explored to validate new or pre-existing interventions in the Latino adolescent community. For example, a recurrent limitation was noted across the different interventions – that is, the insufficient length of time devoted to participant follow-up. Because of this, researchers and practitioners may not be able to learn if follow-up time may, in fact, be the factor affecting the reported results and the outcome measures of an intervention. Also, long-term effects of interventions may not be established for interventions of shorter follow-up time periods.

An eleventh weakness is that some interventions focus on a broad age range for adolescents from 11-21 years. While some interventions focus on particular sub-stages within adolescence, researchers oftentimes continue to unite adolescents with adult-age individuals and generalize the findings to both adolescents and adults. This is a primary reason why interventions were excluded from the literature review. Sexual health promotion through interventions including adolescents and adults (and even different sub-stages within adolescence) may prove to be a challenge, given the differing developmental stages of the participants based on age or other developmental factors that may affect the way individuals function at a personal and interpersonal level (Blakemore & Choudhury, 2006). Additionally, adolescents' views and

acceptability of sex and sexual behavior may vary significantly from early adolescence to late adolescence; thus, targeting age-specific behaviors may be more effective in obtaining the intervention's desired goals (Ott et al., 2009).

The twelfth and final weakness identified in this literature review is that only four interventions targeted adolescent-age pregnancy prevention. This is a concern because more attention should be placed on reducing the adolescent-age pregnancy rates that exist among Latino adolescents (Martin et al., 2005). Latino cultural views on appreciation of adolescent-age childbearing may be speculated as the cause of high pregnancy rates in Latino adolescents (Driscoll et al., 2001). Nonetheless, the high rates of pregnancy and births to young Latino adolescents continue to impose serious social and economic costs to the adolescents, their families, and even the overall Latino community. Individuals who give birth during adolescence are more likely to have childbearing consequences (e.g., preterm births, infants with low birth weights, and infant death) (Ventura et. al., 2001). Adolescent-age mothers are also most likely to drop out of school, be unemployed, and remain single parents as young adults (Manyard, 1997).

5.2 OVERVIEW OF FINDINGS

In this review of 16 years of literature of sexual health behavioral interventions for Latino adolescents in the United States, the findings suggest that not many interventions have been conducted to address the problems of the sexual health of Latino adolescents. Researchers have, for the most part, focused on changing behaviors at the individual and the interpersonal levels. However, the Latino community comprises complex social and cultural factors at the community level that are also important when addressing adolescent sexual health needs. More research is

needed to replicate existing and produce new age-specific and culturally-sensitive sexual health interventions for Latino adolescents in the United States.

5.3 LIMITATIONS

This literature review has several limitations. Only five databases were searched and used due to limited access through the University of Pittsburgh Health Science Library System. Only English-language articles were found in the searched databases. No searches were conducted to identify the gray literature on Latino adolescent sexual health interventions. Certain key words (e.g., contraception, sexually transmitted infections, or reproductive health) were not included in the literature; thus, other interventions may have been missed. Further, only one reviewer was involved in the selection, classification, and analysis of the interventions. Additionally, published articles did not completely report necessary information for the analytical component of this literature review. Critical intervention research and design components may have also been overlooked in this analysis.

The different age ranges reported and the lack of age specificity for intervention study participants made it difficult to compare the effectiveness of the reviewed interventions. Another recurring limitation in the interventions was the lacking definition of specific sexual behaviors for "sexual activity" as an outcome measure. Another limitation was that the interventions were mostly conducted in school settings, which did not include adolescents who were not enrolled in school. Given that Latinos have the highest dropout rates in the Unites States, the lack of interventions outside of school settings poses serious limitations for intervening with this population (Freudenberg & Ruglis, 2007). Another critical limitation found among the

interventions was the lack of reporting or use of culturally sensitive components for the intervention implementation. Finally, no interventions targeted behavior change at the community level that would produce community-wide changes that would not only impact individual behavior, but the macro policies needed to address Latino adolescent risky sexual behaviors.

5.4 PUBLIC HEALTH IMPLICATIONS

Latino adolescent sexual health is a fairly new field of research with multiple problems that need to be addressed. Understanding the multiple and complex issues within the United States Latino community is needed to effectively promote change. This literature review points out the multiple challenges researchers and public health practitioners may face when planning and implementing behavioral interventions for Latino adolescents. As the largest ethnic minority group in the United States, the Latino population's health needs must be further addressed through effective interventions that not only describe health status, but also present potential solutions to eliminating the social inequalities in the outcomes of their sexual health. In addition, these interventions must be culturally sensitive and include key components of the Latino culture to be effective. Thus, increased funding and other necessary resources (particularly time) must be supplied for the quality of research to improve and provide effective solutions for addressing the sexual health problems faced by Latino adolescents.

5.5 FUTURE RESEARCH

Future research should examine the feasibility of replicating previously successful and valid studies that have been conducted with Latino adolescents. Specifically, these studies should be conducted in areas of newest Latino migration. Future literature reviews of Latino adolescent sexual health interventions should include other types of searches (e.g., using additional databases that may include gray literature). Additional search terms should be included that pertain to adolescent sexual health. Future studies should focus on both theory and practice-based interventions to tackle sexual health problems in these adolescents. In conducting new interventions, researchers must aim to obtain samples that are more representative of the overall United States Latino community. In the absence of this, studies should target specific Latino sub-groups, in terms of socio-demographic characteristics to generate group-specific findings. More attention must be placed on targeting high-risk Latino adolescent populations (e.g., adolescents with friends and relatives who were adolescent-age parents, students with low academic achievement, adolescents who are not enrolled in schools, adolescents with delinquent behavior, illegal immigrants, and sexual minority adolescents). Another important research area to explore is in the engagement of adolescents through interactive learning experiences to increase skills in media literacy.

6.0 CONCLUSIONS

Numerous challenges have been found in the development and implementation of behavioral interventions that aim to promote sexual health among Latino adolescents in the United States. The findings from this literature review reveal that the quantity, quality, and effectiveness of interventions addressing the sexual health needs of Latino adolescents in the United States are still emerging and need additional work. Using The Social Ecological model as a framework for mapping Latino adolescent sexual health interventions, gaps in the literature suggest the need for more interactive approaches between interventions at multiple social ecological levels. In an effort to advance positive outcomes in the sexual health of Latino adolescents in the United States, researchers must be well aware of the interventions that have been deemed as effective, as well as the ineffective ones, so as to eliminate repetition of outdated research. In the last decade, Latino adolescents have been shown to suffer from high levels of sexual adversities that have impacted their overall well-being. Latino adolescents are among the ethnic groups with the highest rates of adolescent-age pregnancy, early parenting, and STD infections including HIV/AIDS. Studies have identified and described the cultural and socio-economic factors that influence the sexual health of Latino adolescents in the United States. As we end the first decade of the 21st century, the time has come to move the research agenda forward, and launch a more rigorous plan to address effective and long-lasting changes in the sexual health behaviors of Latino adolescents.

APPENDIX: LITERATURE TABLES

Table 1. Influencing factors to Latino adolescent sexual health outcomes

Determining Factors	Contributing Factors	Protective and Resiliency Factors
Positive attitudes toward sexual activity (Afable-Munsuz & Brindis, 2006; Bargazan & West, 2006) **Being sexually active** (Sneed et al., 2001) **Younger age at sexual onset** (Centers for Disease Control and Prevention, 2008) **Lack of effective and consistent contraceptive use** (Gurmán & Borzekowski, 2004; Manning, 2000; Prado et al., 2006) **Lack of sex negotiation skills in contraceptive use** (Smith, 2003) **Sexual intercourse with multiple partners** (Centers for Disease Control and Prevention, 2008) **Lack of information or knowledge of sexual health education** (Gilliam et al., 2004) **Subjective norms about sexual activity** (Smith, 2003)	**Low socioeconomic status** (Driscoll et al., 2001) **Lower level of refusal skills for avoiding sexual activity** (Bargazan & West, 2006) **Higher level of perceived pressure** (Bargazan & West, 2006) **Watching television programs with sexual content** (Escobar-Chaves et al., 2005) **Lower level of perceived pregnancy repercussions** (Bargazan & West, 2006) **Lack of trust in contraceptives** (Smith, 2003) **Lack of knowledge of health services** (Sneed et al., 2001) **Psychosocial disorders, e.g., depression, low self-esteem** (Consolacion et al., 2004) **Older age at initiation of sexual activity** (Warren et al., 2008) **Being male** (Bargazan & West, 2006; Raine et al., 1999) **Belonging to the 2nd or 3rd immigrating generation** (McDonald et al., 2009) **Higher ethnic identification** (Warren et al., 2008) **Being a U.S. born Latino** (Hussey et al., 2007) **Higher level of U.S. culture assimilation**(Hussey et al., 2007) **Recent immigrant adolescents living in Spanish-speaking homes** (Guilamos-Ramos et al., 2005) **U.S. born Latino (or long-time resident) youth in English- speaking home** (Guilamos-Ramos et al., 2005)	**Being female** (Edwards et al., 2008; Raffaelli, 2005; Raine et al., 1999) **High socioeconomic status** (Driscoll et al., 2001) **Females receiving sexual information from parents** (Baumeister et al., 1995) **Females having older age at menarche** (Baumeister et al., 1995) **Effective parent-child communication about sexual topics** (Baumeister et al., 1995; Jacobs, 2008; Mena et al., 2008) **Having an intact family** (Baumeister et al., 1995) **Adolescents' expectations for the future** (Giachello, 2001) **Having positive attitude toward school** (Baumeister et al., 1995) **Belonging to the 1st immigrating generation** (McDonald et al., 2009) **Higher level of acculturation** (Afable-Munsuz & Brindis, 2006) **Parental supervision** (Velez-Pastrana et al., 2005) **Viewing religion as important**, **frequent church attendance, and having more traditional attitudes** (Edwards et al., 2008; Villarruel et al., 2007) **Having strong social/family support or communication network** (Guzmán et al., 2003; Livaudais et al., 2007; Rivera, 2007) **Having highly educated parents** (Raffaelli & Green, 2003)

Table 2. Literature review search terms

ADOLESCENT	SEXUAL BEHAVIOR	INTERVETION	LATINO
Adolescent(s)	Sexual Behavior	Intervention(s)*	Hispanic(s)
Adolescence	Sexual Activities	Early Intervention(s)	Hispanic American(s)
Teen(s)	Sexual Activity	Education	Spanish American(s)
Teenager(s)	Sex Behavior	Health Education	Latina(s)
Youth(s)	Oral Sex	Health Promotion(s)	Latino(s)
Female Adolescent(s)	Sexual Orientation	Promotion of Health	Puerto Rican(s)
Male Adolescent(s)	Sex Orientation	Prevention	Cuban American(s)
	Premarital Sex Behavior	Wellness Program(s)	Central American(s)
	Anal Sex	Health Campaign(s)	South American(s)
	Sexually transmitted diseases	Health Service(s)	Mexican Americans
		Family Planning	Ethnic Group
	HIV infection	Family Planning Service(s)	Minority Group
	HIV education	Family Planning Program(s)	
	Pregnancy	Reproductive Health Service(s)	
	Pregnancy during adolescence	Preventive Health Service(s)	
		School Health Service(s)	
		School-Based Service(s)	
		Community Health	
		Community Health Service	
		Community Health Care	
		Community Healthcare	
		Community Health Education	

Table 3. Systematic literature search conducted to identify studies that reported sexual health promotion interventions in United States Latino adolescents from 1993-2006

Articles found in databases, N = 83
After duplicates were removed, N1 = 53

Satisfied inclusion criteria, N2 = 11	Did not satisfy inclusion criteria, N3 = 42
	Intervention did not target sexual health (7)
	No measureable outcome of sexual health (2)
	Age range included adults (14)
	Not a Latino population (3)
	Less than 33% of sample size was Latino (5)
	Less than 25% of sample size was Latino (9)
	Description of intervention in more than one article (2)

Table 4. Interventions reviewed: Description, measures of outcomes, and results

Intervention	Description of Intervention	Measures of Outcomes	Results
1. ***HIV Prevention Program*** (Sellers et al., 1994)	An AIDS prevention program designed to increase HIV/AIDS awareness and to reduce the risk of HIV infection by increasing the distribution and use condoms among sexually active adolescents.	1) Onset of sexual activity between baseline and follow-up 2) Change in the percentage of multiple (2+) sexual partners in the 6 months prior to follow-up interview 3) Change in mean frequency of sex between baseline and follow-up	▪ The odds of possessing a condom at the time of follow-up interview were 2.3 times and 2.0 times greater for boys and girls, respectively. ▪ The risk of HIV infection was lowered in the intervention group males and females by 9% and 15%, respectively. ▪ Males were less likely to become sexually active than were males in the comparison group (PR = 0.08, P = .011). ▪ Females in the intervention group did not significantly increase or decrease the chances of becoming sexually active (OR 1.24, P = .692). ▪ Females in intervention were less likely to have multiple partners at the follow-up interview than counterparts in the comparison group (OR 0.06, P = .005). ▪ Intervention did not affect frequency of sex for either male or female respondents.
2. ***Social Skills Training*** (Hovell et al., 1998)	An intervention focused on skills training that consisted of a curriculum of brief didactic instruction on sexual health topics and role-playing activities for development of skills (e.g., refusal of sexual activity, purchasing condoms). Videos were recorded of students' role playing activities to evaluate students' learned skills.	1)Knowledge of AIDS transmission and prevention, and of risks of other STDs and pregnancy 2) Skills in refusal, self-efficacy in purchasing condoms, and negotiation of condom use	▪ **For the Latino group**: ✓ SST may have increased assertiveness for "say no to sex" only among Latino youth (increase of mean assertiveness test score were 8.86 to 10.52 in the SST). ✓ Latinos in the NT group decreased from an assertiveness test score of 10.05 to a mean of 9.36. Latino youth were more anxious than Anglo youth at baseline. ✓ Latino youth may have been were less likely than Anglo youth to reduce their anxiety as a result of repeated role-play practice. ▪ **For all groups**: ✓ Knowledge: increased significantly more in the DT group than in either SST or NT groups. ✓ Knowledge increased more in the SST group than in the NT group. ✓ Negotiation Skills, assertiveness increased for youth in SST than youth in the other conditions. ✓ Increases in refusal skills were not greater as a result of SST.
3. ***HIV Risk-Reduction Intervention*** (Lazebnik et al. 2001)	A school-based intervention that was provided during weekly health education class, consisting of four blocks of learning experiences through group discussions and role-playing activities relating to alcohol use and its influence on sexual activity.	1) Sexual activity (e.g., condom use, multiple partners); time frame not specified 2) Prevalence of alcohol and drug use; time frame not specified 3) Knowledge of HIV/AIDS transmission 4) Beliefs about HIV/AIDS 5) Perceived risks for HIV infection.	▪ Effectiveness varied across risk groups and content categories. ▪ The knowledge section showed improvements in the illness, casual contact, and the sexual activity categories. ▪ No significant improvement was observed in the alcohol/drug use category.
4. ***The GIG*** (de Anda, 2002)	A community-based intervention of a single session (6hrs), which offered education regarding pregnancy and STI risks and prevention in the context of a social event that featured a disc jockey, celebrities from local radio stations, live and recorded music, raffles, contests, and prizes and a number of activities providing instruction regarding pregnancy and STI risks and prevention.	1) Knowledge about pregnancy and STDs 2) Attitudes about pregnancy and STDs	▪ The majority of the group appears to have met the intervention objectives. ▪ At pretests, 47.2% (n = 289) of adolescents had an overall score of 12 or higher, whereas in post-test, 60% (n = 366) adolescents had an overall score of 12 or higher. ▪ While only 6.4% (n = 39) obtained a perfect score of 15 at pretest, at posttest 26.4% (n = 161) achieved this score. ▪ Males scored lower than females in pretest results; however, after adjusting for this baseline difference, there were no differences between the post-test scores of males and females.

Table 4. (continued)

Intervention	Description of Intervention	Measures of Outcomes	Results
5. ***California's Adolescent Sibling Pregnancy Prevention Program (California's ASPPP)*** (East et al., 2003)	A community-based intervention consisting of various programs focusing on the availability and accessibility to support services for adolescent pregnancy prevention, academic excellence, physical wellness, inspiration and empowerment for adolescents, and their families towards positive personal growth, goal attainments and self-sufficiency.	1) Perceived parent-youth communication 2) Perceived likelihood of having sex 3) Perceived likelihood of remaining abstinent 4) Perceived likelihood of early parenting 5) Perceived likelihood of contraceptive use 6) Truancy (missing school class or whole day in past 3 months) 7) Drug or alcohol use (frequency of tobacco, alcohol, marijuana, or other drug use in past 3 months) 8) Gang activity 9) Sexual behavior (frequency of vaginal intercourse in past 3 months; number of sexual partners) 10)Method and consistency of contraceptive use 11) Pregnancy history (self report of any previous or current pregnancies or having impregnated anyone, and their age at the time 12) STD history (self report of ever having an STD)	▪ Positive outcomes, especially for females. ▪ The odds of initiating sexual activity were significantly elevated among comparison group females relative to intervention females (OR, 1.5; 95% CI, 1.09-1.94). ▪ The odds of becoming pregnant were significantly higher among comparison than intervention females (OR, 1.6; 95% CI, 1.07-2.52). ▪ Only one significant difference emerged between program and comparison males at posttest, and it was that males enrolled in the program increased their consistency of contraceptive use from pre-test to post-test, while comparison males used contraceptives less consistently over time.
6. ***Project Children's Health and Responsible Mothering (Project CHARM)*** (Koniak-Griffin et al., 2003)	HIV prevention program was a modified version of *Be proud! Be responsible!*, and was renamed to *Be proud! Be responsible! Be protective!* to reflect new focus on maternal protectiveness as a cause to reduce or eliminate sexual risk-taking behavior. New information incorporated HIV effects on pregnant women and their children to motivate adolescents to make responsible sexual decisions and reduce risky sexual behavior and to raise political awareness of the effects of HIV/AIDS on inner-city communities and their children.	1) Knowledge of AIDS, including transmission, consequences, and prevention 2) Behavioral intentions to use condoms 3) Number of episodes of unprotected vaginal sex in the past three months 4) Number of sexual partners in the past three months 5) Self-efficacy beliefs 6) Condom use (hedonistic beliefs) 7) Condom use (prevention beliefs) 8) Partner reaction beliefs 9) Maternal protectiveness and social desirability 10) Sexual risk behaviors (the number of episodes of unprotected vaginal sex in the past 3 months, and the number of sexual partners in the past 3 months)	▪ The intervention group demonstrated statistically significant improvements in: ✓ AIDS knowledge at the six-month follow-up. ✓ Intentions to use condoms at 12 months. ▪ Participants in both groups experienced a decrease in episodes of unprotected sex from baseline to 3-, 6 and 12-month follow-ups. ✓ In the intervention group, condom use during last sexual episode increased from 16% at baseline, to 48% at the 12 month follow-up. ✓ In the comparison group, condom use during last sexual episode increased from 23% at baseline, to 50% at the 12 month follow-up. ▪ Adolescents in the intervention group had significantly fewer sexual partners than those in the comparison group at the 6-month follow-up. ▪ A significant increase in this same category was noted for the comparison group at the 12-month follow-up compared to baseline and 6-months. ▪ The intervention program scored significantly higher on self-efficacy measure and demonstrated greater condom-use knowledge than those in the comparison group.
7. ***Building Teen Power*** (Talashek et al., 2003)	A school-based intervention that consisted of social-cognitive strategies such as value clarification and skill building to improve students' personal capacities, while also training teachers how to intervene with their students in order to improve their academic success and encourage safer sexual practices.	1) Age of sexual debut 2) Safer sexual practices 3) School attendance 4) Grade point average 5) STD incidence (measurement not specified) 6) Pregnancy incidence (measurement not specified)	▪ Program not yet implemented
8. ***Baby Think It Over*** (de Anda, 2006)	An intervention using a computerized infant simulation doll to offer adolescents experiences similar to those involved in attending to an infant. Pregnancy prevention classes were also offered in preparation for carrying a doll and a debriefing period after everyone in the class had carried a doll.	Degree to which adolescents recognize: 1) that caring for a baby affects adolescent academic and social life, 2) that other family members are affected by having an adolescent with a baby in the family, 3) that there are emotional risks for each parent in having a baby during adolescence, 4) that there are family and cultural values related to having a baby during adolescence Plans to postpone parenthood: 5) until a later age, 6) until education and career goals were met, or 7) until marriage.	▪ Perceptions were changed regarding the time and effort involved in caring for an infant and in recognizing the significant effect of having a baby has on all major aspects of one's life. ▪ Participants increased their awareness of how caring for an infant would interfere with their future plans in regard to both education and career. ▪ Pregnancy prevention was increasingly recognized as important to ensure their future. ▪ More than half of the participants (58%) reported that BTIO helped their minds about using birth control or contraceptives to prevent unwanted pregnancies. ▪ Reported use of birth control or protection increased from 22.2% (n = 24) to 28.7% (n = 31).

Table 4. (continued)

Intervention	Description of Intervention	Measures of Outcomes	Results
9. ¡Cuídate! (Villarruel et al., 2006a)	This intervention was an adaptation of *Be Proud! Be responsible!*, tailored to issues relevant to Latinos. Incorporated salient aspects of Latino culture, specifically familialism, or the importance of family, and gender-role expectations. Abstinence and condom use were presented as culturally accepted and effective ways to prevent STDs, including HIV. Also focused on health behaviors like diet, exercise, physical activity, and cigarette, alcohol, and drug use.	1) Lifetime vaginal sexual intercourse 2) Vaginal sexual intercourse in past 3 months, (the number of days, the number of times they had sex) 3)Number of days of sex without using condoms (and calculated proportion of says of protected sex) 4) Number of sexual partners in the past 3 months	▪ At follow-up, adolescents in the intervention group were less likely to report: ✓ having had sexual intercourse (OR, 0.66; 95% CI, 0.46-0.96), ✓ having multiple sex partners (OR, 0.53; 95% CI, 0.31-0.90), ✓ having engaged in unprotected intercourse (RR, 0.47; 95% CI, 0.26-0.84) ▪ Adolescents in the intervention group were more likely to report: ✓ using condoms consistently (OR, 1.91; 95% CI, 1.24-2.93). ▪ Greater effects on Spanish-speaking Latinos on several outcomes: ✓ Latinos had a higher proportion of days of protected sex ✓ and more frequent condom use at last sexual intercourse.
10. Familias Unidas + Parent Preadolescent Training for HIV Prevention (Familias Unidas + PATH) (Prado et al., 2007)	A family-based intervention designed to reduce risk and increase protection against substance use and sexual risk behaviors in Latino adolescents by increasing parental involvement in adolescent's life, increasing family support, promoting positive parenting, and improving parent-adolescent communication. All activities were parent-centered, with adolescent involvement limited to family visits, and parent-adolescent discussions in the intervention group.	1) Acculturation level 2) Level of family functioning (parental involvement, positive parenting, family support, and parent-adolescent communication) 3) Substance use (cigarette, drug, or alcohol use and frequency of use in their lifetime and in the past 90 days) Sexual behavior measured of outcomes included: 1) Sexual intercourse in their lifetime 2) Sexual intercourse in the past 90 days 3) Unprotected sexual intercourse in the past 90 days 4) Engaging in unprotected sex at last intercourse 5) Consumption of alcohol or drugs before their last sexual intercourse 6) STD history (self report of ever having an STD)	▪ The mean trajectory of family functioning increased in the intervention group, while it decreased in the comparison groups. ▪ Fewer adolescents reported initiation of cigarette use in the intervention group. ▪ In the intervention group, 19.2% of the adolescents engaged in unsafe sex at last intercourse, in comparison to 44% in one of the comparison groups. ▪ No other significant differences were found by condition for: ✓ unprotected sex for past 90-day unprotected sex (small number of participants engaged in sexual activity in past 90 days) ✓ initiation rates for alcohol use and illicit drug use in any of the groups in past 90 days ▪ The incidence of STDs in the intervention group (0%) was lower than in the comparison groups (1.2% and 5.9%).
11. Safer Choices 2 (Tortolero et al., 2007)	Safer Choices 2 was an adaptation of *Safer Choices* for the particular implementation in alternative schools. Included skill-based and experiential activities to reduce levels of unprotected sexual intercourse through classroom-based lessons, video and journaling activities.	1) Proportion of students ever having sexual intercourse 2) Proportion of students engaging in sexual intercourse in the past 3 months 3) Proportion of students engaging in unprotected sexual intercourse in the previous 3 months	▪ While at baseline, the majority of students had been sexually active, and of those sexually active, more than a quarter had been pregnant or gotten someone pregnant. ▪ Almost one quarter (n = 229) of students who had initially enrolled in the study and completed baseline were not enrolled in school by the end of the spring semester, and were not considered part of the cohort to follow. ▪ Comparing included and excluded students, those excluded from the study: ✓ had higher levels of ever having sexual intercourse (85.6% vs. 60.6%); ✓ were more likely to have been pregnant or have gotten someone pregnant (37.4% vs. 24.4%); ✓ were more likely to have reported using drugs before sexual intercourse (37.5% vs. 28.3%), ✓ were more likely to report using marijuana, cocaine, or codeine in the past 30 days. ▪ Students who were enrolled in the study cohort reported more confidence in refusing sex, but less confidence in using a condom during sex, while also identifying more barriers to using condoms than those were dropped from the study. ▪ Those included in the study believed it was more normative to have sexual intercourse. ▪ No difference was seen in both groups in terms of knowledge, normative beliefs in using condoms, or in self-efficacy in communicating about sex to their parents.

Table 5. Details of Latino adolescent sexual health behavioral interventions reviewed

Intervention detail	***HIV Prevention Program*** (Sellers et al., 1994)	***Social Skills Training*** (Hovell, 1998)	***HIV Risk-Reduction Intervention*** (Lazebnik et al. 2001)	***The GIG*** (de Anda, 2002)	***California's ASPPP*** (East et al., 2003)	***Project CHARM*** (Koniak-Griffin et al., 2003)	***Building Teen Power*** (Talashek et al., 2003)	***Baby Think It Over*** (de Anda, 2006)	***¡Cuídate!*** (Villarruel et al., 2006a)	***Familias Unidas + PATH*** (Prado et al., 2007)	***Safer Choices 2*** (Tortolero et al., 2007)
Target population	Male and female adolescents, aged 14-20 years	Male and female adolescents, aged 13-17 years	Middle school adolescents, aged 10-15 years	Males and females adolescents 10-22, the majority aged from 15-17 years	Males and females, aged 11-17 years Must have never been pregnant or caused a pregnancy, and had a pregnant or parenting biological teenage sibling (full or half) Must have been enrolled in California's Adolescent Family Life Program or Cal-Learn Program. Adolescents in Program had to be enrolled in ASPPP intervention program. Majority of Latinos economically disadvantaged and of urban regions.	The only indication of participants' age was a mean age of 16.67 (SD = 1.13) Young, pregnant or parenting women, predominantly poor.	Not available	Male (n= 140) and females (n = 204) adolescents in grades 9-11th, most aged 14-15 years	Male (n = 249) and female (n = 304) adolescents, aged 13-18 years	Two cohorts: Male (n = 128) and female (n =138) adolescents in 8th grade, and their primary caregivers. At least one of the caregivers had to be born in a Spanish-speaking country in the Americas.	Male and female (57.3%) adolescents in 7-12th grade classes, aged from 12-20 years
Geographic location	Boston, MA and Hartford, CT	Not available	Houston, TX	Los Angeles, CA	California (multi-cities)	Los Angeles County, CA	Not available	Not available	Northeastern Philadelphia, PA	Miami, FL	South East Texas

Table 5. continued

Intervention detail	*HIV Prevention Program* (Sellers, 1994)	*Social Skills Training* (Hovell, 1998)	*HIV Risk-Reduction Intervention* (Lazebnik et al. 2001)	*The GIG* (de Anda, 2002)	*California's ASPPP* (East et al., 2003)	*Project CHARM* (Koniak-Griffin et al., 2003)	*Building Teen Power* (Talashek et al., 2003)	*Baby Think It Over* (de Anda, 2006)	*¡Cuídate!* (Villarruel et al., 2006a)	*Familias Unidas + PATH* (Prado et al., 2007)	*Safer Choices 2* (Tortolero et al., 2007)
National sub-origin	Latino, primarily Puerto Rican (94%)	Anglo (47%) and Latinos (53%). Of the Latino adolescents, 56.7% were born in the U.S. 39.6% born in Mexico, 3.7% were from El Salvador, Chile, Cuba, Portugal, Brazil, or Puerto Rico. Stratified adolescents based on gender and ethnicity (Anglo and Latino).	Latinos, principally Mexican-American, (>90%)	Latinos (77%), African Americans (9.5%), White (8.5%), and other ethnicity (5.4%)	Not available	Latinas (78%), African Americans (18%).	Latino and African American	Latinos (92.9%) Of the Latinos, 70.8% were Mexican American, 5.1 % Central American, and 17% other Latino. The remaining participants included one African American, American Indian, three Asian/Pacific Islander, and two multi-ethnic adolescents. Five did not provide ethnic information.	Latinos. Of the sample, 85.4% were Puerto Rican with nearly half (45%) born outside the U.S. mainland.	Hispanics. 40% born in the US with parent born in Nicaragua (33%), Cuba (20%) and Honduras (12%). There were 159 immigrant adolescents with parents born in Cuba (40%) Nicaragua (25%), Honduras (9%), Colombia (4%), and other Hispanic countries (22%). Exactly half of adolescents had been living in the US for less than 3 years.	Hispanics (61.3%), African Americans (29.7%), Other (9%)
Sample size	N = 568	N = 307	N = 125	N = 609	N =1,594	N = 497	Not available	N = 353	N = 249	N = 266	N = 711 (9 schools)
Setting	Schools, clinics, community organization centers, street corners, home visits	Social service agencies, schools, community organization centers, county health departments	Schools	Community-settings, primarily schools	Community health service agencies	Alternative schools	Schools	Schools	Schools	Home visits, family group sessions	Alternative schools
Design	Random areal probability sample	Randomized control trial	One group: pre-test/post-test	One group: pre-test/post-test	Quasi-experimental; Non-randomized control trial	Randomized control trial	Not available	One group: pre-test/post-test	Randomized control trial	Randomized control trial	Modified group- randomized control trial

Table 5. continued

Intervention detail	*HIV Prevention Program* (Sellers, 1994)	*Social Skills Training* (Hovell, 1998)	*HIV Risk-Reduction Intervention* (Lazebnik et al. 2001)	*The GIG* (de Anda, 2002)	*California's ASPPP* (East et al., 2003)	*Project CHARM* (Koniak-Griffin et al., 2003)	*Building Teen Power* (Talashek et al., 2003)	*Baby Think It Over* (de Anda, 2006)	*¡Cuídate!* (Villarruel et al., 2006a)	*Familias Unidas + PATH* (Prado et al., 2007)	*Safer Choices 2* (Tortolero et al., 2007)
Theoretical framework	Not available	Not available	Theory of Planned Behavior, Theory of Reasoned Action	Not available	Not available	Social Cognitive Theory; Theory of Reasoned Action	Social Cognitive Theory	Theory of Cognitive Developments (Formal Operational Stage)	Social Cognitive Theory; Theory of Reasoned Action	The Ecodevelopmental Theory	Social Cognitive Theory
Duration and intensity	18 months; multiple community-based activities	9 weeks; 2 hr/ week	4 weeks; 1 hr/week	6 hrs; 1 session	Average of 18 hrs/individual; Range of 45 min to 95 hrs/ individual	Four 2-hr sessions	13 weeks; 45 minutes per weekday	2.5 days/ individual (Intervention lasted one academic year with different cohorts)	2 weeks; 2 consecutive Saturdays; 8 hrs/session	49 hrs/1 year	8 weeks for 15 sessions
Time span for follow-up	6 months before intervention, and at the end of the intervention	At 10 weeks post-intervention	N/A but post-intervention is implied	At the end of the intervention	At 3, 6, and 12 months post-intervention	At 12-months post-intervention	N/A but post-intervention is implied	N/A but post-intervention is implied	At 3, 6, and 12 months post-intervention	At 6, 12, and 36 months post-intervention	At 3, 6, and 24 months post-intervention
Mode of assessment	Baseline private interviews (same sex interviewers)	Private interviews, videotaped standardized role-play tests to assess skills learned	Self-completion questionnaire	Self-completion questionnaire	Self-completion questionnaire	Self-completion questionnaire	Not available	Self-completion questionnaire	Self-completion questionnaire	Audio computer-assisted self-interview for adolescents, Personal interview for parents with Hispanic interviewer	Private, audio computer-assisted interview using laptops
Attrition	7.2% intervention group 9.3% comparison group	18%	36% excluded from analysis due to loss, or not properly filling out papers, or non-qualifying participants	49% were excluded due to mismatched pre and post-tests	20%	13%	Not available	Not available (Intervention was a component of a school health class)	17%	20% over 36 months	24% at first follow up
Facilitators	Specially-trained peer leaders	Female trainers experienced in sexual health education	Recent college graduates in teacher-training program	Agency staff and peer leaders trained in leadership and health education	Not available	Nurses trained by program directors	High school teacher and additional mentor experienced in providing a culturally sensitive learning environment	Health class teacher and staff from local social service agency	Trained adults, bilingual in English and Spanish	3 Latino facilitators, (2 with master or doctoral degrees), with vast experience in working with low-income Latino families	Trained facilitators

Table 6. Organization of interventions reviewed by desired outcomes

Intervention	Abstinence	Pregnancy prevention	STD/HIV/AIDS prevention
HIV Prevention Program (Sellers, 1994)			X
Social Skills Training (Hovell, 1998)			X
High-Risk Reduction Intervention (Lazebnik et al., 2001)	X		X
The GIG (de Anda, 2002)		X	X
California's ASPPP (East et al., 2003)	X	X	
Project CHARM (Koniak-Griffin et al., 2003)			X
Building Teen Power (Talashek et al., 2003)	X		X
Baby Think It Over (de Anda, 2006)		X	
¡Cuídate! (Villarruel et al., 2006a)			X
Familias Unidas + PATH (Prado et al., 2007)			X
Safer Choices 2 (Tortolero et al., 2007)		X	X

Table 7. Intervention effects on measured outcomes for adolescent sexual health interventions for United States Latinos

Measured Outcome	HIV Prevention Program	Social Skills Training	HIV Risk-Reduction Intervention	The GIG	California's ASPPP	Project CHARM	Building Teen Power	Baby Think It Over	¡Cuidate!	Familias Unidas + PATH	Safer Choices 2
Risky behaviors (8 interventions)											
a. unprotected sexual activity					M+ / F +	+*	N/A	+	+	0	0
d. multiple partners	M 0 / F +					+*			+		
e. alcohol or drug use										0 / +	0
Attitudes, beliefs, perceptions (5 interventions)											
a. STDs including HIV/AIDS			+								
b. STD/HIV disease course			-								
c. perceived risks for STD including HIV infection			+								
d. sexual activity			0								
e. abstinence or postponement of sexual activity					M 0 / F +						
f. alcohol and drug use and sexual activity			+								
g. contraceptive use								+			
h. adolescent-age pregnancy				+				+			
i. adolescent-age parenting				+				+			
j. maternal protectiveness											
k. sexual partner reactions to safe sex practices											
l. parent-youth communication										+	
Health knowledge (4 interventions)											
a. HIV/AIDS form of transmission, consequences, and prevention		+	+			+*					
b. STDs for of transmission, consequences, and prevention		+		+							
c. alcohol and drug use influence on sexual behavior			0								
d. pregnancy		+		+							
e. parenting responsibilities											
Promotion of sexual abstinence or delay of sexual activity (6 interventions)											
a. age of onset of sexual activity	M + / F 0				M 0 / F +		N/A				0
b. sexual activity (current activity, or frequency)	M 0 / F 0					+*			+		0
Skills-based learning (1 interventions)											
a. refusal of sex or unprotected sex		(+)									
b. negotiation of condom use with sexual partners		+									
c. self-efficacy in obtaining, and condom use		(-)									
Prevalence and incidence of STDs (2 interventions)					M 0 / F +		N/A				
Incidence of pregnancy or repeat pregnancy (2 interventions)					M 0 / F +		N/A				
School attendance (2 intervention)					M 0 / F +		N/A				
Grade point average (1 intervention)							N/A				
Level of family functioning (1 intervention)										+	

Key: N/A No outcome data available
M Males
F Females
0 No statistical significant effect in direction of desired outcome
- Negative effect in direction of desired outcome
+ Positive effect in direction of desired outcome
* Statistical significance at 3-month follow-up, but not at 6- and 12-months
(-) Negative effect with no significance
(+) Positive effect in direction of desired outcome with no significance

Table 8. Classification of reviewed behavioral interventions by desired outcome and social ecological level of influence for Latino adolescents in the United States

Social Ecological Level	Abstinence	Pregnancy Prevention	STD/HIV Prevention
Individual Level	High-Risk Reduction Intervention California's ASPPP* Baby Think It Over	The GIG* California's ASPPP*	Social Skills Training* High-Risk Reduction Intervention The GIG* Project CHARM ¡Cuídate! California's ASPPP* HIV Prevention Program*
Interpersonal Level	Building Teen Power Baby Think It Over	California's ASPPP* Safer Choices 2	Social Skills Training* Project CHARM Building Teen Power ¡Cuídate! Familias Unidas + PATH Safer Choices 2
Community Level			

*Did not report a theoretical framework

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