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Growing Out of Adolescence: Conceptions of Adulthood, Close Relationships, and Health Behaviors of Emerging Adults with HIV

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GROWING OUT OF ADOLESCENCE: CONCEPTIONS OF ADULTHOOD, CLOSE RELATIONSHIPS, AND HEALTH BEHAVIORS OF EMERGING ADULTS WITH HIV

By

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Growing Out of Adolescence: Conceptions of Adulthood, Close Relationships, and Health Behaviors of Emerging Adults with HIV (August 2011)

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Objective: The current study examined conceptions of adulthood, close personal relationships, and health behaviors (dietary intake, substance use, sexual behaviors) of emerging adults aged 18-30 with horizontally-infected HIV. Emerging adults were expected to differ in levels of achievement of adulthood tasks. The quality of close relationships, and perceptions of close friends' behaviors were hypothesized to be associated with health behaviors. **Method:** Utilizing a cross-sectional design, 48 emerging adults with HIV (64.6% female; *M* age = 22.59, *SD* = 3.17) from a youth-based clinic serving most of Miami-Dade County were recruited. Participants completed measures on markers of adulthood, close friend and romantic partner qualities, health behaviors, and perceptions of close peers' health behaviors using Filemaker technology on laptops; audio computer-assisted self-interview options were available. **Results:** The domains of individualism and family capacities received the highest mean ratings of importance for marking adulthood. Participants rated the acceptance of responsibility for one's actions and making independent choices as being most important for being considered an adult; other items rated highly were related to emotional control and adopting new family roles. In the domain of peer relationships, participants who had a

close friend or romantic partner generally reported high levels of positive qualities in the friendship that were comparable to national samples; however, most individuals had not disclosed their HIV status to their best friend or romantic partner. A number of emerging adults (12.5%) reported having no friends, which is a higher percentage of friendless individuals than national samples. Most emerging adults with HIV reported consumption of fewer fruits and vegetables than national recommendations. In addition, comparable to rates found among adolescents and emerging adults without HIV, participants were engaged in substance use and risky sexual practices such as having multiple sexual partners. **Conclusions:** There was considerable variability in development among emerging adults. Conceptions of adulthood and peer relationships may be a particularly important aspect of development to examine among emerging adults with HIV. In addition, many of these individuals continue to engage in health risk behaviors that may require intervention efforts geared specifically to their developmental stage. Implications for care providers are discussed.

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Chapter 1: Introduction

The human immunodeficiency virus (HIV), the virus that causes acquired immunodeficiency syndrome (AIDS), continues to infect young individuals in the United States at an alarming rate. For example, over 5000 young individuals received a new diagnosis of HIV/AIDS in 2006 such that cumulatively, there were 21,890 young persons living with HIV/AIDS in 38 reporting states (Centers for Disease Control and Prevention, 2008). Most of these individuals identified as Black (African-American or Caribbean-Americans) and fell within the emerging adulthood age range. Emerging adulthood is the period immediately following adolescence that begins approximately when someone is at the age of 18 years (e.g., Arnett, 2003) and ends near the mid- to late-twenties. Minority emerging adults with HIV thus represent a vulnerable population, especially in the state of Florida (Florida Department of Health, "Bureau of HIV/AIDS/Miami-Dade County Health Department, & HIV/AIDS", 2010; Miami-Dade County Health Department & "Office of HIV/AIDS", 2010).

One problem encountered by practitioners is understanding the key developmental issues associated with emerging adulthood among youths with chronic illness and how to provide holistic care for these emerging adults. A number of organizations have identified the need to understand how best to help adolescents transition into well-adjusted adults (New York State Department of Health AIDS Institute, 2010). However, few studies have examined horizontally-infected emerging adults (i.e., individuals with HIV who were not infected prenatally or perinatally from their parents). The adolescent HIV setting may represent an important point of access for

implementing programs that can impact young adults with HIV before they transfer to adult care.

It is important to gather more information on this understudied population. Data on conceptions of adulthood, close relationships, and health behaviors of emerging adults with HIV are lacking, but might inform better health care. Understanding how these individuals conceptualize adulthood may help clinicians understand this developmental stage and how to incorporate health education into the emerging adults' conceptual framework of adulthood. Learning more about the close relationships of emerging adults with HIV would offer a greater understanding of the positive and negative experiences they may have with peers as they navigate adulthood with a stigmatized disease. Lastly, a better understanding of the risky health behaviors of this age group would inform aspects of health care that may need particular attention. Whether peer's risk behaviors are associated with individuals' own health risk behaviors can have implications for intervention.

Within this context, the aim of this study was to examine horizontally-infected emerging adults' views of adulthood, their personal relationships, their risky health behaviors, and the potential correlates of their risky health behaviors. To fully capture the range of potential views and developmental processes during this period, this study included emerging adults aged 18 to 30 years.

Conceptions of Adulthood

The first aim of this study was to describe emerging adults living with HIV in terms of the domains that are often important in the transition to adulthood. It is unclear how emerging adults with HIV view their roles as adults. Although emerging adults may

have matured since adolescence in some domains, they may still be establishing and exploring their identities (Erikson, 1968). Specifically, emerging adulthood is characterized by changing identities in personal, sexual, cultural, interpersonal, and professional realms (Arnett, 1997). Emerging adults are also simultaneously managing changes in their close personal relationships (Hartup & Stevens, 1997). Collectively, these shifts in identities and interpersonal relationships mark a unique developmental phase.

In a series of studies, Arnett assessed what individuals considered important markers of adulthood. Participants were asked to rate items that the fields of biology, sociology, anthropology, and psychology had identified as important for attaining adulthood (e.g., Arnett, 2001). These markers were theoretically rather than statistically driven and fell within several domains such as "Individualism," "Family Capacities," "Norm Compliance," "Biological Transitions," "Legal and Chronological Transitions," "Role Transitions," and "Other," as further described below. Biologists, sociologists, anthropologists, and psychologists often conceptualize markers of adulthood differently from emerging adults' own descriptions (e.g., Arnett, 2003). Understanding how emerging adults with HIV conceptualize their goals for adulthood may be helpful for determining how to design developmentally-appropriate interventions. Thus, this study characterizes how emerging adults infected with HIV view the following domains.

Individualism. Arnett (1997) originally described the domain of Individualism as being an American middle-class concept that is associated with transitioning into adulthood. This theory stems from the idea that the United States represents a Western individualistic society. As such, individualistic societies emphasize the value of

independence, as opposed to collectivistic societies in which interdependent relationships are emphasized (e.g., Triandis, McCusker, & Hui, 1990). As part of the individualistic domain, Arnett considered the following factors to be especially important: accepting responsibility for the consequences of one's actions, deciding on personal beliefs and values independently of parents, establishing an equal relationship with parents, being financially independent from parents, and no longer living in parents' household. The perceived importance of these criteria was examined in this study.

Family Capacities. Arnett (1997) identified Family Capacities as another key adulthood domain, given the importance that anthropologists have placed on marriage as a marker for adulthood (e.g., Schlegel & Barry, 1991). The skills associated with marriage are traditionally thought of as gender-specific (e.g., Gilmore, 1990). For example, while females are expected to develop skills to run a household or care for their children, males are expected to keep the family safe and provide for them (e.g., Schlegel & Barry, 1991).

Within the Family Capacities domain, Arnett specifically assessed items such as becoming capable of caring for children, running a household, financially supporting a family, and keeping one's family safe. Within Arnett's (1997) studies of emerging adults in the United States, attainment of these skills has been deemed to be equally important for both genders.

Norm Compliance. When rating items important for being considered an adult, emerging adults have often considered it important to conform to some behavioral norms that have the potential to harm other individuals (e.g., drunk driving, committing petty crimes, not using contraceptives) (e.g., Arnett, 1997). However, other behavioral norms

such as avoiding drunkenness or having one singular sexual partner have not been considered to be important. Since these items have implications for the health of individuals with HIV, how emerging adults with HIV view the importance of these items was examined.

Biological Transitions. Historically, biological markers have also been considered important markers for adulthood. Reaching puberty and acquiring the capacity to either impregnate or bear children marks a significant shift in physical development. Similarly, reaching one's full height and no longer physically growing taller have also been considered potential biological markers of adulthood. These possibilities were explored in the current study.

Legal/Chronological Transitions. In the United States, particular legal privileges accompany the shift to adulthood. Specifically, individuals become eligible to drive at particular state-determined ages. At age eighteen, individuals can purchase cigarettes and citizens can vote and serve in the military. At the age of 21, individuals can purchase alcohol. Consequently, Arnett included three items in his assessment of legal and chronological transitions that were also examined in this study: obtaining a driver's license, reaching the age of 18, and reaching the age of 21.

Role Transitions. A number of articles have argued that transitioning into new roles is a key aspect of becoming an adult, especially among individuals who hold collectivist views (Rankin & Kenyon, 2008). Markers from sociological literature include items such as finishing education, beginning full time employment, or entering parenthood (e.g., see review by Hogan & Astone, 1986). However, in recent studies of emerging adults, most role transitions traditionally considered important by the fields of

anthropology and sociology, such as employment, finishing education, marriage, and having children, were not considered important markers for adulthood (Arnett, 1997). Only two of the role transitions, namely "being financially independent from parents" and "no longer living with parents," were considered important for the achievement of adulthood (Arnett, 1997).

Emerging adulthood among ethnic minorities. One of the goals of the current study was to extend the study of conceptions of adulthood to a population with HIV that was composed predominantly of ethnic minorities. Literature suggests that emerging adults from different cultural backgrounds within the United States and abroad conceptualize adulthood in both similar and different ways (Arnett, 2003; Nelson, Badger, & Wu, 2004).

Individuals within ethnic groups and collectivistic cultures tend to place greater value on items related to others than on items related to individuals (e.g., Arnett, 2003; Nelson, et al., 2004). For example, African-Americans and Latinos are more likely to support criteria on the Norm Compliance dimension than White emerging adults (Arnett, 2003). Further, minority individuals have a tendency to consider themselves to have reached adulthood sooner than their White middle-class European-American counterparts (e.g., Arnett, 2003; Nelson, Badger, Wu, 2004). It is unclear how and whether these differences factor into the trajectory of adult development for the population of this study that was composed of emerging adults with HIV who were mostly from ethnic minority backgrounds.

Arnett originally predicted that ethnic minorities would assign greater importance to items in the category of Role Transitions than other White emerging adults, given the

importance placed on family obligations and socioeconomic factors (2003). Indeed, non-white groups placed more importance on Role Transitions than their white counterparts (Arnett, 2003). However, across all groups, the Role Transition domain tended to receive a lower importance ranking than domains such as Individualism, Family Capacities, or Norm Compliance.

Emerging adulthood with HIV in current study. Recent attention has been placed on the need to design developmentally-appropriate care for emerging adults transitioning to adult health care (Society for Adolescent Medicine, 2003). Yet, no studies to date have been published on emerging adults with horizontally-infected HIV from a developmental perspective. Little is known about whether adults with HIV in the emerging adult age range are still in development and navigating typical emerging adulthood milestones.

At best, one qualitative study of emerging adults with vertically-transmitted HIV asked participants about perceived barriers to the transition to adult health care (Wiener, Kohrt, Battles, & Pao, 2009). Included in results were a few quotations related to adult development (e.g., "I am still not all grown up and don't accept/understand all the bad things that can happen because of the disease.") (Wiener, et al., 2009). Such quotations suggest that individuals were thinking about whether they were adults, although the study was not focused on conceptions of adulthood. Results may also not generalize to horizontally-infected individuals given the unique issues faced by samples of perinatally-infected individuals. For example, less than 40% of the vertically-infected sample had a biological mother that was alive (Wiener, et al., 2009) whereas such issues are not expected to be the case among horizontally-infected samples. In addition, vertically-

infected individuals tend to have low average cognitive functioning and have developed cognitive impairments due to multiple opportunistic infections and other complications (Malee et al., 2008); such complications may also impact their conceptions of adulthood.

In the one study that focused exclusively on emerging adults with horizontally-infected individuals (Valenzuela et al., 2009), the sample of ten participants were asked about perceived barriers to the transition to adult care in a qualitative design. The focus of the study was not on conceptions of adulthood but did include two quotations about transitioning to care that were related to conceptions of adulthood: "Okay, I'm an adult now. I can do this!" and "I guess I needed that more harsh reality more than I needed to be babied." Further information related to the conception of adulthood was unavailable.

A systematic study of the conceptions of adulthood among emerging adults with HIV is needed to help adult care providers understand the individuals who will be entering their care. A population of emerging adults from minority backgrounds with HIV may conceptualize adulthood in unique ways or achieve adulthood tasks at a different rate than non-infected peers. For example, the stress of adjusting to a chronic, stigmatized illness amidst other more pressing stressors may delay adult attainment such that fewer adult tasks may be achieved. Emerging adults with horizontally-infected HIV may also have engaged in high-risk behaviors prior to their diagnoses (Donnenberg & Pao, 2005); these behaviors could continue after diagnosis and delay the attainment of adulthood. Alternatively, having an illness that demands responsibility, low-risk behaviors, and frequent medical care may accelerate the achievement of adulthood tasks. As a whole, emerging adulthood represents both a time of heightened opportunities and high-risk behaviors (Masten et al., 2004). It is unclear to what extent emerging adults

with HIV may be similar to or different from uninfected emerging adult counterparts. This knowledge could be important for adult care providers to have.

This study characterizes what emerging adults consider important for becoming adults by examining their ratings of the importance of adulthood tasks in the domains of "Individualism," "Family Capacities," "Norm Compliance," "Biological Transitions," "Legal and Chronological Transitions," "Role Transitions," and "Other." The study also characterizes the extent to which they had achieved these tasks.

Characterization of Close Friendships and Romantic Partners

Another key aspect historically considered to be an important developmental aspect of adulthood is the management of close relationships (Erikson, 1968). Thus, a second aim of this study was to characterize the best friendships and romantic relationships of emerging adults with HIV. During emerging adulthood years, it appears that maturity and relationships interact in bidirectional ways. Increased maturity in early adult years allows for greater intimacy in relationships with both friends and romantic partners (Erikson, 1968). Meanwhile, increased intimacy in relationships is associated with mastering particular tasks of adulthood such as the ability to stick to one's own beliefs (Arnett, 2003). Thus, beyond understanding the extent to which emerging adults have achieved markers of adulthood, it is important to understand the social context in which they achieve these markers.

Since the composition and nature of friendships and relationships change as individuals age (e.g., Hartup & Stevens, 1997; Kuttler & La Greca, 2004), these areas of close relationships were of interest in the current study. During adolescence, individuals begin to have more friends of the opposite sex (Clark-Lempers, Lempers, & Ho, 1991).

By emerging adulthood, most individuals have had both close friendships and romantic relationships (Collins & Madsen, 2006). As college students mature and take on more adult roles during the emerging adulthood period, their focus shifts away from friendships to romantic relationships (Barry, Madsen, Nelson, Carroll, & Badger, 2009). Specifically, as individuals become more romantically involved, their network sizes decrease, as do their level of involvement in friendships (e.g., Johnson & Leslie, 1982).

Close friendship and romantic partners may vary by race and the age at which individuals intend to marry. For example, a study of emerging adults found that lifestyle patterns varied between individuals who choose to marry in their early 20s versus in their mid-20s or later (Carroll et al., 2007). Most studies examining the quality of close friendships and romantic partners during emerging adulthood have utilized predominantly healthy, European-American heterosexual samples. While such research sheds light on the personal relationships of college students, it is unclear to what extent the research generalizes to other unique populations such as emerging adults with HIV.

Friendships and romantic relationships in current study. The friendships and romantic relationships of emerging adults with horizontally-infected HIV are not well understood. What is known is that in a qualitative study of 10 young adults with HIV aged 24 to 29 years (Valenzuela, et al., 2009), only four participants reported having disclosed their HIV status to their family and friends. However, the focus of the study was not on close personal relationships of this age group. Further information about the qualitative aspects of close relationships has not been published.

Consequently, this study aims to characterize several important aspects of close personal relationships of emerging adults with HIV. Specifically, the positive and

negative qualities in the closest friendship and romantic relationship were examined. Also examined were aspects of the broader friendship network, including size (number of friends), disclosure of HIV status (disclosure network size), and overall social support. This information may have important implications related to responsibility for taking care of one's own health and managing one's health behaviors. Social support has been found to be important for health outcomes and medical management for a number of illnesses (e.g., diabetes, La Greca, Bearman, & Moore, 2002; Wysocki & Greco, 2006).

Health Behaviors of Emerging Adults with HIV

A third aim of this study was to characterize the health behaviors of emerging adults with HIV. Several key areas of health behaviors were examined that are important because of their linkages to adult morbidity and mortality. In particular, behaviors associated with dietary intake, substance use, and sexual activity during adolescence have implications for health in later life (Williams, Holmbeck, & Greenley, 2002). For this reason, it has been suggested that child health psychologists should design interventions that target these behaviors during adolescence (Tercyak, 2007). These behaviors may be especially important for emerging adults with HIV. For example, dietary intake and other health behaviors could interact with disease progression (e.g., Mangili, Murman, Zampini, & Wanke, 2006). Consequently, several health behaviors were examined in the present study, including dietary behaviors, substance use, and risky sexual behaviors.

Dietary behaviors. In the general population, eating habits established during adolescence can increase or decrease one's risk for health complications during adulthood (Williams, Holmbeck, & Greenley, 2002). For example, proper eating habits

are associated with lower risks for heart disease (Center for Disease Control and Prevention, 2010a; Myers, 2003).

These issues are important to understand among individuals with HIV as well. HIV infection and antiretroviral therapies can impact hyperlipidemia, lipodystrophy, dyslipidemia, and insulin resistance (Ismail, King, & Pillay, 2009). Furthermore, a recent study found that half of its HIV-infected sample of youths or emerging adults aged 13 to 24 was overweight or obese (Kruzich, Marquis, Wilson, & Stephensen, 2004). These individuals had poorer quality diets than uninfected youths and living on one's own almost doubled the likelihood of being obese.

Meanwhile, unplanned weight loss is also problematic among adults with HIV, as improper dietary intake or weight loss have been associated with opportunistic infections, lowered immune system functioning, loss of muscle tissue, and viral mutations (Mangili, et al., 2006). Given the multiple ways diet may impact individuals' health, further exploration of dietary behaviors was important. Thus far, studies had focused more on adults or perinatally-infected individuals. However, emerging adults with HIV were thought to potentially differ from the general horizontally-infected adult population with HIV if they were just beginning to live or cook on their own. Diet was also likely to have impacted perinatally-infected individuals differently from horizontally-infected emerging adults, as perinatally-infected youths have generally been prescribed antiretroviral therapies for more years. To our knowledge, studies have not specifically examined the dietary behaviors of emerging adults with horizontally-acquired HIV. This study addressed this gap in information.

Substance use. Experimenting with substances, such as alcohol, marijuana, and cigarettes, is common among both adolescents (National Institute on Drug Abuse, 2008) and young adults (Lanza, 2006). Recent surveys of high school students in the United States found that nearly half of high school students were active drinkers (have had at least one drink of alcohol within the month), nearly a third of students engaged in binge or heavy episodic drinking (have five or more drinks on the same day), and about 20% were current smokers (have at least 1 cigarette during the month of survey) (Center for Disease Control and Prevention, 2008). In years immediately following high school, many emerging adults continue displaying heavy drinking patterns (Lanza, 2006). These heavy drinking patterns place some of the emerging adults at risk for heavy drinking during adulthood, particularly the emerging adults who are not enrolled in college (Lanza, 2006).

While studies focused on substance use patterns among adolescents and emerging adults are common, information on the usage patterns among adolescents or emerging adults with HIV is relatively lacking. Recently, several health agencies issued statements highlighting the need to assess substance use among adolescents with HIV (e.g., New York State Department of Health AIDS Institute, 2010). Even less has been known about substance use during the emerging adulthood period for individuals infected with HIV. Studying substance usage among HIV-infected individuals during this developmental period is important. Studies have found that adolescents with HIV have been engaged in substance use and, at times, have been found to have higher rates of substance use than their uninfected peers (Murphy et al., 2001). It is unclear whether the high rates of substance use cease or continue when these adolescents become emerging adults.

From a public health perspective, studying the substance use of emerging adults with HIV was also important for secondary prevention. Studies have suggested that use of substances such as alcohol (Simons, Maisto, & Wray, 2010) or marijuana (Kingree, 2000) can be associated with sexual risk-taking behaviors. These sexual risk behaviors may put individuals with HIV at risk for acquiring a different strain of the virus or an additional sexually transmitted infection, and also could put their sexual partners at risk for acquiring HIV. Once substance use develops, studies have found that adult substance users tend to practice risky sexual behaviors or trade sex for substances (Brown et al., 2006). Again, such behaviors may put individuals with HIV at risk for acquiring additional sexually transmitted diseases or further spread HIV to other individuals. Consequently the current study examined substance use in emerging adults with HIV, and focused specifically on rates of alcohol, marijuana, and cigarette use.

Sexual behaviors. Individuals between the ages of 15 to 24 years represent a quarter of the sexually active population in the United States (Centers for Disease Control and Prevention, 2009) and sexual activity increases as adolescents grow older. For example, when adolescents between the ages of 15 to 17 were surveyed in the United States, approximately 30% of males and females reported having had sex; however, among 18 and 19-year olds, sexual activity more than doubled such that 65% of males and 71% of females report having had sex (Centers for Disease Control and Prevention, 2009). In short, sexual behavior has been considered a normative aspect of development within the United States, especially as adolescents transition to adults. As adolescents age, the number of sexual partners reported in studies increase. For example, by the time individuals reach the ages of 15 and 19, about 30% of male and female adolescents report

having had two or more sexual partners (Centers for Disease Control and Prevention, 2009). Unfortunately, having multiple partners may increase an individual's likelihood of being exposed to different sexually transmitted diseases (STDs).

Individuals between the ages of 15 and 24 years represent a high risk group and have the highest rates of new STD infections, as compared to other age groups (Center for Disease Control and Prevention et al., 2009). An estimated 19 million new STD infections occur per year, half of which occur in this age range (Center for Disease Control and Prevention, et al., 2009; Weinstock, 2004). The rates of most sexually transmitted diseases or infections, including ones that are spread through oral sex, are rampant and increasing among adolescents and young adults. Recent figures from the CDC's survey published in 2009 indicated that compared to rates in 2007, rates of Chlamydia increased 9.8% among 15 to 19 year old women. This age group had the highest rate of Chlamydia among all age and gender groups. Rates also increased among 20 to 24 year old women (7.6%), 15 to 19 year old men (14.8%), and 20 to 24 years men (12.6%). Similarly, the highest rates of gonorrhea in 2008 were found in 20 to 24-year-old women. Rates of syphilis were also disproportionately high among individuals between 20 and 24 years old. These figures are all concerning and suggest that many emerging adults have STDs and are at risk for both acquiring and/or spreading them. These figures suggest a strong need to better understand the sexual behaviors of emerging adults.

One aspect of sexual behavior that is often not captured in CDC surveys on sexual behaviors is oral sexual contact. While the majority of adolescents do not consider oral-genital contact as sex (e.g., Hans, Gillen, & Akande, 2010), oral sexual activity is

common among adolescents. Recent surveys suggest that over half of adolescents have engaged in oral sex (e.g., Lindberg, Jones, & Santelli, 2008). When surveyed, adolescents often report engaging in oral sex more than vaginal sex (Prinstein, Meade, & Cohen, 2003) in part to avoid some of the risks they believe are associated with intercourse (Remez, 2000). Unfortunately, oral sexual contact is one method of transmitting STDs to other individuals and STDs are associated with public health costs.

STDs acquired between the ages of 15 and 24 years old are associated with 6.5 billion dollars in cost over a lifetime in the United States (Chesson, Blandford, Gift, Tao, & Irwin, 2004). Given both the individual and public health costs of risky sexual behaviors, it is important to study these behaviors. Consequently, this study examined the sexual behaviors of emerging adults, including the prevalence of having multiple sexual partners, sex with relatively unknown individuals, and unprotected sex.

Health behaviors in the current study. In sum, based on the above, the current study characterized several specific health behaviors among a group of emerging adults with HIV. Specifically, dietary intake, levels of substance use, and sexual risk behaviors are all important health behaviors that have implications for the health and well-being of individuals with HIV. This study characterized these health behaviors among emerging adults with HIV.

Linkages between Close Relationships and Health Behaviors

Lastly, this study used regression analyses to explore the relationship between the risk behaviors of peers and emerging adults' own health behaviors in the current sample. Peers' risk behaviors were expected to be associated with participants' own risk

behaviors. The quality of emerging adults' closest friend and romantic relationships were also examined as potential moderators for this relationship.

Reasons for such expectations are multifold. Research suggests that friends affect health risk behaviors among adolescents and emerging adults without a chronic illness (Dolcini & Adler, 1994; Gardner & Steinberg, 2005; Henrich, Brookmeyer, Shrier, & Shaher, 2006; La Greca, Prinstein, & Fetter, 2001; Mackey & La Greca, 2007). Friends have also been found to engage in risk behaviors that are similar to each other (Boyer, Tschann, & Shafer, 1999; Dolcini, Harper, Watson, Catania, & Ellen, 2005) and believed to enhance risk-taking behaviors (Gardner & Steinberg, 2005; Jessor, Costa, Krueger, & Turbin, 1984). Friends' approval of problem behaviors has been associated with individuals' behaviors (e.g., Jessor, Donovan, & Costa, 1991) and peer substance use is one of the strongest predictors of adolescent substance use (e.g., Hawkins, Catalano, & Miller, 1992). Lastly, longitudinal studies suggest that individuals' alcohol usage is associated with peer usage and that peer usage is also associated with later individual alcohol usage in bidirectional patterns (Curran, Chassin, & Stice, 1997). Consequently, risk behaviors of the closest friend and romantic partner were examined as a potential "predictor" of participants' own risk behaviors.

Higher levels of emotional support from friends have also been associated with higher levels of substance use (Wills, Resko, Ainette, & Mendoza, 2004). It has been proposed that some adolescents and emerging adults engage in substance use in an effort to identify more closely with their friends; thus, adolescents and emerging adults with higher levels of emotional support from their friends have been found to engage in higher levels of substance use (Jessor, et al., 1984; Sieving, Perry, & Williams, 2000).

Based on these prior findings, this study examined whether peers' risk behaviors were associated with one's own risky health behaviors (i.e., poorer dietary intake, greater alcohol usage, and greater number of sexual partners) among the current population of emerging adults with HIV. Four primary outcomes were examined: dietary intake, alcohol usage in the past month, and the number of sexual partners in the past three months. Dietary intake was examined because of its association with disease progression, opportunistic infections, and lowered immune system functioning among older adults with HIV (Mangili, et al., 2006). Alcohol usage (measured by the number of days individuals drank in the past month) was examined because of its association with risky sexual behaviors (Simons, et al., 2010). Lastly, the number of sexual partners were examined as risky behaviors because having multiple sexual partners has been implicated in the spread of HIV and other STDs (e.g., DiClemente et al., 2005).

Best friend or romantic partner's healthy dietary habits were expected to be associated with participant's dietary intake; these individuals' alcohol usage was expected to be associated with participants' own alcohol usage; whether these individuals had multiple sexual partners or engaged in risky sexual behaviors were expected to be associated with the number of recent sexual partners the participants had.
Thus, peers' health risk behaviors were expected to be associated with emerging adults' health risk behaviors. This study also explored whether these relationships might be moderated by the level of relationship quality, such that associations between peers' risk and participants' own risk are greater among those with higher relationship quality.

Summary of the Current Study

The goal of the study was to characterize emerging adults with horizontally-infected HIV from a developmental standpoint by evaluating their conceptions of adulthood, close peer relationships, and health behaviors. Further, the study explored associations between peer relationship quality, peers' behaviors, and health behaviors.

Specifically, the aims were as follows:

Aim 1. Characterize emerging adults' conceptions of adulthood and the extent to which they had reached adult developmental milestones. This was done by measuring emerging adults' ratings of the importance of items for being considered an adult; items fell within the categories of "Individualism," "Family Capacities," "Norm Compliance," "Biological Transitions," "Legal and Chronological Transitions," "Role Transitions," and "Other," for being considered an adult.

Aim 2. Characterize close friendships and romantic partners of emerging adults. Specifically, emerging adults with HIV in this study were asked about the size and composition (age, sex) of their friendship network, the overall social support gleamed from these close friends, and whether they had disclosed their HIV status to these friends. In addition, to assess for relationship quality, participants were asked specifically about the positive and negative behaviors displayed in their relationship with their closest friend and questions about health-related behaviors (i.e., if they had disclosed their HIV status to this friend and the types of healthy and risky behaviors in which their closest friend was engaged). For individuals who were dating, married, or otherwise romantically-involved, a similar set of questions related to relationship quality and health behaviors were asked about the romantic partner.

Aim 3. Characterize the health behaviors of emerging adults horizontally-infected with HIV. Specifically, participants were asked about health behaviors such as dietary behaviors, cigarette usage, marijuana use, drinking behavior, and sexual behaviors, including the prevalence of having multiple sexual partners, sex with relatively unknown individuals, and unprotected sex.

Aim 4. Explore whether higher peer relationship quality (with a friend or romantic partner) and peers' risk-taking behaviors are associated with risky health behaviors of emerging adults with HIV (i.e., worse dietary intake, higher levels of alcohol consumption, and more sexual partners). In addition, this study examined whether peers' quality of relationships might moderate the relationship. Stronger relationships between peers' risk behaviors and participants' own behaviors were expected in high quality friendships or romantic partnerships.

Other Study Considerations

Potential differences between individuals who did and did not identify as a sexual minority were examined. Studies have found that sexual minority youths have varying levels of social support (Doty, Willoughby, Lindahl, & Malik, 2010) which may have implications for the peer relationships of the sexual minority emerging adults who have HIV in this study. In addition, sexual behaviors may differ between sexual minority youth and their heterosexual counterparts. Consequently, potential differences in sexual behaviors were examined.

Chapter 2: Method

Participants

Forty-eight emerging adults with horizontally-infected HIV participated; they were between the ages of 18 and 30 years (M = 22.59 years, SD = 3.17) (See Table 1). Most individuals identified as female (64.6%); one of these females was born male but gender-identified at the time of the study as female. For analyses, gender identification, rather than biological sex, was used to characterize the sample. Most participants identified as straight (62.5%); others identified as bisexual (10.4%), gay (22.9%), questioning (2.1%), and lesbian (2.1%). For subsequent analyses, categories were collapsed into two categories: emerging adults who identified as heterosexual, and emerging adults who identified as a sexual minority (bisexual, gay, questioning, and lesbian). A proportion of participants had children (37.5%). The majority of females (83.3%) identified as heterosexual, and the majority of males (72.2%) identified as one of the sexual minority categories.

The sample consisted of emerging adults with a variety of backgrounds. Most emerging adults in the sample were born in the U.S. (83.3%) and they considered English to be their primary language (89.6%). The majority of participants who responded to questions about race or ethnicity identified as Black; categories were self-assigned using U.S. Census categories (The White House Office of Management and Budget, 2010). An additional 4.2% of participants considered both English and Creole their primary language; 6.3% participants considered Spanish their primary language. The highest level of educational attainment ranged substantially and included completion of some high school education (38.3%), completion of high school (14.9%), completion of a General

Educational Development degree (G.E.D.) (4.3%), completion of some college courses (31.9%), completion of trade school (6.4%), and completion of college (4.3%).

Sources of HIV transmission varied. Of the 22 participants who reported on the source of transmission, 27.3% had contracted HIV from a casual sexual partner, 27.3% from a romantic partner, 18.2% from a friend, 4.5% contracted from family, 4.5% from a stranger, and 18.2% from another source.

Procedure

The study was approved by the Institutional Review Board at the university. The procedures were in accordance with American Psychological Association ethical standards. All research personnel, including research assistants, were trained in study procedures and certified in human protections by the Collaborative Institutional Training Initiative.

Participants were recruited from a pediatric clinic in a university setting that serves primarily urban youths who have been infected with HIV horizontally (i.e., not prenatally or perinatally). Clinic patients typically had appointments every three months, such that within the eight months of data collection, most participants were reported by medical staff to have been approached about the study. Prior to the last two weeks of data collection, potential participants who had not yet participated and had not had a recent clinic appointment were also called by the clinic to schedule their usual clinic follow-up visit. They were also told about the study. Former patients who were seen in adult health care but still had contact with the pediatric clinic were also included.

Inclusion criteria included adults who were between the ages of 18 years and 30 years, knew enough English to complete questionnaires and interviews, and had not been

infected with HIV prenatally or perinatally. Individuals with varying reading abilities were included.

Forty-eight participants elected to complete the study; approximately 53 individuals were identified by the health care team as eligible for participation based on inclusion criteria (~91% participation rate). All participants were assured the voluntary nature of participation. None of the participants terminated the study early. Most potential participants who declined participation cited time as a limiting factor; one cited discomfort about participating in a study with an unfamiliar person. Information was not gathered on individuals who declined participation to make comparative analyses.

All participants provided informed consent. An Audio Computer-Assisted Self-Interviewing technique (ACASI) was used to collect data, a common technique that is used to assess sensitive health behaviors in research and clinic populations (e.g., Schackman et al., 2009). Measures were programmed into Filemaker Pro9. The software allowed measures to be presented on the computer with audio options. Participants with low reading abilities listened to questions via headphones. This feature was desirable given the sensitive nature of some questions. In addition, participants who could read were able to complete questionnaires at their own pace, rather than wait for the computer to read each question.

All participants were trained before the start of the study on how to use the computer program. Questionnaires were administered to participants away from the health care teams. Members of the research team were available throughout the study in case there were questions. Files from FilemakerPro9 were converted into Microsoft Excel and then into SPSS for data analyses.

Participants received $25 gift cards as compensation for their participation in the project[1]. Compensation was offered because participating in the study could potentially have represented time away from other potential part-time jobs. In addition, patients from the clinic were accustomed to receiving compensation for participating in other research studies.

Measures

Demographic information. Participants completed information regarding their sex, gender, age, race, ethnicity, sexual orientation, and educational background. They also answered questions related to whether they were married, dating, or single. Participants were asked to classify their race and ethnicity according to categories designated by the U.S Government (The White House Office of Management and Budget, 2010). They were also asked about the year they received their diagnosis of HIV and their presumed mode of HIV transmission.

Conceptions and achievement of adulthood tasks. Participants' conceptions of adulthood were assessed with the *Markers of Adulthood Questionnaire* (Arnett, 1997, 2001) (Appendix A). This questionnaire has been used in a number of studies and with multi-ethnic populations in the United States and abroad (e.g., Mayseless & Scharf, 2003; Nelson, et al., 2004). The measure contained 43 questions. Participants rated the level of importance of each item as a potential determinant of whether an individual has reached

[1] Several grant applications were submitted for funding for this study including the SPP Marion and Donald Routh Student Research Grant, University of Miami Department Flipse Dissertation Research Award, and University of Miami, Department of Psychology / Child Clinical and Pediatric Health Research Seeds Grant. Inquiries had also been made at the Green Family Foundation, Dade Community Foundation, Children's Trust Fund, Target, SobeAids, American Red Cross of Greater Miami, The Alliance, DCFAR, and MAC Foundation. Funding was successfully obtained from the University of Miami Department Flipse Dissertation Research Award, and University of Miami, Department of Psychology / Child Clinical and Pediatric Health Research Seeds Grant.

adulthood. In the current study, to quantify values, ratings were assigned numerical values as follows: 0 = "not at all," 1 = "slightly," 2 = "quite," 3 = "very important."

The measure assessed seven domains. These domains included Individualism, (e.g., the ability to make independent decisions), Family Capacities (e.g., the ability to support a family financially), Norm Compliance (e.g., the avoidance of drunkenness), Biological Transitions (e.g., the biological ability to father or bear children), Legal / Chronological transitions (e.g., turning the age of 18 or 21), Role Transitions (e.g., the acceptance of responsibility and consequences of actions), and "Other" (e.g., the acquisition of good emotional control). The number of items per domain varied.

Based on this scale, internal consistency and mean participant ratings for each questionnaire item were calculated. The overall consistency on items was high ($\alpha = .95$). However, internal consistency of individual subscales varied considerably as follows. The internal consistency for each domain was examined in relation to alpha values listed by Arnett (2001). Individualism ($\alpha = .78$) and Family Capacities ($\alpha = .95$) were both higher than in Arnett's studies (2001) ($\alpha = .57$, $\alpha = .88$, respectively). Internal consistency for Norm Compliance ($\alpha = .83$ current study; $\alpha = .88$ Arnett), Biological Transitions ($\alpha = .82$ current study; $\alpha = .76$ Arnett), and Role Transitions ($\alpha = .64$ current study, $\alpha = .60$ Arnett) were comparable to values listed by Arnett. Internal consistency for Legal/Chronological Transitions ($\alpha = .52$ current study; Arnett $\alpha = .55$) was low in both studies. Internal consistency of the "Other" category was high ($\alpha = .82$); a point of comparison was unavailable.

The second portion of the Markers of Adulthood questionnaire ("Achievement") contained mostly the same tasks (Appendix B). However, instead of rating the

importance of the items, participants were asked to indicate to what degree they had completed the tasks. For this study, scores for subscales were calculated by assigning point values to each item as follows: 0 = "Not at all true," 1 = "Somewhat true," and 2 = "Very true." These scores were summed for a total score. Overall internal consistency was moderate (α = .75). Internal consistency for subscales varied: Individualism (α = .08), Family Capacities (α = .80), Norm Compliance (α = .83), Biological Transitions (1 item), Legal/Chronological Transitions (1 item), Role Transitions (α = .56), and Other (α = .34).

Network size and perceived social support. To characterize the size of the emerging adults' social networks, participants were asked to indicate how many close friendships they had. Participants rated perceived social support from their closest friends with the Perceived Social Support from Friends (PSS-Fr) (Procidano & Heller, 1983) (Appendix C). The measure was originally normed on college-aged individuals and has been shown to have good test–retest reliability and a single factor scale based on orthogonal factor rotation, and good validity among college-aged students (Procidano & Heller, 1983). This 20-item measure had participants rate whether the statements related to their friendships were true (1 = "yes," 0 = "no"). Sample items included: "My friends and I are very open about what we think about things" and "My friends give me the moral support I need." In order for higher numbers to reflect more social support, several items were reverse-coded (e.g., "If I felt that one or more of my friends were upset with me, I'd just keep it to myself," and "When I confide in friends, it makes me feel uncomfortable"). Scores were summed and could range from 0 to 20. Internal consistency

in this sample was (α = .81) which was comparable to the internal consistency of Procidano's original study that had a similarly aged sample (α = .80) (1983).

Quality of close relationships. To assess positive and negative qualities of close friendships, participants completed the 13 items from the Network of Relationships Inventory – Short Form (Furman & Buhrmester, 1985, 1992) (Appendix D). In addition, the following three variables were used to describe the close relationships of the participants: sex, age, length of friendship, and disclosure status (whether or not the friend knew of their HIV status). Participants answered seven questions regarding the positive qualities of their relationship with their "closest friend" (e.g., "How much does this person treat you like you're admired and respected?" and "How much does this person help you figure out or fix things?"). Items were rated on a scale of 1 (little or none) to 5 (the most) and then averaged across items. The typical internal consistencies of the subscales are good (mean α = .80), have good test-retest (α = .66-.70) across items, and show good reliability and validity (Furman, 1996; Furman & Buhrmester, Unpublished manual available from the author). The internal consistency of positive qualities in the current study was high (α = .94). The negative qualities of the relationship were also assessed with six questions (e.g., "How much do you and this person argue with each other?" and "How much do you and this person get on each other's nerves?"). Internal consistency for the negative subscale was high as well (α = .86).

Participants also answered 13 questions designed for this study that pertain to their perceptions of their closest friend's health behaviors or attitudes (Appendix E). For example, they were asked whether they believed that their closest friend "liked to eat healthy food," "smoked cigarettes," "disapproved of smoking," "used marijuana," "had

gotten drunk," "disapproved of drinking alcohol," "disapproved of using drugs," "practiced safe sex," "practiced unsafe or risky sexual behaviors," or "had sex with many people / multiple sexual partners." Answers were either "yes" or "no" and dummy coded as "1" or "0," respectively. Items were examined independently and not combined. Information was calculated for individuals for whom this information was available; individuals without friends were not included. Some of the questions were added as an IRB amendment and initial computer programming error prevented information from being captured from all participants.

Participants who had romantic relationships answered a similar set of questions related to their romantic partners as they had answered about their closest friends. Specifically, positive qualities of the romantic relationship were assessed with the NRI-R as described above. Internal consistency for the NRI-R in this sample was high ($\alpha = .90$). Participants also answered questions about their romantic partners' health behaviors and attitudes.

Health behaviors. To asses health behaviors, questions from the *Youth Risk Behavior Surveillance* (YRBS, Centers for Disease Control and Prevention, 2004a) were used (Appendix F). The YRBS assesses health behaviors such as dietary behaviors, cigarette usage, marijuana use, drinking behavior, and sexual behavior. The YRBS was chosen for this study because it has been used across the United States to survey health behaviors engaged in by adolescents and young adults since 1991 and the methodology and rationale of questions have been described in other publications (Centers for Disease Control and Prevention, 2004b). Furthermore, questions from the YRBS have previously been used among individuals between ages 12 to 21 years and among youths who are not

in school (Centers for Disease Control and Prevention, 2004b). Consequently, the measure appeared to be appropriate both for use among young people over age 18, people who were no longer in school, and individuals with potentially weaker vocabulary skills. In addition, the YRBS has been widely used in studies on risky behaviors; studies have shown that respondents' reports of sex, drug, alcohol and tobacco items are generally stable, have high agreement, and low estimated measurement error (e.g., Rosenbaum, 2009).

First, seven items assessed dietary behaviors. Participants rated the frequency they consumed healthy foods during the week on a scale from 0 (never in the past week) to 6 (4 or more times per day). Consistent with CDC procedures, the number of daily servings of fruits and vegetables were calculated by assessing individual's intake of fruit, green salad, potatoes, carrots, other vegetables and real fruit juice. Scores could range from zero to 4 times a day for each of the six items, and thus range from zero to 24. The number of servings of dairy was calculated separately. Scores ranged from zero to 4 or more servings per day. Internal consistency of these healthy dietary habits in this sample was moderate ($\alpha = .77$) and comparable to internal consistencies reported in other studies (e.g., $\alpha = .74$, Mackey & La Greca, 2007).

Participants also answered three questions from the YRBS related to lifetime substance use (cigarettes, marijuana, alcohol), and six questions regarding current substance use (cigarettes, marijuana, alcohol). For lifetime use, participants were asked whether they had ever smoked cigarettes on a daily basis. Participants indicated their lifetime usage of marijuana on a scale from 0 (never) to 7 (100 or more times). They

answered questions related to lifetime alcohol consumption on a scale from 0 (never) to 8 (100 or more).

For current cigarette usage, participants indicated the number of days they had smoked cigarettes in the past month on a scale ranging from 0 (never) to 6 (all 30 days). A high number of individuals reported not having smoked at all in the past month and therefore the smoking scale was collapsed to indicate whether or not the individual had smoked in the past month. For current marijuana usage, participants answered one question ascertaining marijuana usage in the past 30 days on a scale ranging from 0 (never) to 5 (more than 40 times). For current alcohol usage, participants indicated the number of days they had had at least one drink in the past 30 days and the number of days they had had more than 5 drinks within a few hours; items were rated on a scale from 0 (never) to 6 (all 30 days). Marijuana, alcohol and cigarette ratings were examined independently of each other (i.e., scores were not combined).

Consistent with the YRBS questions of lifetime sexual behaviors, participants indicated the number of people with whom they have had sexual intercourse (stated as either penis to vagina, or penis to anus intercourse). Items were rated on a 9-point scale ranging from 0 (never) to 8 (more than 16). Given the range of sexuality and also the interest in understanding secondary prevention of HIV and sexually transmitted diseases, additional questions were asked related to oral sexual partners. Participants indicated the number of people with whom they had oral sex. Items were rated on a scale from 0 (never) to 5 (more than 40).

For current sexual risk behaviors, participants answered five questions. First, they indicated the number of individuals with whom they had oral sex in the past three months

on a scale from 0 (none) to 8 (more than 16). Second participants used a 9-point scale (-1 = never had sex) to 7 (7 to 10 people) to indicate the number of individuals with whom they had sexual intercourse that did not include oral sex (penis to vagina, or penis to anus intercourse). Third, participants indicated the number of strangers or individuals they did not know well with whom they had any type of sexual activity in the past 12 months (stated as activity involving penis to vagina, penis to anus, penis with penis, penis to mouth, vagina to mouth, or vagina to vagina). Ratings were on a scale from 0 (none) to 8 (more than 16). Lastly, participants indicated whether they had used a condom the last time they had sex (1 = yes, 0 = no), and whether they had consumed alcohol or taken drugs before the last time they had sex (1 = yes, 2 = no). Given the interest in identifying specific sexual risk behaviors, items were examined independently.

Data Analytic Plan

The first three aims of this study were to characterize emerging adults with HIV to better understand this population in terms of their conceptions of adulthood, peer relationships, and health behaviors. Descriptive statistics were examined to address these three aims.

The fourth aim was to test whether peers' risky behaviors were associated with participants' own health risk behaviors (fewer servings of vegetables and fruit, number of days of alcohol consumption in past month, number of recent sexual partners). The quality of peer relationships was tested as a potential moderator of the association. Specifically, dietary intake, alcohol usage in past month, and number of sexual partners in past three months were examined. Quality of relationships was centered around the mean in the tests of moderation. To test the associations, hierarchical regression analyses

were conducted. Age was included as a covariate for alcohol consumption to control for increases in alcohol consumption as patients are legally allowed to drink at age 21. Sexual minority status was included in analyses related to one's number of sexual partners, as the particular types of sexual behaviors one engages in may differ by sexual orientation.

For all regressions, covariates were entered when needed, followed by friendship quality, perception of best friend's specific health behavior related to the outcome variable (i.e., whether the friend enjoys eating healthy foods, drinks, or has multiple sexual partners), and the interaction term of friendship quality and friends' perceived health risk behavior. A similar set of regressions were conducted for romantic partner, but the perception of a partner engaging in unsafe sex was used in lieu of having multiple sexual partners. If the interaction terms were significant, post-hoc probing was conducted to understand the moderation, as described first by Aiken and West (1991) and summarized and explained by Holmbeck (2002). Specifically, new conditional moderator variables were computed and then regressions were conducted by incorporating each of these new variables.

In sum, peers' risky health behaviors were expected to be related to participants' own risky health behaviors. This general effect was expected to be stronger when the relationship was higher in positive qualities.

Chapter 3: Results

Conceptions of Adulthood

The first aim of the study was to characterize conceptions of adulthood among emerging adults with HIV and the extent to which the participants had achieved tasks that have been considered to be adulthood markers. The importance participants ascribed to domains, based on mean ratings of items, are presented by domain in Table 2.

Globally, as seen in Table 2, the Individualism and Family Capacities domains had the highest mean rankings of importance. These domains were followed by Legal / Chronological Transitions, Norm Compliance, Role Transitions, Biological Transitions, and Other. Some of these rankings follow national trends of emerging adults' priorities. Specifically, in Arnett's studies of emerging adults in the United States, "Individualism" and "Family Capacities" have similarly been ranked as the most important domains (Arnett, 2001). However, current results with high rankings for Legal/Chronological Transitions contrast with studies that have found the lowest means for the Legal / Chronological category (e.g., Arnett, 2001).

Conceptions of the importance of adulthood domains were all correlated with one another ($p < .01$); the weakest correlation was between Family Capacities and Role Transitions ($r = 0.30$) while the strongest correlation was between Individualism and Other ($r = 0.71$).

When all potential markers of adulthood were examined collectively, the top five items rated most highly for being important for adult status fell within the Individualism, Family Capacities, and Other domains (Table 2). The specific top items were "Accept responsibility for your actions," "Make independent decisions," "If someone is a woman,

become able to care for children," "If a man, become capable of running a household," and "Learn always to have good control of your emotions." National means ratings of these five items by emerging adults within the United States are unavailable for comparison. However, as seen in Table 2, percentages of individuals endorsing these items as important on a dichotomous yes / no scale are available. Arnett's study of emerging adults in the United States reports that 93% of individuals endorse "Accept responsibility for your actions," as important. For men to be capable of running a household, 76% of the current sample endorsed it as important; 60% of Arnett's sample endorsed the item as important. Inconsistent with the general population of emerging adults, most individuals (77%) in the current sample felt that it was important for women to be capable of caring for children whereas Arnett initially reported that 39% of his sample of 20-29 years old sample felt it was an important marker (2001). Results however are more consistent with Arnett's more diverse samples, in which 66% of African Americans and 72% of Latino emerging adults endorse this item as important, in comparison to 41% of White participants (2003). In the current sample, 70.8% of the sample considered it "very" important to have good control over one's emotions which again contrasts with Arnett's original sample which reported that only 53% of participants rated it to be important (2001). That said, 69% of African Americans and 77% of Latino emerging adults report that this item is important (Arnett, 2003).

The five items with the lowest ratings of importance included the completion of military service, attainment of the right to smoke cigarettes, attainment of the right to drink alcohol, the experience of sexual intercourse, and parenthood. Items are comparable to other studies (e.g., Arnett, 2001, 2003).

Besides describing the conceptions of adulthood, the first aim of the study was also to characterize how emerging adults viewed their own development. Participants varied in their achievement of developmental tasks. Items are listed by domains in Table 3. Ratings varied depending on the tasks. There were considerable differences within domains with regard to the tasks the participants had achieved (Table 3). The Individualism domain had the highest overall mean, followed by Norm Compliance and Family Capacities. Role Transitions and Other had the lowest means. With Bonferroni corrections, no gender differences were observed in mean domain achievement, with the exception that women had higher ratings on Family Capacities (mean = 1.59) than men (mean = 1.06; $t(44) = 3.22$, $p = .002$).

Internal consistency for the domains of achievement varied considerably, with the Norm Compliance domain having higher internal consistency than that of Individualism. For the most part, levels of achievement of adulthood tasks were not correlated with each other.

Briefly, in terms of individual items, participants were most likely to have started making their own decisions, accepting responsibility for the consequences of their actions, avoiding petty crimes like vandalism and shoplifting, having learned good control of their emotions, and avoiding drunk driving. Comparative data are available for some items although actual comparisons cannot be compared statistically. It appears that more participants in this sample were still sometimes living with their parents (54% in this sample versus 33% among uninfected emerging adults; Cohen, Kasen, Chen, Hartmark, & Gordon, 2003); more participants in this sample were financially independent from their parents (93% in this sample versus 63% in uninfected samples),

and more participants were parents themselves (38% in this sample versus 19% in uninfected samples).

There were also a variety of tasks that participants were unlikely to have achieved. For example, most reported that they had not served in the military, purchased a house, or settled into a long-term career. Most individuals also reported that they were not employed full-time, capable of supporting their parents financially, finished with education, or capable of supporting a family financially. Participants also reported that they had not stopped being deeply tied to their parents emotionally and did not avoid using profanity. Results are comparable to most studies finding that the majority of emerging adults were still financially supported by parents and not yet employed full-time (e.g., Arnett, 1997).

For the most part, individuals' ratings of the importance of a domain were unrelated to individuals' achievement of tasks within the particular domain. The only domains in which the average importance ratings and the achievement ratings were correlated were Family Capacities ($r = .59$, $p < .01$) and Norm Compliance ($r = .42$, $p < .01$).

In sum, the first aim of the study was to characterize conceptions of adulthood and achievement of developmental tasks among emerging adults with HIV. In our sample, participants appeared to hold similar views of the relative importance of Individualism and Family Capacities as emerging adults in other studies. In particular, items associated with taking responsibility for actions and other items associated with Individualism were rated most highly. Lastly, emerging adults in this study appeared to

value role transitions and legal transitions as being somewhat more important than ratings by emerging adults in other studies.

Characterization of Close Friendships and Romantic Partners

The second aim of the study was to describe the closest friendships and romantic relationships of emerging adults with HIV. The majority of the population had a close friend (87.5%). However, 12.5% of the sample did not have a close friend, which appears to be a substantially higher rate than in most published samples. For example, in a sample of 710 emerging adults between the ages of 18 to 26 years in six colleges and graduate schools found that 98.7% of the sample had a best friend (n = 701) (i.e., only 1.3% were friendless) (Barry, et al., 2009).

With regard to romantic partners, 61% of the current study population had a romantic partner. Rates are lower than the study of emerging adults in school, which reported a rate of 79.3% (n = 563) for individuals who had a romantic partner (Barry, et al., 2009).

Information regarding friendship networks is presented in Table 4. With regard to participants' network of friends, participants reported having an average network size of 3.26 (SD = 3.31) friends. On average, participants had disclosed their HIV status to 1.26 (SD = 1.36) of these friends. A significant proportion of participants (38.3%) had not disclosed their HIV status to *any* of their friends. Insofar as such comparisons can be made given sample size and significant study methodology limitations, the rate of disclosure is comparable to a qualitative study of emerging adults with horizontally-infected HIV, in which 4 out of 10 participants reported not having disclosed their status

(Valenzuela, 2009). Rates appear significantly lower than rates of disclosure to friends among general samples of adults (79%; Petra, Doyle, Smith, Skinner, Hedge, 2010).

When participants were examined collectively, and participants with no friends were included in analyses and rated as having the lowest level of social support from friends possible, participants reported a moderate level of social support from their friends (13.67). However, once individuals without friends were removed from analyses, the average level of social support from friends in this sample was high (mean = 15.62) and comparable to mean social support ratings of 15.15-15.69 among undergraduates in Procidano's original studies (1983) and mean of 15.42 among self-identified bisexual young adult undergraduate students (Sheets & Mohr, 2009). Males in this study reported receiving more social support (mean = 16.70) than females (mean = 14.45) ($p < .05$). Results differ from studies suggesting higher levels of social support for girls than boys in adolescent years (La Greca & Harrison, 2005).

Descriptive information was examined to characterize the friendships and best friendships of emerging adults with HIV (Table 5). Most of the best friends were female and the same gender (81.0%) as the participants. On average, best friends were 23.81 years of age and the same age as participants (mean difference = 1.25 years). They had met their best friends from a variety of sources; the most common source of best friendships was school (35%). The majority of friends (58%) did not live in the same neighborhood as the participant.

On average, participants had known their closest friend for 7.51 years, but length of friendships ranged greatly (Table 6). Among individuals who had both a closest friend and a romantic partner, they had known their closest friend for a significantly longer

period of time than their romantic partner ($t(24) = 3.13$, $p = .005$). Results are comparable to other studies of emerging adults with best friendships and romantic partners in which length of relationships with best friends were longer than length of relationships with romantic partners (Barry, et al., 2009).

With regard to the quality of the closest friendships, participants described the positive quality of their friendship on the NRI as 3.79 (*SD* 1.12) on a scale of 1 to 5, which indicated a high level of positive qualities in the best friendships (Table 6). They reported a mean of 1.73 on a scale of 1 to 5 on negative qualities on the NRI, suggesting relatively low negative qualities in the friendship. No gender differences in best friendship qualities were observed among individuals who had friends, which differs from reported best friendship qualities among adolescents (e.g., La Greca & Harrison, 2005).

With regard to health-related friendship variables, the majority of youths had not disclosed their HIV status to their closest friend (Table 5). While the majority of participants who had best friends believed that their friend liked to eat healthy food, disapproved of drugs, and practiced safe sex, a substantial proportion of participants believed that their friends used marijuana (45%), had gotten drunk (62%), and practiced risky sexual behaviors (32%). Approximately half of participants also believed that their best friend smoked cigarettes and used marijuana.

Most participants (61%) had a romantic relationship (dating or married) and did not consider themselves single, which appears lower than rates of 79.3% ($n = 563$) in other studies of same-aged peers (Barry, et al., 2009). With regard to romantic partner demographics, the average age of partners was 29 and on average, partners were 6 years

older than the participant. The majority of romantic partners described by participants were male (90%); 30% of these described partners were the same sex as the participant. Most participants had met their partners from around the neighborhood (40%); others met through school (17%), the internet (13%), family (10%) and friends (10%).

Participants rated the positive qualities of their romantic partnerships as a 4.35 on a scale of 1 to 5, indicating a high level of positive qualities. However, there was a noteworthy wide range of responses indicating that a number of participants were also in romantic situations with few positive qualities. On average, participants who reported having a romantic partner reported a mean of 2.03 (SD = 0.99) on negative qualities in their relationships, which indicated relatively low ratings of negative qualities. Again, responses varied suggesting that there were also a number of participants in relationships with high levels of negative qualities.

With regard to health-related friendship variables, a significant portion of the participants (36.7%) who were not considered single had not disclosed their HIV status to their romantic partner (Table 5). These rates are substantially lower than rates of disclosure to sexual partners among older adult females (75%; Sullivan, Voss, Li, 2010) or among adults of both genders (91%; Petrak, Doyle, Smith, Skinner, Hedge, 2010). Participants reported similar perceptions of their romantic partners as their closest friends, with the exception that for the most part, participants did not perceive their romantic partners to have multiple sexual partners (Table 5).

In sum, the second aim of the study was to characterize the friendships and romantic partners of emerging adults with HIV. The majority of participants reported having high levels of social support and positive qualities in their friendships with

individuals who engaged in healthy behaviors. A subset of individuals reported having no friends; several of these individuals did have a romantic partner but others reported having "no one" under their close relationships. A significant portion of participants also reported that their best friend engaged in risky behaviors such as smoking and having multiple sexual partners. Further, the majority of participants had not disclosed their HIV status to their best friends. Participants with romantic partners reported high levels of positive qualities in their romantic relationships and the vast majority of participants with romantic partners believed that their partner was monogamous.

Characterization of Health Behaviors

The third aim of the study was to characterize the health behaviors of emerging adults horizontally infected with HIV. Descriptive information was examined pertaining to healthy dietary behavior, smoking, drinking, and risky sexual behaviors of emerging adults with HIV. Rates of health behaviors in this sample, as well as rates from national samples reported by the CDC are reported in Table 7. Results are summarized and described by health category below.

Regarding dietary behavior, few participants consumed at least five daily servings of fruits and vegetables (green salad, potatoes, carrots, other vegetables, fruits, fruit juice) (Table 7). Overall, results are comparable to CDC national surveillance findings that have found that the vast majority of adolescents (78%) (Center for Disease Control and Prevention, 2010b) and adults (67 to 86%) consume fewer than five servings of fruits and vegetables a day. However, almost twice as many male participants in the current sample reported consumption of at least five servings of fruits and vegetables as males in national samples (Center for Disease Control and Prevention, 2010b). On average,

participants in this study had three to four servings of fruits and vegetables a day. Few participants consumed at least three servings of dairy per day (8%); rates were lower than the national average for adolescents (14.5%; CDC, 2010). In the current sample, there were no significant gender, sexuality, or racial/ethnic differences in the number of daily servings of fruits and vegetables, or the number of daily intake of dairy servings. In sum, though rates are comparable to surveys of adolescents by the CDC, few participants are following recommended dietary guidelines.

With regard to substance use, most participants did not smoke cigarettes; however, 33.3% had smoked in the past month (Table 7). Rates of smoking were higher than the *Healthy People 2010* target of reducing adult smoking to a prevalence of 12% (CDC, 2010). Rates of smoking in the current population were also higher than in national samples of adolescents, where 19.5% of adolescents had reported having smoked in the month prior to being surveyed (CDC, 2010). Of the emerging adults who reported smoking, the mean of 1.82 (SD = 0.96) indicated that on average, these individuals smoked 2 to 5 cigarettes per day. Slightly fewer than 9.1% of the current sample smoked more than 10 cigarettes per day, which was comparable to national samples that report 7.8% of adolescents smoke 10 or more cigarettes per day (CDC, 2010).

Most participants in the current sample had smoked marijuana at one point in their life (56%) whereas fewer than half of national samples of adolescents reported having smoked marijuana (37%) (CDC, 2010). In terms of current marijuana usage, within the past 30 days, 32% of participants had smoked marijuana; 21% of the national population of adolescents had smoked marijuana in the past 30 days. The prevalence of marijuana usage in this sample (32%) was also higher than another national sample of

young adults aged 18-25, in which 16.5% of participants reported using marijuana within the past month (Substance Abuse and Mental Health Services Administration, 2009), but similar to some samples that have reported that approximately 1/3 of college populations use marijuana (Kilmer, 2006).When participants were examined collectively, the mean rate was 0.82 (*SD* = 1.54) which corresponds to close to one day on which a participant smoked. Of the individuals who had smoked, 16% had smoked 1 to 2 times. However, 36% of marijuana users in this sample were chronic smokers and reported using marijuana more than 20 times in the past month. Rates are comparable to reports that nationally, 35.7% of marijuana users aged 12 and older are estimated to use marijuana at least 20 times a month (National Institute on Drug Abuse, 2008). In sum, marijuana usage was common in the current population, though rates were largely similar to national reports of usage among adolescents or young adults. Individuals who used marijuana reported frequent usage.

Regarding behaviors associated with alcohol consumption, most participants (77.8%) had had at least one drink of alcohol in their lives (Table 7); rates are comparable to the 72.5% of adolescents who report having had at least one drink of alcohol per lifetime (CDC, 2010). On average, participants reported a lifetime usage of alcohol of 3.2 (*SD* = 2.64), which corresponds to an average of 6 to 9 days of drinking. At the current monthly level, participants reported an average score of 0.91 (*SD* = 2.64), which corresponds to drinking one to two days in the past month. No one reported daily drinking. Approximately half (51.1%) of the current participants reported having consumed at least one drink in the past month; nationally, about 42% of adolescents report having drunk in the month of data sampling (CDC, 2010).

Rates of heavy drinking (consuming 5 or more drinks within a couple of hours), 26.7% of participants reported having had at least one episode of heavy drinking in the past month (Table 7). These figures are similar to national reports from 2007 indicating that 26% of high school students at the point of sampling had had at least one episode of heavy episodic drinking within the past month (CDC, 2010). The average binge drinking score in this study was 0.44 (*SD* = .87), which corresponds to less than 1 day of binge drinking per month. Despite similarities in prevalence rates of binge drinking to national samples of adolescents, rates are still higher than the Healthy People target of decreasing the prevalence of binge drinking to a rate of 6% among adults (Healthy People, 2010). In sum, rates of lifetime drinking, current drinking, and heavy episodic drinking among participants appear comparable to national samples of adolescents from the CDC; however, from a public health standpoint, rates are higher than professional recommendations.

Regarding sexual behaviors, the vast majority of participants (95.6%) reported having had sexual intercourse with at least one partner in their lifetime, which is higher than average rates (46%) reported by adolescents nationally (CDC, 2010; Table 7). Rates are also higher than reports by high school students in twelfth grade (62.3%). Regarding the number of intercourse partners over their lifetime, participants reported an average of five sexual partners (mean = 5.38, *SD* = 2.69); however, a subset of participants had significantly more sexual partners. With regard to current sexual partnerships, few participants had refrained from sexual activity in the past month (13%), as compared to national samples of adolescents (66%). While some participants had never had any oral sexual partners, others reported having more than forty. The mean score of 2.11 (*SD* =

1.69) indicated that on average, participants had three to nine oral sexual partners over their lifetime and an average of 1.73 (*SD* = 2.05) oral sexual partners in the past 3 months (2 partners).

Nearly half (42%) of participants reported having had sex with someone whom they did not know well in the past year; rates were especially high among males (65%). Their average score was 1.29 (*SD* = 2.16), which corresponds to approximately one person. In terms of the number of sexual partners in the past three months, participants reported an average of nearly two partners. The majority of participants (87%) had either used a condom the last time they had intercourse or not had sex in their lifetime; in comparison, 61% of national samples reported such usage. The majority of participants (81.8%) also reported not having used alcohol or drugs before they had sexual intercourse.

In sum, a greater proportion of participants engaged in sexual behaviors than in national samples of adolescents and had more than one intercourse or oral sexual partner. A number of participants were also engaged in risky sexual behaviors (e.g., having sex with individuals they did not know well; not disclosing HIV status to romantic partners).

In follow up analyses, potential differences in dietary behaviors, alcohol consumption, number of sexual partners, and number of oral sexual partners between genders and individuals of sexual minority status were explored with t tests. Again, the majority of females (83.3%) identified as heterosexual, and the majority of males (72.2%) identified as gay, bisexual, transgender, or questioning. Males reported more risky sexual risk factors. Specifically, they reported a greater number of oral sexual partners over the lifetime, greater number of oral sexual partners in 3 months, greater

number of strangers with whom they had sex in past year, and greater number of sexual partners in the past three months.

Comparisons of heterosexual individuals and sexuality minority youths were also made. Individuals who identified as a sexual minority had greater number of oral sexual partners over their lifetime ($p < .001$), greater number of oral sexual partners in the past 3 months ($p = .001$), had sex with more people they did not know well in the past year ($p = .006$), and had a greater number of sexual partners over the course of their lifetime ($p < .001$). There were also trends for sexual minorities to have a greater number of sexual partners in the past 3 months ($p = .02$), and greater level of social support ($p = .05$).

Among males, there were significant differences between males who identified as straight and those who did not. Specifically, males who identified as gay, bisexual, or questioning reported higher numbers of lifetime oral sexual partners ($p = .002$) and oral sexual partners in the past 3 months ($p = .003$), and number of sexual partners in the past 3 months ($p = .007$). After Bonferroni corrections, there were no differences found among females who identified as a sexual minority and those who did not.

In sum, the third aim of the study was to characterize health behaviors of emerging adults with HIV. Participants reported variable rates of healthy and unhealthy behaviors but a large number of participants reported engagement in behaviors that were detrimental to their health. The majority of participants reported eating less than recommended servings of fruits, vegetables, and dairy. Rates of alcohol-consumption were comparable to national samples but still higher than national recommendations. Individuals also participated in a number of risky sexual behaviors such as having multiple sexual intercourse partners, multiple oral sexual partners, and nearly half of

participants had had sex with someone they did not know well within the past year. Results highlight a public health concern and need for better understanding of the correlates of these risky behaviors.

Peers and Health Behaviors

The fourth aim of the study was to explore the linkages between the emerging adults' health risk behaviors and other key domains of functioning that were assessed in the study. Specifically, given literature that suggests that adolescents' peers' health risk behaviors are associated with their own health risk behaviors, this study examined these associations. Several hierarchical linear regressions were examined. Caution should be used in examining results given the very small sample size. Analyses focused on the linkages between peers' health risk behaviors and emerging adults' health risk behaviors in the specific areas of dietary behaviors (Table 8), alcohol usage (Table 9), and multiple sexual partners (Table 10). Peers' health-related behaviors were examined as potential correlates for participants' own behaviors. Peer relationship quality was then examined as a moderator; specifically, the association between peers' risky behaviors and individuals' own behavior was expected to be stronger among individuals with higher relationship quality.

First, for dietary behaviors, a hierarchical linear regression was conducted with daily servings of fruits and vegetables as the dependent variable. On the first step, sexual orientation was entered, followed by peer relationship quality on the second step, perception of peers' intake of healthy foods on the third step, and then the interaction between relationship quality and perception of peers' intake of healthy foods on the last step entered (Table 8). Because of missing data due to initial computer programming

error, only 30 participants were included in this analysis. None of the variables were significant ($F(4,29)=1.41$, $p = .26$). A similar set of regressions was conducted with romantic relationships in the place of peer relationships. Specifically, sexual minority status was entered first as a control variable; next, romantic relationship quality, perception of romantic partner eating healthy food and the interaction between relationship quality and perception of romantic partner's eating were entered. None of the variables were significant (See Table 8, right side $F(4,25)=1.33$, $p = .29$).

Second, for alcohol usage, a similar hierarchical linear regression analysis was conducted (see Table 9); age was also entered as a control variable because it is associated with greater alcohol use. That is, greater age was significantly associated with greater number of days in the past month on which alcohol was consumed. Controlling for age and sexual orientation, none of the friendship variables were related to alcohol consumption (relationship quality, perception of friend becoming drunk, friend's disapproval of alcohol, and interaction terms; $F(5,25) = 1.17$, $p = .35$). When these analyses were repeated for the romantic partner relationship (see Table 9), the model explained 46% of the variance ($F(5, 24)=4.01$, $p = .009$). Controlling for age and sexual orientation, the variables of relationship quality and the perception of a partner becoming drunk were not significant. However, when the interaction term between relationship quality and partner perception was entered, the model was significant. Post hoc analyses were conducted following procedures described by Holmbeck (2002). As seen in Figure 1, the association between peers' risk behaviors (specifically, whether the romantic partner gets drunk) was positively associated with participants' own consumption in high quality relationships but not lower quality relationships. In other words, the association

between peer risk behavior (romantic partner getting drunk) and participants' own alcohol consumption was stronger among individuals with higher ratings of relationship quality.

Third, Table 10 displays similar regression analyses that examine the number of sexual intercourse partners in the past three months as the dependent variable. Relationship quality and whether the closest friend had multiple sexual partners were the independent variables. The interaction model was significant when relationship quality was examined as a moderator. Again, the quality of relationships impacted the extent to which peer's risk behavior (i.e., having multiple sexual partners), was associated with participants' own risk behavior. Specifically, when friends had multiple sexual partners, participants with higher quality relationships had greater numbers of sexual partners than participants with lower relationship quality (Figure 2). In other words, friends' risk behavior was a stronger "predictor" of participants' own behavior in higher quality friendships. The full model that included perceptions of friend's behaviors was significant for explaining 67% of the variance in the model ($F(4,14) = 7.06$, $p = .003$). The model examining romantic relationships was not significant ($F(4,6)=5.80$, $p = .03$; Table 10). However, only a very small number of participants answered questions regarding their partners' sexual behaviors ($n = 11$).

Finally, regression analyses explored the number of oral sexual partners in the past three months as an outcome variable (Table 11). The model for friends was significant, explaining 77% of variance ($F(4,14) = 11.37$, $p < .001$). Specifically, individuals who identified as a sexual minority were likely to have more oral sexual partners. As seen in Figure 3, friends' risky behaviors were associated with participants'

own risk behaviors (i.e., higher number of oral sexual partners). The interaction was significant such that participants with higher levels of relationship quality in their friendship appeared to be more influenced by their friend's behavior (i.e., having multiple sexual partners). Analysis with romantic partner was not examined given that data were available for less than a third of the population.

In summary, the last aim of the study was to conduct preliminary analyses to examine whether peer relationships and peers' health risk behaviors were associated with the health behaviors of emerging adults with HIV. Friends' risk behaviors were unrelated to participants' behaviors for dietary intake or substance use. However, friends' sexual risk behaviors (i.e., having multiple sexual partners) were associated with participants' own sexual behaviors (i.e., higher number of sexual partners). This relationship was especially strong in higher quality friendships. In contrast to friendship analyses, romantic partners' alcohol usage was related to participants' monthly usage of alcohol. This association was especially strong in high quality relationships.

Chapter 4: Discussion

Recent attention has highlighted the importance of transitioning emerging adults with chronic illness from pediatric to adult care (Society for Adolescent Medicine, 2003), especially among emerging adults with HIV/AIDS (Blum, 2002; Rosen, Blum, Britto, Sawyer, & Siegel, 2003). At the same time, there is little information available on the emerging adult developmental period for individuals with HIV. Studies of emerging adults have largely examined populations without a chronic illness (e.g., Arnett, 2003), and studies of emerging adults with horizontally-infected HIV (e.g., Valenzuela, et al., 2009) have not considered issues related to conceptualizing adulthood and close peer relationships. Results of the current study bridge the gap between research on emerging adults and research on youths with HIV.

In brief, the study found that emerging adults with HIV have similar views of adulthood as emerging adults without HIV, in terms of the importance they attribute to domains such as Individualism and Family Capacities. Emerging adults felt that taking responsibility for one's actions is a particularly important marker of being an adult. The study also found that the majority of emerging adults with HIV reported having a close friendship or romantic relationship that was high in positive qualities. Despite these positive qualities, most emerging adults had not disclosed their HIV status to their closest friend. A subset of emerging adults with HIV also reported having no friends. In terms of health-related behaviors, most emerging adults with HIV reported health behaviors that were comparable to national samples of adolescents and adults (Center for Disease Control and Prevention, 2010b) but also reported consumption of fewer fruits and vegetables than national recommendations. In addition, like other emerging adults,

participants were engaged in substance use and risky sexual practices. These key findings and their implications are further discussed below by topic.

Conceptions of Adulthood in Emerging Adults with HIV

With regard to the first study aim of characterizing the conceptions of adulthood among emerging adults with HIV, this study found that emerging adults with HIV have appreciably similar ideas about what constitutes adulthood as do emerging adults without HIV (e.g., Arnett, 2003). This is good news as it suggests that findings with other emerging adult populations may also be useful and valid for understanding emerging adults with HIV.

More specifically, when domains were examined as a whole, participants perceived the domains of Individualism and Family Capacities to be the most important. These findings are consistent with reports from other studies of North American populations (e.g., Arnett, 2001). In particular, emerging adults with HIV rated intangible milestones such as taking responsibility for actions and having control over one's emotions as more important markers of having become an adult than tangible milestones, such as completing education. Knowing that emerging adults place importance in such markers (e.g., taking responsibility) may be beneficial for motivating them to take care of their health.

Consistent with emerging adults' conceptions of adulthood, participants actual self ratings of achievement indicated that they were most likely to have started making their own decisions, accepting responsibility for the consequences of their actions, avoiding petty crimes like vandalism and shoplifting. Participants in this study reported higher levels of achievement of adulthood in the domains of Individualism and Norm

Compliance than in other areas domains of adulthood. Results are comparable to samples of African-Americans and Asian Americans emerging adults who also rate Norm Compliance as being important (Arnett, 2003). Individual items that were rated highly included intangible milestones such as making one's own decisions and accepting responsibility for the consequences of one's actions. Again this is good news in that emerging adults are not only rating these items as being important for being adults, but also trying to act according to these standards of adulthood.

In terms of clinical implications of the above findings, mental health care providers collaborating with health care clinics may wish to use such knowledge in their health education practices with their patients. Specifically, mental health providers may wish to foster individuals' belief that it is their own decision to be taking greater responsibility for their own actions, rather than the decisions of the other adults around them. Motivational interviewing techniques may be one way to appeal to these emerging adults' sense of their own developmental progress. Motivational interviewing (Rollnick, Heather, & Bell, 1992) is a form of treatment that has been associated with promising results when used among adults and high risk youth (Brown et al., 2009; Hettena, Steele, & Miller, 2005), as well as youths with HIV (Naar-King et al., 2008). Motivational interviewing helps individuals explore their ambivalence around particular behaviors and helps clients find internal motivations to change. It differs from some other forms of health behavior interventions, as clients are the ones to generate their own goals and persuade themselves to change; professionals do not directly persuade or tell clients what to do. This model may be appealing to emerging adults who believe that they ought to make independent decisions rather than follow others' directions. Future studies may

wish to test whether such intervention techniques work in this population of emerging adults.

Friendships and Close Relationships among Emerging Adults with HIV

With regard to the second study aim, the current study found that the nature of close peer relationships varied among emerging adults with HIV, but overall was fairly comparable to the interpersonal relationships of other emerging adults. The majority of emerging adults with HIV from this study who had friends reported high levels of social support that were comparable to rates found in other studies of young adults, such as college undergraduates (e.g., Sheets & Mohr, 2009). On average, participants reported having approximately four close friends, though numbers varied. When asked specifically about their closest friend and romantic partner, the current population generally reported high levels of positive qualities and low levels of negative qualities in these specific relationships. Thus, results do suggest that having HIV does not preclude one from having positive interpersonal relationships that are comparable to those of other adolescents or young adults. Based on the reports of participants in the current study, most individuals appeared to possess the social and emotional resources to build friendships that are high in positive qualities.

In terms of gender differences in close relationships of emerging adults with HIV, it appeared to be the case that, as a whole, males reported substantially higher levels of social support than females with HIV. Given that most males in the study were also gay (but this was not the case for females), it was unclear whether the differences in reported social support are due to gender or sexual orientation. However, it is possible that females with HIV might be impacted more heavily in the peer domain by their illness or face

greater stigma than males. Studies have suggested that women living with HIV experience social stigma (e.g., Peterson, 2010) and have high levels of depression (e.g., Heckman, 2003). Alternatively, it may be the case that gay males have greater access to social networks through the gay community, and thus may have peers who understand the issues and challenges of being a stigmatized minority. The gay community can play an important role in gay adult male individuals' social resources and health behaviors (e.g., Fergus, Lewis, Darbes, & Kral, 2009).

Among individuals who had friends, there was still a range in reported levels of negative qualities in friend relationships. These results are concerning, as negative qualities in friendships such as criticism or disappointment with friendship transactions have been associated with symptoms of alcohol abuse, depressive symptoms, and greater severity of HIV in other studies of older adults (e.g., Swindle, 2000). Negative interactions could be a marker for distress and other problems, and future research should address this issue. For example, it may be the case that emerging adults would need to be taught how to identify negative qualities in their relationships or how to reduce the frequency with which negative behaviors occur.

An unexpected but potentially important finding of the current study was that a high rate of participants (12.5%) reported having no close friends, as compared to young adults in national samples (1.3%; Barry, et al., 2009). Most typically-developing individuals have had both close friendships and romantic relationships by the time they reach emerging adulthood (Collins & Madsen, 2006). Literature on emerging adulthood suggests that friends are an important aspect of this developmental stage (Erikson, 1968). This raises the question of why emerging adults with HIV may not have close

friendships. Friends are a primary source of support for adolescents and adults; social support is also important for adults with HIV (e.g., Ashton et al., 2005). This lack of friendship reported by a subset of Emerging Adults with HIV thus represents a big area of. Future qualitative analyses could shed light on whether the lack of friendships are due to fear of rejection, stigma associated with HIV, social anxiety, lack of opportunities, or other factors. These factors have been found to be significant issues that adults with HIV face (e.g, Elkington, Bauermeister, Brackis-Cott, Dolezal, & Mellins, 2009; Heckman, 2003), and could impede the development of close friendships in emerging adults with HIV. In addition, given that many study participants were not in educational settings, they might have had fewer opportunities to meet new people and develop close friendships.

One way in which having HIV may impact emerging adults' close friendships is having to decide whether to disclose or not disclose their HIV status. It was interesting to note that more than one-third of study participants who did have a friend or romantic partner had not disclosed their HIV status, even though the ratings of positive qualities in the friendships and relationships were high. It is possible that emerging adults with HIV might have been concerned that disclosing their HIV status would disrupt their friendship or romantic relationship. The lack of disclosure to friends and romantic partners about HIV was concerning, as it would presumably be impossible for these friends or romantic partners to provide specific HIV-related social. In studies of youths and adults, HIV disclosure has been associated with emotional support and better health status (e.g., Sherman, Bonanno, Wiener, & Battles, 2000). Among adult men, studies have found that men with significant others who respond positively to disclosures tend to be less

depressed and less anxious (e.g., Hays et al., 1993). HIV-specific support is also desirable due to its associations with reduced rates of disease progression (e.g., Ashton, et al., 2005). The study data, in the context of earlier findings, suggest that the interplay between HIV status and peer relationships among emerging adults may be particularly worth exploring in future studies. Anxiety and fear of rejection as potential reasons for non-disclosure were not examined in this study but may be important variables to include in future research.

Health Behaviors of Emerging Adults with HIV

One of the goals of the study was to gain a better understanding of the health behaviors of emerging adults with HIV to inform aspects of their health care that may need particular attention. This study found that rates of many health behaviors among emerging adults with HIV were largely similar to adolescents and emerging adults in national samples. For example, 29% of participants ate at least five servings of fruits and vegetables a day (YRBS rates are 22%). While rates are normative for this age range, findings revealed that study participants were engaged in a number of behaviors that were deleterious to their health. Although participants' dietary behaviors were largely comparable to national studies of adolescents, participants consumed fewer servings of fruits and vegetables per week than national recommendations. Receiving adequate nutrition is important for people living with HIV, as the disease and its treatment can impact metabolism and nutritional absorption (see reviews by Oguntibeju, van den Heever, & Van Schalkwyk, 2007; U.S. Department of Health & Human Services, 2010). Since nutrition has been important in the progression of HIV and a predictor of survival, (Kim, Spiegelman, Rimm, & Gorbach, 2001), this study suggests that further studies are

desirable to better understand correlates of nutritional intake among emerging adults with HIV. Establishing healthy dietary and lifestyle habits during this late adolescence and early adulthood period may be especially desirable and an area for medical teams to inquire about.

Broadly, the participants reported normative behaviors for their age cohort, such as engaging in sexual behaviors. Having an illness was not associated with a lower prevalence of normative emerging behaviors such as being sexually active (87%); this is in contrast to populations such as emerging adults with congenital heart disease who have lower rates of individuals who are sexually active (48%; Reid, Siu, McCrindle, Irvine, & Webb, 2008). However, rates are higher than in samples of adults with HIV not specific to the emerging adulthood period: for example, in an older cohort with a mean age of 40.7, 63% of individuals with HIV were sexually active (Stein et al., 2005).

While rates were normative for their age, many behaviors of the emerging adults with HIV in this study were undesirable and thus, they still represent a high-risk group. For example, 42% of the population had recently had sexual relations with someone not well known to them and approximately one-third of the participants engaged in current smoking, marijuana usage, and heavy drinking episodes (i.e., 5 or more drinks in several hours). While these rates were comparable to national samples of adolescents for current levels of smoking and alcohol use, some of the prevalence estimates for lifetime use of these substances were higher (e.g., CDC, 2010). Rates of marijuana use in the current sample were also higher than some national samples of young adults (e.g., Substance Abuse and Mental Health Services Administration, 2009) but lower than others (Kilmer, 2006).

Despite being normative, results speak to the need for intervention. Rates are problematic as alcohol and marijuana usage have been associated with compromised judgment and sexual risk-taking behaviors (Kingree, 2000; Simons, et al., 2010). Long-term cigarette, marijuana, and alcohol usage are all associated with health complications (Hall & Degenhardt, 2009; Room, Babor, & Rehm). It is concerning that for the most part, rates of substance use in the current sample are as high as national samples, as substance use can further compromise the health of individuals living with HIV (Donnenberg & Pao, 2005; New York State Department of Health AIDS Institute, 2010). As such, it would be important for health care providers to regularly assess and monitor the substance use of their emerging adults with HIV. As recommended by the New York State Department of Health AIDS Institute (2010), health care providers may need to consider referring some patients beyond the primary care setting to specific substance use treatment programs.

From a secondary prevention standpoint, a number of the sexual risk behaviors reported by the study participants were also concerning. Specifically, most participants had not disclosed their HIV status and nearly half of participants had had sex with someone they did not know well within the past year. Given that it would be undesirable for emerging adults with HIV to acquire additional STDs, and the lifetime cost of individuals ages 15-24 years who acquire an STD in 2000 are estimated to be approximately 6.5 billion over a lifetime (Chesson, et al., 2004), these results highlight the importance of working with emerging adults on STD prevention. Consistent with other studies, the current study also suggests that health education may need to include oral sex (Brady & Halpern-Felsher, 2007). In particular, some studies have suggested that

adolescents view oral sex as a risk-free behavior (Prinstein, et al., 2003; Remez, 2000). On a more positive note, many participants 84% reported having used a condom the last time they had sexual intercourse.

Associations between Peer Variables and Health Behaviors

In previous studies, friends have been found to engage in similar risk behaviors as one another (Boyer, et al., 1999; Dolcini, et al., 2005). Specifically, friends' risk behaviors are thought to influence individuals' risk behaviors (Gardner & Steinberg, 2005; Jessor, et al., 1984). Some adolescents and emerging adults may engage in risky behaviors as a means of identifying more with their friends and as such, higher levels of emotional support have at times been associated with higher levels of risk behavior (Jessor, et al., 1984; Sieving, et al., 2000). With the small sample of emerging adults with HIV available in this study, preliminary analyses were conducted to explore these associations.

First, no main effects were found between closest friend's behaviors and participants' own dietary or alcohol consumption. These findings are in contrast to studies of adolescents that have found that the perception of friends' substance use is associated with adolescents' behaviors (e.g., Scholte, Poelen, Willemsen, Boomsma, & Engels, 2008). It may be the case that the sample size was too small to detect a significant finding. Alternatively, romantic partners or other individuals such as family members, played a more important role in drinking than friends population for this population.

Second, it appeared that friends' high-risk sexual behaviors (i.e., having multiple sexual partners) were associated with the number of sexual partners that a participant had.

Specifically, if a friend was perceived to engage in high-risk sexual behavior, participants also had higher numbers of sexual partners. Further moderation analyses indicated that this association was especially strong among individuals with higher quality relationships.

While these results are interesting, caution should be used in interpreting results, as the sample size was extremely small. However, they suggest that peer norms for sexual behaviors may have a strong influence on individuals' behaviors. Results of the current study fall within a context of strong support for finding an association between perceptions of peer behavior and health behavior (e.g., Elkington, et al., 2009). Studies have similarly found that youths with vertically-transmitted HIV are more likely to engage in risky sexual behaviors when they perceive that their peers do so as well (Elkington, et al., 2009).

Of note, the sample size for participants answering questions regarding sexual behaviors was small since these questions were added later to the protocol. As such, the findings are especially noteworthy since the typical concern with having a small sample size is the lack of power to detect a significant finding, and a finding was detected in this sample (Cohen, 1992).

In sum, it might not be important just to find out about emerging adults' substance use or sexual behaviors; it is also important to find out what they believe are their friends' behaviors and the quality of their friendships. Specifically, it seems that among friendships, higher quality relationships puts individuals at higher risk when their friends are engaged in risky behaviors. Intervening simultaneously with infected individuals and their friends may be one strategy for intervention. For example, small group prevention

programs that include peer norms as part of the intervention have had promising results (e.g., Rotheram-Borus, Gwadz, Fernandez, & Srinivasan, 1998). Intervening more specifically with friend may be helpful to counteract friend influences on risk behaviors. Further education may also be needed to discuss the risks associated with oral sex.

Similar to analyses with friends, romantic partners' dietary behaviors were unrelated to participants' own dietary consumption. However, in other analyses with romantic partners' influence on health-related behaviors, somewhat different patterns were found. First, when testing main effects, there was no relationship between romantic partners' alcohol consumption and participants' own consumption. However, unlike the analyses with friends, the interaction term in the romantic relationship analysis was significant. The association between romantic partners' risk behaviors (specifically, whether the romantic partner gets drunk) was positively associated with participants' own consumption in high quality relationships but not lower quality relationships. As such, the quality of the relationship appeared to moderate the association between romantic partner's risk behaviors (i.e., getting drunk) and participants' own alcohol consumption. This finding is important because it speaks to the important role that romantic partners' behaviors may have in individuals' own risk behaviors. In trying to reduce alcohol consumption among emerging adults with HIV, it may be important to also examine partners' alcohol usage. Results are consistent with studies that have found that romantic partners in heterosexual adult marriages display similar drinking patterns as one another (Leonard & Das Eiden, 1999).

The second difference in patterns from the analyses with friendships is that romantic partners' sexual risk behavior was unrelated to the number of sexual intercourse

partners a participant had. In sum, it appears that romantic partners' behaviors are associated with participants' substance use whereas friends' sexual behaviors impact the number of sexual partners individuals have.

Limitations and Future Directions

This is one of the first studies to date to examine horizontally-infected emerging adults with HIV. The current study helps fill a gap in the discussion on how best to transition emerging adults with HIV to adult health care: specifically, what adult medical care providers and mental health care providers can expect developmentally when they accept emerging adult patients with HIV into their practice.

In particular, many individuals report that they have not yet achieved a number of adulthood tasks. In addition, individuals appear to continue to engage in risk-taking behavior during their emerging adult years, which follows national trends where there are high rates of STDs, risk sexual behaviors, and alcohol usage during emerging adulthood (Substance Abuse and Mental Health Services Administration, 2009). While many individuals have social support and high quality friendships, a higher percentage of young adults with HIV do not have friends. In addition, many friends and romantic partners are likely to be unaware of the young adults' HIV status. This information should be useful for adult medical care professionals, as it highlights ways in which emerging adults with HIV are similar to others in their age cohort, but may not be the same as older adults in their medical practice. It also highlights the potential need to pay attention to both friends and romantic partners' risk behaviors, and quality of relationships, as these factors may influence their patients' own risk behaviors.

Despite the strengths of this study, several limitations must be noted. First the sample size was small. This is one of the first studies to examine a sample of emerging adults with HIV, a population that can be difficult to reach in terms of the need to have Audio Computer-Assisted Self-Interviewing options and individuals willing to participate in research studies regarding confidential material for a sensitive topic. As such, the sample size collected is small and there may not have been adequate power to detect significance (Cohen, 1992). On a related note, the number of participants for some of the questionnaires was very small, which also limited the analyses of health behaviors. The number of participants who answered questions regarding their friend or partner's sexual behaviors was particularly small, as these questions had been added later in the protocol. Thus these analyses must be interpreted with caution.

Second, the low internal consistency of the scale used to measure conceptions of adulthood (e.g., Arnett, 1997) was also concerning. The scale was derived based on conceptual material rather than psychometric properties. It would be recommended that future studies examine ways of improving the scale's psychometric properties.

Third, it was unclear to what extent the results of this study generalize to other populations. While results of the study are important for understanding needs within the pediatric clinic that follow emerging adults with HIV in Miami-Dade County, further study is needed to extend the findings to emerging adults with HIV who may be seen in other clinics or other areas of the United States. Florida has a disproportionately high incidence of HIV as compared to the rest of the United States. In 2010, among individuals ages 13-29, rates per 100,000 in Florida was 45.9, whereas it was 25.7 in the rest of the United States (Florida Department of Health, et al., 2010; Miami-Dade County

Health Department & "Office of HIV/AIDS", 2010). As such the concerns of this geographic area may be different from concerns in other parts of the country.

Fourth, this study examined the attitudes, relationships and health behaviors of emerging adults with HIV at a single time point. It will be important to conduct longitudinal studies to examine how these relationships and behaviors change over time and also whether changes in friends' health behaviors may directly influence one's own health behaviors. Assessment across multiple time points would also help to evaluate the directionality of peer influence. Some studies suggest that similarities in risk behaviors may be due to peer selection whereas others suggesting that peers influence risk behaviors (Sieving, et al., 2000). In addition, family factors may have also impacted individuals' risk behaviors and these possibilities were not explored in the current study.

Fifth, there was a lack of comparative data for this sample, as no other studies have examined these variables in this type of population. One of the closest comparison populations would be a recently conducted qualitative study among 10 emerging adults with horizontally infected HIV (Valenzuela, et al., 2009); however, that study did not include the quantitative measures used in this study. The most comparable study that examines linkages between peer perceptions and risky behaviors was a study of adolescents with perinatally-infected HIV (Elkington, et al., 2009). As previously discussed, patterns of results between the current study and that one are similar, although the study population was different.

Sixth, this study relied on individuals' self-ratings. Future studies may wish to include secondary informants and quantitative measures. Physical health indicators such as body mass index, blood pressure, or cholesterol levels may also be helpful to include

as indicators of emerging adults' health. In addition, eating diaries or 24-hour recall procedures may be helpful for assessing nutrition and substance use more specifically. Other studies have used biological methods to test for accuracy of self-reported sexual risk behaviors (e.g., Rose et al., 2009). In terms of additional directions for future research, the findings of this study highlight the potential utility of creating specialized measures for emerging adults, that are suitable for both individuals who are and are not in college. While a substantial literature exists on emerging adults who are college students, few studies have been conducted with individuals with low literacy and those who are no longer in college, which was typical of the current study population. One of the challenges of the current study was finding questionnaires that addressed developmental issues and that were pertinent for this age group; downward and upward extension of existing questionnaires (for adults and adolescents, respectively) both have shortcomings.

In conclusion, there is a need for more empirically-supported transition-to-adult-care programs for emerging adults with HIV. Increasing our knowledge of the developmental aspects of emerging adulthood are important for developing developmentally appropriate programs. The differing views of adulthood achievement in the current population suggest that emerging adults are still in an important phase of development. This flux is consistent with recent neurobiological research suggesting that the brain continues to evolve after adolescence (Giedd et al., 1999). As such, this age group is still in an important period of growth and development; these emerging adults may need developmentally-specific treatment in medical settings in order to keep them within the adult health care system.

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Table 1

Participant Characteristics

	Total
N	48
Mean Age in Years	22.59 (SD=3.17)
Sex (% born male)	37.5%
Gender (% identified as male)	35.4%
Sexual Orientation	
Heterosexual	62.5%
Bisexual	10.4%
Gay	22.9%
Lesbian	2.1%
Questioning	2.1%
Race / Ethnicity	
Black	83.3%
Hispanic	14.6%
White	4.2%
Generation Status	
First Generation	16.7%
Second Generation	16.7%
Third Generation or Higher	66.7%
Primary Language	
English	89.6%
English and Creole	4.2%
Spanish	6.3%
Education	
Some High School (%)	38.3%
Finished High School or G.E.D. (%)	19.2%
Some College (%)	31.9%
College Degree (%)	4.3%
Trade School (%)	6.4%

Table 2

Perceived Importance of Adulthood Tasks by Domain

Item	Mean	SD	Very (%)	Quite (%)	Slightly (%)	Not at All (%)	Arnett (2001) Yes (%)°
Individualism (α= .08)	**2.36**	**0.28**					Mean° 0.76
*Accept responsibility for your actions	2.67	0.86	85.4	2.1	6.3	6.3	93
*Make independent decisions (originally "Decide on personal beliefs and values independently of parents or other influences")	2.64	0.85	80.9	8.5	4.3	6.4	83
Establish a relationship with parents as an equal adult	2.31	1.15	68.8	10.4	4.2	16.7	73
Financial independence (don't need someone else's money to survive)	2.13	1.20	60.4	8.3	14.6	16.7	72
No longer living in parents' household	2.06	1.23	58.3	8.3	14.6	18.8	61
Family Capacities (α= .80)	**2.33**	**0.12**					Mean° 0.52
*If someone is a woman, become able to care for children	2.56	0.94	77.1	12.5	0.0	10.4	39
*If a man, become capable of running a household	2.52	0.98	76.1	10.9	2.2	10.9	60
If a woman, become capable of running a household	2.48	1.01	72.9	14.6	0.0	12.5	62
If someone is a woman, become able to support family financially	2.40	1.03	66.7	18.8	2.1	12.5	39
Become capable of keeping family physically safe (men)	2.36	1.11	70.2	10.6	4.3	14.9	62
If someone is a man, become able to care for children	2.30	1.10	63.8	17.0	4.3	14.9	47
Become capable of keeping family physically safe (women)	2.27	1.13	64.6	12.5	8.3	14.6	53
If someone is a man, become able to support family financially	2.21	1.14	59.6	19.1	4.3	17.0	54
Legal / Chronological Transitions (α= .52)	**2.14**	**0.22**					Mean° 0.39
Have obtained your driver's license and can drive an automobile	2.38	1.05	68.1	14.9	4.3	12.8	33
Reached age 18	2.09	1.25	59.6	10.6	8.5	21.3	50
Reached age 21	1.96	1.35	57.4	10.6	2.1	29.8	34
Norm Compliance (α= .83)	**2.13**	**0.25**					Mean° 0.45

Item	Mean	SD	Very (%)	Quite (%)	Slightly (%)	Not at All (%)	Arnett (2001) Yes (%)°
Avoid drunk driving	2.31	1.17	70.8	6.3	6.3	16.7	65
Have no more than one sexual partner	2.31	1.01	64.6	8.3	20.8	6.3	32
Avoid petty crimes like vandalism and shoplifting	2.27	1.20	68.8	8.3	4.2	18.8	70
Use contraception (birth control or condoms) if sexually active and not trying to conceive	2.25	1.16	66.7	6.3	12.5	14.6	61
Drive safely and close to the speed limit	2.23	1.21	66.7	8.3	6.3	18.8	35
Avoid illegal drugs	1.81	1.33	51.1	6.4	14.9	27.7	51
Avoid becoming drunk	1.74	1.28	44.7	10.6	19.1	25.5	27
Avoid swearing, using bad words, or cursing	1.57	1.14	27.7	25.5	23.4	23.4	23
Role Transitions (α= .64)	**1.80**	**.64**					0.19
Settled into a long-term career	2.31	1.10	64.6	16.7	4.2	14.6	27
Finished with education	2.29	1.03	58.3	25	4.2	12.5	20
Be employed full time	2.19	1.15	59.6	17	6.4	17.0	30
Married	1.12	1.32	29.2	4.2	16.7	50.0	10
~Have at least one child	1.08	1.27	25.0	8.3	16.7	50.0	7
Biological Transitions (α= .82)	**1.64**	**0.10**					0.39
Become biologically capable of bearing children (Woman should be able to become pregnant)	1.83	1.34	50	14.6	4.2	31.3	43
Grow to full height	1.75	1.23	39.6	20.8	14.6	25.0	30
Become biologically capable of fathering children (Man should be able to make a baby)	1.60	1.36	41.7	14.6	6.3	37.5	48
Other (α= .82)	**1.61**	**0.74**					Unav.
*Learn always to have good control of your emotions	2.52	0.90	70.8	18.8	2.1	8.3	53
Become less self-oriented, develop greater consideration for others (Become less selfish and more considerate)	2.27	1.11	62.5	16.7	6.3	14.6	Unav.
Make life-long commitments to others	2.17	1.12	56.3	18.8	10.4	14.6	39
Committed to a long-term love relationship	2.15	1.15	56.3	18.8	8.3	16.7	10
Purchased a house	2.00	1.15	45.8	27.1	8.3	18.8	9
Capable of supporting parents financially	2.00	1.13	45.8	25	12.5	16.7	Unav.
Not deeply tied to parents emotionally (not needing to be as close to parents)	1.55	1.25	31.9	23.4	12.8	31.9	17
~Have had sexual intercourse	1.08	1.15	16.7	18.8	20.8	43.8	14
~Allowed to drink alcohol	0.96	1.13	16.7	10.4	25.0	47.9	Unav.
~Allowed to smoke cigarettes	0.58	1.01	10.4	6.3	14.6	68.8	Unav.

Item	Mean	SD	Very (%)	Quite (%)	Slightly (%)	Not at All (%)	Arnett (2001) Yes (%)°
~Completed military services (males)	0.39	0.86	4.9	9.8	4.9	80.5	Unav.

* Top five items with highest means; ~five items with lowest means

° Note. In Arnett's sample of 20-29 year olds, participants were asked to respond "yes"=1 or "no"=0 to the question "Indicate whether you think each of the following must be achieved before a person can be considered an adult." Arnett's new questionnaire, used in this study, has a four-point scale; comparative data from the United States are not yet published. Items without comparative data are from the newest questionnaire.

Table 3

Achievement of Adulthood Tasks by Domain

Item	Mean	SD	Very (%)	Somewh at (%)	Not at all (%)
Individualism (α= 0.48)	**1.58**	**0.34**			
*Accept responsibility for consequences of actions	1.83	0.49	87.0	8.7	4.3
*Make own decisions	1.87	0.34	86.7	13.3	0.0
Have established a relationship with parents as an equal adult	1.41	0.69	52.2	37.0	10.9
Financially independent from parents	1.57	0.62	63.0	30.4	6.5
Living in parents' household (Reverse Coded)	0.85	0.87	30.4	23.9	45.7
Family Capacities (α= 0.79)	**1.40**	**0.60**			
Have become capable of running a household	1.48	0.66	56.5	34.8	8.7
Have become capable of supporting a family financially	1.15	0.82	41.3	32.6	26.1
Have become capable of keeping family physically safe	1.54	0.72	67.4	19.6	13.0
Have become capable of caring for children	1.41	0.84	63.6	13.6	22.7
Legal / Chronological Transition					
Have obtained your driver's license and can drive an automobile	1.38	0.83	60.0	17.8	22.2
Norm Compliance (α=0.86)	**1.49**	**0.49**			
*Avoid drunk driving	1.67	0.67	78.3	10.9	10.9
Avoid committing petty crimes like vandalism and shoplifting	1.70	0.63	78.3	13.0	8.7
Use contraception if sexually active and not trying to conceive a child	1.64	0.65	72.7	18.2	9.1
Drive safely and close to the speed limit	1.52	0.75	67.4	17.4	15.2
Avoid illegal drugs	1.50	0.81	69.6	10.9	19.6
Avoid becoming drunk	1.41	0.72	13.0	32.6	54.3
Avoid use of profanity/vulgar language	0.98	0.77	28.3	41.3	30.4
Role Transitions (α= 0.56)	**0.81**	**0.76**			
~Have settled into a long-term career	0.63	0.83	21.7	19.6	58.7
Finished with education	1.02	0.77	30.4	41.3	28.3
~Employed full-time	0.78	0.87	28.3	21.7	50.0
Biological Transitions					
Have become biologically capable of producing children	1.49	0.79	66.7	15.6	17.8
Have children			38.0		62.0
Other (α= 0.32)	**1.07**	**0.29**			
*Have learned always to have good control of your emotions	1.67	0.52	69.6	28.3	2.2
Have become less self-oriented and developed greater consideration for others	1.46	0.69	56.5	32.6	10.9
Have made life-long commitments to others	1.48	0.79	65.9	15.9	18.2
Committed to a long-term love relationship	1.42	0.84	64.4	13.3	22.2

~Have purchased a house	0.29	0.66	11.1	6.7	82.2
~Capable of supporting parents financially	0.96	0.79	28.3	39.1	32.6
~Have served in the military	0.09	0.35	2.2	4.3	93.5

* Top five items with highest means; ~five items with lowest means

Table 4

Mean (SD) Ratings of Friendship Network Characteristics for Participants Who Reported Having Friendships

	Female	Male	All	
	Mean *(SD)*	Mean *(SD)*	Mean *(SD)*	Comparison
Number of Friends Disclosed (#)	3.13(3.73)	3.53 (2.45)	3.74 (3.28)	
	1.67(1.37)	1.41 (1.37)	1.39 (1.39)	
Social Support from Friends	14.45(4.16)	16.70 (2.89)*	15.62 (3.65)	15.15-15.42 Sheets & Mohr, 2009 Procidano, 1983

*p<.05; T-test between genders

Table 5

Characteristics of Best Friends and Romantic Partners

	Closest Friend		Romantic Partner	
	Mean (*SD*)	Range	Mean (*SD*)	Range
Demographics of Person Described				
Gender (% male)	31%		90%	
Same Sex (%)	81%		30%	
Opposite Sex (%)	19%		70%	
Difference in Age (years)	1.25 (3.66)	-14 to 4	6.39 (7.96)	-3 to 30
Health-Related Variables				
Disclosed to person (%)	51.2%		63.3%	
Perception peer likes healthy food	85.7%		86.7%	
Perception peer smokes	52.4%		30.0%	
Perception peer uses marijuana	45.2%		30.0%	
Perception peer disapproves of drugs	64.3%		60.0%	
Perception peer has gotten drunk	61.9%		46.7%	
Perception peer disapproves of alcohol	31.0%		33.3%	
Perception peer practices safe sex	77.3%		84.6%	
Perception peer practices unsafe or risky sexual behaviors	31.8%		38.5%	
Peer has sex with many people / multiple sexual partners	27.3%		7.7%	

Table 6

Means of Relationship Characteristics for Best Friends and Romantic Partners

	Closest Friend	Romantic Partner	Adolescent Comparison La Greca & Harrison, 2005	
	Mean (*SD*)	Mean (*SD*)	Closest Friend (Mean)	Romantic Partner (Mean)
Length of Acquaintance (years)	7.51 (6.09)	3.69 (3.79)		
Positive Qualities (NRI)	3.79 (1.12)	4.35 (0.71)	3.95	4.17
Negative Qualities (NRI)	1.73 (0.75)	2.03 (0.99)	1.88	2.00

Table 7

Rates of Health Behaviors in Current Sample as compared to National YRBS sample from 2009

	Male	Female	All	YRBS 2009 Males	YRBS 2009 Females	YRBS 2009 All
Dietary Behaviors						
Percentage that ate fruits and vegetables five or more times a day	44%	21%	29%	24%	21%	22%
Percentage that consumed dairy three or more times a day	12%	6%	8%	20%	9%	15%
Cigarette						
Ever smoked at least 1 cigarette every day for 30 days	15%	41%	24%	12%	11%	11%
Smoked in past 30 days	41%	29%	31%	20%	19%	20%
Marijuana						
Percentage that have used in their life	59%	54%	56%	39%	34%	37%
Percentage that have used in past month	41%	26%	32%	23%	18%	21%
Drinking						
Percentage that had at least one drink of alcohol in lifetime	87%	73%	78%	71%	74%	73%
Percentage that consumed alcohol in past 30 days	60%	47%	51%	41%	43%	42%
Percentage that did heavy drinking in past month (5 or more drinks within a couple of hours)	20%	30%	27%	25%	23%	24%
Sexual Behaviors						
Percentage that did not engage in sex in past 30 days	6%	18%	13%	68%	64%	66%
Percentage that had intercourse or oral sex with at least one person that was not well known to them	65%	29%	42%	Unav		
Percentage engaged in oral sex in past 3 months	94%	57%	70.5%	Unav		
Percentage reporting have had sexual intercourse	93%	100%	96%	46%	45%	46%
Sexual Intercourse with four or more persons	88%	68%	76%	16%	11%	14%
Percentage that used condoms the last time they had sex	88%	82%	84%	69%	54%	61%

Table 8

Hierarchical Multiple Regression Analyses Predicting Servings of Fruits and Vegetables from Positive Relationship Quality, and Perception of whether Peer Eats Healthy Foods

Variables	Friend n=34				Romantic Partner n=30			
	ΔR^2	*B*	*SE B*	β	ΔR^2	*B*	*SE B*	β
Step 1: Sexual Orientation	.02				.01			
Sexual Minority 0=Heterosexual 1=Sexual Minority		0.93	1.18	0.14		0.75	1.33	0.11
Step 2: Quality of relationship	.08				.11			
Sexual Minority		1.45	1.19	0.22		0.51	1.28	0.07
Relationship Quality		-0.58	0.35	-0.30		1.67	0.90	0.34
Step 3: Perception	.06				.05			
Sexual Minority		1.45	1.17	0.22		0.28	1.28	0.04
Relationship Quality		-0.46	0.35	-0.24		1.85	0.90	0.37
Perception		-1.90	1.27	-0.26		2.34	1.85	0.23
Step 4: Quality X Perception	.00				.00			
Sexual Minority		1.45	1.19	0.22		0.29	1.30	0.04
Relationship Quality		-0.46	0.61	-0.23		1.10	3.26	0.22
Perception		-1.91	1.36	-0.26		2.14	2.06	0.21
Quality X Perception		-0.01	0.74	-0.00		0.82	3.40	0.16
	$F(4,29)=1.41$, $p=.26$; $R^2=.16$				$F(4,25)=1.33$, $p=.29$; $R^2=17$			

Table 9

Hierarchical Multiple Regression Analyses Predicting Alcohol from Positive Relationship Quality, Perception of Peer's Use of Alcohol

	Friend n=31				Romantic Partner n=30			
Variables	ΔR^2	*B*	*SE B*	β	ΔR^2	*B*	*SE B*	β
Step 1: Age	.13				.26**			
Age		0.10	0.05	0.35		0.20	0.06	0.51**
Step 2: Sexual Orientation	.03				.01			
Age		0.10	0.05	0.36		0.20	0.07	0.51**
Sexual Minority Status 0=heterosexual 1=sexual minority		-0.30	0.28	-0.18		0.20	0.42	0.08
Step 3: Relationship Quality	.00				.04			
Age		0.10	0.05	0.35		0.19	0.06	0.49**
Sexual Minority Status		-0.27	0.30	-0.17		0.25	0.42	0.10
Relationship Quality		-0.03	0.09	-0.06		-0.35	0.30	-0.20
Step 4: Perception	.02				.03			
Age		0.10	0.05	0.35		0.20	0.07	0.52**
Sexual Minority Status		-0.34	0.31	-0.21		0.10	0.44	0.04
Relationship Quality		-0.03	0.09	-0.07		-0.34	0.29	-0.19
Perception		0.26	0.29	0.16		0.44	0.44	0.18
Step 5: Quality x Perception	.00				.13*			
Age		0.10	0.05	0.35		0.21	0.06	0.54**
Sexual Minority Status		-0.35	0.32	-0.21		0.06	0.41	0.02
Relationship Quality		0.00	0.14	0.01		-0.79	0.33	-0.44
Perception		0.25	0.30	0.16		0.45	0.40	0.18
Quality X Perception		-0.06	0.18	-0.10		1.34	0.57	0.44*
*p<.05; **p<.01	F(5,25)=1.17, p=.35; R^2=.18				F(5, 24)=4.01, p=.009; R^2=.46			

Table 10

Hierarchical Multiple Regression Analyses Predicting Recent Number of Sexual Partners in Past 3 Months from Positive Relationship Quality, Perception of Peer Having Multiple Sexual Partners

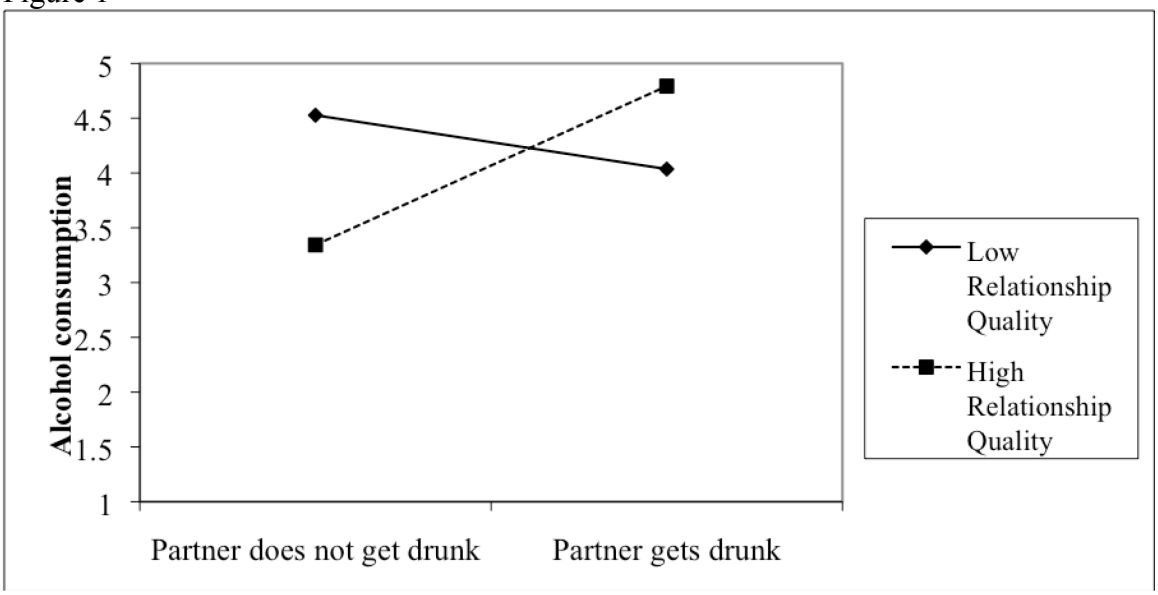
	Friend n=19				Romantic Partner n=11			
Variables	ΔR^2	*B*	*SE B*	β	ΔR^2	*B*	*SE B*	β
Step 1: Sexual Orientation	.11				.20			
Sexual Minority Status		1.10	0.74	0.34		1.75	1.18	0.44
Step 2: Relationship Quality	.00				.00			
Sexual Minority Status		1.04	0.78	0.32		1.83	1.35	0.46
Relationship Quality		0.07	0.27	0.07		-0.15	0.93	-0.05
Step 3: Perception	.26*				.10			
Sexual Minority Status		0.90	0.68	0.28		2.47	1.51	0.62
Relationship Quality		0.21	0.24	0.19		-0.35	0.96	-0.13
Perception		1.69	0.68	0.52*		-1.26	1.29	-0.34
Step 4: Quality x Perception	.29***				.51**			
Sexual Minority Status		0.86	0.51	0.27		4.40	1.01	1.11**
Relationship Quality		-.17	0.21	-0.15		0.21	0.58	0.08
Perception		1.83	0.51	0.57***		-1.28	0.75	-0.35
Quality X Perception		1.36	0.39	0.65***		-5.63	1.47	-0.93**
*p<.05; **p<.01, ***p<.005	$F(4,14)=7.06$, p=.003; R^2=67				$F(4,6)=5.80$, p=.03; R^2=.79			

Table 11

Hierarchical Multiple Regression Analyses Predicting Recent Oral Sexual Partners from Positive Relationship Quality, and Perception of Peer Having Multiple Sexual Partners or Partner engaging in Unsafe Sexual Behaviors

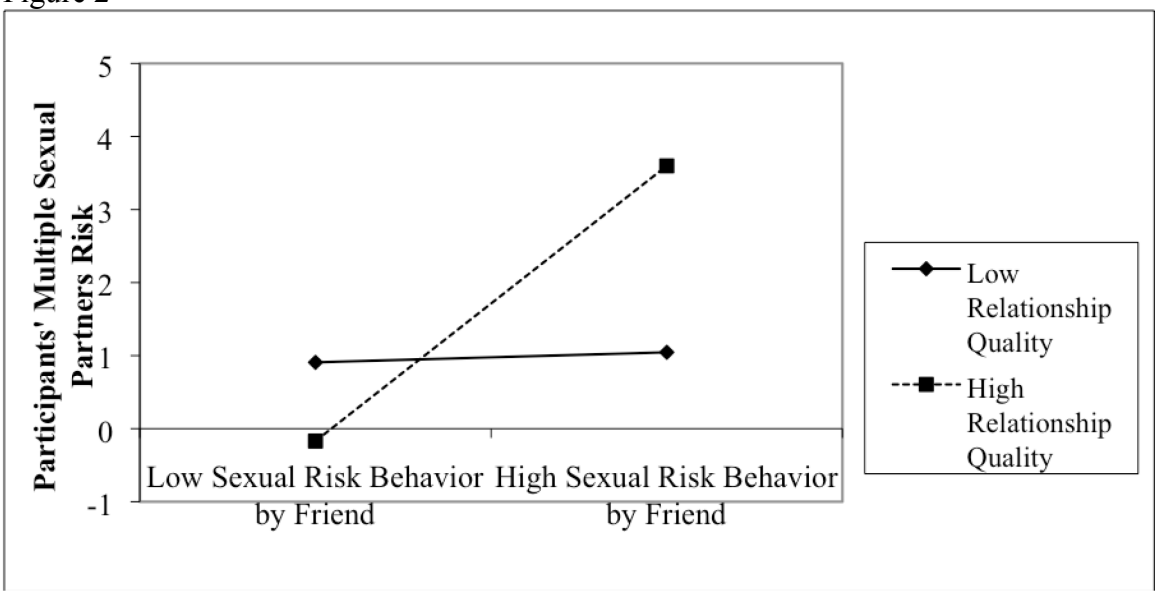
	Friend n=19			
Variables	ΔR^2	*B*	*SE B*	β
Step 1: Sexual Orientation	0.20			
Sexual Minority Status		1.70	0.82	0.45
Step 2: Relationship Quality	0.03			
Sexual Minority Status		1.54	0.85	0.41
Relationship Quality		0.27	0.33	0.18
Step 3: Perception	0.28*			
Sexual Minority Status		1.47	0.70	0.39
Relationship Quality		0.55	0.29	0.38
Perception		2.22	0.75	0.57*
Step 4: Quality X Perception	0.25***			
Sexual Minority Status		1.45	0.51	0.38*
Relationship Quality		-0.02	0.26	-0.01
Perception		2.14	0.54	0.55***
Quality X Perception		1.62	0.42	0.63***
*p<.05, **p<.01, ***p<.005	$F(4,14)=11.37$, $p<.001$.; $R^2=.77$			

Figure 1



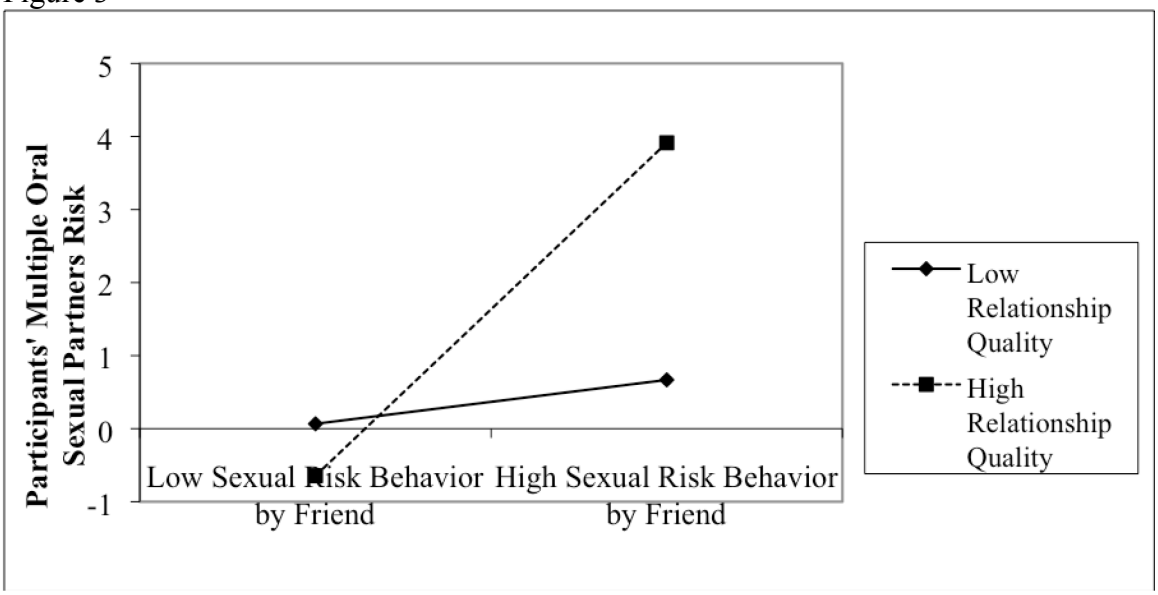
Alcohol consumption in past month: Positive relationship quality as a moderator for the influence of whether romantic partner had high-risk behavior (i.e., got drunk)

Figure 2



Participants sexual partner risk: Positive relationship quality as a moderator for the influence of closest friend's sexual risk behavior (i.e., friend had multiple sexual partners)

Figure 3



Participants' oral sexual partner risk: Positive relationship quality as a moderator for the influence of closest friend's sexual risk behavior (i.e., friend had multiple sexual partners)

Appendix A

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Adulthood

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Directions: the following statements are about how you think about adulthood. Indicate your opinion of the importance of each of the following in determining whether or not a person has reached adulthood.(Tell us how important each of the following is in figuring out whether someone has reached adulthood).

Adult1 | Adult2 | Adult3 | Adult 4

Use this scale: 0=Not at all important 1=Slightly important 2=Quite important 3=Very Important	sou					
1. Financial independence (don't need someone else's money to survive)	sou	0	1	2	3	
2. No longer living in parents' household	sou	0	1	2	3	
3. Finished with education	sou	0	1	2	3	
4. Married	sou	0	1	2	3	
5. Have at least one child	sou	0	1	2	3	
6. Settled into a long-term career	sou	0	1	2	3	
7. Purchased a house	sou	0	1	2	3	
8. Avoid becoming drunk	sou	0	1	2	3	
9. Avoid illegal drugs	sou	0	1	2	3	
10. Have no more than one sexual partner	sou	0	1	2	3	
11. Drive safely and close to the speed limit	sou	0	1	2	3	
12. Avoid swearing, using bad words, or cursing	sou	0	1	2	3	
13. Use contraception (birth control or condoms) if sexually active and not trying to conceive/ have a child	sou	0	1	2	3	
14. Not deeply tied to parents emotionally (not needing to be as close to parents)	sou	0	1	2	3	
15. Reached age 18	sou	0	1	2	3	Done

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Adulthood

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Directions: the following statements are about how you think about adulthood. Indicate your opinion of the importance of each of the following in determining whether or not a person has reached adulthood.(Tell us how important each of the following is in figuring out whether someone has reached adulthood).

Adult1 | Adult2 | Adult3 | Adult 4

Use this scale: 0=Not at all important 1=Slightly important 2=Quite important 3=Very Important	sou					
16. Reached age 21	sou	0	1	2	3	
17. Committed to a long-term love relationship	sou	0	1	2	3	
18. Make independent decisions	sou	0	1	2	3	
19. Make life-long commitments to others	sou	0	1	2	3	
20. If someone is a man, become able to support family financially	sou	0	1	2	3	
21. If someone is a man, become able to care for children	sou	0	1	2	3	
22. If someone is a woman, become able to support family financially	sou	0	1	2	3	
23. If someone is a woman, become able to care for children	sou	0	1	2	3	
24. If a woman, become capable of running a household	sou	0	1	2	3	
25. If a man, become capable of running a household	sou	0	1	2	3	
26. Grow to full height	sou	0	1	2	3	
27. Become biologically capable of bearing children (Woman should be able to become pregnant)	sou	0	1	2	3	
28. Become biologically capable of bearing children (Man should be able to make a baby)	sou	0	1	2	3	
29. Become capable of keeping family physically safe (men)	sou	0	1	2	3	Done

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Adulthood

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Directions: the following statements are about how you think about adulthood. Indicate your opinion of the importance of each of the following in determining whether or not a person has reached adulthood.(Tell us how important each of the following is in figuring out whether someone has reached adulthood).

Adult1 | Adult2 | Adult3 | Adult 4

Use this scale: 0=Not at all important 1=Slightly important 2=Quite important 3=Very Important	sou					
30. Become capable of keeping family physically safe (women)	sou	0	1	2	3	
31. Accept responsibility for your actions	sou	0	1	2	3	
32. Have obtained your driver's license and can drive an automobile	sou	0	1	2	3	
33. Have had sexual intercourse	sou	0	1	2	3	
34. Be employed full time	sou	0	1	2	3	
35. Avoid drunk driving	sou	0	1	2	3	
36. Avoid petty crimes like vandalism and shoplifting	sou	0	1	2	3	
37. Establish a relationship with parents as an equal adult	sou	0	1	2	3	
38. Learn always to have good control of your emotions	sou	0	1	2	3	
39. Become less self-oriented, develop greater consideration for others (Become less selfish and more considerate)	sou	0	1	2	3	
40. Capable of supporting parents financially	sou	0	1	2	3	
41. Allowed to drink alcohol	sou	0	1	2	3	
42. Allowed to smoke cigarettes	sou	0	1	2	3	
43. Completed military services (males)	sou	0	1	2	3	

Done

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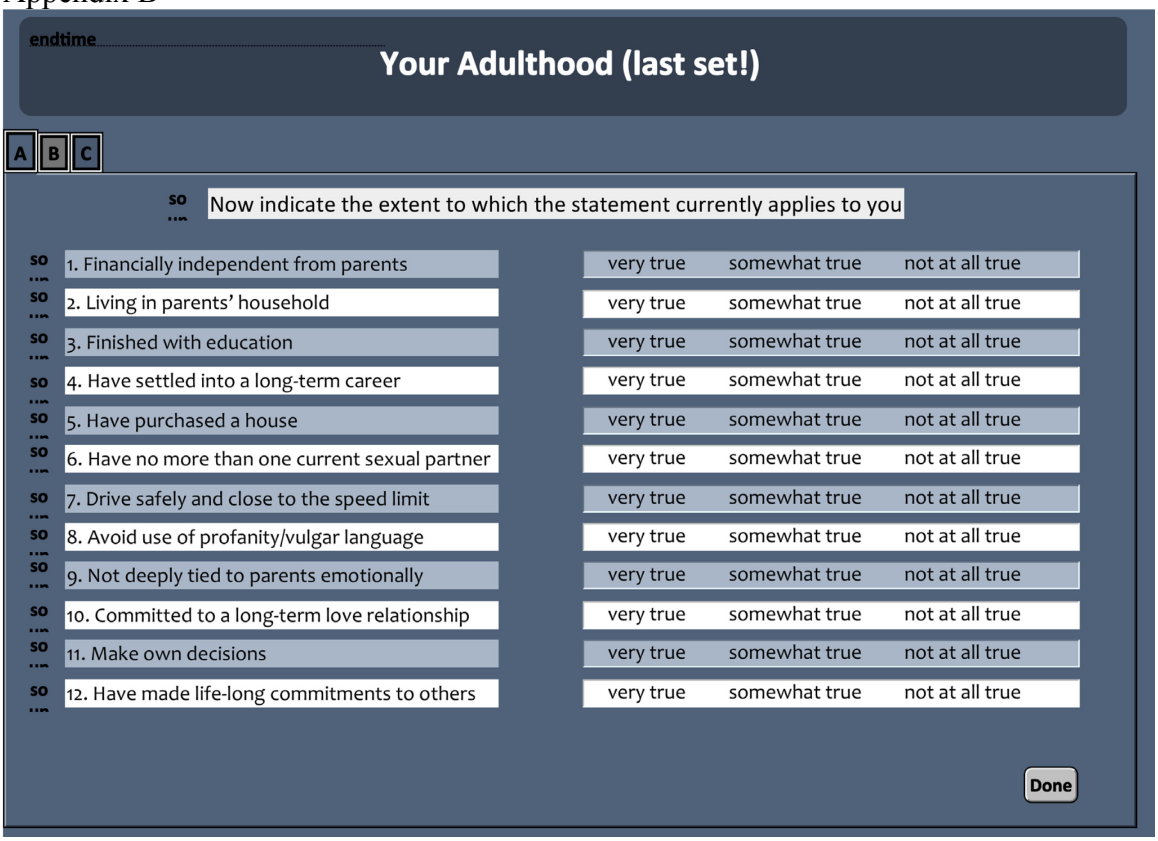
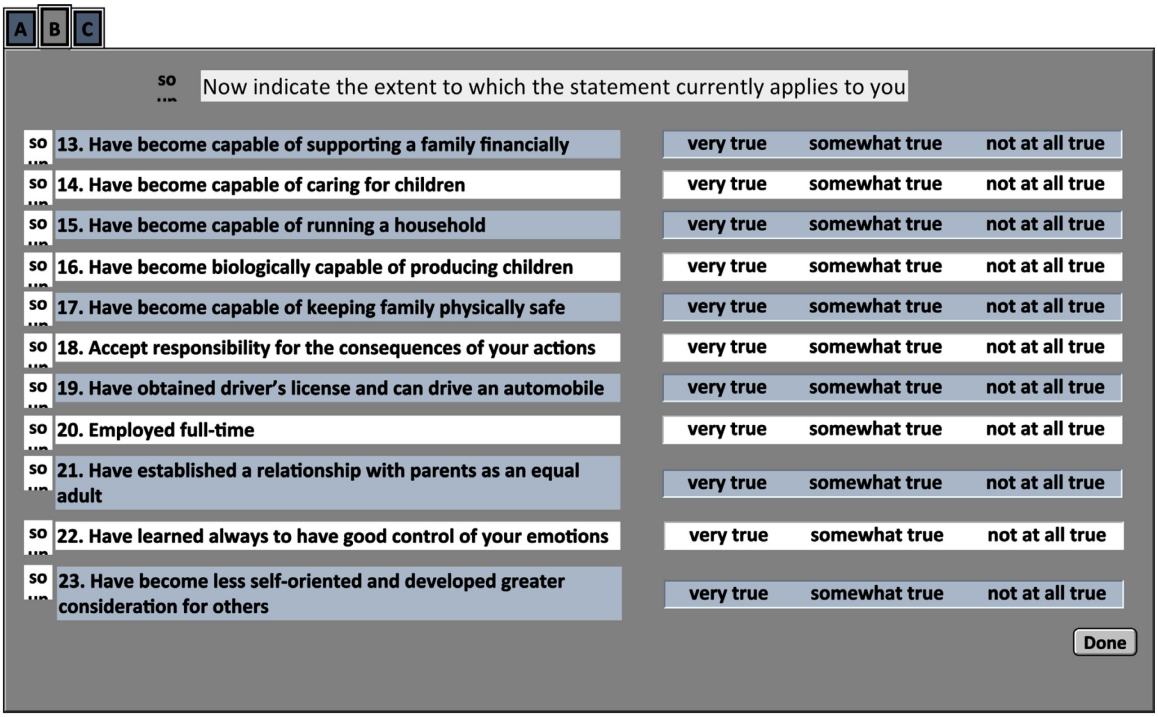
Appendix B





A B C

Now indicate the extent to which the statement currently applies to you

24. Capable of supporting parents financially	very true	somewhat true	not at all true
25. Have served in the military	very true	somewhat true	not at all true
26. Have had sexual intercourse	very true	somewhat true	not at all true
27. Avoid becoming drunk	very true	somewhat true	not at all true
28. Avoid illegal drugs	very true	somewhat true	not at all true
29. Avoid drunk driving	very true	somewhat true	not at all true
30. Avoid committing petty crimes like vandalism and shoplifting	very true	somewhat true	not at all true
31. Use contraception if sexually active and not trying to conceive a child	very true	somewhat true	not at all true

Appendix C

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Now think about all the friends you have…

Directions: The statements which follow refer to feelings and experiences which occur to most people at one time or another in their relationships with friends. For each statement there are three possible answers: Yes, No, Don't Know. Please check an answer for each item.

Questions 21-23 | Questions 1-10 | Questions 11-20

	Yes	No	Don't Know
1. My friends give me the moral support I need.	Y	N	DK
2. Most other people are closer to their friends than I am.	Y	N	DK
3. My friends enjoy hearing about what I think.	Y	N	DK
4. Certain friends come to me when they have problems or need advice.	Y	N	DK
5. I rely on my friends for emotional support.	Y	N	DK
6. If I felt that one or more of my friends were upset with me, I'd just keep it to myself.	Y	N	DK
7. I feel that I'm on the fringe in my circle of friends. (I feel like I'm sometimes almost an outsider in my circle of friends or don't belong in the circle)	Y	N	DK
8. There is a friend I could go to if I were just feeling down, without feeling funny about it later.	Y	N	DK
9. My friends and I are very open about what we think about things.	Y	N	DK
10. My friends are sensitive to my personal needs.	Y	N	DK

Done

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Now think about all the friends you have…

Directions: The statements which follow refer to feelings and experiences which occur to most people at one time or another in their relationships with friends. For each statement there are three possible answers: Yes, No, Don't Know. Please check an answer for each item.

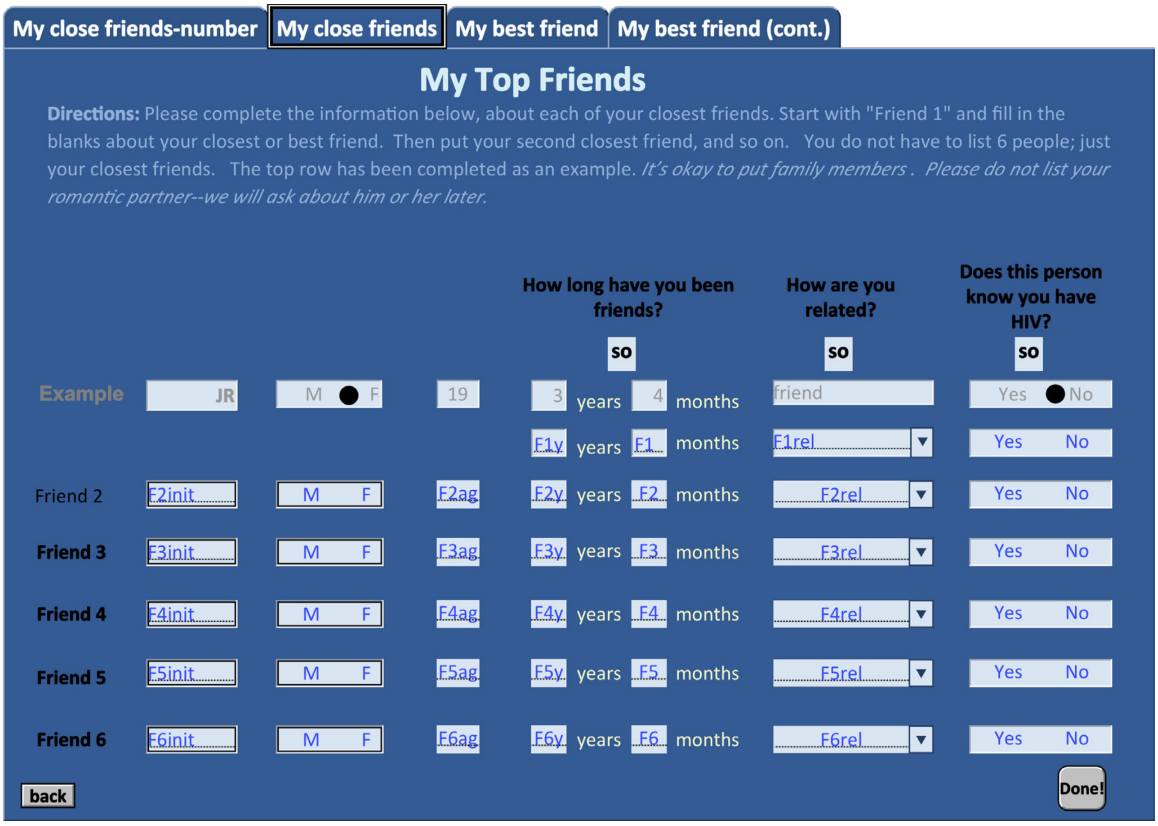
Questions 21-23 | Questions 1-10 | Questions 11-20

	Yes	No	Don't Know
11. My friends come to me for emotional support.	Y	N	DK
12. My friends are good at helping me solve problems.	Y	N	DK
13. I have a deep sharing relationship with a number of friends.	Y	N	DK
14. My friends get good ideas about how to do things or make things from me.	Y	N	DK
15. When I confide in friends, it makes me feel uncomfortable. (Confide means to trust someone and share private matters in secret)	Y	N	DK
16. My friends seek me out for companionship.	Y	N	DK
17. I think that my friends feel that I'm good at helping them solve problems.	Y	N	DK
18. I don't have a relationship with a friend that is as intimate as other people's relationships with friends.	Y	N	DK
19. I've recently gotten a good idea about how to do something from a friend.	Y	N	DK
20. I wish my friends were much different.	Y	N	DK

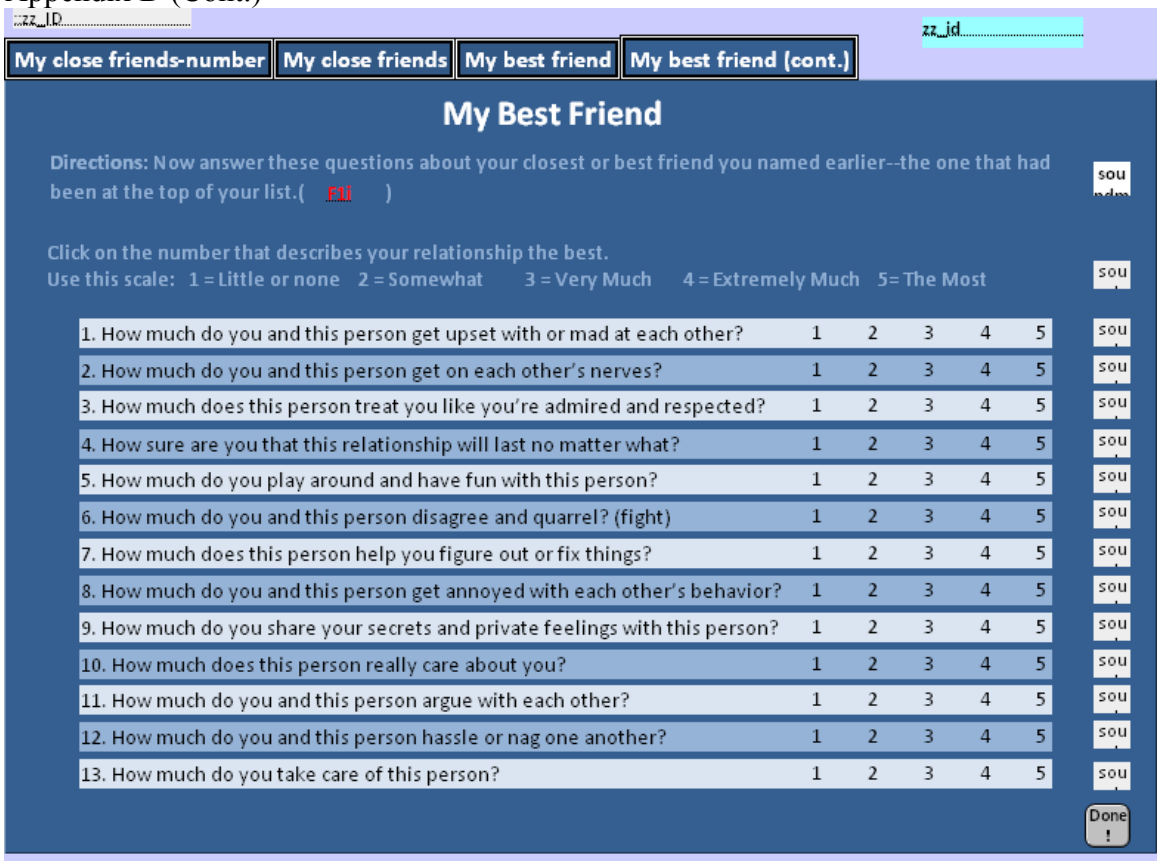
Done

back

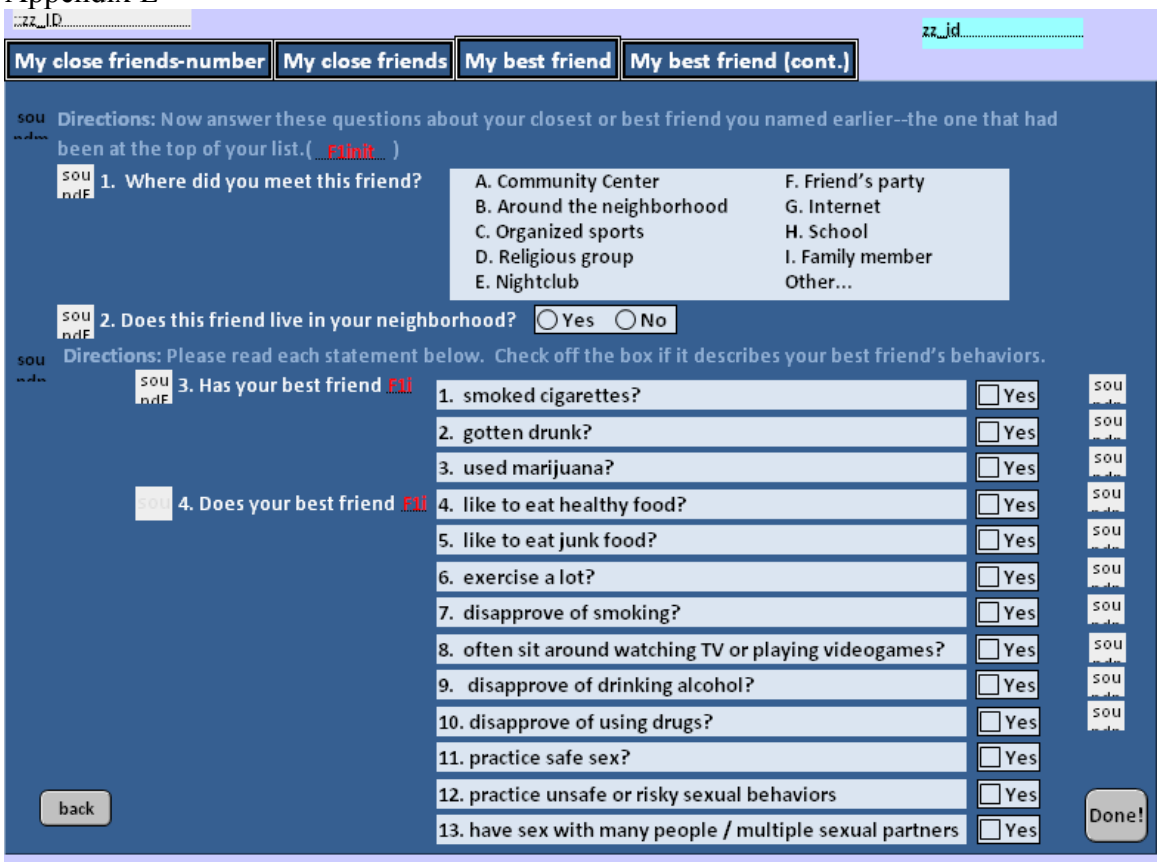
Appendix D



Appendix D (Cont.)



Appendix E



Appendix F