Published in final edited form as:
AIDS Behav. 2007 November ; 11(6): 927–935.

Pregnancy Decisions Among Women with HIV

Shonda M. Craft,
Department of Human Development and Family Science, The Ohio State University, 1787 Neil Avenue, Columbus, OH 43210, USA, e-mail: craft.30@osu.edu

Robin O. Delaney,
Department of Human Development and Family Science, The Ohio State University, 1787 Neil Avenue, Columbus, OH 43210, USA

Dianne T. Bautista, and
Department of Statistics, The Ohio State University, 1958 Neil Avenue, Columbus, OH 43210, USA

Julianne M. Serovich
Department of Human Development and Family Science, The Ohio State University, 1787 Neil Avenue, Columbus, OH 43210, USA

Abstract

Nearly 80% of women currently infected with HIV are of childbearing age. As women of childbearing age continue to be at risk of contracting HIV, there will be an increased need for choices about whether or not to have biological children. The purpose of this exploratory study was to investigate the influence of partners, physicians, and family members on pregnancy decisions, as well as the impact of HIV stigma on these decisions. Results indicated that most women chose not to become pregnant since learning their HIV diagnosis and the woman's age at the time of diagnosis is significantly associated with this decision. Additional factors included fear of transmitting HIV to their child, personal health-related concerns, and desire to have children. Women with a procreative inclination were more likely to choose to become pregnant which outweighed social support and personal health concerns. Implications and suggestions for future research are noted.

Keywords

HIV positive; Pregnancy decisions; Stigma; Women

Introduction

Women account for 44% of all estimated HIV infections worldwide, and the proportion of women infected is rapidly increasing in every geographic region of the United States (Centers for Disease Control, 2005). Over the past 20 years the AIDS epidemic has undergone profound demographic changes within the United States. In fact, in 1985, only 6.5% of newly diagnosed cases of AIDS were among women (CDC, 1986). Twenty years later, this percentage had quadrupled to 26% (CDC, 2005). In 2005, nearly one-third (29.5%) of all new HIV diagnoses were among women (CDC, 2005). It is unlikely that the elevated infection rates of HIV in women will decline anytime soon, as 79% of all new HIV infections between 2000 and 2005 were reported in women between the childbearing ages of 20 and 44 years old (CDC, 2005).

HIV positive women of childbearing age continue to express the desire and commitment to bear children (Richter, Sowell, & Pluto, 2002; Wesley et al., 2000). Many seek to become

Correspondence to: Shonda M. Craft.

pregnant after learning of their diagnosis, or discovering they are HIV positive during their pregnancies. When the desire to become a mother is weighed against the health risks to the woman and her child, the potential for motherhood has been reported as more influential on procreative decisions (Richter et al., 2002).

Many factors influencing HIV-positive women's pregnancy decisions are not different than those influencing non-infected women, such as the need to satisfy a partner's desire to have a child and to experience fulfillment and happiness (Siegel & Schrimshaw, 2001; Sowell, Murdaugh, Addy, Moneyham, & Tavokoli, 2002). The values of American society surrounding motherhood make pregnancy decisions even more complex for HIV-positive women (Ingram & Hutchinson, 2000) and being HIV positive does not diminish women's natural and socialized motherhood values. Women still view reproducing as socially and psychologically fulfilling and desirable (Ingram & Hutchinson, 2000). Traditional gender roles and interpersonal motivation to have children are significantly associated with pregnancy intentions of women who are HIV positive (Sowell et al., 2002). Siegel and Schrimshaw (2001) reported that women with HIV felt a need to justify their desire to have children given the presence of an illness that they could transmit to their children. Examples of such justifications included: God would protect the baby; other women with HIV had healthy babies; AZT would prevent seroconversion; and being "healthy" and young would most likely result in the birth of a healthy child (Siegel & Schrimshaw, 2001).

HIV positive women have also reported a fear of disclosure, both of their own HIV status and of the status of their children (Serovich, Kimberly, & Greene, 1998). As such, HIV-positive women devote a great deal of mental and physical energy to ensuring privacy (Ingram & Hutchinson, 2000). HIV-infected women have legitimate reason to fear disclosing their HIV status as breaches of confidentiality may lead to rejection and discrimination from partners, family members, friends, community members, employers, and health care providers (Serovich et al., 1998). These relationships may be necessary for the economic and emotional survival of the women and their children.

Riley and Greene (1999) estimated that 6,000–7,000 women with HIV will become pregnant and give birth in the United States. In a study of a diverse group of 67 women with HIV, Murphy and colleagues (1998) found that 42% reported having at least one pregnancy since diagnosis. One of the most significant stressors that these women face is whether to terminate a pregnancy. Women who elect to terminate a pregnancy may experience ambivalence and feelings of guilt, loss, and anger. In their study of 403 women, Bedimo and colleagues (1998) reported that 25% of women who became pregnant after their diagnosis voluntarily chose to end the pregnancy through abortion, 59% carried the baby to term, and 16% experienced a miscarriage. Research on influences HIV-infected woman experience which impact their choice to terminate a pregnancy is limited. There has, however, been some examination of women's decisions to continue their pregnancy.

The majority (71%) of women in the aforementioned study by Murphy and colleagues (1998) who had become pregnant after an HIV diagnosis carried the child to term. Two recent studies (Siegel & Schrimshaw, 2001; Sowell et al., 2002) examined intentions of HIV-infected women to become pregnant. Results indicated that women who purposely became pregnant after their diagnosis possessed nine distinct characteristics. They were younger age; had increased motivation for childbearing; decreased perceived threat of HIV; decreased HIV symptomatology; higher traditional gender role orientation; greater avoidance coping; a husband or boyfriend who wanted children; faith in God; and knew other HIV-positive, pregnant women.

Age, relationship status, health status, and previous experience with pregnancy have been correlated not only with pregnancy after diagnosis, but also with pregnancy outcomes (Bedimo et al., 1998; Kline, Strickler, & Kempf, 1995; Sowell, 1997). In one study which compared women who had become pregnant after their HIV diagnosis with women who had not, Kline and colleagues reported that women who became pregnant tended to be younger, less educated, more sexually active, more experienced with pregnancy and abortion, less likely to use contraception, more likely to want future children, more likely to have a partner who wanted a child, and less likely to know their partner's HIV status than women who did not become pregnant.

In an exploratory, qualitative study, Sowell (1997) reported six themes related to reproductive decisions: spiritual and religious beliefs, knowledge and beliefs about HIV, previous experience with childbearing, attitudes of families and sex partners, personal health, and intrapersonal motivation to have a baby. One group of women indicated that they had fulfilled their desire to bear children prior to diagnosis; a second group had experienced the illness or death of a child with HIV and was weary of additional pregnancies; and a third group of women indicated they would continue an accidental pregnancy, but they had no particular desire to become pregnant.

Medical technology has been developed to assist women infected with, or at risk for, HIV in their reproductive options. The value of an HIV diagnosis during pregnancy, via routine prenatal testing, is emphasized by recent evidence that elective caesarian section (Anonymous, 1999), single dose nevirapine (Guay et al., 1999; Musoke et al., 1999), and abbreviated regimens of zidovudine prophylaxis (Shaffer et al., 1999; Shapiro et al., 1999; Wade et al., 1998) can reduce risk of perinatal transmission of HIV. Few studies have measured the effect of health status on the decision to become pregnant. Bedimo and colleagues (1998) reported that CD4 count was significantly correlated with subsequent pregnancy. Subsequent pregnancy was also associated with being young, single, living with a family member, and having a history of sexual assault. Subsequent sterilization was also significantly associated with CD4 count, being over age 22, having one or more living children, having a previous live birth, and not cohabitating. Although women reported a small number of abortions, subsequent abortion was associated with being White and not being single, having a history of sexual assault, and cohabitating.

In addition to personal and demographic factors, husbands, sex partners, significant others (Kline et al., 1995; Siegel & Schrimshaw, 2001; Wesley et al., 2000), family members (Wesley et al., 2000), medical providers (Wesley et al., 2000), and other women with HIV (Siegel & Schrimshaw, 2001) have been identified as playing a significant role in pregnancy decisions. For some women, serostatus was not the main influence on their pregnancy decisions (Bedimo et al., 1998; Richter et al., 2002; Sowell et al., 2002; Wesley et al., 2000) nor did it dictate what to do if they had an unplanned pregnancy (Richter et al., 2002).

Purpose of the Research

The beliefs about having a healthy baby, the personal desire and partner's desire to have a baby, as well as social expectations for women to procreate, all combined with the social stigma that accompanies HIV, places women who are HIV positive in a double bind. As increasing numbers of women are living with HIV infection, the outlook for treatment and survival is changing rapidly. Due to better therapies, there has been an increased life span for HIV-positive women. As a consequence, this disease now presents long-term, life challenging circumstances. It is known that our society has negative views towards women who are HIV positive but very little is known about the pregnancy decisions of these women and what influences those decisions, especially among HIV positive women living in the Midwest. Therefore, the purpose

of this study was to explore decisions about pregnancy for women with HIV living in the Midwest. This included not only the choice of whether or not to become pregnant, but also decisions about termination of pregnancy. In addition, we were interested in the influence of family members, friends, and medical personnel on these pregnancy decisions. Lastly, we wanted to examine the role of HIV stigma in the decisions to become pregnant and to maintain a pregnancy. The three main research questions were: What were the pregnancy-related decisions made by the women since their HIV diagnosis; what factors or influences were dominant, if any, in the woman's decision-making process to become pregnant or not terminate a pregnancy and does HIV stigma in particular, affect a woman's choice to become pregnant?

Methods

Participants

Participants for this study came from a larger, longitudinal study of HIV disclosure and mental health. Eligibility requirements for the larger study were minimal. Participants must have been women who were HIV-positive or had AIDS and were age 18 or older at the time of enrollment. To be included in this investigation a woman must have been within the childbearing ages of 14–45 when diagnosed and completed all relevant questionnaires. A total of 81 women completed the questionnaire but only 74, or 91%, met the criteria for inclusion in the data analysis.

There were two types of recruitment sites for this study. The first recruitment venues were large medical facilities associated with a large Midwestern university medical center. The second were non-profit AIDS Service Organizations (ASOs) in the three largest metropolitan areas of the state, which deliver comprehensive case management services, including social support, mental health, housing, and advocacy for those living with HIV/AIDS. Recruitment strategies varied only slightly depending on the site. A research nurse at the medical facilities provided women with a project summary sheet when they attended their regular medical appointments. Case managers at the ASOs provided women with a project summary sheet when they attended their regularly scheduled case management appointments. Additionally, flyers were posted in the waiting and interview rooms at each facility. Because of the diversity of recruitment strategies employed a refusal to participate rate could not be computed. All participation was voluntary and refusal to participate or dropping out of the study did not endanger or compromise participants' treatment at any of the sites.

Participants completed an initial interview and questionnaire to begin the study. Between each yearly wave of data collection, participants filled out a questionnaire every six months for 3 years. Project personnel hired for this study, primarily doctoral family therapy students, conducted all interviews and assessments under the direction of the Principal Investigator or Post-doctoral research fellow. Data utilized for this study were solicited through self-completed questionnaires.

Participants were primarily African American (70.4%) women between the ages of 18 and 63 (M = 38.1 years, SD = 9.6) and received their diagnosis between the age of 15 and 58 (M = 32). These women contracted HIV from unsafe sexual practices (90%) and the length of time since HIV diagnosis ranged from less than 1 month to 16 years (M = 6.2 years, SD = 3.7). The sample was divided between partnered (33%), single/divorced/widowed (53%) and dating (13.6%). Only 18.8% of the participants were employed, and reported an average monthly income of $1,407. Among these women, 30.4% completed high school, 34.6% were either in college or had some college credit and 7.4% had a college degree.

Measures

Pregnancy Motivations Questionnaire (PMQ)—This self-report measure was author derived from an extensive literature review conducted by the investigators. The majority of studies found were qualitative and their findings were summarized into major themes of influences. The investigators compiled influences and factors from all studies and created a quantitative measure. The information gathered in this review resulted in 13 items, which measured factors, influences, motivations, and concerns reported by women who are HIV positive regarding their thoughts about pregnancy. Women rated each of the items using a Likerttype scale from 0 "*not influential*" to 5 "*very influential*", where higher scores indicated greater influence of the item on a woman's decision to become pregnant.

An exploratory factor analysis using Principal Components Analysis for extraction and varimax rotation suggested a four-factor solution accounting for 73% of the common variance. Variable loadings surpassing the 0.45-cut-off were used in naming the factors. Consequently the factors were interpreted as: (1) societal influences (4 items: media representation of HIV, societal expectations of women, public attitudes toward HIV, attitudes or experiences of women with HIV; α = .86), (2) personal health concerns (3 items: fear of transmitting HIV to the child, personal experience with previous pregnancies, personal health related concerns; α = .79), (3) social support network (3 items: friends, family members, medical personnel; α = . 80), and (4) procreative predisposition (2 items: personal desire to have children, current or past partner; α = .74). The final item regarding spirituality significantly loaded on two factors, and was not considered for the final data analysis.

Stigma—Perceived stigma was measured with the HIV Stigma Scale (Berger, Ferrans, & Lashley, 2001). The self-report instrument has 40 items measured on a five point Likert-type response set ranging from (1) strongly disagree to (5) strongly agree. Higher values indicate greater agreement with the item. Summative scores were calculated for each subscale and the total scale. Means and standard deviations of each subscale were as follows: personalized stigma (18 items; $M = 43.9$, $SD = 10.7$, α = .93) (e.g., Most people with HIV are rejected when others find out); disclosure (10 items; $M = 29.5$, $SD = 6.2$, α = .88) (e.g., Telling someone I have HIV is risky); negative self-image (13 items; $M = 32.0$, $SD = 8.6$, α = .93) (e.g., I feel guilty because I have HIV); and public attitudes (20 items; $M = 54.8$, $SD = 11.8$, α = .93) (e.g., People with HIV lose their jobs when their employers find out).

Results

Given that aging imposes constraints on a woman's natural ability to conceive, succeeding analyses were controlled for age at HIV diagnosis. For simplicity, and to enable significance tests in the comparisons, the sample was divided into two groups with the boundary set at 30 years at time of diagnosis, roughly the median age for this sample. Fifty-one percent were 18–30% and 49% were 31–45 years.

The majority (82.4%) of women in this study indicated having had at least one child, and 58% reported having two or more children. In terms of lifetime pregnancy history, 62% of the women indicated they had experienced pregnancy prior to their diagnosis. Of these women, 30.4% had carried a pregnancy to term, 32.6% received their diagnosis during pregnancy, and 32.6% had been pregnant since receiving their diagnosis. Overall, 29.6% of the total sample had become pregnant since receiving their diagnosis.

Pregnancy-Related Decisions Since HIV Diagnosis

Our findings revealed that the majority of women chose not to become pregnant since their diagnosis. In fact, since diagnosis, only 25.7% of the women chose to become pregnant,

regardless of whether they actually became pregnant. Among women aged 30 and under, 39.5% chose to become pregnant while only 11.1% did among women over 30. Thus, younger women were more likely to choose pregnancy compared with older women (Fisher's exact test, df = 1, $P < 0.01$). Among those women who received their diagnoses during pregnancy (20%), most (81%) chose to terminate their pregnancies. In contrast, only 5.4% of women who had become pregnant since being diagnosed as HIV positive decided to terminate a pregnancy.

Influential Factors On Pregnancy Decisions

Women in this study were asked to quantify the influence that each item listed on the PMQ had in their decision-making process concerning pregnancy-related issues. Results of a factor analysis revealed 4 factors: personal health-related concerns, societal influences, social support network, and procreative predisposition. Overall, personal health related concerns, including fear of transmitting HIV to a child, were found to be the most consistently cited in all decision-making instances. The factor also included personal experience with previous pregnancies and individual state of health. Influences from society and the social support network were generally weaker but present nonetheless. Societal expectations of women, media depiction of, and public attitudes towards HIV were relatively less prominent. Regarding the support network, family and friends were rated as least influential but not the medical personnel. Women reported discussing matters of pregnancy more often with physicians (39.2%) than family (25.7%). In addition, medical personnel emerged as a distinct influence among women who decided to terminate a pregnancy. The 'procreative predisposition' was also an active influence. Among women who chose to become pregnant, and even among women who decided to terminate, the desire to bear a child was specially pronounced. Additionally, women discussed pregnancy issues most often with their partners (55.7%).

A closer examination revealed that the age at diagnosis was found to have an effect on what factors were perceived as influential. Women who were diagnosed under age 30 were affected to a greater extent by all the factors compared with women who were diagnosed at a later age. This was observed particularly in the case of societal influences, social support network, and procreative predisposition. These influences were relatively weak in the older group. The differences were statistically significant ($F = 2.063$, $P \leq 0.05$) (Table 1).

A binary logistic regression was performed to assess the effects, if any, of the four previously identified factors on a seropositive woman's choice to become pregnant. The response was coded 1 if the woman chose to become pregnant and was 0 otherwise. The model also included age at HIV diagnosis as one of the independent variables. The dependent variable in the model is the logarithm of the odds that a woman chooses to become pregnant. Controlling for age, results indicated that stronger influences by personal health and society resulted in lowered odds that a woman chooses to become pregnant following an HIV diagnosis. All other factors held fixed, the model predicts a decrease of 33% in the expected odds in favor of pregnancy per unit increase in the factor score of 'health-related concerns.' This means that the greater the fear of HIV transmission to the child or the greater the concern on personal health issues, the more likely a woman is to choose not to become pregnant. The model likewise associates a decrease of 10% in the expected odds for every unit increase in the factor score of 'societal influences.' Being more strongly affected by public attitudes, media's portrayal of HIV or society's expectations of women, tended to diminish the likelihood of opting for pregnancy. The effect of this factor is notably the least among all four. In contrast, the model predicts a 46.2% increase in the odds of choosing to become pregnant per unit increase in procreative predisposition. Therefore, holding all other factors constant, a strong personal desire to have children or strong partner influence is associated with an affirmative choice for pregnancy. The model also predicts a 32.7% increase in the expected odds in favor of pregnancy for every unit increase in the 'social support network' factor score. The significant contribution of the support

network is solely due to the strong influence of medical personnel; this result does not contradict the earlier finding that family members and friends were minimally influential. The model correctly predicted 75.8% of cases, roughly a 25% improvement in the prediction by a model of chance alone. The model fit was statistically adequate ($X^2 = 3.673$, df = 8, $P \geq 0.10$).

Effects of HIV Stigma On Women's Choice to become Pregnant

A binary logistic regression was performed to investigate if HIV stigma affects a woman's pregnancy decision. The explanatory variables were age at diagnosis, and the 4 subscales of the HIV Stigma Scale. According to the model, higher levels of negative self-image and personalized stigma were associated with greater odds of a woman choosing pregnancy. Women who reported a more negative self-image would have a 6.7% increased odds of choosing to become pregnant, while the odds of pregnancy increased by 14.8% if women reported greater personalized stigma. In contrast, higher levels of disclosure and public attitudes stigma were associated with lower odds of pregnancy. This means that high levels of disclosure-related stigma would produce an 18.6% decrease in the odds of a woman with HIV choosing to become pregnant, and women with greater public attitude stigma would experience a 6.3% decrease in the odds of choosing pregnancy. As with the previous regression analysis, model fit was judged to be statistically adequate ($X^2 = 15.29$, df = 8, $P \geq .05$). Here 71% of the cases were correctly classified, indicating a 21% improvement over a model that predicted by chance alone.

Discussion

The purpose of this study was to explore the pregnancy decisions among a sample of women with HIV living in the Midwest. There were 3 research questions of interest. The first addressed general decision-making trends, and results indicated that most women chose not to become pregnant since learning their HIV diagnosis. In addition, women who received their diagnosis during pregnancy chose not to terminate. Distinct age differences were present among women who chose to become pregnant, as 51% of these women were diagnosed before age 30. These results suggest that a woman's age at the time of seropositive diagnosis would significantly influence her choice to become pregnant.

These results are important for medical and social service personnel who work with HIV-positive pregnant women or those who seek assistance with pregnancy decisions. Bedimo and colleagues (1998) reported that women with HIV who chose to continue their pregnancies did so, in part, with an intention to continue or begin HIV medications. If this is true, pregnancy offers an important intervention opportunity. Several researchers have suggested that HIV pharmacotherapy may be a viable and beneficial option for women who want to complete their pregnancies subsequent to an HIV diagnosis. The results of this study emphasize the importance of HIV-positive women of child bearing age receiving quick and accurate information about pregnancy and neonatal HIV transmission. Younger women in particular need to be aware of their options and discuss these openly with their physician. In addition, these results emphasize the need for pregnant women to be tested for HIV, and to subsequently be provided with information on neonatal transmission of HIV.

The second research question explored possible influential factors on women's decisions to become pregnant. The predominant factors among all women were the fear of transmitting HIV to their child, personal health-related concerns, and desire to have children. These results also varied by age, as women who were diagnosed before age 30 reported they were more strongly influenced by each of these factors than women who received their HIV diagnosis after age 30. Similar personal characteristics were reported in previous studies (Siegal & Schrimshaw, 2001; Sowell et al., 2002) for women with HIV who had deliberately chosen to become pregnant. Clearly, a woman's age, as well as her motivation to have children, plays a

significant role in subsequent decisions to become pregnant; however, for the women in this study, an HIV diagnosis did not dampen the appeal of motherhood. The opinions of family members, friends, and the media were outweighed by personal desires and concerns for those women who chose to become pregnant.

Medical personnel were more influential upon the decision to terminate a pregnancy than the choice to become pregnant. It is unclear whether this effect is related to specific medical information that is relayed to patients, or if patients are more influenced by the personal opinions, beliefs, and values of their medical personnel. The relative impact of medical personnel who treat women at-risk or currently infected with HIV has important implications for future research. Women diagnosed with HIV during pregnancy have been reported to have inconsistent or delayed contact with medical personnel (Butz et al., 1993; Ickovics, Forsyth, Ethier, Harris, & Rodin, 1996), which could negatively impact their personal health as well as the health of their unborn child. Therefore, more research is needed to examine the content of reproductive discussions between physicians and patients.

The role of intimate partners in the pregnancy decisions of these women was interesting. Among women who chose to terminate a pregnancy, the influence of a current or past partner outweighed the woman's personal desire to have children; however, these results were reversed among women who had not terminated a pregnancy. These results have implications for clinicians who work with couples because the relative influence of intimate partners during and after pregnancy is not clear. For some women, intimate relationships may be necessary for economic and emotional survival. Therefore, they may choose not to disclose their HIV status to their sexual partners out of fear of abandonment, rejection, and violence. Women who choose to terminate a pregnancy in order to appease their partners may experience significant resentment and/or regret, and these feelings may have a negative impact on their intimate relationships. However, these same feelings may be present among women who choose to continue a pregnancy, dependent upon the level of emotional support they actually receive from their partners throughout the pregnancy and after delivery. Additional research is needed to examine the impact of pregnancy and subsequent childbearing on the intimate relationships of women with HIV.

The remaining research questions addressed the odds of a woman choosing to become pregnant based on the 4 identified factors and HIV stigma. Women with a procreative inclination were more likely to choose to become pregnant, and this factor outweighed social support and personal health concerns. This finding implies that women with HIV are strongly influenced by their desire to bear children, and that this desire overshadows the input and presence of family members, friends, partners, and even a woman's concerns for her own health. However, the strength of influence exerted by societal factors is not clear. All of the results regarding influential factors should be interpreted with caution, given the use of an author-derived instrument that has not been tested for validity or reliability.

The results also supported the significant influence of HIV stigma. Specifically, women who reported higher levels of personalized stigma and negative self-image were more likely to choose to become pregnant. This may be a result of wanting to give birth to have someone to love or to love them back. They may decide to get pregnant to add value to their lives and to fulfill their desire to be a mother regardless of the internal stigma they experience. It is equally plausible that women perceive pregnancy as a visible means of projecting a non-infected status. Counter to this argument; however, is the fact that women who reported higher levels of stigma from external sources, such as public attitudes or stigma related to disclosing their HIV status, were less likely to choose to become pregnant. Women who experienced external stigma may be more concerned about how others view them and, therefore, deny their personal desires and do not get pregnant in order to avoid society's thoughts of them as being cruel, callous, or

deviant. Interestingly, a search of the literature revealed no other studies investigating this phenomenon and should be considered by future researchers.

The findings of this research should be considered within the context of several methodological limitations. One limitation of this study lies in the sampling procedure. Women who self-selected to enroll in the study may differ from other women in a number of ways. That is, they may be more disclosive, more comfortable with their HIV status or more connected to HIV-related services. This suggests a possible self-selection bias. A second limitation was presented by the PMQ, as this measure was author-derived and had no comparison data for reliability or validity. The retrospective measure may not have fully captured the social, interpersonal, or medical factors that influenced decisions regarding pregnancy. Disclosure behaviors, financial stress, religious orientation, and access to contraceptives are additional factors that may be particularly salient in decisions regarding pregnancy; however, none of these factors were examined in the current study. Further research is needed not only to expand the reliability and validity of the measure, but also to elucidate additional factors which may significantly influence the reproductive decisions of women with HIV.

Conclusion

Heterosexual women of childbearing ages represent the fastest rising at-risk group for HIV infection. The results of this study suggest that women chose not to become pregnant post diagnosis and the woman's age at the time of diagnosis is significantly associated with this decision. Additional factors included fear of transmitting HIV to their child, personal health-related concerns, and desire to have children. Women with a procreative inclination were more likely to choose to become pregnant which outweighed social support and personal health concerns. Clinicians should be aware of these issues and cognizant that patients and clients may be struggling with pregnancy related decisions. Accurate information delivered by informed professionals could be both helpful and reassuring to women.

Acknowledgements

This work was funded by a grant from the National Institutes of Mental Health (R01MH62293). We thank the women who participated in this study.

References

Anonymous. Elective caesarian-section versus vaginal delivery in prevention of vertical HIV-1 transmission: A randomized clinical trial. The European Mode of Delivery Collaboration. Lancet 1999;353:1035–1039. [PubMed: 10199349]

Bedimo AL, Bessinger R, Kissinger P. Reproductive choices among HIV positive women. Social Science Medicine 1998;46:171–179. [PubMed: 9447641]

Berger BE, Ferrans CE, Lashley FR. Measuring stigma in people with HIV: Psychometric assessment of the HIV stigma scale. Research in Nursing and Health 2001;24:518–529. [PubMed: 11746080]

Butz AM, Hutton N, Joyner M, Vogelhut J, Greenberg-Freedman D, Schreibeis D, Anderson JR. HIV-infected women and infants: Social and health factors impending utilization of health care. Journal of Nurse-Midwifery 1993;38:103–109. [PubMed: 8492188]

Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report: Year-end edition, 1985. Atlanta, GA: 1986.

Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report. Atlanta, GA: 2005.

Guay LA, Musoke P, Fleming T, Bagenda D, Allen M, Nakabiito C, Herman JS, Bakaki P, Ducar C, Deseyve M, Emel L, Mirochnick M, Fowler MG, Mofenson L, Miotti P, Dransfield K, Bray D, Mmiro F, Jackson JB. Intrapartum and neonatal single-dose Nevirapine compared with Zidovudine for prevention of mother-to-child transmission of HIV-1 in Kampala Uganda. Lancet 1999;354:795. [PubMed: 10485720]

Ickovics JR, Forsyth B, Ethier KA, Harris P, Rodin J. Delayed entry into health care for women with HIV: Implications of time of diagnosis for early medical intervention. AIDS Patient Care 1996;10:21–24.

Ingram D, Hutchinson SA. Double binds and the reproductive and mothering experiences of HIV-positive women. Qualitative Health Research 2000;10(1):117–132. [PubMed: 10724748]

Kline A, Strickler J, Kempf J. Factors associated with pregnancy and pregnancy resolution in HIV seropositive women. Social Science Medicine 1995;40:1539–1547. [PubMed: 7667658]

Murphy DA, Mann T, O'Keefe Z, Rotheram-Borus MJ. Number of pregnancies, outcome expectancies, and social norms among HIV infected young women. Health Psychology 1998;17:470–475. [PubMed: 9776006]

Musoke P, Guay LA, Bagenda D, Mirochnick M, Nakabiito C, Fleming T, Elliott T, Horton S, Dransfield K, Pav JW, Murarka A, Allen M, Fowler MG, Mofenson L, Hom D, Mmiro F, Jackson JB. A phase I/II study of the safety and pharmacokinetics of nevirapine in HIV-1 infected pregnant Ugandan women and their neonates. AIDS 1999;13:479–486. [PubMed: 10197376]

Richter DL, Sowell RL, Pluto DM. Factors affecting reproductive decisions of African American women living with HIV. Women and Health 2002;36(1):81–96.

Riley LE, Greene MF. Elective caesarean delivery to reduce transmission of HIV. New England Journal of Medicine 1999;340:1034.

Serovich JM, Kimberly JA, Greene K. Perceived family member reactions to women's disclosure of HIV-positive information. Family Relations 1998;47:15–22.

Shaffer N, Chuachoowong R, Mock PA, Bhadrakom C, Siriwasin W, Young NL, Chotpitayasunondh T, Chearskul S, Roongpisuthipong A, Chinayon P, Karon J, Mastro TD, Simonds RJ. on behalf of the Bangkok Collaborative Perinatal HIV Transmission Study Group. Short-course Zidovudine for perinatal HIV-1 transmission in Bangkok, Thailand: A randomized controlled trial. Lancet 1999;353:773–780. [PubMed: 10459957]

Shapiro MF, Morton SC, McCaffrey DF, Senterfitt JW, Fleishman JA, Perlman JF, Athey LA, Keesey JW, Goldman DP, Berry SH, Bozzette SA. Variations in the care of HIV-infected adults in the United States: Results from the HIV Cost and Services Utilization Study. Journal of the American Medical Association 1999;281:2305–2315. [PubMed: 10386555]

Siegel K, Schrimshaw EW. Reasons and justifications for considering pregnancy among women living with HIV/AIDS. Psychology of Women Quarterly 2001;25:112–123.

Sowell R. Decisions to have a baby by HIV-infected women. Western Journal of Nursing Research 1997;19:56–69. [PubMed: 9030038]

Sowell RL, Murdaugh CL, Addy CL, Moneyham L, Tavokoli A. Factors influencing intent to get pregnant in HIV-infected women living in the southern USA. AIDS Care 2002;14(2):181–191. [PubMed: 11940277]

Wade NA, Birkhead GS, Warren BL, Charbonneau TT, French PT, Wang L, et al. Abbreviated regimens of zidovudine prophylaxis and perinatal transmission of the human immunodeficiency virus. New England Journal of Medicine 1998;339:1409–1414. [PubMed: 9811915]

Wesley Y, Smeltzer SC, Redeker NS, Walker S, Palumbo P, Whipple B. Reproductive decision making in mothers with HIV-1. Health Care for Women International 2000;21:291–304. [PubMed: 11813776]

Table 1

Mean influence ratings of factors affecting the pregnancy decisions among women with HIV

Influences	**Total (*n* = 74) Mean (*SD*)**	**Under 30 (*n* = 38) Mean (*SD*)**	**Over30 (*n* = 36) Mean (*SD*)**
Factor: General health status			
Fear of transmitting HIV to child	3.28 (1.7)	3.76 (1.5)	2.74 (1.7)
Personal health-related concerns	3.05 (1.6)	3.39 (1.5)	2.69 (1.7)
Personal experience with previous pregnancies	2.44 (1.6)	2.86 (1.6)	2.00 (1.5)
Factor: Procreative disposition			
Personal desire to have children	2.76 (1.6)	3.14 (1.6)	2.35 (1.6)
Current or past partner	2.45 (1.6)	2.79 (1.6)	2.06 (1.5)
Factor: Social support network			
Medical Personnel	2.52 (1.5)	2.78 (1.4)	2.23 (1.5)
Family members	1.96 (1.3)	2.26 (1.4)	1.63 (1.0)
Factor: Societal influences			
Attitudes or experiences with women with HIV	2.38 (1.4)	2.70 (1.4)	2.03 (1.3)
Public attitudes towards HIV	2.14 (1.4)	2.58 (1.5)	1.66 (1.1)
Societal expectations of women	2.11 (1.4)	2.39 (1.5)	1.79 (1.4)
Media representation of HIV	1.99 (1.2)	2.16 (1.3)	1.79 (1.2)
Friends	1.80 (1.2)	1.78 (1.2)	1.82 (1.1)