

Published in final edited form as:

Womens Health Issues. 2014 ; 24(6): 620–628. doi:10.1016/j.whi.2014.06.007.

“When you get old like this ... you don’t run those risks anymore”: Influence of age on sexual risk behaviors and condom use attitudes among methamphetamine- using heterosexual women with a history of partner violence

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Introduction

Midlife/older aged women (45+ years) represent 25% of newly diagnosed HIV cases among women in the United States (Center for Disease Control and Prevention [CDC], 2012). This proportion is comparable to that of younger women aged 35–44 (25%), aged 25–34 (29%), and aged 13–24 (22%), yet little attention has been devoted to this vulnerable group (CDC, 2012). Older individuals are more likely than younger individuals to be diagnosed with HIV later in the course of their disease (CDC, 2013). While an HIV diagnosis after age 45 may reflect disease progression from an earlier age, additional risk factors such as drug use and partner violence (PV) may also contribute to HIV risk (Mack & Ory, 2003; Mugavero, Castellano, Edelman, & Hicks, 2007; Stockman, Ludwig-Barron, Hoffman, Ulibarri, & Dyer, 2012). Until recently, HIV risk factors and prevention strategies unique to midlife/older drug-using women with experiences of PV have been overlooked.

HIV/AIDS diagnoses in midlife/older populations may be the result of late testing, lack of knowledge on HIV risk factors, few targeted education programs, and lack of communication between patients and medical professionals (Levy, Ory, & Crystal, 2003; National Institute on Aging [NIA], 2009). Midlife/older women engage in sexual activities well into their 70's and 80's, but may not utilize prevention methods due to declining fertility or impotence experienced by an intimate partner (Lindau et al., 2007; Sherman, Harvey, & Noell, 2005; Zablotsky & Kennedy, 2003). Research has shown that sexual risk behaviors (e.g., sex while under the influence of alcohol and/or drugs, unprotected sex) for midlife/older women are similar to those of younger aged women (Minkin, 2010; Engstrom, Shibusawa, El-Bassel, & Gilbert, 2011). Although sexual risk behaviors are similar for both groups, the rationale for engaging in these behaviors is different (e.g., midlife/older women less likely to reproduce, physiologically difficult for older men to use condoms). Additionally, midlife/older women have lower HIV knowledge, perception of personal risk, condom use, and negative attitudes toward prevention methods compared to younger women (Henderson et al., 2004; Lindau, Leitsch, Lundberg, & Jerome, 2006; Neundorfer, Harris, Britton, & Lynch, 2005). This may be attributed to midlife/older women being widowed or divorced and subsequently having new sexual relationships without knowledge and awareness of practicing safe sex compared to younger women (CDC, 2013).

Physiological and immunological manifestations associated with the natural aging process may also heighten the risk for HIV in midlife/older women (Johnson et al., 2008; Minkin, 2010). During menopause, women experience reductions in reproductive hormone levels

(e.g., estrogen, progesterone) that physically alter sex organs (e.g., vaginal dryness, reduced vaginal canal elasticity, thinning vaginal mucosa), increasing midlife/older women's risk for vaginal tearing and abrasions during intercourse (Bachmann & Leiblum, 2004; Minkin, 2010). Coital friction during sex may also irritate and inflame the fragile vaginal epithelium, creating a suitable environment for viral transmission. Additionally, the natural decline of women's immunological responses and defense mechanisms increase susceptibility to HIV (Bachmann & Leiblum, 2004; Minkin, 2010).

Recent attention has focused on the intersection of drug use and PV as an additional HIV risk factor for midlife/older women. Accumulating evidence suggests that the relationship between drug use and PV is bidirectional, whereby drug use can lead to PV through impaired judgment and conflicts related to sharing drugs with sex partners, and PV can lead to drug use through its use as a coping mechanism to deal with the consequences of trauma (Cohen et al., 2003; Cohen, Greenberg, Uri, Halpin, & Zweben, 2007; El-Bassel, Gilbert, Witte, Wu & Chang, 2011). Of particular concern is methamphetamine (MA) use due to its ability to increase sexual arousal, reduce inhibitions around safe sex and injection practices, and intensify aggressive behaviors, in turn increasing HIV risk (Cohen et al., 2003; Cohen et al., 2007; Corsi & Booth, 2008; Lorvick, Martinez, Gee, & Kral, 2006). HIV risk factors identified among MA-using women include unprotected sex, high-risk sex partners, and STIs (Cheng et al., 2009; Molitor, Truax, Ruiz, & Sun, 1998; Semple, Grant & Patterson, 2004). Additionally, 58–80% of MA-using women have reported physical or sexual violence by an intimate partner and MA use has been found to be associated with PV among diverse groups of women (Kramer, Borders, Tripathi et al., 2012; Cohen et al., 2007; Watanabe-Galloway, Ryan, Hansen, Hullsiek, Muli, & Malone, 2009; Sheridan, Bennett, Coggan, Wheeler, & McMillan, 2006).

MA use is the primary drug of choice in San Diego, CA (Burke & Howard, 2013), the setting for the current study. Once known as the MA capital of the U.S., San Diego continues to exhibit high rates of MA use (Burke & Howard, 2013). Over 70% of MA illegally transported over the Mexican border passes through San Diego ports of entry (US Department of Justice, 2011). In San Diego, MA-related emergency room admissions increased by nearly 13% between 2011 and 2012, while the number of unintentional deaths associated with MA use increased 27% between 2011 and 2012 (County of San Diego, 2013).

While several studies draw attention to individual risks associated with HIV in women, little is known regarding older women's HIV risk perceptions, knowledge, and condom use self-efficacy in the context of drug use and PV. Though the definition of midlife/older women varies in the scientific community, the current study uses 45 years as the age cut-off, the average age of perimenopause when immunologic and physiological changes arise (Johnson et al., 2008; Neundorfer et al., 2005). Utilizing emergent themes from qualitative data and review of the literature, we hypothesized that midlife/older MA-using women (ages 45+) with experiences of PV will show no difference in sexual risk behaviors when compared to younger women (ages 18–44). Secondly, midlife/older women will have lower levels of HIV knowledge, lower condom use self-efficacy, and less positive attitudes toward HIV prevention methods compared to younger women. Such knowledge is critical to effectively

guide age-specific HIV prevention efforts for women, especially in the context of MA use and PV.

Methods

Study Design

Our study employed a sequential mixed methods design using quantitative baseline data from an HIV behavioral intervention trial (*FASTLANE-II*) and qualitative interviews from an embedded sub-study (*Women's Study*). Thematic analysis of the qualitative data from *Women's Study* informed a secondary quantitative analysis of midlife/older women's sexual risk behaviors, HIV knowledge, and condom use attitudes from *FASTLANE-II*. Both studies were approved by the [name of IRB blinded for peer review], and study participants provided written informed consent.

Quantitative Data Collection

FASTLANE-II was an intervention trial targeted towards 432 HIV-negative, heterosexual MA-using men (n=223) and women (n=209) in San Diego, CA with the goal of decreasing sexual risk, MA use and depressive symptoms. Study procedures for *FASTLANE-II* have been previously described (Semple, Grant, & Patterson, 2005; Semple, Zians, Grant, & Patterson, 2005). Briefly, eligible participants were 18 years, HIV-negative, heterosexual, used MA at least twice in the two months prior to screening, and reported unprotected sex in the past two months. All participants underwent testing to confirm their HIV-negative serostatus using OraSure HIV-1 Oral Collection Specimen Device (Gallo, George, Fitchen, Goldstein, & Hindahl, 1997). All women testing negative for HIV at baseline were tested at three subsequent follow-up visits (i.e., 4-, 8-, and 12-month follow-up assessments). Baseline data were collected through audio computer-assisted self-interviews. Participants were compensated \$30 and provided consent to be contacted for future studies.

The current analysis examines baseline data from a subset of female participants who reported experiences of physical or sexual PV since the age of 18. Partners were defined as spouse or steady (i.e., boyfriends), casual (e.g., one night stand), or anonymous/stranger at the time of the violent experience. The number of women reporting PV (n=154) represents 74.6% of the *FASTLANE-II* sample.

Qualitative Data Collection

Women's Study purposively recruited MA-using women who reported PV from *FASTLANE-II* to explore experiences and attitudes toward HIV prevention methods. Eighteen women were recruited via phone using a standard script to explain study participation, and appointments were scheduled at the familiar *FASTLANE-II* study site. At the time of the current study, *FASTLANE-II* was in its final year of data collection. *Women's Study* participants had completed their final follow-up visit for *FASTLANE-II* between one month and three years prior to their qualitative interview (either in the control or intervention group). Although all women who completed the baseline interview for *FASTLANE-II* were active MA users, 6 were no longer using MA at the time of their qualitative interviews.

Semi-structured interviews were conducted by female interviewers, including the Principal Investigator and two graduate research assistants, with extensive experience working with vulnerable populations. Audio recorded interviews lasted 30–90 minutes and participants were compensated \$25. Interviewers wrote field notes to summarize topics and capture the physical and mental condition of the participant. Audio recordings were transcribed verbatim and evaluated for quality control purposes. Biweekly discussions determined that we had reached conceptual saturation, whereby additional interviews would not elicit new information.

Quantitative Study Measures

Sociodemographic characteristics included race/ethnicity, marital status, and educational attainment. All HIV sexual risk factors were self-reported and spanned two-months prior to the baseline interview to reduce recall bias. *Presence of an STI* was based on a series of questions to assess the occurrence of gonorrhea, chlamydia, syphilis, genital/anal warts or herpes, chancroids or trichomoniasis. *Median number of sex partners* was inclusive of spouse, live-in partner, steady partners, casual partners and anonymous sex partners. The following sexual risk behaviors were examined for 1) spouse, steady or live-in partner and 2) casual and anonymous partners: *engaging in sex with an HIV-positive or unknown serostatus partner, having unprotected sex while high on MA, substance use before or during sex, and unprotected anal and vaginal sex*. *HIV knowledge and attitudes* draws upon constructs from the Theory of Planned Behavior to evaluate knowledge, self-efficacy, positive outcome expectancies, positive attitudes, and perceived social norms using scales that were developed and applied to similar populations (Mausbach, Semple, Zians, Patterson, & Strathdee, 2007; Mausbach, Semple, Strathdee, & Patterson, 2009). *HIV knowledge* was evaluated using the Carey & Schroder HIV-HQ-18 (2002) (Cronbach's alpha=0.68). *Condom use self-efficacy and positive outcome expectancies* were evaluated using a 4-point scale (Cronbach's alpha=0.92 and 0.81, respectively); whereas, *positive attitudes towards HIV prevention behaviors and perceived social norms* were based on a 5-point scale (Cronbach's alpha=0.90 and 0.92, respectively).

Data Analysis

Qualitative analysis and codebook development involved team members reading through selected transcript excerpts independently and generating a list of codes based on the interview guide (i.e., deductive) and emergent themes (i.e., inductive). Analysts coded each transcript and met regularly to discuss and refine codes as needed. MAXQDA[®] 10 (VERBI, Marburg, Germany) was used to manage and analyze transcript data and interviewer notes in an integrated system. Representative quotes from midlife/older women were selected and all names were converted into pseudonyms to protect participants' identities.

Qualitative analysis yielded discussions on the age-related differences in sexual activity, condom use, and attitudes towards HIV prevention methods. Qualitative findings prompted a review of the literature and generated hypotheses, which we further explored in a secondary quantitative data analysis. Participants in both studies were stratified by age to assess the association between age and sexual risk behaviors, HIV knowledge, and attitudes towards HIV prevention methods. Univariate analyses provided descriptive statistics and

multivariate logistic regression analysis examined factors independently associated with age group, adjusting for sociodemographics. Variables significant at the < 0.20 level using Fisher's exact test for dichotomous variables and Wilcoxon Rank Sum test for non-parametric continuous variables were included in the multivariate logistic regression model. Variables that were significant at the < 0.05 level were retained for the final model. Model fit was determined using the Akaike Information Criterion. SAS[®], Version 9.3 (SAS Institute, Cary, North Carolina), was used to conduct data analyses.

Results

Older women represented 33.3% and 21.4% of the qualitative and quantitative samples, respectively. Demographic characteristics were similar in both qualitative and quantitative samples, with the exception of MA use in the past two months (Table I). Although all women in both samples reported ever using MA, only 11 of the 18 women in the qualitative sample reported using MA in the past two months; all of the women in the quantitative sample reported current use (due to the inclusion criteria for *FASTLANE-II*). Other types of drugs ever used by women in the qualitative and quantitative sample included cocaine (22% and 73%, respectively) and heroin (17% and 30%, respectively). Although we did not ask women enrolled in *Women's Study* about their lifetime frequency of HIV testing, half of the 18 women stated that they had been tested for HIV at some point prior to their qualitative interview. It was unclear whether or not these women were referring to HIV testing during their participation in *FASTLANE-II* since all women subsequently enrolled in *Women's Study* were tested for HIV at four different time points during *FASTLANE-II*. Analysis of qualitative interviews (n=18) yielded three emergent themes related to midlife/older women's experiences and HIV risk: physiological determinants, HIV transmission knowledge, and "dodging the bullet," which captures participants' uncertainty surrounding their HIV status as a result of unsafe drug practices and sexual risk behaviors.

Physiological Determinants of HIV Risk Behavior

Women discussed physiological characteristics that develop with age in men and women that influenced their condom nonuse. Some described vaginal dryness, loss of vaginal channel elasticity, discomforts during sexual intercourse, and male impotence. For Charlotte, a 57-year old African American woman, age brought on vaginal dryness and discomfort, prompting her to use lotion to mitigate symptoms. Though she has been diagnosed with herpes and syphilis, she was uncertain about using condoms in the future as it interfered with sexual pleasure. Gloria, a 49-year old Latina, explains how impotence affects men her age, which is one of the challenges in using condoms:

"When you are in the heat of the moment, you know, just like really and you don't get it that often... I'm not gonna tell him, 'Wait a minute. I'll be back [to get a condom].' No because it's gonna go down, you know [he will lose his erection]... Not unless the guy's under 30, then you can just seize the moment just, you know, get aroused again. But when they get older ..."

In addition to male physiological changes, five out of six midlife/older women reflected on using condoms at an earlier age as a family planning method, but were no longer concerned

with pregnancy and perceived condoms as unnecessary. Overall, midlife/older women expressed less positive attitudes towards condom use.

HIV/STI Transmission Knowledge

Similar HIV misconceptions were noted with two women in the context of safer sex practices. Carol, a 54-year old African American woman, and Gloria choose not use condoms and attribute their HIV-negative status to their partner selection process. They base their decisions largely on physical appearance, hygienic practices, life experiences, and ability to control sexual acts. In the following passage, Gloria explains condom use as necessary for younger women because of their inexperience in selecting partners and willingness to try novel sex acts. Alternatively, experienced midlife/older women have moved beyond this curious phase and are more critical when selecting partners:

“A young girl’s not gonna have that boldness in her to where she’s gonna tell the guy. She’s gonna let him get, do what [he wants], ya know. So she’s gonna be protected. Know what I mean? But um uh like uh not all women are picky, like I am... It’s different for an older woman.”

Though Gloria believes her partner selection strategy and sexual experience have kept her safe, several of her previous partners have been unfaithful, physically abusive, and inject drugs, which put her at risk for HIV. The combination of sexual and drug risk behaviors, without experiencing serious consequences, and lack of HIV knowledge could increase midlife/older women’s HIV risk.

Dodging the Bullet

All midlife/older women described their potential for contracting HIV in the past through sex work, forced sex, unsafe drug practices, physical violence and unprotected sex. Several expressed uncertainty around their future HIV status, but thought they had reached an age where they were less vulnerable. Martha, a 47-year old Latina, engaged in sex work to support herself and her injection drug use. She described daily unprotected sex acts with multiple clients, being gang-raped twice, sharing needles with clients to avoid withdrawal symptoms, and having unprotected sex to secure drugs or housing. Martha was uncertain as to how she managed to “dodge the bullet,” or avoided contracting HIV, but she was concerned that she may test positive in the future as a result of her previous risk-taking:

“I’ll probably be paying the price for that [unprotected sex and needle sharing] for who knows how long, you know. So, hopefully nothing turns up later, you know. Guess we’ll find out.”

Recently, she engaged in unprotected transactional sex with a partner other than her spouse during a period of unemployment and suspects her spouse does the same, illustrating HIV risk-taking for her age group. Similarly, Betty, a 48-year old White woman related her past MA use to sexual risk-taking with multiple partners. Though she understands the link between HIV risk behaviors and disease acquisition, she currently chooses not to use prevention methods because she is menopausal, has tested negative to this point, and believes that she has “aged-out” of HIV risks. Charlotte, who engaged in sex work up until her late 40’s and traded sex for money and drugs, characterized most of her partners as

active drug users. She described waking up multiple times naked after a night of heavy drug use, which she concluded as rape. Following each rape incident, Charlotte was tested for HIV, which has yielded negative results thus far. At the time of her interview, Charlotte was mandated to attend a residential drug rehabilitation program for multiple drug possession charges and mentioned she does not currently use condoms in her relationships to avoid “drama” and to increase sexual pleasure. Thus, midlife/older women with histories of sexual risk-taking, violence, and MA use who have consistently tested negative for HIV have a lower perceived risk because of their age and different attitudes towards prevention methods compared with younger women.

Quantitative Sample Characteristics

Of 154 women, 21.4% were aged 45–63 (midlife/older) and 78.6% were aged 18–44 (younger) (Table 2). Over half of the midlife/older (51.4%) and younger (64.5%) women were ethnic minorities. Fewer midlife/older women had never been married compared to younger aged women (24.2% vs. 51.2%, $p=0.03$). In addition, fewer midlife/older women had less than a high school education compared to their counterparts (12.1% vs. 34.7%, $p=0.03$). Most women reported an annual income less than \$20,000 (87.9% and 91.7% of midlife/older and younger women, respectively).

Sexual Risk Behaviors

Compared to younger women, midlife/older women less frequently reported having an STI in the past two months (9.1% vs. 19.8%, $p=0.20$), but reported having a higher median number of sex partners (median 4, interquartile range [IQR] 0–6 vs. median 2, IQR 1–4; $Z=1.37$, $p=0.18$). No significant differences were found between age group and several sexual risk behaviors: sex with an HIV-positive or unknown status steady partner or spouse, unprotected sex while high on MA in the past two months, consuming alcohol or drugs before or during sex in the past two months, unprotected vaginal sex with steady and casual partners, and unprotected anal sex with steady and casual partners.

Knowledge and Attitudes

Compared to younger women, midlife/older women were more likely to report lower self-efficacy for condom use ($\chi^2=2.87$ vs. 3.19, $t=2.24$, $p=0.03$), lower positive outcome expectancies for condom use ($\chi^2=1.9$ vs. 2.1, $t=2.05$, $p=0.04$) and have lower HIV knowledge ($\chi^2=85.3\%$ vs. 89.7%, $t=2.00$, $p=0.05$). No significant differences were found for positive attitudes towards HIV prevention behaviors and perceived social norms towards HIV prevention behaviors.

Multivariate Analysis

After adjusting for sociodemographics, midlife/older age remained significantly associated with lower condom use self-efficacy (AdjOR: 0.49; 95% CI: 0.27, 0.87) and lower HIV knowledge (AdjOR: 0.96; 95% CI: 0.93, 0.99) (Table 3).

Discussion

While findings are consistent with recent studies suggesting that midlife/older women remain sexually active and are just as likely as their younger counterparts to engage in high-risk sexual behaviors (Engstrom, et al., 2011; Kwiatkowski & Booth, 2003; Theall, Elifson, Sterk, & Klein, 2003; Zablotsky & Kennedy, 2003), our research further highlights how midlife/older women's HIV risk is shaped by low levels of HIV prevention knowledge and condom use self-efficacy and exacerbated by experiences of MA use and PV. Quantitative findings indicate 75–80% of midlife/older women reported being high on MA during unprotected sex with various partner types, while our qualitative sample attributed their inability to engage in safer sex to being under the influence of drugs, having sexual partners who refused condom use, avoiding violence perpetrated by male partners, age-related physiological characteristics (e.g., impotence, vaginal dryness) and feeling they had “aged out” of HIV risks. Research has consistently shown that women in abusive relationships have limited or compromised ability to negotiate condom use and have lower sexual relationship power in determining when sexual acts take place, especially when drugs are used prior to a sexual encounter (Campbell et al., 2008; Gielen et al., 2007; Maman, Campbell, Sweat, & Gielen, 2000). In addition, receiving an HIV negative diagnosis following an abusive relationship, which occurred for a few women in our qualitative sample, can reinforce HIV risk behaviors that put midlife/older women at risk for HIV.

Lower self-efficacy for condom use and lower HIV knowledge may be due to a woman's inability to request condoms in an abusive relationship. For midlife/older women, this may also be due to lack of awareness around HIV risk factors and less exposure to effective HIV/AIDS prevention programs that address the needs of sexually active midlife/older women (Campbell et al., 2008; Ward, Disch, Schensul, & Levy, 2011; Zablotsky, 1998). Midlife/older women in the quantitative sample had lower HIV knowledge, which also emerged during qualitative interviews with midlife/older women discussing common misconceptions. Specifically, women discussed the ability to determine a partner's HIV status by his physical appearance. This may reflect the lack of HIV prevention programs for midlife/older women, lack of communication between healthcare providers and patients, and/or reinforcement of HIV behavioral risks following an HIV-negative test. Current prevention campaigns targeting heterosexual couples often promote condom use as a means to prevent STIs and pregnancy; however, these messages may lack effectiveness among midlife/older women who are often less concerned about pregnancy. In addition, medical professionals are often reluctant to discuss sexual health, drug use history and experiences of PV during patient visits (Zablotsky & Kennedy, 2003). However, avoiding these discussions leaves many midlife/older women with limited information on sexual health and preventative behaviors.

Additionally, our findings demonstrate that midlife/older MA-using women with experiences of PV are just as likely to engage in high-risk sexual behaviors as their younger counterparts, though contextual factors varied (e.g., reduced fertility, physiological changes). Women in the qualitative sample conveyed uncertainties around knowing their HIV serostatus after years of engaging in sexual and drug risk behaviors. Though most midlife/older women decreased their drug use and were engaging in less sexual activity, there were still times where their current behaviors mirrored that of their youth, especially

during times of hardship. The combination of being menopausal, receiving an HIV-negative test result, and reducing sexual and drug use practices led most midlife/older women to believe that they had “aged-out” of HIV risks, yet some of their intimate partners were younger and had similar histories of unsafe drug use and sexual practices. Thus, midlife/older women with histories of sexual risk-taking and MA use who have consistently tested negative for HIV have a lower perceived risk because of their age and have different attitudes towards prevention methods compared to their younger counterparts.

Finally, our results highlight women’s HIV risk throughout the lifecourse in the context of MA use and experiences with PV. Engaging in sex while high, trading sex for drugs, and experiences of rape within a context of MA use while young puts women at risk for HIV early on, but can also have lasting psychological consequences. Even as midlife/older women wondered how they “dodged the bullet” and remained HIV-free, they continued to engage in risky behaviors (e.g., unprotected sex with “safe” partners) and at times found their ability to use condoms compromised, particularly if partners used drugs or were abusive. Additionally, sporadic MA use among midlife/older women can heighten women’s risk due to MA’s common effects of sexual arousal combined with a lack of concern about getting pregnant, including with risky sexual partners. Furthermore, accumulated lifetime experiences of MA use and PV appeared to have worn some women down in that it was easier to engage in unprotected sex to avoid conflict. Taken together, such risks could largely be justified because of a common feeling that they aged out of the highest risk period of their lives anyway, which negative HIV tests reinforced.

This study has several limitations. This was a community-based sample of MA-using women with experiences of PV, reporting at least one recent incident of unprotected sex; therefore, study findings are not generalizable to non-drug using women, women without experiences of PV, or women who have not engaged in recent unprotected sex. However, given the paucity of research focused on vulnerable women with co-occurring HIV risks, study findings can be used to expand our current state of knowledge on the sexual health of aging populations and substantiate the need for future prevention research studies targeting midlife/older drug-using women. Additionally, women enrolled in *Women’s Study* had already participated in a larger HIV behavioral intervention trial (*FASTLANE-II*) that may have influenced knowledge and attitudes towards HIV prevention methods, specifically for those assigned to the intervention group. However, we believe that the intervention influence was minimal, since findings indicate lower HIV knowledge and condom use self-efficacy for midlife/older women. Moreover, findings highlight ways we can build upon the *FASTLANE-II* intervention to address age-specific needs. Engaging in unprotected sex at least once in the two months prior to screening for *FASTLANE-II* was part of the inclusion criteria and may have affected our findings in that there were no observed differences in sexual risk behaviors between age groups (i.e., high proportion of women reporting this risk behavior in both groups). However, although bivariate analysis showed that there were no significant differences in sexual risk behaviors between midlife/older and younger women, nine out of the fourteen sexual risk categories showed higher proportions of midlife/older women’s involvement in specific sexual risk behaviors (e.g., unprotected sex while high on MA with a casual/anonymous partner, alcohol use before/during sex). Finally, the parent

study aims and the in-depth interview guide were not specifically designed to explore age-related differences, but rather these themes emerged after conducting several qualitative interviews, which led to further exploration into the existing literature and the use of quantitative data from the parent study. While additional research designed to specifically address these questions will be required, the flexible nature of our mixed methods design was crucial in revealing a phenomenon that may have been otherwise overlooked.

Implications for Practice and/or Policy

Our findings are timely and have particular relevance to the aging baby-boom generation in the United States. With a rapidly aging population, we can expect to see an increase in the number of midlife/older women seeking HIV-related services (NIA, 2009). However, many of these women may encounter limited age-specific resources and clinicians who overlook experiences of PV, substance use and sexual risk behaviors. As women approach menopause, clinicians should transition into emphasizing HIV/STI risks associated with sexual partners, while information surrounding drug-related transmission factors should be discussed across all age groups. Our qualitative findings suggest that HIV prevention programs targeting this population should address physiological changes associated with aging while including ways to make sexual activity more pleasurable. Program developers should incorporate a wellness component to increase immunological response mechanisms, work to increase sexual intimacy with an impotent partner, suggest ways to mitigate sexual discomfort (e.g., vaginal dryness), and aim to dispel HIV misconceptions. Furthermore, programs targeting this high-risk population should follow CDC National HIV Screening Recommendations (2006) by offering routine screenings up to age 64 through reduced or no cost service providers, coupled with a prevention education component that addresses the unique needs of midlife/older women.

New evidence suggesting HIV prevention interventions address PV and substance use, including couples-based approaches or boundary setting, could benefit from incorporating age-specific elements (El-Bassel et al., 2003). While our study findings indicate midlife/older women with experiences of PV and drug use display similar sexual risk profiles as their younger counterparts, they possess different HIV-related knowledge and attitudes. As such, interventions should address the lack of communication between patients and medical professionals, late testing among midlife/older women, physiological barriers associated sexual activity in an aging population, and alternatives to safe drug use or drug treatment, in order to promote the maximal HIV risk reduction for this vulnerable population.

Acknowledgments

FUNDING DISCLOSURE STATEMENT

This study was supported by the National Institute of Mental Health (R01MH061146, R25MH080664, and R25MH080665), National Institute on Drug Abuse (R25DA025571, K01DA031593, K01DA031031, T32DA023356), the National Institute of Minority Health and Health Disparities (L60MD003701), and the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (R01HD077891), all part of the National Institutes of Health. The first author was supported by the Hispanic-Serving Professions Schools (HSHPS) (1MCPMP1010308-01-00) and extends a special thanks to Serena Ruiz.

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Table 1

Characteristics of Study Participants in Women's Study (Qualitative) and FASTLANE-II (Quantitative)

Characteristic	Women's Study n=18 n (%)	FASTLANE-II n=154 n (%)
Mean age (range), years	41.2 (26–57)	36.6 (18–63)
Age 18–44, years	12 (66.7)	121 (78.6)
Age 45+, years	6 (33.3)	33 (21.4)
White	7 (38.8)	59 (38.3)
African American	6 (33.3)	39 (25.3)
Latina	4 (22.2)	33 (21.4)
Asian/Other	1 (5.5)	23 (14.9)
Lifetime physical PV only	5 (27.8)	77 (51.7)
Lifetime sexual PV only	1 (5.5)	14 (9.4)
Lifetime physical & sexual PV	12 (66.7)	58 (38.9)
Currently in an abusive relationship (past 2 months)	3 (16.7)	48 (31.1)
MA only	8 (44)	2 (1.4)
MA and marijuana	1 (5.5)	111 (75.0)
MA and prescription drugs**	1 (5.5)	1 (0.7)
MA, marijuana and prescription drugs	1 (5.5)	34 (23.0)
MA	18 (100)	154 (100)
Marijuana	4 (22.2)	151 (98.1)
Cocaine	4 (22.2)	112 (72.7)
Heroin	3 (16.7)	46 (29.9)
Prescription drugs**	2 (11.1)	70 (47.0)

PV, partner violence; MA, methamphetamine

* Drug categories are mutually exclusive. Drug use timeframe for Women's Study included previous two months and timeframe for FASTLANE-II included one month prior.

** Prescription drugs refer to any non-medical use of prescription drugs, which includes tranquilizers, barbiturates, ketamine and gamma-Hydroxybutyric acid (GHB).

Table 2

Demographics, Sexual Risk Behaviors, Knowledge and Attitudes of Heterosexual, MA-using Women with a History of Partner Violence in San Diego, CA

Baseline Characteristic	Age 44 yrs (n=121)	Age 45 yrs (n=33)	Total (n=154)	Test statistic	P-value	Unadjusted OR (95% CI)
<i>Racial Group</i>						
White (ref)	43 (35.5%)	16 (48.5%)	59 (38.3%)	N/A	0.555	-
African American/Black	32 (26.5%)	7 (21.2%)	39 (25.3%)			0.75 (0.30–1.89)
Hispanic/Latino	28 (23.1%)	5 (15.1%)	33 (21.4%)			0.59 (0.21–1.68)
Other	18 (14.9%)	5 (15.1%)	23 (14.9%)			1.02 (0.35–3.00)
<i>Marital Status</i>						
Never Married (ref)	62 (51.2%)	8 (24.2%)	70 (45.5%)	N/A	0.031	-
Married	10 (8.3%)	3 (9.1%)	13 (8.4%)			1.11 (0.29–4.29)
Separated/Filing for Divorce	18 (14.9%)	8 (24.2%)	26 (16.9%)			1.83 (0.72–4.69)
Divorced/Widowed	31 (25.6%)	14 (42.4%)	45 (29.2%)			2.14 (0.60–7.77)
<i>Current Living Situation</i>						
Living w/ spouse or sexual partner (ref)	30 (24.8%)	2 (6.1%)	32 (20.8%)	N/A	0.067	-
Living w/ another adult or other	60 (49.6%)	20 (60.6%)	80 (51.9%)			1.56 (0.71–3.43)
Living alone	16 (13.2%)	4 (12.1%)	20 (13.0%)			0.91 (0.28–2.92)
Homeless	15 (12.4%)	7 (21.2%)	22 (14.3%)			1.90 (0.70–5.14)
<i>Employment</i>						
Currently Employed (ref)	27 (22.3%)	3 (9.1%)	30 (19.5%)	N/A	0.135	-
Unemployed	94 (77.7%)	30 (90.9%)	124 (80.5%)			3.48 (0.10–1.23)
<i>Education</i>						
< High school diploma/GED (ref)	42 (34.7%)	4 (12.1%)	46 (29.9%)	N/A	0.035	-
High school diploma/GED	35 (28.9%)	13 (39.4%)	48 (31.2%)			1.60 (0.72–3.56)
College Level ^a	44 (36.4%)	16 (48.5%)	60 (40.0%)			1.65 (0.76–3.58)
<i>Annual Income</i>						
<\$10,000–\$19,000 (ref)	111 (91.7%)	29 (87.9%)	140 (90.9%)	N/A	0.500	
>\$20,000	10 (8.3%)	4 (12.1%)	14 (9.1%)			1.53 (0.45–5.24)
<i>Ever Convicted of a Felony</i>	58 (47.9%)	21 (63.6%)	79 (51.3%)	$\chi^2 = 2.56$	0.120	1.90 (0.86–4.21)

Baseline Characteristic	Age 44 yrs (n=121)	Age 45 yrs (n=33)	Total (n=154)	Test statistic	P-value	Unadjusted OR (95% CI)
<i>Sexual Risk Behaviors^b</i>						
Presence of STI	24 (19.8%)	3 (9.1%)	27 (17.5%)	N/A	0.200	0.40 (0.11–1.44)
Median number of sex partners (IQR)	2 (1–4)	4 (0–6)	2 (1–4)	Z = 1.37	0.179	1.02 (0.98–1.07)
Engaged in sex w/ steady partner or spouse who is HIV+ or serostatus is unknown	11 (9.1%)	3 (9.1%)	14 (9.1%)	N/A	0.999	1.00 (0.26–3.82)
Reported not knowing casual/anonymous partners' HIV+ status	42 (34.7%)	14 (42.4%)	56 (36.4%)	$\chi^2 = 0.67$	0.414	0.72 (0.33–1.58)
Having unprotected sex while high on MA w/ spouse or steady partner, some or most of the time ^c	83 (80.6%)	18 (75.0%)	101 (79.5%)	$\chi^2 = 0.37$	0.541	0.72 (0.25–2.06)
Having unprotected sex while high on MA w/ casual or anonymous partner, some of most of the time ^c	68 (75.6%)	20 (80.0%)	88 (76.5%)	$\chi^2 = 0.22$	0.643	1.29 (0.43–3.86)
Alcohol use before/during sex ^d	29 (28.4%)	10 (40.0%)	39 (25.3%)	$\chi^2 = 1.26$	0.261	1.68 (0.68–4.16)
MA use before/during sex ^d	83 (69.2%)	24 (72.7%)	107 (69.5%)	$\chi^2 = 0.16$	0.693	1.19 (0.50–2.81)
Other drugs used before/during sex ^d	24 (20.0%)	7 (21.2%)	31 (20.1%)	$\chi^2 = 0.02$	0.878	1.08 (0.42–2.78)
Consuming alcohol or drugs before/during sex ^d	93 (82.3%)	25 (83.3%)	118 (76.6%)	$\chi^2 = 0.02$	0.895	1.07 (0.37–3.15)
Engaged in unprotected vaginal sex with a spouse/steady partner	90 (97.8%)	23 (100%)	113 (98.3)	$\chi^2 = 0.51$	1.00	-
Engaged in unprotected vaginal sex with a casual/anonymous partner	63 (75.9%)	18 (78.3%)	81 (76.4%)	$\chi^2 = 0.56$	1.00	0.88 (0.29–2.66)
Engaged in unprotected anal sex with a spouse/steady partner	34 (85.0%)	5 (83.3%)	39 (84.8%)	$\chi^2 = 0.01$	1.00	1.13 (0.11–11.48)
Engaged in unprotected anal sex with a casual/anonymous partner	11 (73.3%)	2 (50.0%)	13 (68.4)	$\chi^2 = 0.80$	0.557	2.75 (0.28–26.61)
<i>Knowledge & Attitudes</i>						
Self-efficacy for condom use ^e , mean score (SD)	3.19 (0.7)	2.87 (0.7)	3.11 (0.7)	t = 2.24	0.027	0.56 (0.33–0.95)
Positive outcome expectancies for condom use ^f , mean score (SD)	2.1 (0.6)	1.9 (0.6)	2.07 (0.6)	t = 2.05	0.042	0.50 (0.25–0.98)
HIV knowledge (% correct) ^g , mean score (SD)	89.7 (10.8)	85.3 (12.0)	88.8 (11.5)	t = 2.00	0.047	0.97 (0.94–1.00)
Positive attitudes towards HIV prevention behaviors ^h , mean score (SD)	3.8 (1.3)	4.0 (1.1)	3.84 (1.2)	t = -0.61	0.541	1.12 (0.80–1.53)
Perceived social norms towards HIV prevention behaviors ⁱ , mean score (SD)	4.0 (1.1)	3.9 (1.1)	4.0 (1.1)	t = 0.32	0.752	0.94 (0.66–1.34)

Fisher's exact test was used to evaluate differences between age groups. The Chi-Squared test was used for all other binary variables and the Wilcoxon rank sum test was used for continuous variables. Confidence intervals omitted contained bivariate tables where the cell size was less than 0.

Variables included in the bivariate model are shown in **bold**, with a p-value .20.

OR odds ratio, CI confidence interval, SD standard deviation, IQR interquartile range, MA methamphetamine, GED general education degree (high school equivalency), ref reference group.

^aIncludes attended some college (w/out degree completion), 2 yr degree, 4 year degree or more

b Past two months

c 5 point Likert Scale from Never to Always

d 4 point Likert Scale from Never to Very Often

e 11 items, 4 point Likert Scale from Strongly Disagree to Strongly Agree

f 12 items, 4 point Likert Scale from Strongly Disagree to Strongly Agree

g 18 true/false items

h 3 items, 5 point Likert Scale from Very Bad to Very Good

i 3 items, 5 point Likert Scale from Very Untrue to Very True

Table 3

Factors Independently Associated With Midlife/Older Age Among Heterosexual, MA-using Women with a History of Partner Violence in San Diego, CA

Variable	Adjusted OR ^a	95% CI
Self-Efficacy for Condom Use	0.49	0.27–0.87
HIV Knowledge	0.96	0.93–0.99

^a Adjusted for marital status, current living situation, employment, education, ever having a felony conviction, presence of an STI and median number of sex partners
OR odds ratio, CI confidence interval