

# Sexual Risk Behaviors in Late Middle Age and Older HIV Seropositive Adults

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**Abstract** Little is known about the sexual behaviors of older adults, although the prevalence of HIV/AIDS is rapidly increasing in this population. As part of a larger multi-site study examining secondary HIV prevention, we recruited from an HIV primary care clinic 210 sexually active HIV positive individuals aged 45 and over (125 men, 85 women) who had engaged in vaginal or anal sex within the past six months. Twenty percent of the participants reported inconsistent use of condoms and 33% had multiple sexual partners during the previous six months. Negative mood and perceived HIV stigma were associated with inconsistent condom use. In addition, multiple sex partners and higher level of education were related to inconsistent condom use during sex with partners of negative or unknown serostatus. These findings indicate that contrary to current beliefs, sexually active older adults, similar to younger ones, may be engaging in high risk transmission behaviors.

**Keywords** HIV · AIDS · Older adults ·  
High risk sexual behaviors

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## Introduction

HIV/AIDS has become a significant national problem among older adults (Maes and Louis 2003). The estimated number of persons living with HIV/AIDS reported in 33 states and US dependent areas increased from 32% in 2001 to 43% in 2005, including those with an AIDS diagnosis whose numbers increased from 29% to 34 % (Centers for Disease Control [CDC], 2005). Despite the increasing prevalence of HIV and AIDS in older adults, little is known about their sexual behaviors. Studies, however, show that older adults are sexually active (Dunn and Cutler 2000). Results from a national survey conducted in 2001 by the National Advisory Council on Aging to examine sexual activity among persons over 60 years indicate that more than 92% of the respondents consider sex an important part of life. Notably, responses were similar for men and women. Additionally, 75% of those between 65 and 74 considered themselves sexually active (National Bulletin of the National Advisory Council on Aging 2002). Research across generations have revealed differences between older adults and their younger counterparts in terms of sexual knowledge, risk behaviors, and biological factors, signifying the importance of age appropriate interventions that target the specific needs of this unique cohort (Orel et al. 2005). Increased age has been associated with having incorrect information concerning prevention, including the need to protect oneself during high-risk behaviors regardless of age (Henderson et al. 2004; Zablotsky 1998). In contrast to the younger age groups, many individuals over 50 do not consider unprotected sex a high-risk behavior because many are no longer concerned about contraception (Shaw 2001). This cohort is less likely to be concerned about HIV and less likely than their younger counterparts to use condoms. Furthermore, older HIV positive sexually active adults are less likely than younger adults

to change their sexual behaviors based on HIV knowledge (Maes and Louis 2003).

Older adults also differ from their younger counterparts in terms of biological factors related to transmission and disease process (Mack and Bland 1999). For example, the progression from HIV to AIDS and the development of AIDS opportunistic infections are faster in older persons (Adler and Nagle 1994). Multiple health problems and age-related physiological changes may make elderly persons particularly vulnerable to HIV infection (Gaeta et al. 1996). For example, post-menopausal women are at greater risk for HIV infection and re-infection during heterosexual contact because of the fragility of the vaginal mucosa related to decreased levels of estrogen (Shaw 2001).

The need for prevention interventions specifically targeting HIV positive persons is widely recognized since recent prevention efforts with HIV negative individuals failed to show effectiveness within the HIV positive population (Mack and Bland 1999). Specifically, efforts to target high risk behaviors for prevention of HIV infection and re-infection may be even more critical in the older population because of socio-cultural, biological and behavioral vulnerabilities. Data are sorely needed to adequately inform the development of age appropriate secondary HIV prevention interventions. In response, Project ROADMAP (Re-educating Older Adults in Maintaining AIDS Prevention), was developed as part of a multi-site clinical demonstration project examining the efficacy of secondary prevention behavioral interventions. The intervention is guided by the Information-Motivation-Behavior Skills (IMB) model of AIDS risk-behavior change, a psychosocial model of behavior change developed specifically to address the complexity and interpersonal nature of HIV risk reduction as well as other behavioral issues (Fisher et al. 1999). Since the initial phase of the study was designed to better understand the sexual risk behaviors of older HIV positive adults, the data presented in this paper is considered exploratory.

## Methods

### Participants

Participants were recruited from a primary care clinic in a large urban medical center. The University of Miami/Jackson Memorial Medical Center (UM/JMH) is Miami-Dade County's largest health care facility for HIV/AIDS treatment, serving 3,500 patients annually. The clinic population is ethnically and racially diverse with 57% of participants Hispanic, 21% White non-Hispanic, and 23% Black non-Hispanic. This latter group is comprised of African Americans as well as other Blacks of Caribbean descent. Inclusion criteria for the study were having an

HIV positive diagnosis, being age 45 years or older, and reportedly having engaged in vaginal or anal sex within the last twelve months. Individuals with medical, psychiatric or cognitive symptoms that limited their ability to participate in the study were excluded. Two hundred seventy-seven HIV-positive individuals were recruited into the study between January 2004 and November 2006. All research participants enrolled in Project ROADMAP participated in an informed consent process prior to a baseline assessment. All procedures were approved by the Institutional Review Board (IRB) of the University of Miami Miller School Of Medicine. Participants were compensated for their time for each assessment with a voucher for a local supermarket in the amount of \$25.

### Measures

Measures were selected from the multisite evaluation assessment tool developed by the University of California, San Francisco, Center for AIDS Prevention Studies, Enhancing Prevention with Positives Evaluation Center (EPPEC).

### *Demographic Variables*

Demographic variables assessed included age, gender, ethnicity, education, income, relationship status, and sexual orientation.

### *Medical Variables*

Medical variables assessed included presence or absence of HAART medication, age at time of diagnosis, number of years since diagnosis and mode of infection.

### *Sexual Risk*

Sexual risk was measured by asking participants information regarding their sexual behaviors within the previous six months: number of partners, partner's gender, partner's HIV status, type(s) of sexual act and condom use. Participants were asked to report how many oral, vaginal and anal sexual acts they had with each HIV positive, negative or unknown serostatus partner and of those acts how many included condom use. For example, "How many times did you have vaginal sex with your HIV-positive partner? Of the X times, how many times was a condom used?"

To these measures we added a local evaluation component. The following variables were selected because they have been associated with HIV transmission/risk behavior in previous research studies (Kalichman and Nachimson 1999; Kelly et al. 1993; Maes and Louis 2003; Preston et al. 2004).

### *HIV Knowledge*

HIV knowledge was measured using 33 items derived from CDC's Handbook for Evaluating HIV Education (CDC, 2000), which we adapted to the 45 year and older population. A summary score was calculated by summing item scores, with higher scores representing greater knowledge.

### *Sexual Self-efficacy*

Sexual self-efficacy was measured with a 7-item self-report questionnaire measuring respondents' beliefs about their capacities to engage in safe sex (Malow et al. 2001). Perceived self-efficacy was measured in terms of judgments of personal capabilities and the strength of that belief. A summary score was calculated by summing item scores, with higher scores representing greater sexual self-efficacy.

### *Mood*

Mood was measured using the Profile of Mood States (POMS), a measure of transient mood states consisting of 65 items (McNair et al. 1981). The POMS has six individual mood subscales and one overall index of distress called Total Mood Disturbance (TMD). The POMS subscales have been shown to have internal consistencies near .90 or above and test-retest reliabilities ranging from .65 to .74 and to have good predictive and construct validity (McNair et al., 1971). The POMS has also been used in previous studies with HIV infected samples and has been shown to be sensitive to stressor-related affective responses (Antoni et al. 1991; Lutgendorf et al. 1998). We calculated summary scores for the overall scale as well as its subscales using the guidelines established in the POMS Manual, with greater scores representing worse mood for the total mood scale and all subscales except the vigor subscale, where greater scores signified increased vigor. Available sets of norms for interpretation of scores include adults, geriatric adults, college students and psychiatric outpatients. Although the POMS is not a diagnostic tool, T scores of 65 or greater are suggested as a common cut-point for cases warranting special attention. To determine what percentage of our participants scored above the clinical cutoff, we calculated the percentage of participants between ages 45 and 54 who scored a T score of 65 or greater, utilizing the adult norms, and the percentage of participants aged 55 and over utilizing the geriatric norms.

### *Perceived HIV Stigma*

Perceived HIV stigma was assessed using the Perceived HIV Stigma Scale, a self-report instrument measuring HIV stigma perceived by people living with HIV (Berger et al.

2001). The instrument has 40 items measured on a 4-point Likert-type response set. The assessment consists of four subscales: personalized stigma, disclosure, negative self image and public attitudes. The HIV Stigma Scale has been found to be reliable and valid with a large, diverse sample of people living with HIV. Reliability was 0.96 for the total scale, 0.93 for the personalized stigma sub-scale, 0.93 for the disclosure sub-scale, 0.88 for the negative self-image subscale, and 0.93 for the public attitudes subscale. A summary score was calculated by summing item scores, with higher scores representing a lower perceived HIV stigma.

Measures were administered by a clinical interviewer using Computer Assisted Personal Interview (CAPI) software. The duration of the assessment session was approximately 60–80 min.

### *Data Analysis*

Analyses were conducted only for the sub-sample of individuals who reported having vaginal or anal intercourse within the previous six months ( $n = 210$ ), referred to hereby as sexually active. Descriptive statistical analyses were used to examine the distribution of the sample's demographic, psychosocial, and behavioral variables. We employed univariate logistic regression analyses to evaluate the unadjusted association of condom use with the other variables and multiple logistic regression to independently evaluate these variables in relation to two behaviors: consistent use of condoms during sex with all partners and consistent use of condoms during sex specifically with negative/unknown serostatus partners. The independent variables for the logistic regression analysis were: age (continuous), gender (male/female), education (Higher Education/High School or lower), marital status (committed relationship: married/domestic partnership/committed relationship but not living together; non-committed relationship: divorced-separated/single/other), multiple partners (yes/no); and the full scales measuring mood, self-efficacy, knowledge, and perceived HIV stigma, which were entered as continuous variables in the models. The dependent variable, 'inconsistent use of condom,' refers to participants who did not use condoms at least once in the preceding six months during anal or vaginal sex; these participants were coded 1. Participants who reported using condoms 100% of the time (consistent use of condom) were coded 0. We entered into the logistic regression models only variables that were associated with the dependent variables at  $P < 0.20$  in bivariate analysis (Hosmer and Lemeshow 2000). Variables were removed from the model through a stepwise backward iterative process if their contribution to the overall model was greater than or equal to a p value of 0.10 (Field 2005).

## Results

### Demographics

Of the 210 sexually active participants, 59.5% ( $n = 125$ ) were men and 40.5% ( $n = 85$ ) were women. They had a mean age of 51 years (range 45–71,  $SD = 5.23$ ). Eighty-two percent ( $n = 172$ ) self-identified as Black, 12% ( $n = 26$ ) Hispanic, and 5% ( $n = 11$ ) White. Sixty-two percent ( $n = 131$ ) reported a High school education, of which 24% ( $n = 50$ ) had some higher education. Of our participants, 89% ( $n = 187$ ) reported a yearly income of \$10,000 or less. Only 15% ( $n = 31$ ) of our sample reported being in a committed relationship (married, domestic partnership or committed relationship not living together). The majority of participants, 94% ( $n = 197$ ), reported being infected through heterosexual contact. The mean age at the time of HIV diagnosis was 39.7 years (range 23–69,  $SD = 8.58$ ), with 25% ( $n = 52$ ) diagnosed at 45 or older. The mean time since diagnosis was 11 years (range 0–22,  $SD = 6.17$ ). Ninety-two percent ( $n = 193$ ) of participants were on antiretroviral therapy (ARV) at the time of enrollment into the study.

### POMS Scores

POMS scores are reported in Table 1. Among participants aged 45 to 54, 9.3% ( $n = 14$ ) scored in the at risk range for depression, 10% ( $n = 15$ ) for tension/anxiety, 8.6% ( $n = 13$ ) for anger, 8% ( $n = 12$ ) for fatigue, 12% ( $n = 18$ ) for confusion, 27% ( $n = 41$ ) for decreased vigor and 11.3% ( $n = 17$ ) for total mood problems. Among those aged 55 and older, 20.5% ( $n = 7$ ) scored in the at risk range for depression, 14.7% ( $n = 7$ ) for tension/anxiety, 26.5% ( $n = 9$ ) for anger, 11.8% ( $n = 4$ ) for fatigue, 17.6%

( $n = 6$ ) for confusion, 44% ( $n = 15$ ) for decreased vigor and 14.7% ( $n = 5$ ) for total mood problems.

### Sexual Behaviors

#### Men

Eighty-four percent ( $n = 105$ ) of men identified themselves as heterosexual, 8% ( $n = 10$ ) as homosexual, and 8% ( $n = 10$ ) as bisexual. Forty-six percent ( $n = 48$ ) reported having more than one partner; 5% had 10 or more partners. Sixty percent ( $n = 75$ ) of this HIV-positive sample had sex at least once with a negative or unknown status partner. Eighty-seven percent ( $n = 109$ ) had engaged in vaginal sex and 20% ( $n = 25$ ) in anal sex. The median number of sexual acts within the last six months was 6 and the range was 1–240. When asked to report the gender of their sexual partners during the previous six months, 85.6% ( $n = 107$ ) of the men indicated they had sex exclusively with women, 12% ( $n = 15$ ) exclusively with men, and 2.4% ( $n = 3$ ) reported having sex with both men and women. No self-identified heterosexual men reported having sex with men during this period.

#### Women

Of the 85 women, 95% ( $n = 80$ ) identified themselves as heterosexual, 1% ( $n = 1$ ) as homosexual, and 5% ( $n = 4$ ) as bisexual. Fourteen percent ( $n = 12$ ) reported having more than one partner and 2% ( $n = 2$ ) reported more than 14 partners. All of the women engaged in vaginal sex and 5% ( $n = 4$ ) in anal sex. Their median number of sexual acts in the previous six months was 7 (range: 1–202). When asked to report on their sexual behavior with men within the last six months, 61% ( $n = 52$ ) mentioned they had sex

**Table 1** POMS mean scores and percent with scores above norms, adult norms and geriatric norms

	Sample mean score 45–54	Adult norm mean score	<i>t</i> Value df = 169	% Above clinical cutoff for adult sample	Sample mean score 55+	Geriatric norm mean score	<i>t</i> Value df = 38	% Above clinical cutoff for geriatric sample
Depression	9.6	8.0**	2.09	9.3 ( $n = 14$ )	7.5	5.8	1.20	20.5 ( $n = 7$ )
Tension	8.6	7.7**	2.13	10.0 ( $n = 15$ )	7.2	5.9	1.54	14.7 ( $n = 7$ )
Anger	7.7	7.6	0.14	8.6 ( $n = 13$ )	7.6	4.4**	2.42	26.5 ( $n = 9$ )
Fatigue	6.6	8.0***	3.14	8.0 ( $n = 12$ )	4.5	6.1*	−2.00	11.8 ( $n = 4$ )
Confusion	6.5	5.7**	2.30	12.0 ( $n = 18$ )	5.7	4.5*	1.95	17.6 ( $n = 6$ )
Vigor	15.6	19.3***	6.54	27.0 ( $n = 41$ )	17.1	21.3***	−3.92	44.0 ( $n = 15$ )
Total	23.2	17.7**	2.28	11.3 ( $n = 17$ )	14.9	5.3*	2.09	14.7 ( $n = 5$ )

Note: Test statistic: One Sample *t*-test. *P* values represent differences between sample means and normative mean values

\*  $P < 0.10$ , \*\*  $P < 0.05$ , \*\*\*  $P < 0.01$

at least once with a partner whose HIV status was negative or unknown.

### Condom Use

#### *Sex with All Partners*

Almost 20% ( $n = 41$ ) of the sexually active participants reported not using condoms consistently. On bivariate analysis (Table 2), no medical or demographic variables, including gender and sexual orientation, and neither self-efficacy nor knowledge was found to be associated with condom use. In contrast, greater perceived HIV stigma ( $OR = 0.98$ ,  $P < 0.05$ ) and overall negative mood ( $OR = 1.01$ ,  $P < 0.01$ ) were associated with inconsistent condom use.

**Table 2** Association of inconsistent condom use during sexual intercourse

Variable	Sex with all partners (Odds ratio)	Sex with negative/unknown partners (Odds ratio)
Age	0.96	0.95*
Gender	1.44	0.98
Education	1.17	2.81***
Committed relationship	1.41	0.77
Age at diagnosis	1.00	0.99
Years since diagnosis	0.98	0.98
Multiple partners	1.30	2.20**
Negative mood-total	1.01****	1.01**
Depression <sup>a</sup>	1.05****	1.04***
Tension/anxiety <sup>a</sup>	1.06**	1.03
Anger/hostility <sup>a</sup>	1.06****	1.05**
Vigor <sup>a</sup>	0.99	0.95
Fatigue <sup>a</sup>	1.06***	1.04
Confusion <sup>a</sup>	1.10***	1.06
Self-efficacy	0.93	1.08
Perceived HIV stigma	0.98***	0.97**
Knowledge	1.05	0.98

Note: <sup>a</sup> Subscale of POMS

\*  $P < 0.20$ , \*\*  $P < 0.10$ , \*\*\*  $P < 0.05$ , \*\*\*\*  $P < 0.01$

**Table 3** Logistic models for inconsistent condom use during intercourse

Variable	Sex with all partners		Sex with negatives/unknown partners	
	Odds ratio	95% C.I.	Odds ratio	95% C.I.
Higher education	Not entered	–	3.34*	1.19, 9.38
Negative mood	1.01**	1.00, 1.03	1.02*	1.00, 1.03
Multiple partners	Not entered	–	2.69*	1.01, 7.13

Note: Variables entered into logistic model for sex with all partners were negative mood and perceived HIV stigma. Variables entered into logistic model for sex with negatives/unknown partners were age, higher education, negative mood, multiple partners and perceived HIV stigma

\*  $P < .05$ , \*\*  $P < 0.01$

Specifically, of the POMS subscales, depression ( $OR = 1.05$ ,  $P < 0.01$ ), tension/anxiety ( $OR = 1.06$ ,  $P < 0.10$ ), anger/hostility ( $OR = 1.06$ ,  $P < 0.01$ ), fatigue ( $OR = 1.06$ ,  $P < 0.05$ ) and confusion ( $OR = 1.10$ ,  $P < 0.01$ ) correlated significantly with condom use. On multivariate analysis (Table 3), only negative mood emerged as a predictor of inconsistent condom use ( $OR = 1.01$ ,  $P < 0.01$ ).

#### *Sex with Negative/Unknown Serostatus Partners*

Sixty percent ( $n = 127$ ) of participants who reported having vaginal or anal sex engaged in sexual activity at least once with negative/unknown serostatus partners. Of these, 17.3% ( $n = 22$ ) reported not using condoms consistently. No significant relationship was found between unprotected sex with negative or unknown serostatus partners and age, gender, age at diagnosis, time since diagnosis, HIV knowledge, and sexual self-efficacy. Inconsistent condom use during sex with negative/unknown serostatus partners also had a significant positive association with multiple sexual partners ( $OR = 2.20$ ,  $P < 0.10$ ), post High school education ( $OR = 2.81$ ,  $P < 0.05$ ), perceived HIV stigma ( $OR = 0.97$ ,  $P < 0.05$ ) and negative mood ( $OR = 1.01$ ,  $P < 0.05$ ) on bivariate analysis (Table 2). Of the POMS subscales, depression ( $OR = 1.04$ ,  $P < 0.05$ ), and anger/hostility ( $OR = 1.05$ ,  $P < 0.10$ ) correlated significantly with condom use. On multivariate analysis (Table 3), inconsistent condom use was positively associated with negative mood ( $OR = 1.02$ ,  $P < 0.05$ ), multiple partners ( $OR = 2.69$ ,  $P < 0.05$ ) and post High school education ( $OR = 3.34$ ,  $P < 0.05$ ). Further exploratory analyses revealed 21.2% shared variance between negative mood and perceived HIV stigma ( $r = 0.46$ ,  $P < 0.001$ ) which may partly explain why perceived stigma was not significantly related to condom use after controlling for mood.

### Discussion

This study explores sexual behavior among an older sample of sexually active HIV positive adults. While our

findings are not reflective of the general older HIV positive population since participants had to be sexually active within the previous year, they do indicate that among those who are sexually active, many engage in high risk transmission behaviors. Twenty percent of the sexually active HIV positive older adults reported inconsistent condom use during the previous six months. Additionally, the findings that only 15% of our HIV positive older adults were in a committed relationship and that 33% of the sample had multiple sexual partners during the previous six month period are notable. This indicates that, contrary to normative beliefs, the majority of older sexually active HIV positive individuals may be having sex in uncommitted relationships. Similar to data from younger HIV positive adults, having multiple partners was independently related to inconsistent condom use among sexually active HIV positive older adults during sex with partners of negative or unknown serostatus (Eich-Hochli et al. 1998; Heckman et al. 1998). Older adults are often confronted by ageism, even among their health care providers. Studies have demonstrated that the majority of physicians do not discuss sexual behaviors with their established HIV positive patients of any age (Metsch et al. 2004; Morin et al. 2004). Providers may be particularly reluctant to directly discuss sexual matters and HIV risk behaviors with older adults (Gott et al. 2004; Lindau et al. 2006). The CDC (1997) reports that of the 94% of people age 50 and older who have seen their doctors in the previous five years, only 15% had discussed HIV risks with their physicians and 72% of these discussions occurred at the patient's request. Thus, health care providers should be aware that sexually active HIV positive older adults may be engaging in risky transmission behaviors.

Previous literature suggests that older HIV positive adults are more vulnerable to disturbances of mood (Rabkin et al. 2004). Similarly, in our study, participants aged 55 and over were more likely to score above the at risk-cutoff point for mood symptoms than those between the ages of 45 and 54. We found an association between negative mood and inconsistent condom use in our sample. Further analysis revealed that within the POMS, the depression, tension/anxiety, anger/hostility, fatigue and confusion subscales correlated significantly with inconsistent condom use independent of partner serostatus. The depression and anger/hostility subscales were associated with inconsistent condom use with partners of negative or unknown serostatus. These findings are consistent with previous research describing the association between unprotected sex and negative affective states (Marks et al. 1999) and loneliness and instability in self-esteem scores (Martin and Knox 1997). Perceived HIV stigma was not associated with inconsistent condom use in multivariate analysis, probably because of its shared variance with negative mood. This is

consistent with findings in the literature indicating a possible relationship between stigma and negative mood (Miles et al. 1997). These results suggest that therapeutic interventions targeting mood state may improve condom use. Such interventions may draw from empirically based treatments for depression in HIV positive persons, such as cognitive behavioral stress management (Cruess et al. 2002; Lechner et al. 2003) and effective secondary prevention interventions that address condom use skills including effective condom negotiation (Kalichman et al. 2001).

Finally, individuals who were educated beyond high school were more likely to engage in inconsistent condom use. This finding is counter-intuitive and should be further explored given that we have very limited data on socioeconomic status for this sample.

Our sample may not be representative of the older HIV positive national population, therefore possibly limiting the generalizability of our findings. All participants in our sample were recruited from a primary care clinic serving primarily individuals of low socio economic status and of African American, Hispanic or White background. Our sample was predominantly heterosexual and not active drug users. Findings do not speak to the risk behaviors of HIV positive older adults who are not seeking medical care. The results were also based on self-report data, which depend on the veracity of the respondents. Although there is evidence suggesting that 3, 6 and 12 month recall is less biased than shorter periods and that longer time frames are more likely to be representative of an individual's behavior (Schroder et al. 2003), the reader is cautioned since the validity and reliability of retrospective recall is often a concern. However, such limitations are inherent in psychosocial studies and researchers continue to rely on self-report methods to assess sexual behavior since ethical and practical considerations limit the use of more direct assessment methods (Weinhardt et al. 1998). Recall may have been particularly an issue for this older sample given the expected challenge to recollect and describe intimate behaviors that had happened during the preceding six month period. The cross-sectional nature of the data prevented the determination of any temporal relationship between the predictor variables and the outcomes, thereby precluding a causal interpretation of the observed associations. Finally, we are reporting baseline data for an HIV prevention study and it is possible that individuals who were more concerned about condom use self-selected into the study. Nevertheless, the study findings represent a contribution to the important issue of understanding the sexual behaviors of sexually active HIV positive older adults. The data suggests that sexually active HIV positive older adults are engaging in high risk HIV transmission behaviors and that negative mood states may be important predictors of these behaviors in this population. It

emphasizes, too, the need for mental health screening in the primary care setting. This information may be used in health care settings to better address the needs of this unique population and to develop interventions to help older HIV positive adults engage in safer sexual practices both to maintain their own health and to prevent the spread of the virus to others.

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