Negussie Deyessa. *Ethiop Med J, 2018, Vol. 56, No. 1*

ORIGINAL ARTICLE

INTIMATE PARTNER VIOLENCE AND HUMAN IMMUNODEFICIENCY VIRUS INFECTION AMONG MARRIED WOMEN IN ADDIS ABABA

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ABSTRACT

Introduction: *Human immunodeficiency virus is a public health problem in sub-Saharan countries, with complex determinant factors. Intimate partner violence, although known to associate with acquiring human immunodeficiency virus understanding how it relates to sexual risk behaviors is important. The objective of this study was to assess the relationship of human immunodeficiency virus with intimate partner violence as related to risky-sexual behaviors.*

Methods*: A facility based case control study was conducted among human immunodeficiency virus positive and negative women visiting antenatal care. A total of 128 positive and 382 negative women from the prevention service of mother-to-child transmission of human immunodeficiency virus in selected health facilities in Addis Ababa were included. A standardized and pretested questionnaire was used to assess the experience of intimate partner violence, and sexual behaviors of women and their spouses.*

Result*: Physical violence during lifetime is associated with human immunodeficiency virus infection status. Besides, sexual violence by strangers is associated with human immunodeficiency virus infection. Risky sexual behaviors, represented by having multiple partners, transactional sex and having a casual partner, were associated with intimate partner violence as well as human immunodeficiency virus infection status. Similarly, report of experiencing symptoms of sexually transmitted infection and having suspected unfaithful spouse were associated with intimate partner violence and human immunodeficiency virus infection status.*

Conclusion: *The study showed that intimate partner violence could be associated directly and in directly with human immunodeficiency virus infection by increasing exposure to risky sexual behaviors and considered as a resolution for disparate sexual behavioral. Therefore, prevention and control interventions against intimate partner violence could play significant role in prevention and control of human immunodeficiency virus infection.*

Key words*: Intimate Partner Violence, sexual-behavior, human immunodeficiency virus infection, Addis Ababa*

INTRODUCTION

Human Immunodeficiency Virus (HIV) is the most common global affecting sexually active population predominantly in sub-Saharan Africa (1-3). HIV is more preponderant among women than men in early adulthood (4-6). Violence against women is considered to play a substantial role for preponderance of HIV among women population. Violence against women, particularly, intimate partner violence (IPV) is known as a significant public health problem irrespective of socio-cultural setting (7,8). The World Health Organization (WHO) multi-country study in 10 different countries confirmed that the lifetime and 12 month prevalence of physical or sexual violence to be as high as 71% (7).

There area many negative health consequences linked to intimate partner violence of which acquiring HIV is one (9-11). The associations between IPV and HIV infection could be explained in different ways. It could be that experiencing violence may limit the ability to negotiate HIV preventive behaviors and services (12). As women experience physical and/or sexual abuse, they are more likely to engage in risky behaviors (13). For women living with HIV, their experience of violence may affect the uptake of HIV testing, willingness to disclose their status and to adhere to their treatment under therapy (9-11). Abused women are also less likely to use condoms, poor access to HIV interventions, and they are more likely to be infected with other sexually transmitted infections (14).

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There is no single factor that explains why there is high IPV in the world. However, there are multiple and complex socio-cultural and economic factors which counterbalances unequal power relationship between the two sexes (8,14-16). Studies have also disclosed that community illiteracy contributes to higher levels of IPV (16,17). The influence of alcohol, khat chewing and watching of pornography were highly associated with sexual violence among students in Eastern Ethiopia (16,18). Considering cultural influences on personality is important (19); western ideas and theories may not be necessarily applicable to other cultures in developing countries. Therefore, the aim of this study was to assess the relationship of HIV with violence against women as related to risky sexual behaviors among married women, in a cosmopolitan environment in Ethiopia.

PATIENTS AND METHODS

Study setting: The study was conducted at public health facilities in Addis Ababa, the capital city of Ethiopia. According to the 2012/13 report, by Federal Ministry of Health, Addis Ababa had 33 hospitals, 52 health centers and 35 health posts. Chronic HIV care and ART service is available in 48 health facilities in the city (20). The health facilities receive people with HIV mainly through either VCT or through provider initiated testing and counseling (PITC) (21). Pregnant women, visiting health facilities for antenatal care are requested to receive prevention of mother-to-child transmission (PMTCT) of HIV services, and this study was conducted among married pregnant women visiting health centers, from January to February, 2014.

Study design & population: A facility based case control study was designed among pregnant women visiting public health facilities in Addis Ababa. The source population were pregnant women who were tested for HIV through PMTC services. Eligible women testing positive for HIV were taken as cases while eligible women who tested negative were considered as controls.

Sampling and sample size: The sample size was determined by proportion for two population formula for case control design. The study assumed the prevalence of IPV among HIV negative cases of39%, (15) as in controls, with a confidence level of 95%, power of 80%. Assuming anticipated increase of IPV among HIV positives by 15%, with a ratio of cases to controls of 1:3, and adding 10% for non-response, a total of 134 HIV cases and 403 controls were enough. The sample was distributed across the study health facilities proportionate to their HIV caseloads. As the first stage, 10 health centres were randomly selected from a sampling frame of 26 health centres. In the second stage, those who tested positive during ANC follow-up in the current pregnancy were elected as study subjects. Cases and controls were selected by a focal health provider of chronic HIV care at each health facility. After finding an HIV positive woman as a case, three consecutively identified eligible pregnant women negative for HIV were included as controls for interview.

Data collection process: A questionnaire was designed by adopting the WHO multi-country study of violence against women (7), and the Ethiopia Behavioural Surveillance Survey of 2005(22) questionnaires. The questionnaire included questions to measure socio-demographic characteristic of the women, including their age, marital status, their educational status, residency and spousal education and age relative to the woman status. It also included questions on physical and sexual violence by an intimate partner in the previous year and during the life time as well as determinants of HIV related to sexual behaviours. The questionnaire was piloted to ensure the questions were correctly understood. Data was collected by 10 female nurses trained for two days. The enumerators were blinded for the HIV status of the women, as cases and controls were coded by the focal health provider.

The study defined physical and sexual violence by an intimate partner as in the WHO Multi-Country study (7)**.** Women also were asked about their previous sexual behaviors such as number of partners within the last 10 years, presence of transactional sex, having history of other sexual partner while in marriage, and whether they suspected their spouse were unfaithful and for any symptoms of sexually transmitted infections.

Data analysis: Bivariate and multivariate analysis was done, and variables that were associated with the outcome and major explanatory variables were included in the multivariable analysis. The findings were summarized using proportions, crude and adjusted ORs with 95% confidence intervals presented in tables.

Ethical considerations: Ethical clearance was obtained from the Institutional Review Board of the College of Health Sciences, Addis Ababa University. Informed consent was obtained from each participating woman. The study strictly adhered to the WHO's guidelines for conducting research related to violence against women (23).

RESULTS

In this study, data were collected from a total of 510 pregnant women, of which 128(25%) were HIV positive (cases) and the rest 382(75%) were HIV negative (controls). The response rate was 95.5% for cases and 94.8% for controls.

Socio-demographic characteristics: Three hundred-twenty (62.3%) of the interviewed women were between the ages of 25-34 and 150(29.2%) were between the ages of 15-24. The majority 348(68.2%) were elementary-to-secondary classes, although about one in five were illiterate. Majority 467(91.6%), were currently married, and a higher proportion of women were housewives or governmental and private employees. Comparing cases and controls for socio-demographic characteristics, statistically significant difference was found for age group (P<0.001), educational level difference between spouses (P<0.001) and spousal monthly income (P<0.001),(Table 1).

Table 1. Socio-demographic Characteristics of HIV Positive and HIV Negative Participants at Health Facilities, Addis Ababa, 2016

Characteristics	**Cases #(%)**	**Controls) #(%)**	**OR(95%CI)**	**X^2 (df) P-Value**
Age group				
15-24	24(18.6)	126(32.7)	1.0	X^2=14.797
25-34	86(66.7)	234(60.8)	1.93(1.17,3.19)	(df=2)
35-49	19(14.7)	25(6.5)	3.99(1.91,8.36)	P<0.001
Educational status				
Illiterate	28(21.7)	67(17.5)	1.0	X^2=3.647
Elementary	32(24.8)	77(20.2)	0.99(0.54,1.82)	(df=3)
Secondary	56(43.4)	183(47.9)	0.73(0.43,1.23)	P>0.1
Certificate or more	13(10.1)	55(14.4)	0.57(0.27,1.20)	
Marital status				
Currently married	115(88.5)	358(92.7)	1.0	X^2=2.337
Not on marriage	15(11.5)	28(7.3)	1.67(0.86,3.21)	(df=1)
				P>0.1
Age at first marriage				
Below 18 years	31(25.2)	67(17.8)	1.55(0.96,2.53)	X^2=3.202
18 years or more	92(74.8)	309(82.2)	1.0	(df=1)
				P>0.05
Occupational status				
Housewife	66(50.8)	176(45.7)	1.0	X^2=6.214
Gov/private employee	40(30.8)	109(23.3)	0.98(0.62,1.55)	(df=3)
Business work	18(13.8)	90(23.4)	0.53(0.30,0.95)	P>0.1
Others	6(4.6)	10(2.6)	1.60(0.56,4.58)	
Age difference (with spouse)				
Less than five years	47(36.7)	132(34.6)	1.0	X^2=4.437
Spouse higher 5-9yrs	41(32.0)	159(41.6)	0.72(0.45,1.17)	(df=2)
Spouse higher >10yrs	40(31.2)	91(23.8)	1.24(0.75,2.03)	P>0.1
Educational difference (spouse)				
Women equal or better	63(48.8)	236(62.4)	1.0	X^2=9.330
Men 1 level better	47(36.4)	114(30.2)	1.54(1.00,2.40)	(df=2)
Men 2 or more level better	19(14.7)	28(07.4)	2.54(1.33,4.85)	P<0.01
Respondent monthly income				
Less than 500 Birr	33(27.7)	63(25.2)	1.0	X^2=3.301
500–999 Birr	38(45.8)	95(38.0)	1.10(0.60,2.01)	(df=2)
1000 Birr or more	22(26.5)	92(36.8)	0.66(0.34,1.28)	P>0.1
Spousal Monthly income				
Less than 1000 Birr	44(47.8)	81(26.4)	1.0	X^2=14.909
1000–1999 Birr	27(29.3)	115(37.5)	0.43(0.25,0.76)	(df=2)
2000 Birr-or-more	21(22.8)	111(36.2)	0.35(0.19,0.63)	P<0.001

Experience of IPV: In this study, cases of HIV were more likely to experience frequent violence than controls, (OR=2.59 (95%CI, (1.51,4.43)). The odds of spouse's habit of drinking alcohol to levels triggering violence was significantly higher in cases than controls, (OR=2.67 (95% CI;1.47, 4.83)). Sexual violence among cases was 16.5% and it was significantly higher than among controls (4.4%) (OR=4.92 (95%CI: 2.55,9.49), (Not displayed).

Sexuality and other vulnerability: About 24(4.7%) women had a history of transactional sex, 2.1% reported to have other sexual partner while having a regular spouse, 9.3% suspected their spouses were unfaithful, 29.7% had husbands who often drink until getting drunken and 5.4% reported to experience sexually transmitted infection in their lifetime. Some 49.2% of cases and 32.1% of controls reported to have two or more partners and it is statistically significant (OR=2.05; 95%CI, (1.37,3.07)). Women with HIV positive were more likely to have had other sexual partner while they were in a regular marriage (OR=3.79(95%CI:1.65,8.68)), to suspect their spouse were unfaithful (OR=2.82 (95%CI;1.54, 5.18)), and to report of having a history of symptoms of sexually transmitted illness (OR=7.1 (95% CI; 3.16,16.3)) than their controls (Table 2).

Women having two or more partners claimed to experience physical (OR=1.45 (95% CI; 0.98, 2.16)) and sexual violence (COR=1.80 (95% CI;1.13, 2.88)) than women who had only one partner in the last 10 years. The odds of having a history of transactional sex was more than four-fold in physically violated (OR=4.07(95% CI;1.76,9.39) and more than two-fold higher among sexually violated (COR=2.70;95%CI;1.12,6.52) in life-time than among the non-violated women (Table 3).

Table 2. Sexuality and other Vulnerability by HIV Status among Pregnant Women at Health Facilities, Addis Ababa, 2016

Sexuality and other vulnerability	**Cases #(%)**	**Controls #(%)**	**OR (95%CI)**	**Statistics (P-value)**
Number of Partners (last 10 years)				
Only one	66(50.8)	262(67.9)	1.00	P=0.001
Two or more	64(49.2)	124(32.1)	2.05(1.37,3.07)	
History of transactional sex				
No	117(90.0)	375(97.2)	1.00	P=0.002
Yes	13(10.0)	11(2.80)	3.79(1.65,8.68)	
Other sexual partner while married				
No	122(93.8)	383(99.2)	1.00	P=0.001
Yes	8(6.20)	3(0.80)	8.37(2.19,32.1)	
Suspect husband for sexual affairs				
No	108(83.1)	360(93.3)	1.00	P=0.001
Yes	22(16.9)	26(6.70)	2.82(1.54,5.18)	
Spouse drinks until drunken				
No	88(67.7)	275(71.2)	1.00	P=0.872
Yes	42(32.3)	111(28.8)	1.18(0.77,1.82)	
Ever history of STI symptoms				
No	111(85.4)	377(97.7)	1.00	P=0.001
Yes	19(14.6)	9(2.30)	7.17(3.16,16.3)	

Table 3 Comparison of risk sexual behaviors by experience of physical and sexual violence by intimate partner at health facilities in Addis Ababa, 2016.

Characteristics	Sample	Physical V Num(%)	OR(95%CI)	Sexual V Numb (%)	OR(95%CI)
Number of Partners (10 years)					
Only one	328	80(24.4)	1.0	61(18.6)	1.00
Two or more	188	60(31.9)	1.45(0.98,2.16)	66(35.1)	1.80(1.13,2.88)
History of transactional sex					
No	492	126(25.6)	1.00	117(23.8)	1.00
Yes	24	14(58.3)	4.07(1.76,9.39)	10(41.7)	2.70(1.12,6.52)
Sexual partner while married					
No	505	132(26.1)	1.00	121(24.0)	1.00
Yes	11	8(72.7)	7.54(1.97,28.8)	6(54.5)	4.43(1.32,14.9)
Suspect husband for sexual affairs	468	113(24.1)	1.00	103(22.0)	1.00
No	48	27(56.3)	4.04(2.20,7.42)	24(50.0)	3.99(2.12,7.53)
Yes					
Spouse drinks until drunken					
No	363	80(22.0)	1.00	83(22.9)	1.00
Yes	153	60(39.2)	2.28(1.52,3.43)	44(28.8)	1.86(1.15,3.00)
Ever drinks until drunken					
No	505	133(26.3)	1.00	123(24.4)	1.00
Yes	11	7(63.6)	4.90(1.41,17.0)	4(36.4)	1.13(0.24,5.32)
Ever history of STI symptoms					
No	488	129(26.4)	1.00	110(22.5)	1.00
Yes	28	11(39.3)	1.80(0.82,3.95)	17(60.7)	3.62(1.63,8.04)
HIV status					
Control	386	94(24.4)	1.00	75(19.4)	1.00
Cases	130	46(35.4)	1.70(1.11,2.61)	52(40.0)	1.69(1.03,2.79)

The study finally found that women living with HIV were still more likely to experience frequent form physical violence compared to controls (AOR=1.90; 95%CI;(1.05,3.45)).Childhood sexual violence which was crudely associated with HIV status was refuted for association, although it was associated in borderline, (AOR =2.65; 95% CI; 0.98,7.12),(Fig.1).

The difference in the odds of sexual vulnerability among cases and controls was statistically significant: having higher level of partners in past ten years (AOR=1.71(95%CI;1.00,2.91)],history of transactional sex (AOR=3.26(95%CI 1.16,9.071)),having other sexual partner while in marriage (AOR=15 (95%CI; 1.52,151.0)),and having history of symptoms of sexually transmitted illnesses (AOR=6.7 (95%CI; 2.43,18.7)),(Table 4).

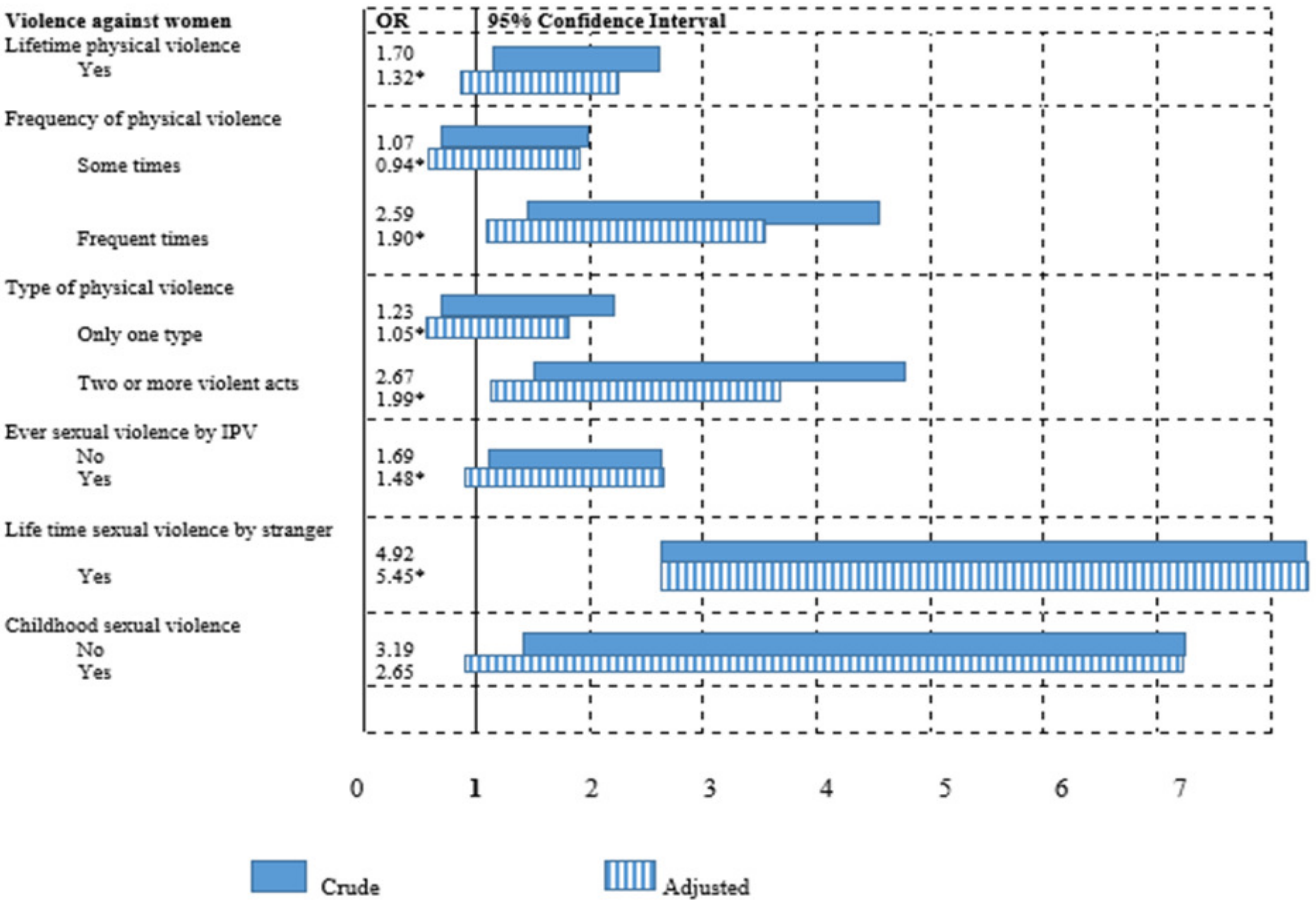

Figure 1: Adjusted* comparison of violence against among HIV positive and negative pregnant women at health facilities in Addis Ababa, 2016.

Table 4. Sexuality and other vulnerability of HIV positive and negative women at health facilities in Addis Ababa, 2016.

Sexuality and other vulnerability	**Crude OR (95% CI)**	**Adjusted* OR (95% CI)**
Number of Partners (last 10 years)		
Only one	1.00	1.00
Two or more	2.05(1.37,3.07)	1.71(1.00,2.91)
History of transactional sex		
No	1.00	1.00
Yes	3.79(1.65,8.68)	3.26(1.16,9.07)
Other sexual partner while married		
No	1.00	1.00
Yes	8.37(2.19,32.1)	15.2(1.52,151)
Suspect husband for sexual affairs		
No	1.00	1.00
Yes	2.82(1.54,5.18)	1.69(0.73,3.90)
Spouse drinks until drunken		
No	1.00	1.00
Yes	1.18(0.77,1.82)	0.92(0.15,5.57)
Ever history of STI symptoms		
No	1.00	1.00
Yes	7.17(3.16,16.3)	6.74(2.43,18.7)

***Adjusted** for age group, income of husband and educational difference of couples, having number of partner within 10 years, history of transactional sex, presence of other sexual partner while married, Suspect husband for sexual affairs and history sexually transmitted illness.

DISCUSSION

The study has shown that violence against woman, linked with risk sexual behaviors, is associated with acquiring HIV. Violence against women, represented by physical violence, especially when it is of a frequent or a mixed form, is associated with HIV in pregnant women. Similarly, sexual behaviors represented by having multiple partners within the last ten years, having transactional sex, having other casual partner and who report to suspect their spouse of having sexual affairs with other women were some of the factors associated with both experiencing of IPV and HIV among women. Moreover, women with HIV and experiencing sexual violence in life-time were more prone to report experience of symptoms of sexually transmitted illness, and suspect their spouse to have sex with other women.

This difference in adjusted age and educational level could be more of a determinant factor rather than a result of a selection bias. In this study, the overall lifetime prevalence of physical violence and sexual violence was much lower than shown by studies in Butajira (15,17). This discrepancy could be due to the difference in source population and the study setting. Attitudes towards gender difference is also different in the two settings, with higher traditional gender role difference perceived in rural community compared to the urban women in our series (17).

Intimate partner violence, both physical and sexual violence, during life-time was associated with HIV status, but failed to attain statistical significance when adjusted for some sociodemographic and risky sexual behaviors. This may partly be associated with the combined effect of a direct and indirect relationship of IPV to HIV status (24-26). The direct relationship could be due to the sexual violence acquired by women in unfaithful marriage, while the indirect relationship could be lack of capability of leading healthy life as a result of violence perpetuated by persons considered the most loved ones (24-28). Such a perpetuation could lead victims to undergo risky-life, acquire incongruent living, involve in illicit drug use, and unprotected sexual behaviors (27,28).

This failure of association after inclusion of sexual risk behavior in the model is in agreement with studies reporting violence victimization among HIV-positive women as compared to those who were HIV -negative (29). The explanation behind such an association may not be directly related to battering, but could be lack of the ability to negotiate HIV prevention behaviors, including drug abuse (30-32), receiving money for sex (33-36), sex without a condom (37 -9). However, studies have shown that HIV-positive women may experience severe physical abuse more frequently (40-42), an observation which concurs with our study. In our series, HIV positive women suspect their spouses more frequently to engage in extramarital sex with other women, and to have a history of symptoms of sexually transmitted diseases. This is in line with reports from other studies (5,28,43).

Our study as it has some strengths, it is not free of some limitations. As facility based study, generalizability beyond the source population is restricted, and is prone to selection bias. However, the selection of study subjects sequentially from the same outpatient pool in primary health care, could minimize such a bias. To avoid information bias, enumerators were blinded for the outcome (HIV) status and major exposure status of study subjects. Disclosure of violence against women, which is in general underestimated, could be difficult to avoid totally, however, this possible underestimation would not be different between cases and controls. Similarly, risky sexual behavior, which is a taboo culture among the public, could be underestimated. But since the study was conducted in health service setting, underestimation of risky behavior would be minimal. As a case control study design, showing the temporal relationship is generally difficult, but to minimize such a problem, a newly diagnosed HIV status and life-time measures of the exposure status was made, but this doesn't mean that we were able to totally show a temporal relationship. Therefore, any interpretation of the findings in this study needs to be made in consideration of the aforementioned limitations.

In conclusion, the study has shown that IPV could be associated with HIV infection transmission, directly through sexual violence by creating unfaithfulness, and indirectly, through increasing vulnerability to risky sexual behavior of victims. We recommend policy makers and donors working in HIV prevention and control programs to include prevention and control of violence against women, particularly, intimate partner violence against women.

ACKNOWLEDGMENT

The author acknowledges African Medical Research Foundation (AMREF) Ethiopia for fully sponsoring the research work.

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