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2 **The Influence of Drug Consumption on Condom Use and Other**
3 **Aspects Related to HIV Infection Among Male Sex Workers**
4 **in Spain**

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9 **Abstract** Higher rates of substance use have been associ- 34
10 ciated with unsafe sex behavior. Male sex workers (MSW) 35
11 present high rates of drug use during or after the profes- 36
12 sional sexual exchange with clients and also in their lei- 37
13 sure. This research describes patterns of drug consumption 38
14 among MSW in Spain and explores both the effect of 39
15 substance use on professional and risk sexual behaviors. 40
16 Participants were 100 agency MSW offering their services 41
17 in Valencia and Castellón (Spain). Most of them were drug 42
18 users and the most common substances were “soft drugs” 43
19 and cocaine. An absence of injection drugs was found. 44
20 Drug consumers indicated a higher HIV risk perceived and 45
21 lower perceived influence of substance use on condom use 46
22 negotiation. Drug influence on condom use is not clear. 47
23 More investigation about drug influence on sexual risk 48
24 behaviors among MSW is needed. The role of steady 49
25 partners and clients must be taken into account too. 50

26
27 **Keywords** Male sex workers · Substance use · 51
28 Condom use · HIV-Aids 52

29
30 **Resumen** Un mayor consumo de sustancias se ha asoci- 53
31 ado al mantenimiento de conductas sexuales de riesgo. 54
32 Diferentes estudios han puesto de manifiesto altas tasas de 55
33 consumo entre los Trabajadores Masculinos del Sexo 56

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(TMS) durante y después del intercambio sexual con sus 34
clientes, así como en su tiempo libre. Este estudio describe 35
el patrón de consumo de sustancias en los TMS en España 36
y explora el efecto que dicho consumo tiene en las con- 37
ductas sexuales profesionales y personales de los TMS. Los 38
participantes fueron 100 TMS que ejercían en pisos ges- 39
tionados por terceras personas en las ciudades de Valencia 40
y Castellón (España). La mayoría consumían drogas, 41
principalmente “drogas blandas” y cocaína. No se enco- 42
ntró consumo de drogas inyectadas. Los TMS consumi- 43
dores de sustancias indicaron un mayor riesgo de infección 44
por VIH y una menor influencia del consumo de drogas 45
en la negociación del uso del condón. Es necesaria más 46
investigación sobre la influencia del consumo de drogas en 47
el mantenimiento de prácticas sexuales de riesgo. El rol de 48
las parejas no comerciales así como el de los clientes debe 49
ser también tenido en cuenta. 50

51
52 **Palabras clave** Trabajador masculino del sexo · 52
53 Consumo de sustancias · Uso del preservativo · VIH-Sida 53

54 **Introduction** 54

55 The AIDS epidemic is affecting men who have sex with 55
56 men (MSM) disproportionately [1]. In Spain, where the 56
57 HIV transmission average exceeds the European one, 42% 57
58 of new HIV infections occur in MSM who represent the 58
59 most important group among increasing HIV infections [2]. 59
60 In particular, the situation is more complicated in some 60
61 specific groups such as male sex workers (MSW), who 61
62 present more rates of new infections than general MSM 62
63 population [2]. 63

64 In order to prevent this epidemic, recent studies have 64
65 clarified the role of several variables among MSM such as, 65

66 HIV treatment optimism [3], depressive symptoms [4] and
67 more frequently, substance use [5, 6]. In fact, substance
68 users MSM (SUMSM) have shown high risk for HIV
69 infection [7, 8]. The increase of STI and HIV infection
70 among MSM has been related to methamphetamine,
71 cocaine, poppers and alcohol use [9]. Nevertheless,
72 regarding to this consumption, researchers have empha-
73 sized the influence of other aspects between drug use and
74 HIV risk [10].

75 In general, MSM have revealed higher rates of substance
76 use than other populations [11] and, sometimes, this has been
77 associated with more adventurous sex or unsafe sex behavior
78 [12, 13], such as difficulties for condom use communication
79 [14]. In particular, within MSM population, Male Sex
80 Workers (MSW) have shown higher rates of drug use [15,
81 16]. They have reported their consume before, during or after
82 the professional sexual exchange with the client [17, 18] but
83 it has also been common in their free time [19]. Regarding to
84 their reasons, some MSW offer sex for money to get drugs
85 while for other MSW this is the best strategy to cope with the
86 emotionally stressful and non-supportive social environment
87 [20] or to reduce the stress related to some commercial
88 exchanges [17]. Therefore, one study found statistical rela-
89 tionship between drug consumption and the length of the
90 professional encounter [21]. Anyway, drug use has involved
91 an additional risk for inconsistent and low condom use in this
92 population [20, 22], depending also on the type of venue [23].

93 In some places, the most common substances reported
94 by MSW were “soft drugs”, especially alcohol, tobacco,
95 marijuana and cannabis [24–27] and sporadic consumption
96 of cocaine [26]. On the other hand, injected drug has been
97 observed among MSW offering sex in street [15, 28].
98 Moreover, injected substances have been linked to syringe
99 exchanges among MSW [29]. Vulnerability to HIV infec-
100 tion among MSW has been related to injected substances
101 because of syringe exchanges and higher rates of non-
102 protected anal intercourse [30, 31].

103 Our main objective is to describe patterns of drug con-
104 sumption among a cohort of Spanish MSW, during their
105 professional and personal relationships and its effect on sexual
106 behavior and other HIV aspects. This research includes the
107 perceived influence of substance consumption on condom use
108 with both, clients and personal partners, too. The objectives
109 focus their attention on condom use difficulties among MSW
110 drug users in both, clients and personal partners.

111 Method

112 Participants

113 One hundred MSW offering their services in apartments
114 managed by a third-party administrator in Castellón and

Valencia (Spain) were interviewed. The average age was 115
23.7 (SD = 3.61) and ranged from 18 to 35 years old. As 116
for sexual orientation, most of the participants self-identi- 117
fied as homosexual (66%), 20% self-identified as bisexual 118
and 13% as heterosexual. Independently of MSW’s sexual 119
orientation, most of their clients were men. According to 120
their origin, the majority of the participants were from 121
Latin America (83%), especially from Brazil (57%). The 122
remainder were Spaniards (5%), and from other European 123
countries (12%). The average time of residence in Spain 124
was 25.19 months (SD = 25.28) and most of them (83.2%) 125
started their sexual work in this country. Concerning to 126
educational level, more than half had finished high school 127
(62%), 10% had finished primary school and 18% had 128
begun or finished university studies. Finally, 2% of them 129
did not have studies. 130

131 Measures

The “Semistructured Interview for Male Sex Workers” 132
explores the sexual history, risky behaviors and health con- 133
dition of MSW. The instrument includes 82 questions (Likert 134
scales, yes/no and open-ended questions) that are grouped into 135
seven categories: socio-demographic data (age, country of 136
origin, educational level, personal partner, number of chil- 137
dren, etc.), sexual history (masturbation, first sexual encoun- 138
ter, sexual fantasies, history of sexual abuse and sexual 139
orientation), sex work experience (origin of the sex work, 140
risky perceptions, characteristics of clients, and the most 141
common services), health conditions and behaviors (the type 142
of self-care, self-rated health status and STI status), drug use 143
(past or present substance use, and drug perceived influence on 144
condom use with clients), HIV/AIDS (condom use on pro- 145
fessional and personal life, attitudes toward HIV/AIDS, and 146
risk and fears of HIV/AIDS, HIV status, and attitudes toward 147
HIV antibody testing) and general wellbeing (degree of sat- 148
isfaction with professional status and general life). STI and 149
HIV have been always considered separately in this study. 150

This article includes the analyses of the following 151
questions: (1) do you take drugs currently? (yes/no); (2) 152
How much do you think that drug use could influence on 153
condom use with clients? (scale from 0 to 3); (3) Frequency 154
of occasions of condom use with clients in oral sex, anal 155
sex, insertive anal sex, and receptive anal penetration (scale 156
ranging from 0 to 100); (4) Frequency of occasions of 157
condom use with steady partner (scale ranging from 0 to 158
100); (5) What is your risk perception about HIV infection 159
during sex work? (scale ranging from 0 to 100); (6) What is 160
your fear related to HIV infection possibility during sex 161
work? (scale ranging from 0 to 100); (7) Have you ever 162
been tested for HIV? (yes/no); (8) How often are you tested 163
for HIV? (month free answer); and (9) Have you got any 164
STI currently? (yes/no). 165

166	Procedure	Results	216
167	This study was conducted from March 2009 to April 2010.	Substance Consumption	217
168	One hundred MSW were contacted in five apartments	In general, more than half of the MSW (56.7%) have had drugs	218
169	managed by a third party in Valencia and Castellón	in the past. Among MSW, 57% self-identified as drug con-	219
170	(Spain). All of them were invited to participate in the study,	sumers and 16.7% informed that they were hooked on drugs.	220
171	two MSW refused it and three foreign MSW were excluded	The most common substances were “soft drugs” (39.3% took	221
172	because they did not understand Spanish. The MSW lived	marijuana and 28.6% hashish), and other substances were	222
173	for 21 days in the same apartment and then, they were	ecstasy (10.7%), speed (10.7%), ketamine (5.4%) and popper	223
174	relocated in different apartments (in Spain or another	(2.9%). Moreover, the participants (75%) consumed cocaine but	224
175	country). Therefore, the participants included nearly the	not so often. Most of the times they used it during some	225
176	entire population of MSW working in arranged apartments	professional exchange with clients. On the other hand, our	226
177	at that time. <i>Col·lectiu Lambda</i> (a lesbian, gay, bisexual	results have not shown MSW who were injection drug users,	227
178	and transgender Non-governmental organization from	but 2.5% presented a previous injected consumption. In	228
179	Valencia that implements various programs for preventing	addition, 10.8% of MSW reported some overdose and 5.4%	229
180	HIV among MSM and MSW) facilitated some contacts	had participated in a treatment program for stopping drugs.	230
181	with the apartment managers.	STI History and HIV	231
182	Firstly, the purpose of the study was explained to the	Out of participants, 6% informed recent STI diagnosis and	232
183	managers and participants who provided the informed	33% had been diagnosed in the past.	233
184	consent to be interviewed. Because some of the participants	As for HIV test, most of the MSW (91.9%) had been tested	234
185	were illegal, the informed consent only included the	for HIV antibodies. The average of HIV testing frequency	235
186	MSW's first names. Then, one-on-one interviews, in which	was 3.82 months (SD = 4.14) although 35.2% informed an	236
187	participated the research team psychologist and one MSW,	HIV test frequency higher than 6 months. The majority of	237
188	were developed in a private room inside the apartments.	the participants had planned to be tested soon (93.8%) and	238
189	Each interview lasted for an average of 1 h and anonymity,	one MSW had received a positive HIV diagnosis.	239
190	intimacy and confidentiality were guaranteed throughout	Condom Use	240
191	the process. Participation was voluntary although they	Condom use with clients was higher than in personal	241
192	received 10 € as a monetary incentive. This study was	relationships steady or casual. The main average of con-	242
193	approved by the Ethics Committee of University Jaume I	dom use frequency with their current partner was 37% of	243
194	(Spain).	the time (SD = 41.65) and nearly half of the participants	244
195	Statistical Analysis	(46.3%) never used protection in their personal relation-	245
196	Bivariate statistical analysis was conducted. Chi-square	ships. The average percentage of condom use in their	246
197	was used to explore differences between groups for the	professional sex exchange was 76.82% of the time	247
198	variables “educational level”, “country of origin”, “sexual	(SD = 27.6) in oral sex, 97.56% (SD = 9.7) in vaginal	248
199	orientation”, STI prevalence and HIV test according to	sex, 99.64% (SD = 2.26) in insertive anal sex and 99.67%	249
200	drug consumption. On the other hand, T-Test was used to	(SD = 2.22) in receptive anal sex.	250
201	compare the means of two independent samples (i.e. per-	Regarding to their commercial activities, the average	251
202	centage of condom use in both professional and personal	(scale from 0 to 100) of perceived risk infection was 55.5	252
203	relationship, HIV antibody test frequency, perceived risk	(SD = 34.7) and the average of perceived fear was 78.9	253
204	and fear and substance use perceived influence in condom	(SD = 32.7). Moreover, the average of the perceived	254
205	use). In addition, Pearson coefficient was analyzed to	influence of drug consumption on condom use (scale from	255
206	examine the relationship between quantitative variables	0 to 3) was 1.21 (SD = 1.18).	256
207	and linear and logistic stepwise regression models to	Differential Analyses	257
208	explore associations between independent (substance con-	Chi-square test has not indicated statistical significance in	258
209	sumption, perceived influence in condom use and HIV	drug consumption by educational level, country of origin and	259
210	perceived risk) and dependent variables (percentage of	sexual orientation (Table 1).	260
211	condom use with clients and HIV test history). Descriptive		
212	statistics were calculated to examine socio-demographic		
213	variables and other variables related to drug consumption,		
214	condom use or other HIV aspects. These analyses were		
215	performed with SPSS-17 software.		

Table 1 Substance use according to demographic characteristics and sexual orientation

	% substance users	$\chi^2_{(df)}$
Educational level		1.87 ₍₃₎
None	100	
Elementary	50	
Secondary	55.7	
Graduate	61.1	
Country of origin		1.76 ₍₂₎
Spain	25	
Latin American	58.5	
Rest of Europe	58.3	
Sexual orientation		2.36 ₍₂₎
Heterosexual	38.5	
Bisexual	57.9	
Homosexual	61.5	

261 On the other hand, *T*-Test has not shown statistical dif-
 262 ferences in HIV perceived risk ($t = -0.86$; $p = .389$) and
 263 drug perceived influence on condom use with clients
 264 ($t = 0.65$; $p = .515$). In spite of this, MSW common drug
 265 users exceed in HIV perceived risk and perceived less drug
 266 influence on condom use. Moreover, analyses have not
 267 indicated statistical significance by drug use toward HIV fear
 268 or the frequency of regular HIV testing (Table 2), but HIV
 269 test has shown statically significant differences ($\chi^2 = 3.83$;
 270 $p = .050$) (Table 3). The percentage of MSW common drug
 271 users who have taken HIV test exceed MSW who were not
 272 consumers. On the other hand, statistical differences
 273 between substance use and STI diagnosis were not found.

274 Regarding to condom use (Table 4), the results have not
 275 shown statistically significant differences in the variables
 276 related to condom use with clients.

277 Finally, Pearson correlation analyses (Table 5) have not
 278 revealed relation between the drug perceived influence on
 279 condom use with clients and other variables, except in the
 280 frequency of HIV test. Higher drug perceived influence on
 281 condom use with clients is connected to minor frequency of
 282 HIV antibody testing ($r = -0.22$; $p = .043$).

283 Regression Analyses

284 Regression analyses were made in order to explore the
 285 predictive value of independent variables (“substance use
 286 among MSW”, “drug perceived influence on condom use
 287 with clients” and “HIV perceived risk”) on HIV testing
 288 frequency, which was the only statistically significant
 289 variable found before among MSW drug users and non
 290 users.

291 Logistic regression has shown 7.4% of percentage of
 292 variance explained for HIV testing. Moreover, variables

with significant adjusted OR were not found (substance
 use: OR = 0.14; $p = .094$; drug perceived influence on
 condom use with clients: OR = 0.61; $p = .249$; HIV per-
 ceived risk: B = -0.98 ; $p = .160$).

Discussion

In general, our results have supported the existence of
 common drug consumption among MSW population who
 offer services in a third party manager flat [21, 24, 27, 28].
 In this context, the most common substances were “soft
 drugs”, especially marijuana and hashish. However, other
 authors have suggested that among street MSW, hard drugs
 were more prevalent [15, 32]; probably, because street
 MSW are away from control sources such as managers
 [21]. Therefore, this study supports the existence of some
 differences among different venues [23, 33].

In particular, the absence of MSW who were injection
 drug users is an important finding. Firstly, because this is a
 specific difference regarding to previous studies which
 have suggested considerable injected drug consumption
 among street MSW [15, 25]. Therefore, our results
 emphasize the difference between street MSW and those
 who offer their services in apartments. Furthermore, this
 absence supposes a lower HIV risk infection among MSW
 related to syringe exchange [29].

Furthermore, our results have also revealed that most of
 the MSW consumed cocaine. However, according to pre-
 vious research [26], drug consumption was associated with
 clients who contracted MSW’s services for many hours,
 mixing sexual behaviors with coca consumption. There-
 fore, this might be a sporadic and specific professional
 situation. If we assume that clients could propose cocaine
 consumption during their sexual exchanges, clarifying the
 role of these clients is necessary.

Apart from that, educational level, country of origin and
 sexual orientation have not been mediating in substance
 use. However, if we consider some limitations of our
 research and past studies [10, 15], such as limited educa-
 tional, cultural, and sexual orientation diversity, exploring
 this possibility in future research is required.

In general, MSW common drug consumers informed
 lower percentage of condom use with clients than non
 consumers, particularly in oral sex. This result supports
 previous research which has already suggested the higher
 risk of unsafe sex among those MSW who consume drugs
 [8, 34]. Safe sex is modulated by the ability of the MSW to
 gain control of the sexual encounter [21] and this ability
 may be reduced if the sex worker takes some drugs [35].
 Our study shows that, in general, percentage of condom use
 has been high with both clients, men and women, but in
 oral sex has been lower than in anal sex [15]. Although

Table 2 Drug consumption and HIV

	Users M _(SD) n = 57 (57%)	Non users M _(SD) n = 43 (43%)	t _(df)
HIV perceived risk (0–100)	57.96 _(32.21)	51.76 _(38.30)	−0.86 ₍₉₅₎
Fear towards HIV (0–100)	81.32 _(31.58)	76.67 _(34.83)	−0.69 ₍₉₆₎
Drug perceived influence on condom use (0–3)	1.15 _(1.10)	1.31 _(1.30)	0.65 ₍₈₉₎
Regular HIV test frequency (months)	3.64 _(4.33)	4.06 _(3.97)	0.45 ₍₈₄₎

* Significance level ≤.05

Table 3 STI prevalence (not including HIV+) and HIV test according to drug consumption

	Users (%)	Non-users (%)	χ ² _(df)
Current STI	66.7	33.3	0.24 ₍₁₎
Previous STI	68.8	31.2	2.61 ₍₁₎
HIV test	60.7	39.3	3.83 _{(1)*}

* Significance level ≤.05

Table 4 Influences in percentage of condom use between drug users and non-users

% condom use	Users M _(SD) n = 57 (57%)	Non-users M _(SD) n = 43 (43%)	t _(df)
Oral sex	75.11 _(28.42)	78.51 _(27.20)	0.59 ₍₉₅₎
Vaginal sex	96.59 _(12.07)	98.94 _(4.59)	0.81 ₍₄₄₎
Insertive anal sex	99.43 _(2.97)	99.90 _(0.44)	1.01 ₍₉₅₎
Receptive anal sex	99.52 _(2.89)	99.88 _(0.48)	0.72 ₍₈₀₎
Current partner	41.04 _(42.32)	27 _(38.50)	−1.06 ₍₃₈₎
Previous partner	11.58 _(12.16)	9.21 _(7.80)	−0.83 ₍₅₃₎

* Significance level ≤.05

Table 5 Correlations between drug perceived influence on condom use with clients and dependent related variables with HIV

	Drug use perceived influence r
% use in oral sex	−0.01
% use in vaginal sex	−0.03
% use in insertive anal sex	−0.13
% use in receptive anal sex	−0.07
% use in current partner	−0.15
% use in previous partner	0.17
HIV perceived risk	0.05
Fear towards HIV	0.06
Regularity HIV test frequency	−0.22*

* Significance level ≤.05

343 some studies revealed increasing risk in receptive anal
344 not, in insertive anal sex [7], our study does not pre
345 important differences in this sense. Previous research
346 showed that anal sex (both insertive and receptive) among
347 MSW was very common [19]. Most of MSW in this study
348 answered that their frequency of insertive anal sex with
349 clients was “quite often” or “always” (86%) and almost
350 half of the participants (45%) said that their frequency of
351 receptive anal sex was “quite often” or “always”. Another
352 research showed that frequency of condom use with clients
353 in anal sex was higher than 99% of time [36].

354 On the other hand, drug consumers indicated higher HIV
355 risk perceived, maybe because their condom use with cli-
356 ents was lower, and less drug perceived influence on
357 negotiation of condom use. Therefore, the lack of aware-
358 ness about the influence of drugs could promote their
359 common consumption. The communication about condom
360 use might be less likely when the practice involved sub-
361 stance use, increasing HIV risk [14].

Moreover, MSW drug consumers presented more STI 362
incidence than those who did not take substances fre- 363
quently. We cannot affirm that our data of STI are directly 364
related to drug use but could also influence on their per- 365
ceived risk of HIV infection. Moreover, we have noticed 366
that HIV antibody testing frequency is related to drug 367
perceived influence on condom use with clients. Higher 368
drug perceived influence is related to lower HIV test fre- 369
quency, thus health care degree could be a mediating 370
variable. This lack of health awareness might be general- 371
ized to drug use and its possible influence on condom use 372
and other behaviors related to HIV infection such as anti- 373
body testing. Health care may be more explored in 374
order to see their possible relation with drug cons 375
on and different aspects about HIV. In this way, some factors 376
such as high self-confidence or risk perception could be 377
mediating variables. 378

379 Among non-drug users MSW, condom use with clients
380 has been higher than condom use with steady partners [15,
381 36]. However, MSW users have shown more frequency of
382 condom use with their intimate partners, maybe because
383 their higher perceived risk or fear of HIV infection.
384 Therefore, it is necessary to clarify what type of variables
385 could make the condom use with noncommercial partners
386 less frequent.

387 Regression analysis shows that the effect of substance
388 use, drug perceived influence on condom use with clients

389 and HIV perceived risk disappeared from the final model.
390 These results are not consistent with the expected ones.
391 The authors thought that these variables may predict HIV
392 testing, as previous associations have been found in other
393 MSM studies [12–14]. Future studies must explore other
394 variables about drug use and other aspects related to sex
395 work that may explain behaviors about HIV testing and
396 condom use [10].

397 These findings may be considered in light of the limi-
398 tations of our research. Some aspects could mediate on the
399 validity of data collected through interviews. For example,
400 social desirability bias when reporting problematic behav-
401 iors or serological status, and language difficulties with
402 some foreign MSW who did not understand Spanish or
403 English properly.

404 Another limitation is the absence of questions about the
405 reason for using drugs although other studies have already
406 revealed some reasons such as putting negative awareness
407 during sex work, social effectiveness and making easy the
408 contact with clients [35]. Furthermore, studies with female
409 sex workers suggested that drug use is a way to put up with
410 their professional activity [37]. Moreover, future research
411 must take into account the intensity and frequency of
412 substance use. Condom use may be more affected when
413 consumption is near or just before intercourse.

414 Moreover, the reduced number of MSW in some groups
415 (e.g. Spanish MSW) makes more difficult to generalize our
416 results. However, in this research participated all the
417 apartments involved in sex work in the geographical area
418 of the study. Furthermore, according to past research [15]
419 and because of the MSW mobility, the participants are
420 representative of the MSW engaging sex work in Spanish
421 agencies. In spite of valuable information obtained with our
422 research, any generalization should be done with caution.
423 Nevertheless, more research is needed in other sex work
424 venues, such as Internet or saunas, to generalize our results
425 throughout the entire population of MSW [33].

426 Despite these limitations, the present paper contributes
427 to better understanding drug use profile among MSW and
428 its influence on sexual risk behaviors such as condom use
429 with clients and in their intimacy sexual intercourses.
430 Sparse previous scientific data has examined the relation-
431 ship between substance use among MSW and sexual risk
432 behaviors in professional but not in personal ones [17].
433 Therefore, some conclusions of this article such as, the
434 absence of injected drugs among those MSW in agency
435 what is an important difference with street MSW [28], or
436 differences in condom use between users and non-users in
437 both steady and professional sex partners [36] are
438 highlighted.

439 Summarizing, more research about the role of drug
440 perceived influence on condom use with clients is needed.
441 Nevertheless, if we consider the condom use with personal

442 partners, exploring the relationship between unsafe sex and
443 different type of relations (commercial and personal) is
444 required among all MSW. In this process the main aim
445 should be training in social skills to better negotiate sexual
446 practices, drug consumption and condom use with both
447 professional and personal partners [36]. In addition, future
448 prevention strategies may take into consideration new sex
449 work locations and other variables that could be related to
450 drug consumption among MSW population [23, 33] and
451 involving managers and clients is required [7]. In addition,
452 it is important to transmit to MSW the role of their steady
453 partners in HIV infection and in drug use.

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