

Impact of Amphetamine-Type Stimulant Use on PrEP Adherence in Men Who Have Sex with Men Without HIV in Bangkok, Thailand

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Introduction

Amphetamine-type stimulant (ATS) use is associated with an increased risk of HIV acquisition. The rising prevalence of ATS use among men who have sex with men (MSM) raises concerns regarding adherence to and effectiveness of HIV prevention methods, such as daily oral Pre-Exposure Prophylaxis (PrEP). This study assessed factors associated with suboptimal PrEP adherence among Thai MSM.

Methods

Between January 2018 and May 2019, Thai MSM aged 18 years and over attending an HIV testing center in Bangkok, Thailand, were enrolled in an 18-month longitudinal study. Self-administered questionnaires assessing number of sexual partners, substance use, condom use, PrEP adherence, anxiety, and depression, were completed every 6 months. Data were analyzed using generalized estimating equations with an unstructured correlation to identify determinants of suboptimal PrEP adherence.

Results

320 MSM without HIV (median age of 30 years) were recruited for the study. At baseline, 67 (20.9%) and 88 (27.5%) participants reported recent ATS and PrEP use. Across subsequent month-6, -12 and -18 visits, 274 responses confirmed current PrEP usage, of which 178 provided adherence data. Fourteen (7.9%) responses reported suboptimal PrEP adherence (<4 tablets/week). Multivariable analysis adjusted for age, number of sexual partners, popper use, and mental health issues showed that ATS use in the past 6 months was not associated with suboptimal PrEP adherence (aOR 1.69, 95%CI 0.26-10.93). Instead, it is associated with having a single sexual partner in the past 6 months (aOR 7.06, 95%CI 1.72-29.01) compared to those with multiple partners, and borderline anxiety (aOR 13.22, 95%CI 2.09-83.63) compared to those without anxiety.

Conclusions

Suboptimal PrEP adherence was not associated with recent ATS use but was correlated with having a single sexual partner and borderline anxiety. This emphasizes the need for HIV prevention strategies and integrated mental and sexual health services for MSM, regardless of ATS use status.

Acknowledgement

- TreatAsia
 - Natinal Institute of Health (NIH)
 - amfAR
- Thai Red Cross Annonymous Clinic (TRCAC)
 - Institute of HIV Research and Innovation (IHRI)

Table 1	Accumulative baseline characteristics of men who have sex with men who provided PrEP adherence information across month 6-18 follow-up period			
	Number of PrEP taken per week N (%)			
	>=4 (%)	<4 (%)	Total	P-value
N (%)	164 (92.1)	14 (7.9)	178 (100.0)	
Age (years)				
Age: median(iqr)	30 (26,36)	30 (25,35)	30 (26,36)	
Current work/study status				
Working	129 (79.1)	9 (64.3)	138 (78.0)	0.215
Studying	12 (7.4)	3 (21.4)	15 (8.5)	
Working and studying	14 (8.6)	1 (7.1)	15 (8.5)	
Not working or studying	8 (4.9)	1 (7.1)	9 (5.1)	
Number of sexual partners				
None	2 (1.6)	0 (0.0)	2 (1.5)	0.132
1	30 (23.4)	5 (55.6)	35 (25.5)	
>1	96 (75.0)	4 (44.4)	100 (73.0)	
Condom use as top and bottom				
Never	9 (12.2)	0 (0.0)	9 (11.4)	0.809
Always	27 (36.5)	3 (60.0)	30 (38.0)	
Sometimes	38 (51.4)	2 (40.0)	40 (50.6)	
Sex work				
No	146 (89.0)	11 (78.6)	157 (88.2)	0.218
Yes	18 (11.0)	3 (21.4)	21 (11.8)	
Group sex				
No	104 (65.4)	10 (71.4)	114 (65.9)	0.774
Yes	55 (34.6)	4 (28.6)	59 (34.1)	
ATS use in the past 6 months				
No	99 (61.5)	9 (64.3)	108 (61.7)	0.837
Yes	62 (38.5)	5 (35.7)	67 (38.3)	
Crystal methamphetamine				
Never/Used more than 6 months ago	100 (62.9)	9 (64.3)	109 (63.0)	0.918
Used in past 6 months	59 (37.1)	5 (35.7)	64 (37.0)	
Ecstasy				
Never/Used more than 6 months ago	154 (95.1)	13 (92.9)	167 (94.9)	0.534
Used in past 6 months	8 (4.9)	1 (7.1)	9 (5.1)	
Frequency of ATS use				
Never/Ever use ATS more than 6 months ago	99 (61.5)	9 (64.3)	108 (61.7)	0.616
Use every 1-6 month	27 (16.8)	1 (7.1)	28 (16.0)	
Use monthly or more frequently	35 (21.7)	4 (28.6)	39 (22.3)	
Positive PTSD screening				
No	156 (95.1)	12 (85.7)	168 (94.4)	0.180
Yes	8 (4.9)	2 (14.3)	10 (5.6)	
Hospital Depression				
Normal score 0-7	143 (87.7)	11 (78.6)	154 (87.0)	0.208
Borderline score 8-10	13 (8.0)	3 (21.4)	16 (9.0)	
Abnormal score 11-21	7 (4.3)	0 (0.0)	7 (4.0)	
Hospital anxiety				
Normal score 0-7	133 (83.6)	9 (64.3)	142 (82.1)	0.046
Borderline score 8-10	14 (8.8)	4 (28.6)	18 (10.4)	
Abnormal score 11-21	12 (7.5)	1 (7.1)	13 (7.5)	

IQR, interquartile range; ATS, Amphetamine Type Stimulans.
a Pearson's chi-squared test, b Independent sample t-test, c Exact probability test

Table 2	Univariable and multivariable logistic model (with cluster variance correction) for the association with PrEP adherence among men who have sex with men					
	Univariableanalysis			Multivariable analysis		
	Odd ratio	95%CI	p-value	Adjusted odd ratio	95%CI	p-value
Age (years)						
18-24	1	Reference		1	Reference	
>=25	0.79	0.20-3.08	0.731	0.67	0.09-5.02	0.694
Number of sexual partners						
1	4.00	1.04-15.33	0.043	7.06	1.72-29.01	0.007
>1	1	Reference		1	Reference	
Condom use						
Always	1	Reference				
Sometimes	0.47	0.07-3.14	0.439			
Sex work						
No	1	Reference				
Yes	2.21	0.51-9.64	0.290			
Group sex						
No	1	Reference				
Yes	0.76	0.23-2.49	0.646			
ATS use in the past 6 months						
No	1	Reference		1	Reference	
Yes	0.89	0.30-2.66	0.831	1.69	0.26-10.93	0.583
Crystal methamphetamine						
Never/Used more than 6 months ago	1	Reference				
Used in past 6 months	0.94	0.31-2.84	0.915			
Ecstasy						
Never/Used more than 6 months ago	1	Reference				
Used in past 6 months	1.48	0.15-14.23	0.734			
Frequency of ATS use						
Never/Ever use ATS more than 6 months ago	1	Reference				
Use every 1-6 month	0.41	0.06-3.01	0.379			
Use monthly or more frequently	1.26	0.37-4.30	0.715			
PTSD screening positive						
No	1	Reference		1	Reference	
Yes	3.25	0.54-19.56	0.198	4.9	0.29-81.78	0.269
Hospital Depression						
Normal score 0-7	1	Reference				
Borderline score 8-10	3.00	0.63-14.33	0.168			
Abnormal score 11-21	N/A	N/A	N/A			
Hospital anxiety						
Normal score 0-7	1	Reference		1	Reference	
Borderline score 8-10	4.22	1.22-14.66	0.023	13.22	2.09-83.63	0.006
Abnormal score 11-21	1.23	0.13-11.28	0.854	0.63	0.01-29.63	0.816

CI ; confidence interval
Variables were not included in the multivariable analysis due to there are missing value more than 20% or a small number of outcome events