

No evidence of sexual risk compensation with increasing awareness of 'Treatment as Prevention' among HIV-positive and HIV-negative MSM in Vancouver

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Background

In British Columbia, Canada, MSM comprise 45% of the 9,300-13,500 individuals living with HIV and 63% of all new HIV diagnoses in 2012 (150 cases).

'Treatment as Prevention' (TasP) is actively promoted as a strategy to prevent HIV and AIDS-related disease progression and premature death as well as decrease HIV transmission in BC.

A patient's health literacy plays an important role in health and clinical outcomes, but there is limited literature available on patient's self-reported knowledge of TasP among those living with or at risk for HIV.

While better understanding of TasP may improve clinical outcomes (ART adherence and viral suppression), there is concern this effect could be overwhelmed by increased risk behaviors (unprotected anal intercourse), commonly referred to as risk compensation.

Study Objective: We measured TasP awareness and investigated socio-demographic, clinical, and behavioural covariates within a cohort of HIV-positive and HIV-negative men who have sex with men (MSM) in Vancouver.

Methods

Study Population: The Momentum Health Study is a longitudinal cohort study of MSM in Vancouver. Participants are recruited via Respondent Driven Sampling (RDS). Data were analyzed for participants enrolled between Feb 25 2013 and Oct 31 2013.

Primary Outcome: Participants were asked if they had heard of TasP and, if so, to provide a definition. Complete TasP knowledge demonstrated three factors: ART use; viral load reduction; and HIV transmission prevention. Responses were coded by two independent reviewers. Participants with missing definitions (n=72) or those only describing pre- and post-exposure prophylaxis (PrEP/PEP) (n=45) were excluded.

Statistical Analysis: We report characteristics of participants by 'never heard of TasP', 'incomplete TasP definition' (0 or 1 TasP factors identified), and 'partial/complete TasP definition' (2 or 3 TasP factors identified) using Pearson χ^2 test for categorical variables and Wilcoxon rank-sum test for continuous variables. We used multivariable proportional odds logistic regression to determine covariates of TasP knowledge.

Results

A total of 502 MSM (27% HIV-positive) were included in this analysis. HIV-positive participants were more likely to have heard of TasP than HIV-negative participants (66 vs. 39% p<0.001). Only 33 of 196 participants who heard of TasP provided a complete definition, with 21% identifying two factors and 45% identifying one or none. Participants learned about TasP from a range of community agencies (39%), gay media (36%), friends (29%), doctors (25%), and sex partners (14%).

Table 1: Socio-demographic characteristics by TasP Comprehension

	Total	Never heard of TasP, n(%)	Incomplete TasP Definition, n(%) (0 or 1 factors identified)	Partial/Complete TasP Definition, n(%) (2 or 3 factors identified)	p-value
HIV positive					
No	366	260 (85)	53 (59)	53 (50)	<0.001
Yes	136	46 (15)	37 (42)	53 (50)	
Caucasian ethnicity					
No	126	92 (30)	22 (24)	92 (30)	<0.001
Yes	376	214 (70)	68 (76)	94 (89)	
Age					
16-24	100	79 (26)	11 (12)	79 (26)	<0.001
25-39	214	135 (44)	34 (38)	135 (44)	
40+	188	92 (30)	45 (50)	92 (30)	
Sexual identity					
Gay	425	259 (85)	72 (80)	94 (89)	0.046
Bisexual	49	32 (10)	11 (12)	6 (6)	
Other	28	15 (5)	7 (8)	6 (6)	
Education					
High school or less	39	28 (9)	10 (12)	1 (1)	<0.001
Completed high school	82	50 (17)	22 (25)	10 (10)	
Greater than high school	370	222 (74)	55 (63)	93 (89)	

Results (continued)

Table 1 Continued

	Total	Never heard of TasP, n(%)	Incomplete TasP Definition, n(%) (0 or 1 factors identified)	Partial/Complete TasP Definition, n(%) (2 or 3 factors identified)	p-value
Currently employed					
No	183	105 (34)	48 (53)	30 (28)	<0.001
Yes	319	201 (66)	42 (46)	76 (72)	
Relationship with regular partner					
No	311	202 (69)	54 (62)	55 (58)	0.088
Yes	162	89 (31)	33 (38)	40 (42)	
Neighbourhood					
Downtown / West End	250	135 (44)	54 (60)	61 (58)	0.010
Elsewhere in Vancouver	149	96 (31)	21 (23)	32 (30)	
Outside of Vancouver	103	75 (26)	15 (17)	13 (12)	

Table 2: Drug use, sexual and clinical variables by TasP Comprehension

	Total	Never heard of TasP, n(%)	Incomplete TasP Definition, n(%) (0 or 1 factors identified)	Partial/Complete TasP Definition, n(%) (2 or 3 factors identified)	p-value
Any drug use in past 6 months					
No	176	115 (38)	26 (29)	35 (33)	0.279
Yes	326	191 (62)	64 (71)	71 (67)	
Party drug use in past 6 months					
No	199	129 (42)	31 (34)	39 (37)	0.335
Yes	303	177 (58)	59 (66)	67 (63)	
Injection drug use in past 6 months					
No	464	281 (92)	83 (92)	100 (94)	0.669
Yes	38	25 (8)	7 (8)	6 (6)	
No. anal sex partners in past 6 months					
0-1	163	103 (38)	27 (40)	33 (34)	0.056
2-5	151	99 (37)	26 (38)	26 (27)	
6+	123	69 (26)	15 (22)	39 (40)	
Unprotected anal sex with opposite or unknown status partner in past 6 mo.					
No	167	99 (34)	27 (30)	41 (39)	0.456
Yes	322	195 (66)	62 (70)	65 (61)	
Currently has a family doctor					
No	169	40 (23)	19 (21)	23 (22)	<0.001
Yes	333	137 (77)	71 (79)	83 (78)	
Out to family doctor					
No	58	40 (23)	12 (17)	40 (23)	0.012
Yes	271	137 (77)	59 (83)	137 (77)	
Current CD4 cell count (HIV+ MSM only)					
<200	11	7 (16)	2 (6)	2 (4)	0.212
200-349	15	5 (11)	6 (17)	4 (8)	
350+	105	33 (73)	28 (78)	44 (88)	
Current VL (HIV+ MSM only)					
<50	85	25 (56)	24 (67)	36 (72)	0.166
50-999	26	11 (24)	5 (14)	10 (20)	
1,000-9,999	7	4 (9)	3 (8)	0 (0)	
10,000-99,999	9	2 (4)	3 (8)	4 (8)	
100,000+	4	3 (7)	1 (3)	0 (0)	

In adjusted analyses: Participants who were HIV-positive (AOR=3.92 [95% CI:2.60-5.90]), Caucasian (AOR=2.31 [95% CI:1.44-3.73]), and had a regular sexual partner (AOR=1.60 [95% CI:1.08-2.36]) were more likely to report higher TasP awareness. TasP comprehension was not associated with any clinical, drug use, or sexual variables including UAI with opposite or unknown status partner (OR=0.90 [95% CI:0.62-1.30]).

Conclusions

Despite widespread TasP promotion, awareness of TasP was relatively modest in this study, particularly among HIV-negative MSM. However, such awareness was not associated with sexual risk compensation. It remains critical to strengthen TasP literacy to optimize individual health outcomes and reduce HIV transmission in BC.

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