

Factors associated with perceived and current HIV risk among men who have sex with men in Brazil, Mexico, and Peru

E.H. Vega-Ramirez ^{1,2}, T.S. Torres ³, K.A. Konda ⁴, D. Diaz-Sosa ¹, R. Robles ¹, O.A. Elorreaga- Reyes ⁴, B. Hoagland ³, S. Diaz ⁵, C. Pimenta ⁶, M. Bennedeti ³, H. Lopez-Gatell Ramirez ⁷, B.Grinsztejn ³, C.F. Carceres ⁴, V.G. Veloso ³, for the ImPrEP Study Team.

Institute(s): ¹ National Institute of Psychiatry ; 'Ramón de la Fuente Muñiz';; ² Mexico City, Mexico, Condesa&Condesa-Iztapalapa Specialized Clinics, Mexico City, Mexico, ³ Instituto Nacional de Infectología Evandro Chagas, Fundação Oswaldo Cruz (INI-Fiocruz), Rio de Janeiro, Brazil, ⁴ Centro de Investigación Interdisciplinaria en Sexualidad Sida y Sociedad, UPCH, Lima, Peru, ⁵ United Nations Population Fund, ⁶ Brazilian Ministry of Health, Brasília, Brazil, ⁷ National Institute of Public Health, Morelos, Mexico.

Background

- Populations with current HIV risk (CHR) may report low perceived HIV risk (L-PHR).
- Factors associated with CHR and L-PHR among men who have sex with men (MSM) are poorly understood.
- This analysis aims to explore these factors among MSM from Brazil, Mexico, andPeru.

Methods

- MSM from Brazil, Mexico and Peru were recruited to respond to an online survey advertised on gay social-network apps and social media (May-June 2018).
- L-PHR was established from the question: “*Considering your sexual practices, in your opinion, what would be your risk of getting HIV during the next 12 months?*” CHR was defined using CDC’s MSM Risk Index, this was calculated according to
- self-reported behavior.
- Both outcomes were dichotomized (low vs. high).
- Logistic multivariable models were used to estimate the associations between
- co-variables with L-PHR and CHR.

Results

- A total of 19,456 MSM were included in the analysis, median age was 28 years old (IQR: 24-34), most respondents were Brazilian (58%), and had not completed high school, 6,234 (32%) (**Table 1**).
- More than half had CHR, 10,165 (52%), but only 18,959 (10%) reported high PHR (**Figure 1**).
- As depicted in **Table 2**, factors associated with both CHR and PHR were: non-gay identified MSM, reported anticipated risk compensation if using PrEP, daily use of apps for
- sex, transactional sex, and STI diagnosis (Table 2).
- Low education was associated with L-PHR. Moreover, Young MSM, PrEP awareness, and having a steady partner were associated with CHR.
- Variables explaining CHR and L-PHR are show detailed in **Figure 2**. Those with STI diagnosis and have had transactional sex were less likely to report L-PHR.
- **Figure 3** represents the variables conforming the CDC’s risk criteria.

Table 1. Characteristics of the individuals who completed the questionnaire. Brazil, Mexico and Peru, 2018.

	Brazil N=11366 (58.4%)	Mexico N=5934 (30.5%)	Peru N=2156 (11.1%)	Total N=19456 (100%)	<i>p</i>
Age (years)					
Median (IQR)	29 (24-35)	28 (24-34)	26 (22-31)	28 (24-34)	<.001
18-24	3222 (16.6)	1766 (9)	886 (4.5)	5877 (30.2)	<.001
25-35	5364 (27.6)	2991 (15.4)	970 (5)	9325 (47.9)	
> 36	2780 (14.28)	1177 (6.04)	297 (1.52)	4254 (21.9)	
Monthly income					
Low	5136 (26.4)	1544 (8)	710 (3.6)	7390 (39.6)	<.001
Middle	4700 (24.2)	2400 (12.3)	948 (4.9)	8048 (43.1)	
High	1531 (7.9)	1419 (7.3)	272 (1.4)	3222 (17.3)	
Education: < High school	4378 (22.5)	1395 (7.2)	461 (2.4)	6234 (32.2)	<.001

Note: variables with p<0.01 in bivariate models were included in the initial multivariable model. Variables with p<0.05 were kept in the final multivariable models.
a not statically significant, b variables included to calculate the Current HIV-Risk.

Figure 1. Current HIV Risk (CHR) and Low- Perceived HIV Risk (L-PHR).

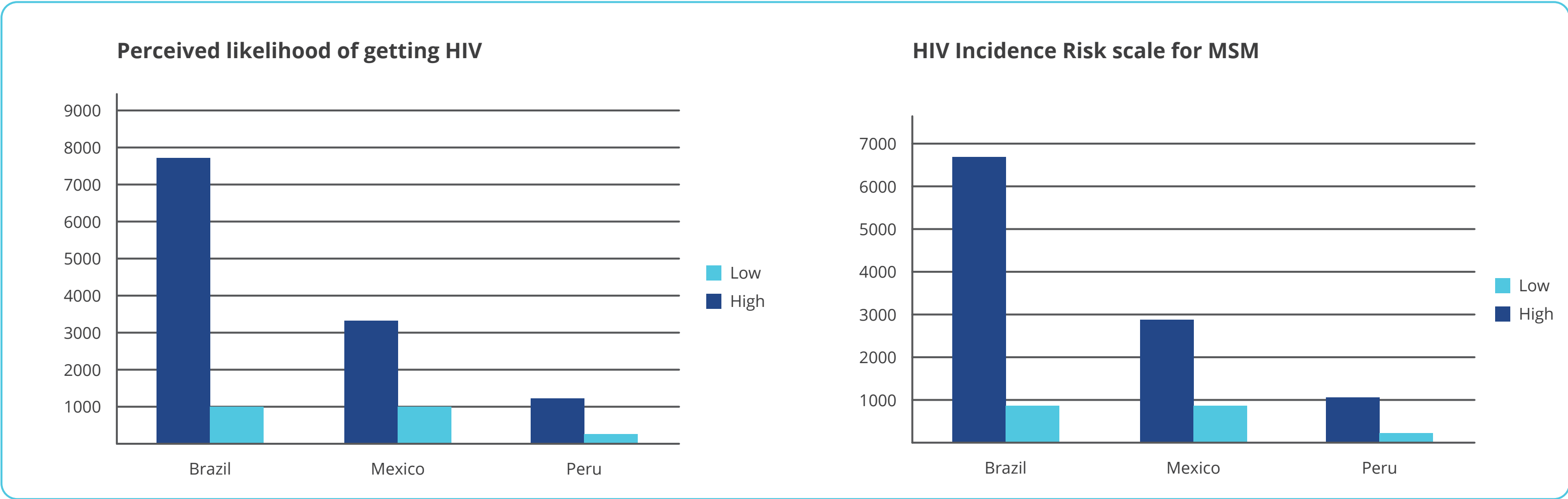


Figure 2. Factors associated with Current HIV risk (CHR) and Low-Perceived HIV Risk (L-PHR).

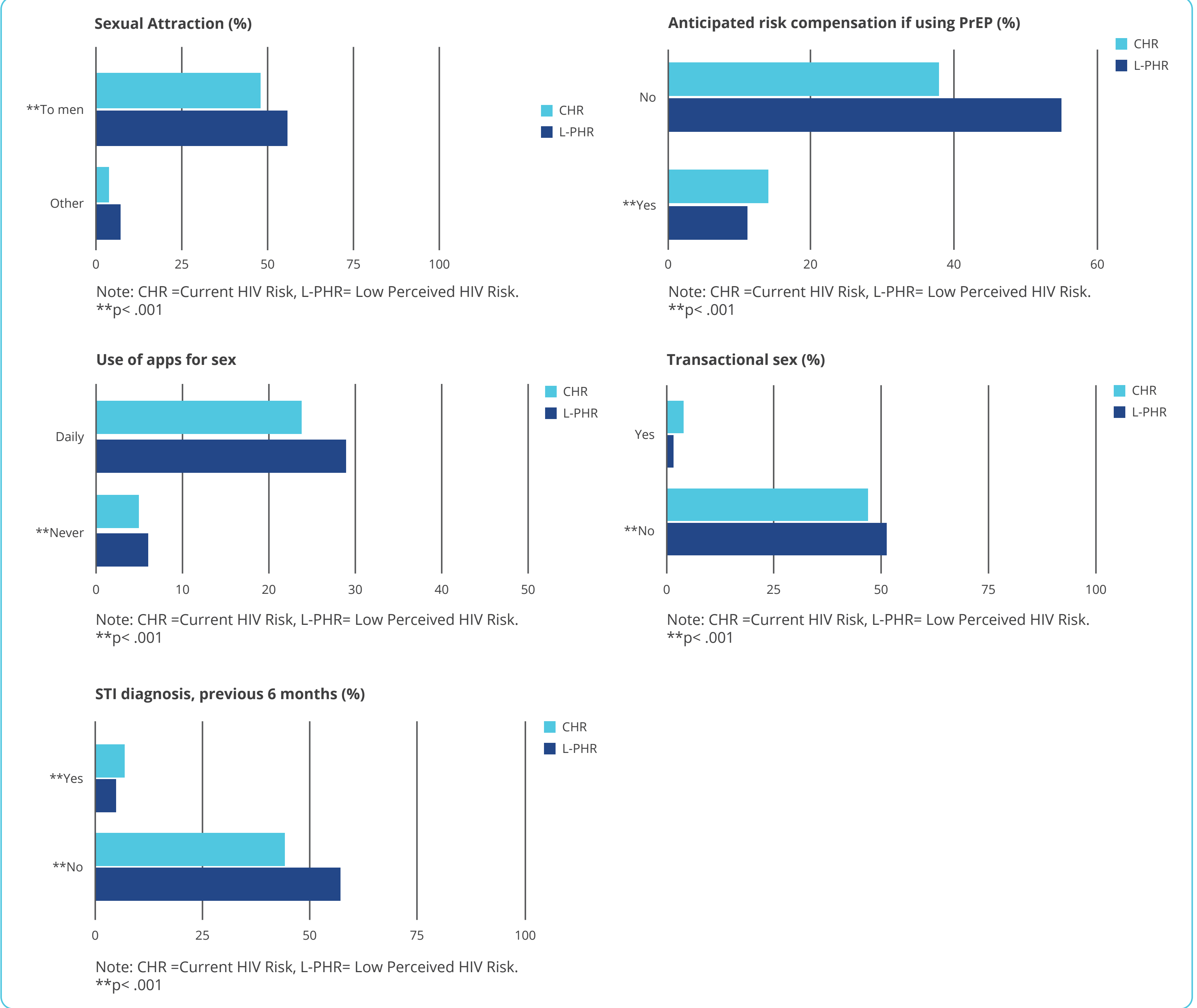


Figure 3. MSM RISK CRITERIA

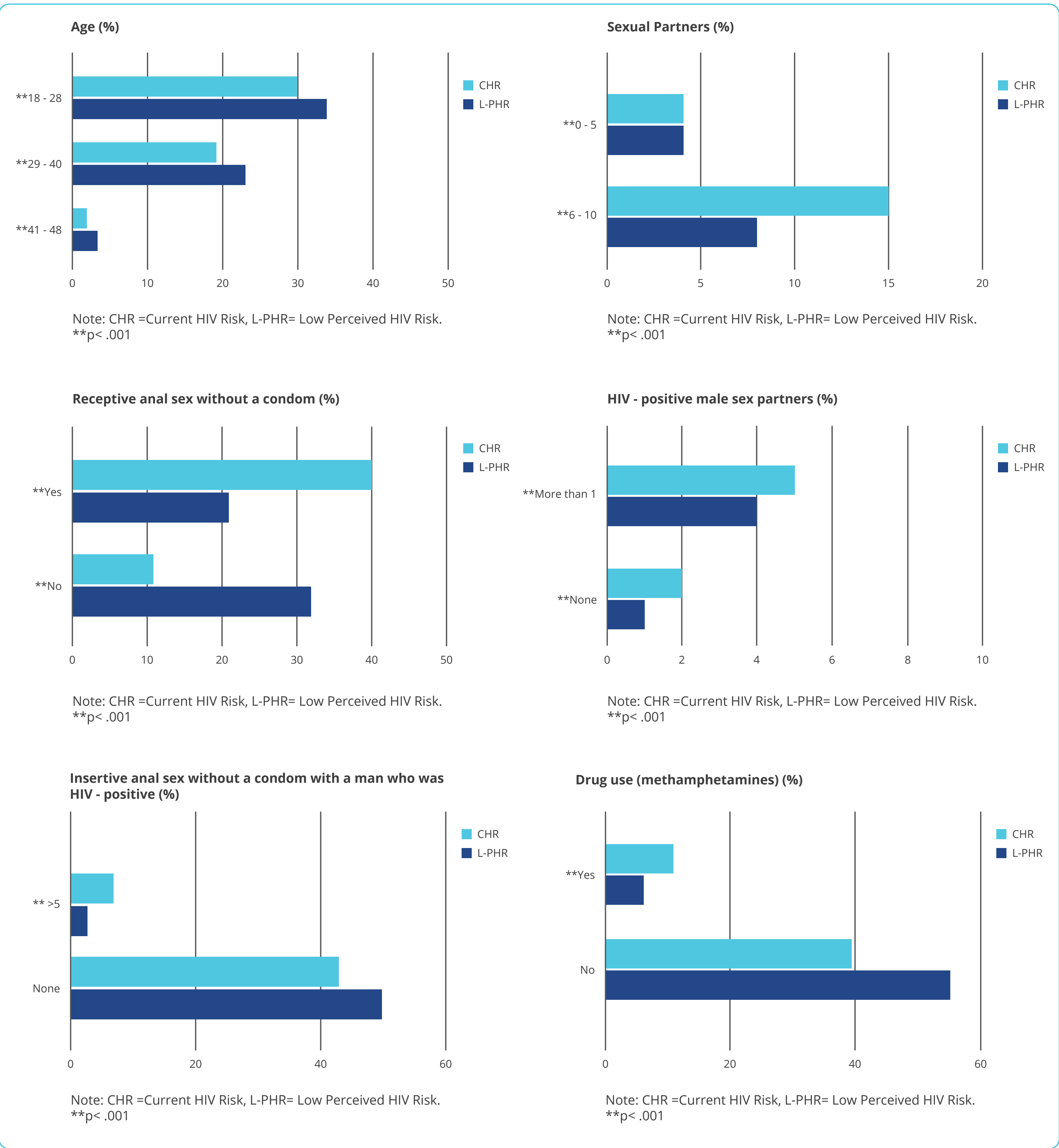


Table 2. Factors associated with high perceived and current HIV risk among MSM in Brazil, Mexico, and Peru.

	Perceived HIV risk OR (95% CI)	Perceived HIV risk aOR(95% CI)	Current HIV risk OR (95% CI)	Current HIV risk aOR(95% CI)
Age (18-24 vs. ≥35 years)	0.99 (0.92-1.07)	<i>a</i>	1.67 (1.56-1.80)	1.83 (1.69-1.99)
Education (< High school vs. ≥ High school)	0.95 (0.89-1.02)	1.16 (1.07-1.24)	1.07 (1.01-1.14)	<i>a</i>
Income (low vs. high)	1.03 (0.96-1.10)	<i>a</i>	1.02 (0.96-1.09)	1.08 (1.00-1.16)
Sexual Orientation (sexually attracted to men vs. other)	1.28 (1.16-1.42)	1.29 (1.66-1.44)	1.83 (1.67-2.01)	1.95 (1.72-2.16)
Steady partner (yes vs. no)	0.89 (0.83-0.95)	<i>a</i>	1.15 (1.08-1.22)	1.38 (1.29-1.49)
HIV testing (≤12 months vs. >12 months)	1.25 (1.14-1.37)	<i>a</i>	1.20 (1.12-1.28)	1.25 (1.12-1.38)
Anticipated risk compensation if using PrEP (yes vs. no)	2.26 (2.10-2.46)	2.09 (1.94-2.25)	1.97 (1.83-2.11)	2.05 (1.82-2.31)
PrEP awareness (yes vs. no)	1.01 (0.95-1.07)	<i>a</i>	1.20 (1.12-1.28)	1.38 (1.29-1.49)
Use of apps for sex (daily vs. never)	3.86 (3.37-4.44)	4.30 (3.72-4.98)	2.03 (1.82-2.25)	2.05 (1.82-2.31)
PEP last 12 months (yes vs. no)	0.92 (0.83-1.03)	0.83 (0.73-0.93)	1.49 (1.34-1.65)	1.33 (1.18-1.49)
Transactional sex, previous 6 months (yes vs. no)	2.20 (1.94- 2.50)	1.97 (1.73-2.13)	3.01 (2.61-3.48)	2.51 (2.14-2.95)
Male Sexual Partners (≤ 5 vs. > 5)	2.77 (2.60-2.95)	2.23 (2.07-2.40)	<i>b</i>	<i>b</i>
Sex under the influence of alcohol (yes vs. no)	1.73 (1.63-1.84)	1.34 (1.25-1.45)	<i>b</i>	<i>b</i>
Sex under the influence of drugs (yes vs. no)	1.96 (1.81-2.12)	1.26 (1.15-1.39)	<i>b</i>	<i>b</i>

Conclusions

- We found that 10% of HIV-negative MSM participants from Brazil, Mexico and Peru perceived themselves to be at risk for HIV acquisition, and 52% were at CHR.
- Many factors associated with PHR were also associated with CHR, such as: anticipated risk compensation if using PrEP, daily use of apps for sex, transactional sex and STI diagnosis in the previous 6 months.
- Understanding the relationship between PHR, CHR and diverse factors can be a first approach towards the creation of intervention strategies, so health professionals can influence to modify the perceived HIV risk to be in line with current risk.
- Education is not enough to reduce the risk; prevention tools like PrEP might be beneficial to be used as protective factor.
- These results highlight that young MSM with daily use of apps for sex, and low education could be a target group for online campaigns focusing on PHR awareness and PrEP demand creation.