

**Dr Fiona Lampe**  
University College London



# **Psychological and physical symptoms and sexual behaviour among HIV-diagnosed MSM in the UK**

**Lampe F, Speakman A, Sherr L, Phillips A, Collins S, Gilson R, Johnson M, Fisher M, Wilkins E, Anderson J, Daskalopoulou M, Edwards S, McDonnell J, Perry N, Jones M, O'Connell R, Lascar M, Hart G, Johnson A, Miners A, Geretti A, Burman B, Elford J, Rodger A, for the ASTRA Study.**

# Background

- High burden of psychological and physical symptoms among people living with HIV
- Symptoms may impact on quality of life, HIV treatment success, and lifestyle factors such as sexual behaviour
- Reduced sexual interest and activity may be one feature of depression and anxiety
- Some evidence that psychological symptoms are associated with increased levels of sexual risk behaviour among HIV-diagnosed men who have sex with men (MSM)
- Assessing the link between symptoms and sexual behaviour among HIV-diagnosed MSM is important for HIV prevention and for understanding sexual health needs of this group

# Objective

- Assess relationship between self-reported psychological and physical symptoms and patterns of recent sexual behaviour among HIV-diagnosed MSM in the UK

# Methods (1)

- ASTRA (Antiretrovirals, Sexual Transmission Risk and Attitudes): questionnaire study of HIV-outpatients attending 8 UK centres (Royal Free; Mortimer Market; Homerton; Newham; Whipps Cross; North Manchester; Brighton; Eastbourne) in 2011/12
- N=3258 participants (64% response rate): 2246 MSM; 1012 heterosexual men and women
- Self-completed, confidential questionnaire (completed in clinic or returned by post) included range of demographic, socio-economic, lifestyle, HIV and health-related factors

# Methods (2)

- Psychological and physical symptoms in past 2 weeks:
  - Depression score (PHQ-9 DS)
  - Anxiety score (GAD-7 AS)
  - Physical symptom distress score (PSS, using modified MSAS-SF\*)
- Recent sexual activity category (based on anal or vaginal sex in past 3 months):
  - 1) Not sexually active
  - 2) Condom-protected sex or HIV-positive partner(s) only
  - 3) Condom-less sex with discordant (HIV-negative/unknown) status partner(s) (CLS-D)
- 2172 (97%) MSM included in analysis who had useable information on recent sexual activity
- Mean (SD) age: 45.0 (9.6) yrs; 89% white ethnicity; 85% on ART

*\*Memorial Symptom Assessment Scale (Short Form)*

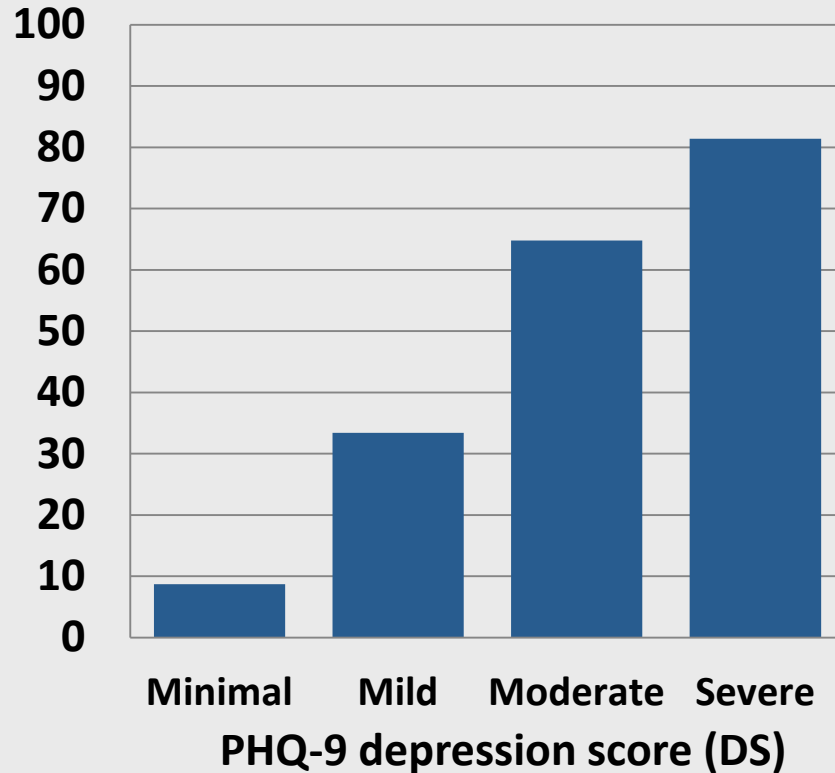
# Psychological and physical symptoms

N=2172 MSM	Classification (score)	N (%)
<b>PHQ-9 depression score (PHQ-9 DS)</b>  9 symptoms, frequency scored 0 to 3	Minimal (0-4)	1122 (51.7)
	Mild (5-9)	464 (21.4)
	Moderate (10-19)	457 (21.0)
	Severe (20-27)	129 (5.9)
	<b>Score ≥10 (depression)</b>	<b>586 (27.0)</b>
<b>GAD-7 anxiety score (GAD-7 AS)</b>  7 symptoms, frequency scored 0 to 3	Minimal (0-4)	1225 (56.4)
	Mild (5-9)	497 (22.9)
	Moderate (10-14)	249 (11.5)
	Severe (15-21)	201 (9.3)
	<b>Score ≥10 (anxiety)</b>	<b>450 (20.7)</b>
<b>Physical symptom distress score (PSS)</b>  10 physical symptoms*, distress scored 0 to 3	Minimal (0-1)	936 (43.1)
	Low (2-5)	582 (26.8)
	Moderate (6-11)	393 (18.1)
	High (12-30)	261 (12.0)
	<b>Score ≥6</b>	<b>654 (30.1)</b>

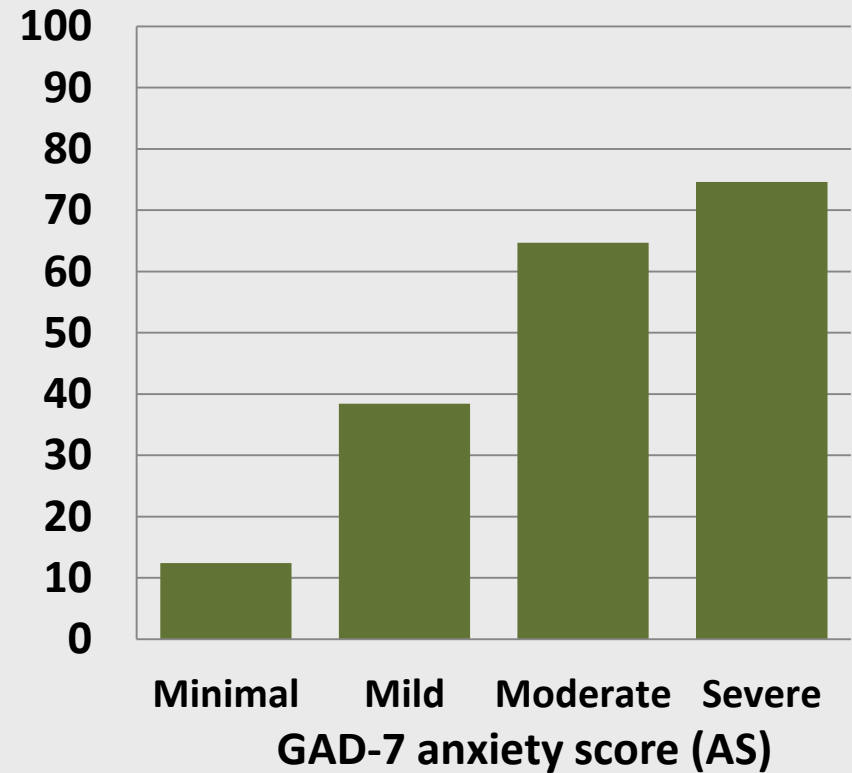
*\*1) pain 2) headache 3) numbness/tingling in hands or feet 4) muscle or joint aches  
 5) diarrhoea 6) feeling bloated 7) sweats or fever 8) breathlessness  
 9) skin problems (e.g. itching or rash) 10) changes in fat in face or body*

# Associations between psychological and physical symptoms

% with physical symptom distress (PSS)  $\geq 6$



% with physical symptom distress (PSS)  $\geq 6$



Spearman's correlation coefficients: PHQ-9 DS versus PSS  $r=0.66$

GAD-7 AS versus PSS  $r=0.59$

PHQ-9 DS versus GAD-7 AS  $r=0.83$

N=2172 MSM

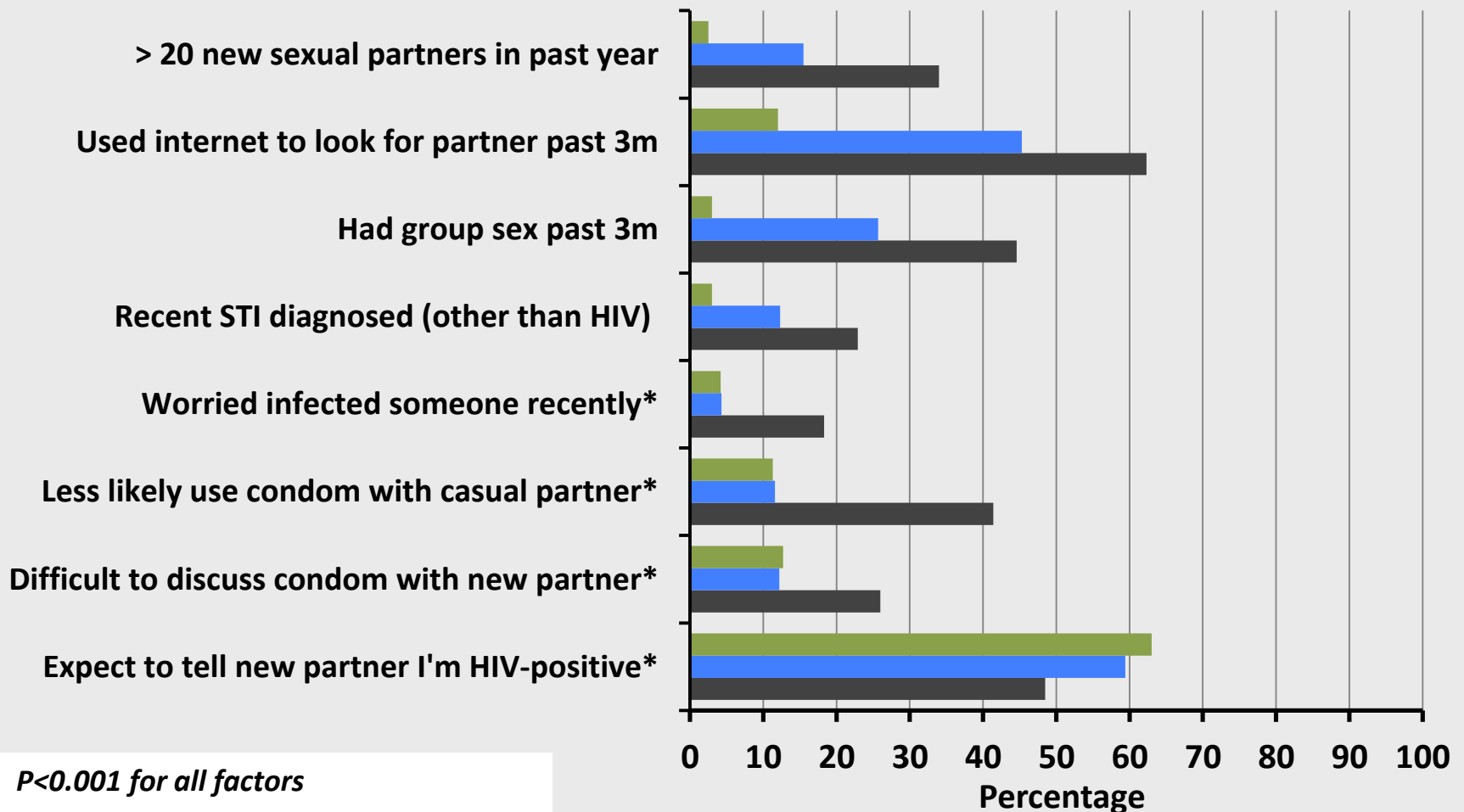


# Recent sexual activity category

N=2172 MSM	Sexual activity (anal or vaginal sex) in past 3 months		
	Not sexually active	Condom-protected sex, or HIV +ve partner(s) only	Condom-less sex with HIV -ve or unknown status partner(s) (CLS-D)
N (%)	797 (36.7%)	1030 (47.4%)	345 (15.9%)
Mean (SD) age	48.0 (9.1)	43.1 (9.4)	43.9 (9.5)
Median (IQR) years since HIV diagnosis	11.7 (6.5, 18.0)	8.3 (3.9, 14.7)	8.5 (4.1, 13.6)
% on ART	91%	82%	80%
% HIV +ve stable partner	16%	32%	15%
% HIV -ve stable partner	31%	28%	42%
% no stable partner	54%	40%	43%
% university education	40%	47%	45%
% white ethnicity	91%	89%	88%

# Sexual lifestyle / attitude factors by recent sexual activity category

■ Not sexually active N=797 ■ Condom or HIV+ve partner(s) N=1030 ■ CLS-D N=345



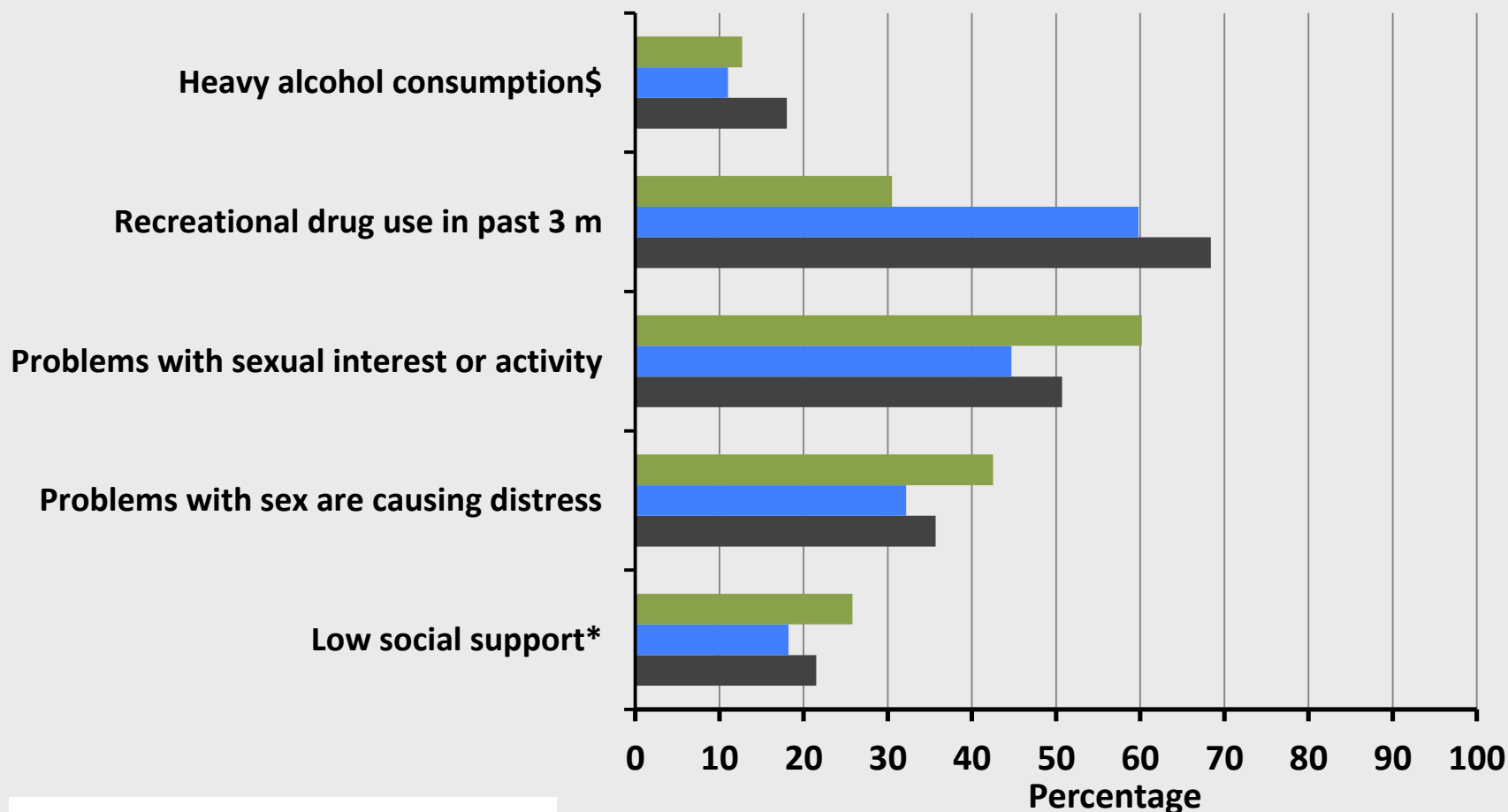
*P<0.001 for all factors*

*Chi-squared test, global p value, comparing sexual activity categories*

\*% who agree with statement. N=2172 MSM

# Other factors by recent sexual activity category

■ Not sexually active N=797 ■ Condom or HIV+ve partner(s) N=1030 ■ CLS-D N=345

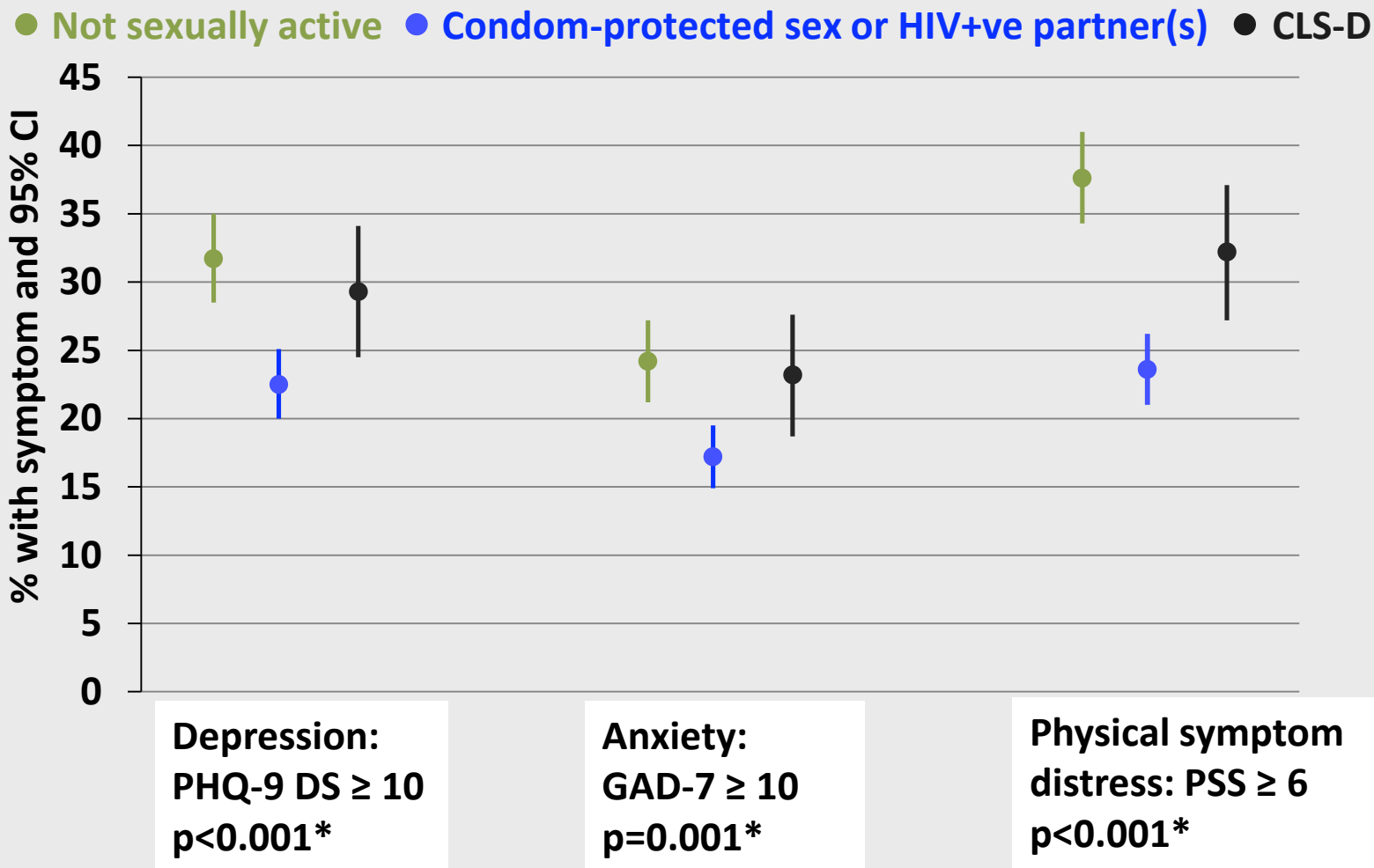


*P<0.01 for all factors*

*Chi-squared test, global p value,  
comparing sexual activity categories*

\*Using modified Duke UNC Functional Social Support questionnaire  
§Defined on basis of frequency and amount for usual intake  
N=2172 MSM

# Psychological and physical symptom prevalence by recent sexual activity category



N=2172 MSM

*\*Global p value comparing symptom prevalence across sexual activity categories, Chi-squared test*

# Associations of symptoms with recent sexual activity category

Symptom measure	Sexual activity in past 3 months			p value <sup>§</sup>
	Not sexually active	Condom-protected sex, or HIV +ve partner(s) <sup>#</sup>	Condom-less sex with HIV -ve or unknown status partner(s) (CLS-D)	
	N=797	N=1030	N=345	
PHQ-9 DS ≥10: Unadjusted OR*(95%CI)	1.6 (1.3, 2.0)	1	1.4 (1.1, 1.9)	<i>p</i> <0.001
GAD-7 AS ≥10: Unadjusted OR*(95%CI)	1.5 (1.2, 1.9)	1	1.5 (1.1, 2.0)	<i>p</i> =0.001
PSS ≥6: Unadjusted OR*(95%CI)	2.0 (1.6, 2.4)	1	1.5 (1.2, 2.0)	<i>p</i> <0.001

Separate multinomial logistic models fitted for each symptom measure. <sup>#</sup>Reference category.

\*OR=odds ratio. <sup>§</sup>Global p value

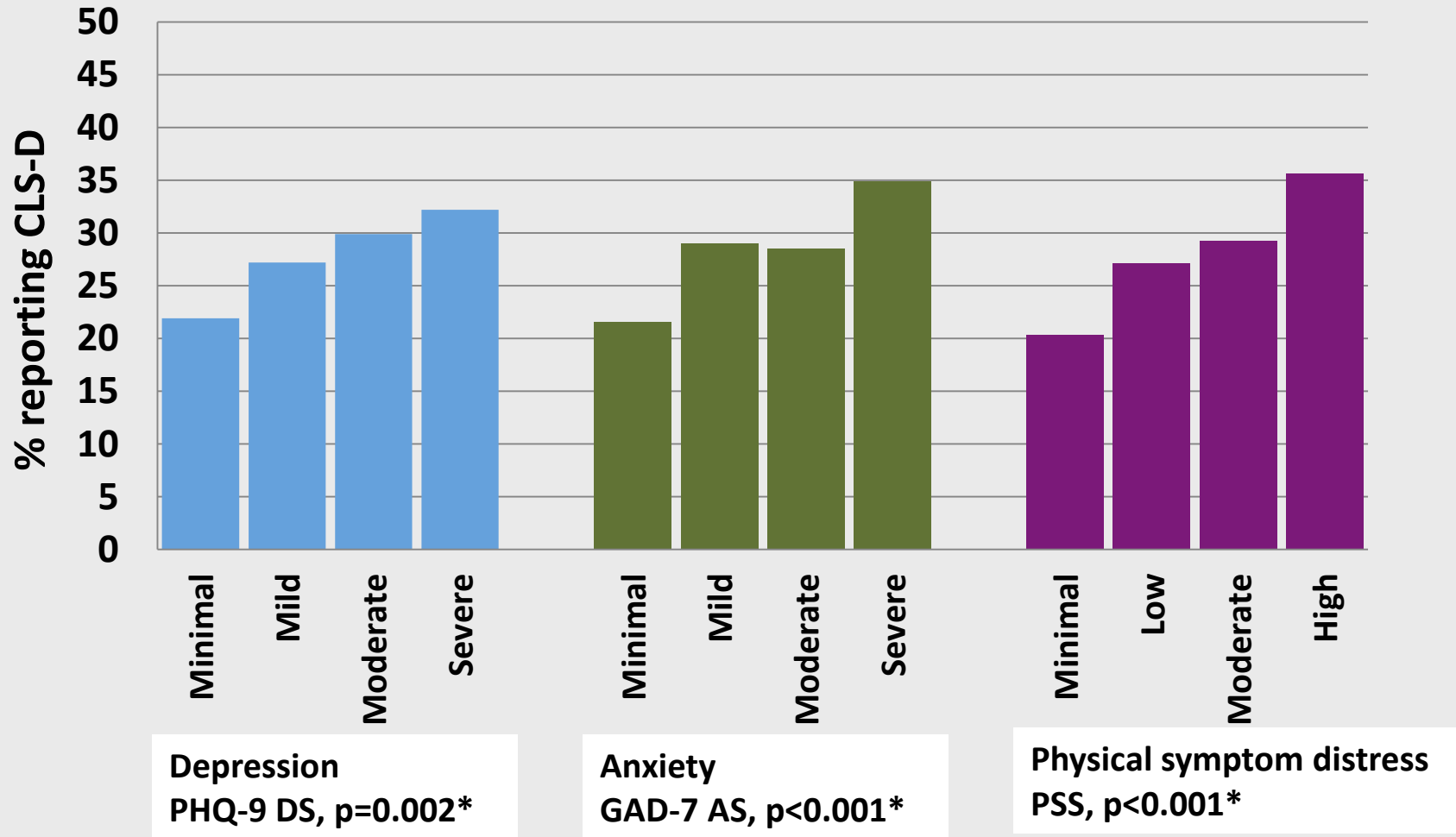
# Associations of symptoms with recent sexual activity category

Symptom measure	Sexual activity in past 3 months			p value <sup>§</sup>
	Not sexually active	Condom-protected sex, or HIV +ve partner(s) <sup>#</sup>	Condom-less sex with HIV -ve or unknown status partner(s) (CLS-D)	
	N=797	N=1030	N=345	
<b>PHQ-9 DS ≥10:</b>				
Unadjusted OR*(95%CI)	1.6 (1.3, 2.0)	1	1.4 (1.1, 1.9)	<i>p</i> <0.001
Adjusted OR*(95% CI)	1.4 (1.1, 1.8)	1	1.4 (1.0, 1.9)	<i>p</i> =0.003
<b>GAD-7 AS ≥10:</b>				
Unadjusted OR*(95%CI)	1.5 (1.2, 1.9)	1	1.5 (1.1, 2.0)	<i>p</i> =0.001
Adjusted OR* (95% CI)	1.4 (1.1, 1.8)	1	1.5 (1.1, 2.0)	<i>p</i> =0.010
<b>PSS ≥6:</b>				
Unadjusted OR*(95%CI)	2.0 (1.6, 2.4)	1	1.5 (1.2, 2.0)	<i>p</i> <0.001
Adjusted OR* (95% CI)	1.7 (1.4, 2.1)	1	1.6 (1.2, 2.1)	<i>p</i> <0.001

Separate multinomial logistic models fitted for each symptom measure. <sup>#</sup>Reference category.

\*OR=odds ratio. Each adjusted model includes: age; time since HIV diagnosis; stable partner status; university education; ART status; ethnicity. Adjusted models include 2129 MSM. <sup>§</sup>Global p value

# Symptoms and condom-less sex with HIV-discordant-status partner(s) (CLS-D) among 1375 sexually active MSM



*\*P values by Chi-squared tests for trend*

# Conclusions

- Depression, anxiety, and physical symptoms are common among HIV-diagnosed MSM in the UK, and closely associated
- Symptoms have a complex relationship with sexual behaviour, being linked both with lack of sexual activity and, among sexually-active MSM, with condom-less sex with HIV-discordant status partner(s)
- HIV-diagnosed MSM having 'low risk' sex have the lowest prevalence of psychological and physical symptoms
- Causal sequence in associations between symptoms and patterns of sexual behaviour may also be complex, and may operate in both directions
- Detection and management of symptoms among HIV-diagnosed MSM deserves high priority, and may be one component of HIV prevention strategies



# Acknowledgments



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## ASTRA clinic teams

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