Prevalence of pain in women living with HIV aged 45-60: associated factors and impact on patient-reported outcomes

Caroline A Sabin[1], Hajra Okhai[1], Rageshri Dhairyawan[2], Katharina Haag[1], Fiona Burns[1], Richard Gilson[1], Lorraine Sherr[1], Shema Tariq[1]

1. Institute for Global Health, UCL, London; 2. Dept. Infection and Immunity, Barts Health NHS Trust, UK.

Background

- The ageing of the population of people living with HIV has brought with it an increased spectrum of health concerns. Pain is commonly reported in people with HIV, and has a strong impact on quality-of-life[1].
- Pain is widely reported in women undergoing the menopause but relatively little is known about the prevalence or predictors of pain in women with HIV, nor the impact of pain on aspects of their lives[2].
- We aimed to:
  - describe the prevalence of pain among women living with HIV aged 45-60 years in the Positive Transitions Through the Menopause (PRIME) study (questionnaires completed in 2016/2017);
  - identify demographic and clinical predictors of pain severity; and
  - describe associations of pain severity with depressive symptoms and insomnia.

Methods

- The PRIME study included 869 women with HIV who provided information on physical/mental health.
- Women were asked to describe their current level of pain/discomfort as absent, moderate or extreme.
- After performing univariate analyses (Chi-squared tests or Mann-Whitney U tests), we used a series of sequential ordinal regression models to consider associations between the severity of pain and demographic, lifestyle and clinical factors.
- At each stage, factors that were significant ($p<0.05$) were retained in the model for consideration in models at subsequent stages.
- We used multivariable logistic regression to quantify associations with severe depressive symptoms (PHQ4 >6) and insomnia symptoms

Results

- Most women were black African (72.3%), and the group had a median age of 49 (interquartile-range [IQR] 47-53) years (**Table 1**). In total, 20.9%, 44.0% and 35.1% were pre-, peri- and post-menopausal at the time of interview. Over half of women reported either moderate (376, 44.6%) or extreme (73, 8.7%) pain or discomfort. Women reporting extreme pain/discomfort were less likely to be working full-time, less likely to report having enough money to cover their basic needs, were more likely to be in the peri- or post-menopausal stage, and were more likely to be current smokers.
- Most of the individual medical conditions increased in prevalence with the severity of pain, with the median (IQR) number of medical conditions increased from 0 (0, 1) in those in with no pain/discomfort, to 1 (0, 1) and 2 (1, 2) in those with moderate and extreme pain/discomfort, respectively. Whilst women reporting moderate/extreme pain had been diagnosed with HIV for longer than those reporting no pain, there was no strong association with the latest CD4 count or HIV viral load. Reported adherence to ART was less likely to be optimal in women reporting extreme pain.
- After adjustment, peri-menopausal status, current smoking, the number of medical conditions and longer duration of HIV were independently associated with increased pain; being in full-time work and having enough money for basic needs were associated with decreased pain (**Figure 1**).
- Overall, 331 women (39.7%) reported insomnia symptoms and 189 women (25.1%) had severe depressive symptoms. The prevalence of each outcome increased in those with more severe pain (**Figure 2).** After adjustment, women with moderate pain were 2.76 times as likely to experience insomnia symptoms (95% confidence interval 1.96, 3.90) and 3.96 times as likely to experience severe depressive symptoms (95% CI 2.50, 6.28) compared to those with no pain. Women with extreme pain were 8.09 (4.03, 16.24) and 9.13 (4.45, 18.72) times as likely to experience each outcome.

Table 1: *Key demographic, lifestyle and clinical features of women, overall and stratified by pain severity*

		All women	Severity of pain			
			None	Moderate	Extreme	p-value
n		844	395	376	73	
Ethnic group, n (%)	Black African	593 (70.3)	276 (69.9)	269 (71.5)	48 (65.8)	
	Black other	71 (8.4)	38 (9.6)	29 (7.7)	4 (5.5)	
	Other/not stated	180 (21.3)	81 (20.5)	78 (20.7)	21 (28.8)	0.40
Not born in the UK, n (%)		708 (85.2)	326 (84.5)	316 (85.0)	66 (90.4)	0.41
Full-time employment, n (%)		399 (49.1)	233 (59.9)	153 (40.7)	13 (17.8)	0.0001
Low educational attainment, n (%)		324 (38.4)	139 (35.2)	151 (40.2)	34 (46.6)	0.12
Enough money to cover basic needs some/none of the time, n (%)		316 (37.4)	109 (27.6)	161 (42.8)	46 (63.0)	0.0001
Median (IQR) age (years)		49 (47, 53)	49 (47, 52)	50 (47, 53)	50 (48, 53)	0.11
Menopausal status, n (%)	Pre-menopausal	173 (20.9)	103 (26.4)	59 (16.1)	11 (15.5)	
	Peri-menopausal	364 (44.0)	149 (38.2)	182 (49.6)	33 (46.5)	
	Post-menopausal	291 (35.1)	138 (35.4)	126 (34.3)	27 (38.0)	0.002
Current smoker, n (%)		69 (8.4)	17 (4.4)	40 (10.9)	12 (16.4)	0.0002
Use of recreational drugs last 3 months, n (%)		20 (2.4)	6 (1.6)	13 (3.5)	1 (1.4)	0.18
Risky alcohol use (AUDIT $\geq$5), n (%)		69 (8.8)	29 (7.9)	36 (10.2)	4 (6.3)	0.41
Total number of medical conditions, median (IQR)		1 (0, 5)	0 (0, 1)	1 (0, 1)	2 (1, 2)	0.0001
Median (IQR) years diagnosed with HIV		14 (9, 18)	13 (9, 17)	14 (10, 19)	15 (10, 19)	0.007
Latest CD4 count (cells/mm³)	>500	509 (68.3)	249 (70.9)	222 (66.3)	38 (64.4)	
	200-500	187 (25.1)	79 (22.5)	90 (26.9)	18 (30.5)	
	<200	49 (6.6)	23 (6.6)	23 (6.9)	3 95.1)	0.56
Latest viral load undetectable, n (%)		703 (88.4)	328 (88.2)	318 (90.1)	57 (81.4)	0.12
On ART, n (%)		798 (97.7)	372 (97.4)	355 (97.8)	71 (98.6)	0.80
Adherent to ART, n (%)		720 (86.6)	349 (90.0)	314 (84.6)	57 (79.2)	0.01

Figure 1: *Results from multivariable ordinal regression to identify factors independently associated with pain severity*

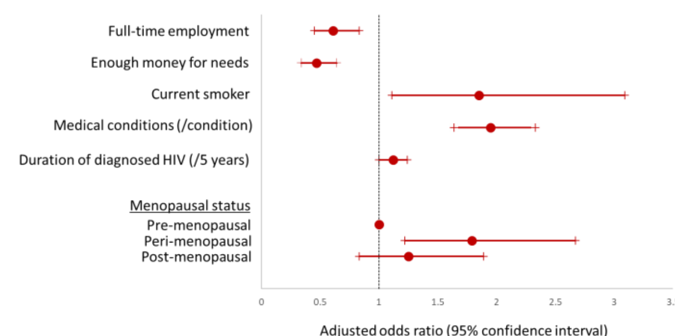
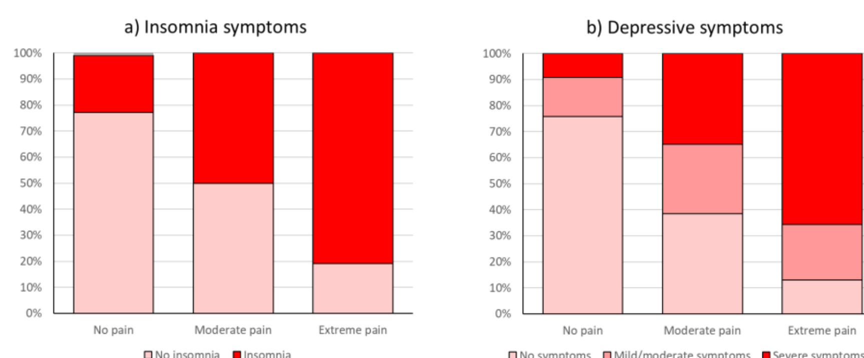


Figure 2: *Association between pain severity and a) insomnia symptoms and b) depressive symptoms*



Conclusions

- Pain was commonly reported in women with HIV aged 45-60 years, was more extreme in peri- and post-menopausal women, and was associated with markers of socioeconomic disadvantage. Increasing pain was strongly associated with poorer mental health and sleep problems.
- Our findings highlight the importance of eliciting a history of pain and addressing symptoms in order to improve wellbeing.

References: 1. Sabin CA, *et al. AIDS* 2018; **32**: 2697-2706. 2. Schnall R *et al. Menopause* 2018; **25**: 744-752.

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