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Short report

# Ethnic inequalities in mental health and socioeconomic status among older women living with HIV: results from the PRIME Study

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The abstract to this manuscript was previously published after presentation at the BHIVA 2019 Summer conference.

Received 10 September 2020

Revised 12 February 2021

Accepted 20 February 2021

## ABSTRACT

**Objectives** Women living with HIV in the UK are an ethnically diverse group with significant psychosocial challenges. Increasing numbers are reaching older age. We describe psychological and socioeconomic factors among women with HIV in England aged 45–60 and explore associations with ethnicity.

**Methods** Analysis of cross-sectional data on 724 women recruited to the PRIME Study. Psychological symptoms were measured using the Patient Health Questionnaire 4 and social isolation with a modified Duke-UNC Functional Social Support Scale.

**Results** Black African (BA) women were more likely than Black Caribbean or White British (WB) women to have a university education (48.3%, 27.0%, 25.7%, respectively,  $p < 0.001$ ), but were not more likely to be employed (68.4%, 61.4%, 65.2%,  $p = 0.56$ ) and were less likely to have enough money to meet their basic needs (56.4%, 63.0%, 82.9%,  $p < 0.001$ ). BA women were less likely to report being diagnosed with depression than WB women (adjusted odds ratio (aOR) 0.40,  $p < 0.001$ ) but more likely to report current psychological distress (aOR 3.34,  $p < 0.05$ ).

**Conclusions** We report high levels of poverty, psychological distress and social isolation in this ethnically diverse group of midlife women with HIV, especially among those who were BA. Despite being more likely to experience psychological distress, BA women were less likely to have been diagnosed with depression suggesting a possible inequity in access to mental health services. Holistic HIV care requires awareness of the psychosocial needs of older women living with HIV, which may be more pronounced in racially minoritised communities, and prompt referral for support including psychology, peer support and advice about benefits.

## INTRODUCTION

The COVID-19 pandemic and the Black Lives Matter movement have exposed the consequences of continuing and widespread structural racism. Describing and understanding health inequalities among people from ethnic minority groups has now become a matter of urgency.

The majority of women living with HIV in the UK are from racially minoritised communities;

two-thirds are of Black African (BA) or Black Caribbean (BC) origin. Due to advances in HIV treatment and care, people living with HIV are living longer; in 2018, 14 923 women attending HIV care were aged 45 years or over with 11 115 women of potentially menopausal age (45–56 years), a five-fold increase over 10 years.<sup>1</sup>

A study<sup>2</sup> of 170 women living with HIV in London, comparing those aged under 45 years with those 45 or over, found that the older group was significantly less likely to be in a relationship and had higher levels of anxiety, depression and other psychological symptoms. However, despite increasing recognition of the importance of quality of life, there is a paucity of research exploring psychosocial well-being among older women living with HIV.<sup>2</sup>

The burden of poor mental health among people living with HIV, and its impact on clinical outcomes, is well recognised.<sup>3–4</sup> However, despite well documented ethnic inequalities in mental health and access to mental healthcare in the general population,<sup>5</sup> we lack robust data on the association between racially minoritised status and mental health among people living with HIV in the UK, especially women. Without these data, we are unable to identify and address disparities in health and well-being in this key population.

Using data from the PRIME (Positive TRAnsItions through the Menopause) Study, we investigate the association between ethnicity and (i) socioeconomic factors and (ii) mental health among women living with HIV aged 45–60 years.

## METHODS

### The PRIME Study

The PRIME study was a mixed-methods observational study exploring the impact of the menopause on the health and well-being of women living with HIV. The study recruited 869 women living with HIV aged 45–60 attending one of 21 National Health Service HIV clinics in England between February 2016 and June 2017. Methods are described in detail elsewhere.<sup>6</sup>

### Variables

Demographic factors (including ethnicity) were ascertained via self-report. CD4 count and HIV



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**To cite:** Solomon D, Tariq S, Alldis J, *et al.* *Sex Transm Infect* Epub ahead of print: [please include Day Month Year]. doi:10.1136/sextrans-2020-054788

viral load were obtained from clinical records, and missing values were completed via self-report. Current psychological distress was measured by the Patient Health Questionnaire 4 screening tool,<sup>7</sup> scores ranging from 0 to 12, with a score  $\geq 6$  indicating psychological distress. Social isolation was measured using a validated modified version of the Duke-UNC Functional Support Scale,<sup>8</sup> scores ranging from 5 to 25. A score  $\geq 12$  was classified as having poor social support.

### Statistical analysis

In order to explore associations between ethnicity and psychosocial factors, we restricted the sample to women reporting their ethnicity as White British, BA or BC (n=724).

First, we investigated the relationship between ethnicity and a range of sociodemographic and lifestyle factors. These sociodemographic factors were chosen as they had all previously been found to be associated with mental health outcomes. We started by using multivariable logistic regression models to calculate adjusted odds ratios (aORs) for the association between ethnicity and employment. To identify potential confounders, we performed  $\chi^2$  tests or Kruskal-Wallis tests (as appropriate) to assess the relationship between ethnicity, employment and a range of potentially confounding variables. Variables that were associated ( $p < 0.2$ ) with both ethnicity and employment were included in the multivariable model. Similar methods were then used to investigate the relationship between ethnicity and education, income, social isolation, high risk alcohol use, smoking and recreational drug use. We then examined the relationship between ethnicity and self-reported history of diagnosed depression and current psychological distress.

Analyses were performed using Stata 15 (Stata. 2017. Stata Statistical Software: Release 15. College Station, Texas, USA).

### Theoretical framework

The PRIME study is informed theoretically by the concept of *intersectionality*, an analytic framework that seeks to understand how multiple social categories combine and intersect to shape experience and disadvantage.<sup>9</sup> In this analysis, we explore how gender, age, ethnicity and HIV status intersect to impact women's lives.

### RESULTS

Despite nearly two-thirds of women (64.7%) having an educational background equivalent to 'A-level' or above, nearly a third were currently unemployed, and 40% reported not having enough money to meet their basic needs either most or all of the time. Nearly 40% of women scored above the cut-off for social isolation. Nearly a third had ever been diagnosed with depression, and 28.9% were currently on antidepressants. Approximately one in four women (27.1%) scored above the cut-off for current psychological distress (table 1).

Of the 721 women included in this analysis, the majority (71.6%) were BA. On univariable analysis, ethnicity was associated with education, employment and having enough money to meet basic needs. A far larger proportion of BA women (48.3%) had a university education compared with White British (25.7%) and BC women (27.0%,  $p < 0.001$ ) (table 1). However, when compared with White British women, there was no evidence of a difference in the odds of employment for either BA (aOR 0.71 (95% CI 0.41 to 1.40)) or BC (0.75 (0.30 to 1.89)) women. The odds of having enough money to meet basic needs were significantly lower for both BA (0.14 (0.06 to 0.34)) and BC (0.20 (0.07 to 0.57)) women, than in those of White British ethnicity.

**Table 1** Characteristics of the sample, stratified by ethnic group\*

	Black African n=607 (71.6%)	White British n=71 (8.4%)	Black Caribbean n=46 (5.4%)	P value†
Median age (years)	49	51	50	0.37
Employment				0.56
Employed	397 (65.4)	45 (63.4)	27 (58.7)	
Unemployed	183 (30.1)	24 (33.8)	17 (37.0)	
Education				<0.001
Did not complete school	57 (9.4)	12 (16.9)	9 (19.6)	
'O' level‡	120 (19.8)	26 (36.6)	15 (32.6)	
'A' level§	118 (19.4)	14 (19.7)	3 (6.5)	
University	275 (45.3)	18 (25.4)	10 (21.7)	
Enough money for basic needs				<0.001
All/most of the time	337 (56.4)	58 (82.9)	29 (63.0)	
Some/none of the time	260 (43.6)	12 (17.1)	17 (37.0)	
Born in the UK				<0.001
Yes	14 (2.3)	67 (95.7)	20 (45.5)	
No	584 (97.7)	3 (4.3)	24 (54.6)	
Immigration status				<0.001
Secure	527	64	39	
Insecure	60	0	2	
Social isolation				0.03
No	242 (39.9)	18 (25.4)	22 (47.8)	
Yes (score $\geq 12$ )	365 (60.1)	53 (74.7)	24 (52.2)	
Current smoker				<0.001
No	576 (97.5)	48 (69.6)	34 (77.3)	
Yes	15 (2.5)	21 (30.4)	10 (22.7)	
High risk alcohol use				<0.001
No	39 (6.9)	50 (75.8)	35 (87.5)	
Yes (AUDIT $\geq 5$ )	529 (93.1)	16 (24.2)	5 (12.5)	
Recreational drug use				<0.001
No	589 (98.8)	60 (89.6)	40 (93.0)	
Yes	7 (1.2)	7 (10.4)	3 (7.0)	
Ever diagnosed with depression				<0.001
Yes	156 (26.5)	37 (52.9)	21 (45.7)	
No	433 (73.5)	33 (47.1)	25 (54.4)	
Currently using antidepressants (if ever diagnosed with depression)				0.166
Yes	68 (26.8)	19 (40.4)	17 (70.8)	
No	186 (73.2)	28 (59.6)	7 (29.2)	
Psychological distress				0.08
Yes (PHQ-4 $\geq 6$ )	139 (25.0)	11 (15.7)	14 (34.2)	
No	417 (75.0)	59 (84.3)	27 (65.8)	
Years since diagnosis (IQR)	14 (10–17)	13 (6–23)	10 (5–14)	0.009
Most recent CD4 count (cells/mm <sup>3</sup> )				0.96
$\geq 500$	358 (66.8)	48 (68.6)	20 (66.7)	
200–499	142 (26.5)	19 (27.1)	8 (26.7)	
<200	36 (6.72)	3 (4.3)	2 (6.7)	
Most recent HIV viral load				0.60
Undetectable	498 (87.5)	64 (90.1)	35 (92.1)	
Detectable	71 (12.5)	7 (9.9)	3 (7.9)	

\*Number of respondents varies between questions due to missing data.

† $\chi^2$  or Kruskal-Wallis test.

‡Equivalent to completing US Grade 10.

§Equivalent to completing US Grade 12.

PHQ4, Patient Health Questionnaire 4.

Ethnicity was also associated with social isolation, diagnosed depression and current psychological distress. BC and BA women were more likely to be socially isolated than White British women (2.68 (1.12 to 6.38) and 1.95 (1.01 to 3.67), respectively). Furthermore, the odds of current psychological

distress were significantly higher among BC (4.81 (1.61 to 14.41)) and BA (3.34 (1.38 to 8.13)) than among White British women. Despite this, BA women had lower odds of ever having been diagnosed with depression (0.40 (0.22 to 0.71)) than White British women, with no difference between women of BC and White British ethnicity (0.80 (0.35 to 1.86)).

## DISCUSSION

In the largest study to date of psychosocial factors in older women living with HIV in England, we report a high prevalence of poverty, social isolation and poor mental health, all of which were worse among those from racially-minoritised groups. BA women were most likely to be university educated, when compared with BC and White British women, but this did not equate to higher levels of employment. Along with BC women, BA women were also less likely to have enough money to meet their basic needs. This is consistent with data in the general population,<sup>10</sup> and data from a study of people living with HIV in 2004–2005,<sup>11</sup> showing that being Black or from a racially minoritised community is associated with greater socioeconomic hardship, a consequence of structural racism. BC and BA women were *more* likely to be socially isolated and experience psychological distress, but *less* likely than White British women to be diagnosed with depression or to be on antidepressants. This reflects data in the general population demonstrating significant ethnic disparities in access to mental healthcare and treatment, despite higher rates of mental health diagnoses among those from ethnic minority groups.<sup>5</sup> Recognised barriers to care include mental health-related stigma, distrust of services, poor cultural competency, racial discrimination, a lack of recognition of symptoms by the patient and clinician, inadequate referral and a reliance on community solutions such as faith groups.<sup>12</sup> The majority of our sample was born outside of the UK, and it has been shown that migration itself can be a psychosocial stressor.<sup>12</sup>

The cross-sectional nature of our study limits our ability to infer causality, and the findings cannot be extrapolated to women younger or older than our inclusion range of 45–60 years. As we recruited from HIV clinics, we had a sampling bias, only collecting data from women who attend clinic. Finally, this was a secondary analysis of existing data; we also lack data on HIV stigma, racism and income, which are key variables when looking at health disparities in HIV.

This work builds on the previous scant literature on ethnic disparities in psychosocial well-being in people living with HIV in the UK. Our analysis was informed by intersectionality theory, allowing us to foreground the impact of age, ethnicity, gender and HIV status on women's health and well-being.<sup>9</sup> Our sample is representative of the UK population of women living with HIV, where most women are engaged in HIV care, experiencing virological suppression on treatment and are of BA ethnicity.<sup>6</sup>

Professionals working with older women living with HIV should be aware of the prevalence of psychosocial stressors in this group, particularly among Black and ethnic minority women who live with the consequences of structural racism. Furthermore, assessment and management of their needs must be proactive, holistic and intersectional in its approach. Our findings reinforce national recommendations that people living with HIV should be screened yearly and at potential trigger points for symptoms of mental illness.<sup>13</sup> Treating mental illness has been shown to improve HIV outcomes such as adherence,<sup>14</sup> and we recommend that clinics have access to psychological support that is culturally competent including psychiatry and psychology. Although HIV-related stigma was not measured in this study, it

is associated with depression, social isolation and decreased use of health and social care services.<sup>15</sup> We strongly recommend that peer support is offered to women living with HIV to try and address this. We also recommend that women are regularly asked about financial hardship and social isolation, and that clinics have referral pathways to organisations that can advise on issues such as benefits, housing and immigration, and that these organisations have continued funding in order to provide this support.

Since June 2020, the global Black Lives Matter movement and the COVID-19 pandemic have forced society to recognise the pervasive and pernicious effects of racism. This includes structural racism, which is a driver of persistent and longstanding health inequalities in a wide range of health conditions. It is therefore imperative that we establish an evidence base on ethnic disparities in health and well-being among people living with HIV, using an intersectional approach, in order to address inequalities effectively.

**Handling editor** Bea Vuylsteke

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**Acknowledgements** We would like to thank the PRIME Study Expert Advisory Group: Comfort Adams, Jane Anderson, Mwenza Blell, Jonathan Elford (Chair), Janine MacGregor-Read, Fiona Pettitt, Janice Rymer, Jane Shepherd, Lorraine Sherr and Emily Wandolo; and the PRIME Study recruiting sites: Barking Community Hospital (Rageshri Dhairyawan, Emma Macfarlane, Sharmin Obeyesekera, Cecelia Theodore); Barts Hospital NHS Trust (James Hand, Helena Miras, Liat Sarner); Brighton and Sussex University Hospital (Yvonne Gilleece, Alyson Knott, Celia Richardson); Chelsea and Westminster Hospital (Mimi Chirwa, Ann Sullivan, Mini Thankachen, Sathya Visvendra); City of Coventry Health Centre (Sris Allen, Kerry Flahive); Guy's and St Thomas' Hospital (Julie Fox, Julianne Iwanga, Annemiek DeRuiter, Mark Taylor); 10 Hammersmith Broadway (Sophie Hobday, Rachael Jones, Clare Turvey); Homerton University Hospital (Monica James, Sambasivarao Pelluri, Iain Reeves); Kings College Hospital (Sarah Barber, Priya Bhagwandin, Lucy Campbell, Leigh McQueen, Frank Post, Selin Yurdakul, Beverley White); Lewisham and Greenwich NHS Trust (Tarik Moussaoui, Melanie Rosenvinge, Judith Russell); Mortimer Market Centre (Tuhina Bhattacharya, Alexandra Rolland, Shema Tariq); New Cross Hospital Wolverhampton (Sarah Milgate, Anjum Tariq); North Manchester General Hospital (Claire Fox, Gabriella Lindergard, Andrew Ustianowski); Royal Free Hospital NHS Trust (Fiona Burns, Nargis Hemat, Nnenna Ngwu, Rimi Shah); Southend Hospital (Sabri Abubakar, John Day, Laura Hilton, Henna Jaleel, Tina Penn); St Mary's Hospital (Angela Bailey, Nicola Mackie); University Hospital Birmingham (Reka Drotosne-Szatmari, Jan Harding, Satwant Kaur, Tessa Lawrence, Monika Oriak, Jonathan Ross); and West Middlesex Hospital (Kimberley Forbes, Ursula Kirwan, Shamela De Silva, Marie-Louise Svensson, Rebecca Wilkins). We are grateful for support from Positively UK and the UK-CAB. Finally, and most importantly, we thank all our participants for sharing their time and experiences so generously with us. For the purpose of Open Access, the author has applied a CC BY public copyright licence to any Author Accepted Manuscript version arising from this submission.

**Contributors** Study was conceived by RD, ST and DS. Analyses were performed by DS, in consultation with ST and CS. DS, ST, JA, FB, RG, CS, LS, FP and RD all contributed to the final version of the manuscript.

**Funding** The PRIME Study was funded by the National Institute for Health Research (NIHR) in the form of a postdoctoral fellowship to ST (PDF-2014-07-071). Between March and December 2018 ST received salary support to continue work on this study, through a UCL/Wellcome Institutional Strategic Support Fund Flexible Support Award (204841/2/16/Z). DS holds a clinical fellowship funded by the Wellcome Trust (102186/B/13/Z).

**Disclaimer** The views expressed are those of the authors and not necessarily those of the NHS, the NIHR, the Wellcome Trust, or the Department of Health and Social Care.

**Competing interests** None declared.

**Patient consent for publication** Not required.

**Ethics approval** The PRIME Study had ethical approval from the South East Coast-Surrey Research Ethics Committee (REF 15/0735).

**Provenance and peer review** Not commissioned; externally peer reviewed.

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#### REFERENCES

- 1 Khawam J. (personal communication). *Public Heal Engl* 2019.
- 2 Sherr L, Molloy A, Macedo A, *et al.* Ageing and menopause considerations for women with HIV in the UK. *J Virus Erad* 2016;2:215–8.
- 3 Rein SM, Smith CJ, Chaloner C, *et al.* Prospective association of social circumstance, socioeconomic, lifestyle and mental health factors with subsequent hospitalisation over 6-7 year follow up in people living with HIV. *EClinicalMedicine* 2021;31:100665.
- 4 Chaponda M, Aldhouse N, Kroes M, *et al.* Systematic review of the prevalence of psychiatric illness and sleep disturbance as co-morbidities of HIV infection in the UK. *Int J STD AIDS* 2018;29:704–13.
- 5 Bhui KS, McKenzie K. Rates and risk factors by ethnic group for suicides within a year of contact with mental health services in England and Wales. *Psychiatr Serv* 2008;59:414–20.
- 6 Tariq S, Burns FM, Gilson R, *et al.* PRIME (Positive Transitions Through the Menopause) Study: a protocol for a mixed-methods study investigating the impact of the menopause on the health and well-being of women living with HIV in England. *BMJ Open* 2019;9:e025497.
- 7 Löwe B, Wahl I, Rose M, *et al.* A 4-item measure of depression and anxiety: validation and standardization of the patient health Questionnaire-4 (PHQ-4) in the general population. *J Affect Disord* 2010;122:86–95.
- 8 Howarth A, Apea V, Michie S, *et al.* REACH: a mixed-methods study to investigate the measurement, prediction and improvement of retention and engagement in outpatient HIV care. *Health Serv Deliv Res* 2017;5:1–160.
- 9 Crenshaw K. *Demarginalizing the intersection of race and sex: a black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics*. 2018. University of Chicago Legal Forum, 1989.
- 10 Race Disparity Audit - GOV.UK. Available: <https://www.gov.uk/government/publications/race-disparity-audit> [Accessed 27 May 2020].
- 11 Ibrahim F, Anderson J, Bukutu C, *et al.* Social and economic hardship among people living with HIV in London. *HIV Med* 2008;9:616–24.
- 12 Memon A, Taylor K, Mohebbati LM, *et al.* Perceived barriers to accessing mental health services among black and minority ethnic (BME) communities: a qualitative study in Southeast England. *BMJ Open* 2016;6:e012337.
- 13 BHIVA. *Standards of care for people living with HIV*, 2018.
- 14 Gaynes BN, Pence BW, Atashili J, *et al.* Changes in HIV outcomes following depression care in a resource-limited setting: results from a pilot study in Bamenda, Cameroon. *PLoS One* 2015;10:e0140001.
- 15 Rueda S, Law S, Rourke SB. Psychosocial, mental health, and behavioral issues of aging with HIV. *Curr Opin HIV AIDS* 2014;9:325–31.