

Does the menopause have an impact on virological outcomes and engagement-in-care (EIC) in UK CHIC participants?

Hajra Okhai¹, Shema Tariq¹, Fiona Burns^{1,2}, Yvonne Gilleece^{3,4}, Rageshri Dhairyawar⁵, Caroline Sabin^{1,6}

¹Institute for Global Health, University College London ²Royal Free London NHS Foundation Trust ³Brighton & Sussex University Hospitals NHS Trust ⁴Brighton & Sussex Medical School ⁵Department of Infection and Immunity, Barts Health NHS Trust ⁶National Institute for Health Research (NIHR) Health Protection Research Unit (HPRU) in Blood-borne and Sexually Transmitted Infections at UCL

BHIVA virtual conference November 2020



Background

- > One in three of those living with HIV in the UK are women¹
- > As the population ages, more women with HIV will be experiencing the menopause
- > No clear data on the impact of the menopausal transition on HIV outcomes



Aim

To investigate whether menopausal age is associated with HIV outcomes among women participating in the UK Collaborative HIV Cohort (UK CHIC) study.

Aim

To investigate whether menopausal age is associated with HIV outcomes among women participating in the UK Collaborative HIV Cohort (UK CHIC) study.

1. Engagement-in-care (EIC)
2. Viral load suppression
3. Viral rebound

Methods – study and eligibility

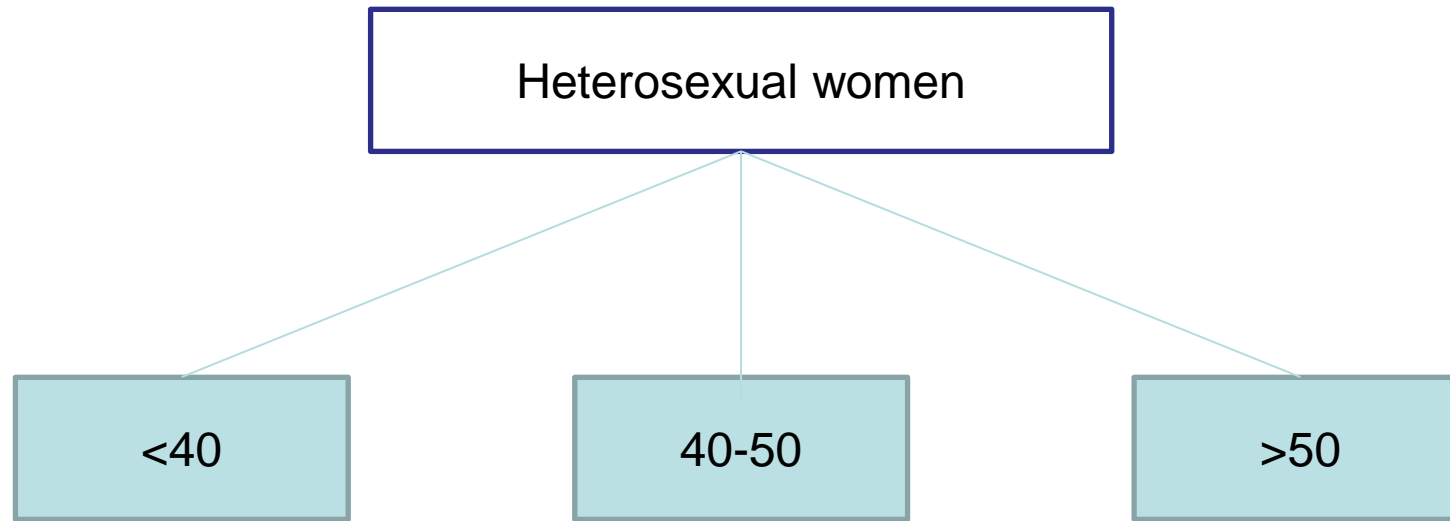
UK CHIC Study

- > Individuals aged >16 years living with HIV
- > 25 HIV clinics in the UK
- > Data from January 1996 - December 2017

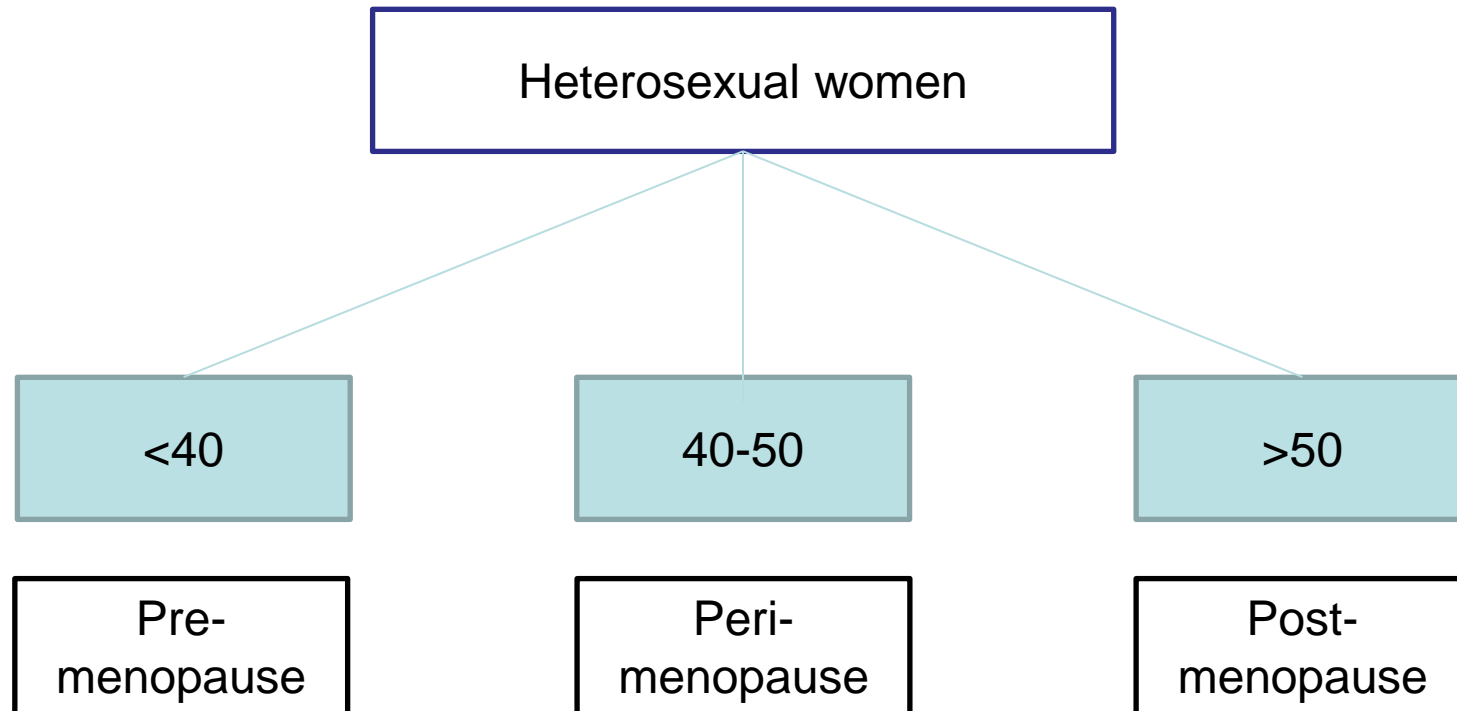
Inclusion criteria for present analyses:

- > Heterosexual women
- > Follow-up of >1 day from January 2000

Methods – age groups



Methods – age groups



Statistical methods

EIC: defined using REACH algorithm²

- > Each person-month classified as 'in-care' or 'out-of-care'
- > Generalised Estimating Equations (GEE)

Viral suppression: first viral load ≤ 50 copies/mL within 12 months of starting cART

- > Cox Proportional Hazards regression model

Viral rebound: first of two consecutive viral loads > 50 copies/mL after initial suppression

- > Cox Proportional Hazards regression model

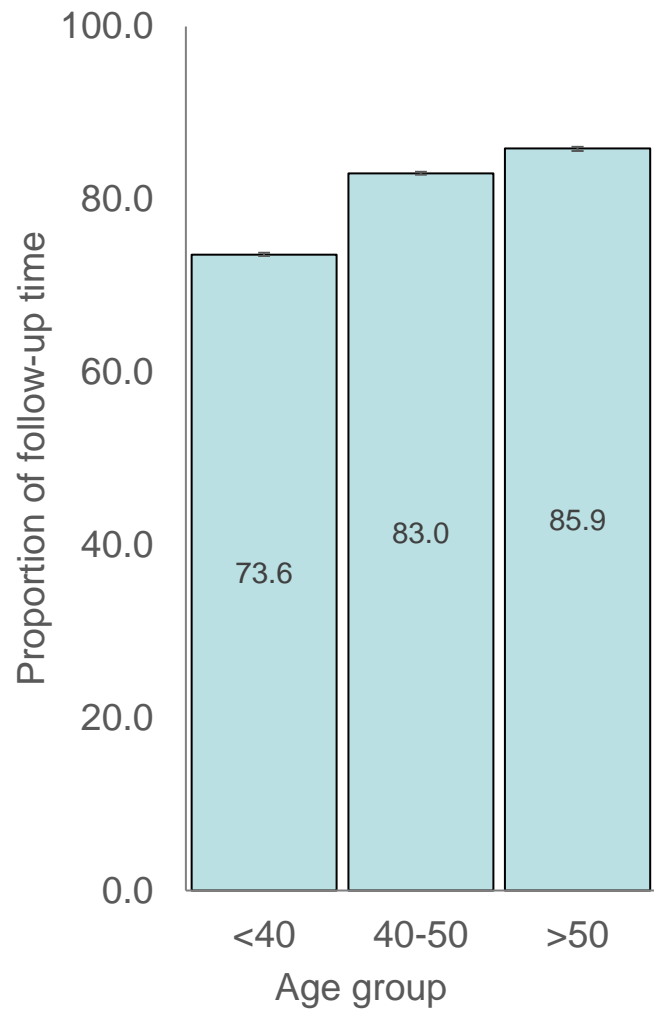


Characteristics of heterosexual women at UK CHIC entry

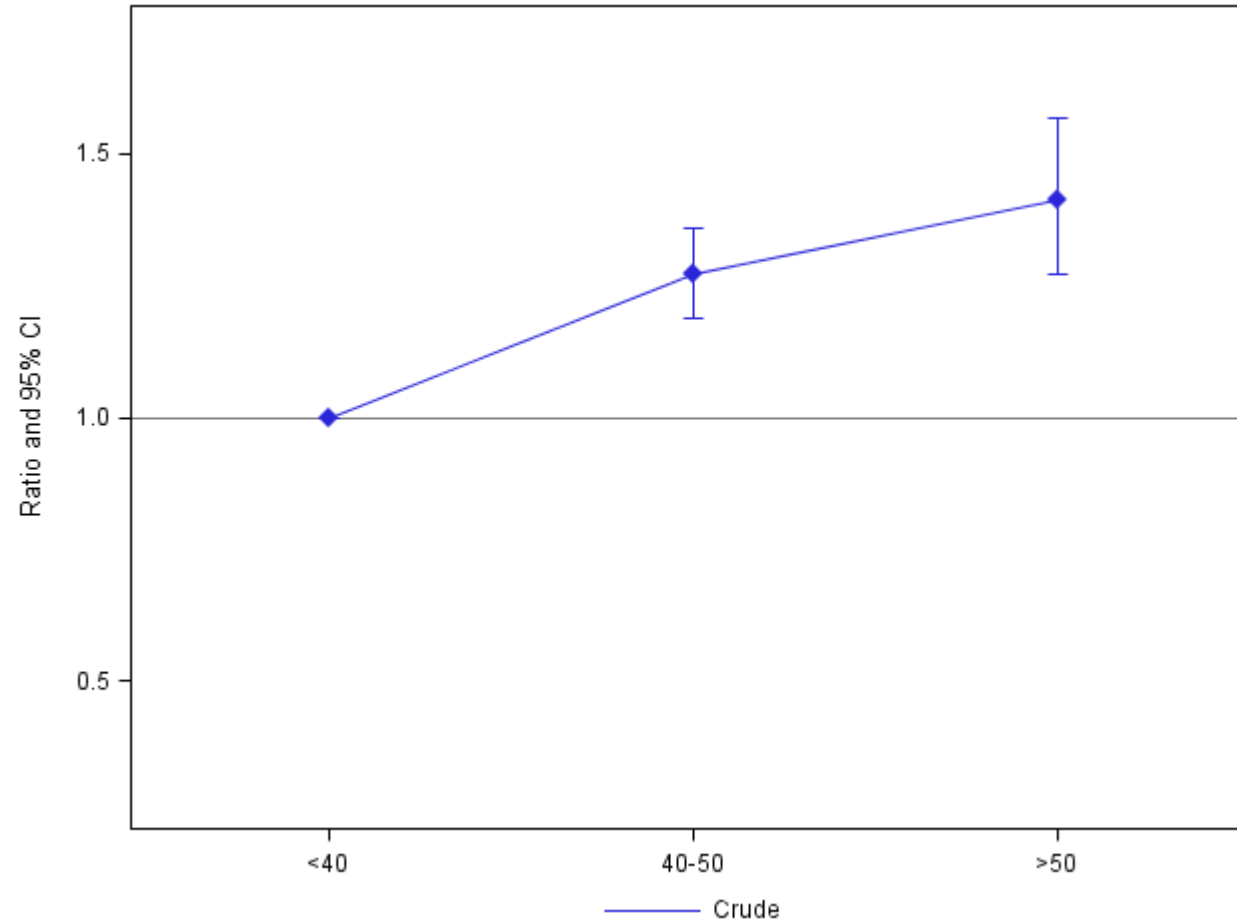
	Total (n=6,455)	<40 (n=4,253)	40-50 (n=1,595)	>50 (n=607)
Ethnicity (%)				
White	14.0	13.7	12.7	19.6
Black Caribbean	5.7	4.7	6.2	10.9
Black African	70.6	72.0	71.5	59.1
Black other	3.6	3.4	4.0	4.0
Other/unknown	6.1	6.2	5.6	6.4
Year entry (%)				
2000-2006	42.8	49.4	33.2	22.4
2007-2011	38.3	36.0	43.4	40.4
2012-2017	18.9	14.6	23.5	37.2
Median CD4 count cells/mm ³)	288	305	250	260
Median HIV VL (log copies/mL)	4.0	4.0	4.0	4.1
AIDS event (%)	9.5	8.4	11.3	13.0
Hepatitis B (%)	0.4	0.4	0.6	0.5
Hepatitis C (%)	0.2	0.2	0.2	0.2
Initiated cART (%)	69.5	66.7	75.0	75.0



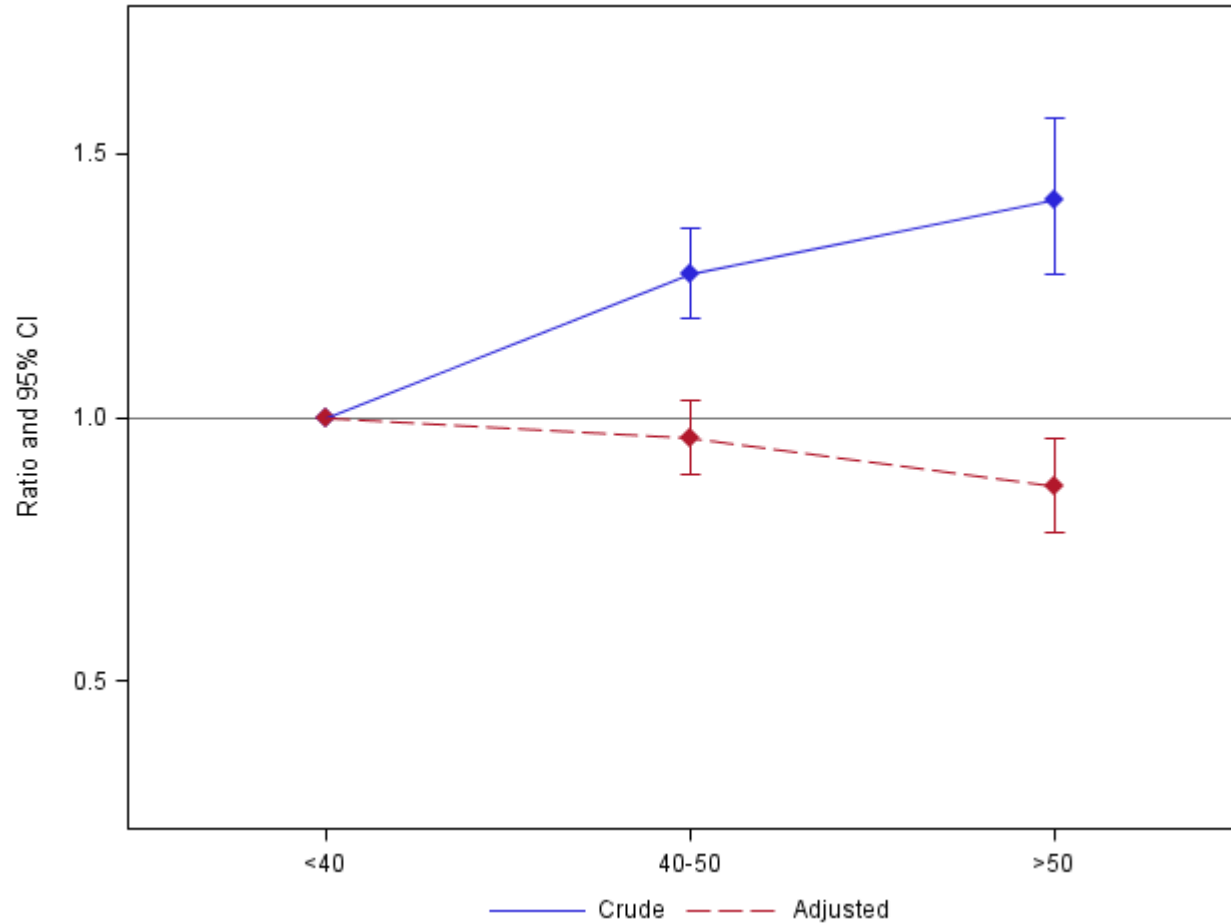
Results: EIC



Results: EIC



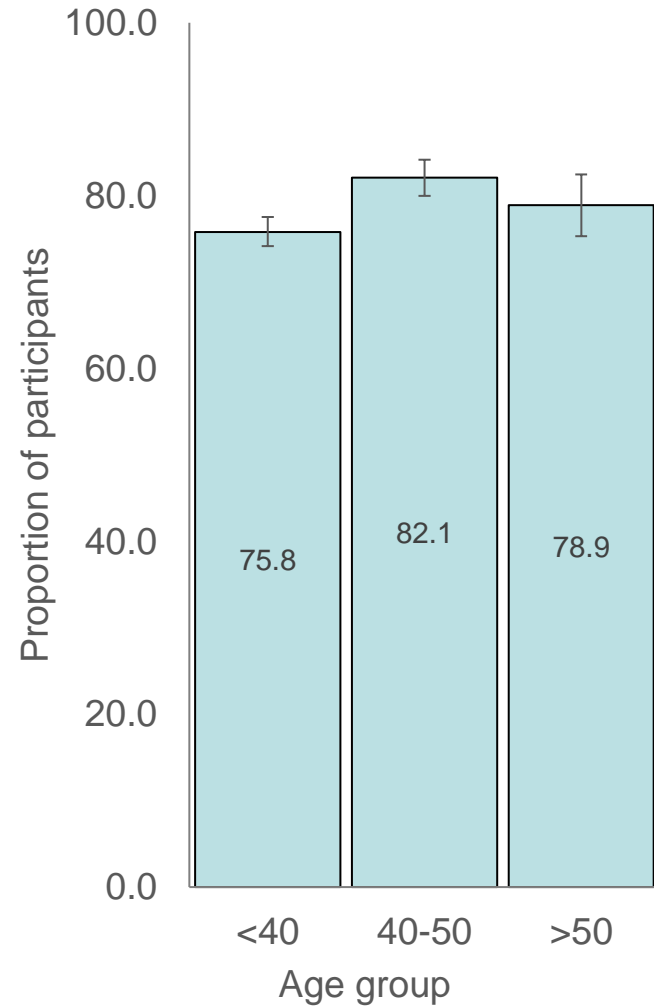
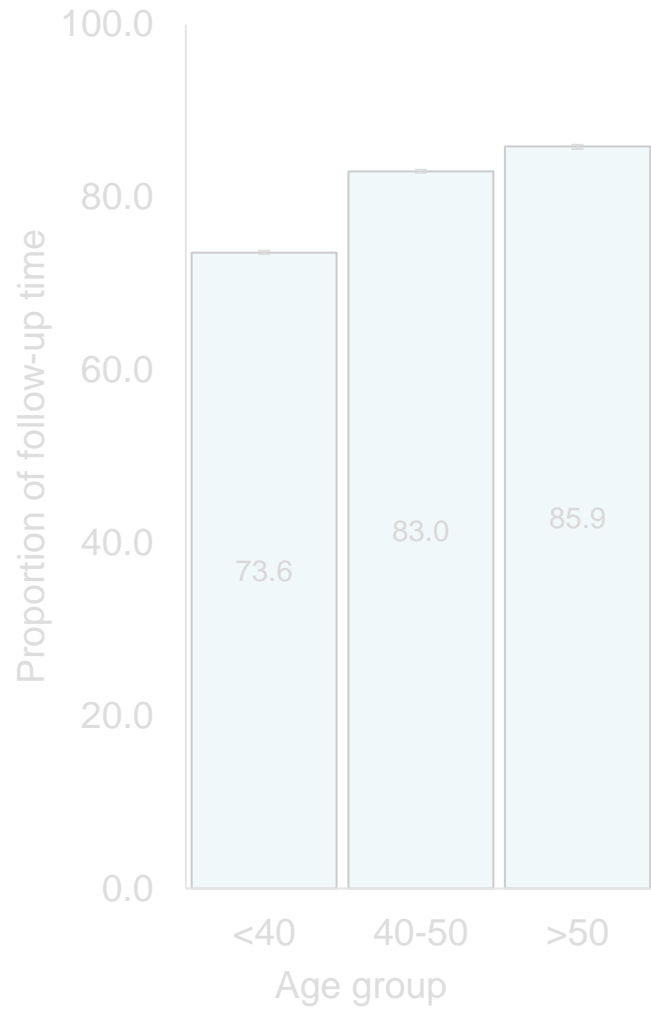
Results: EIC



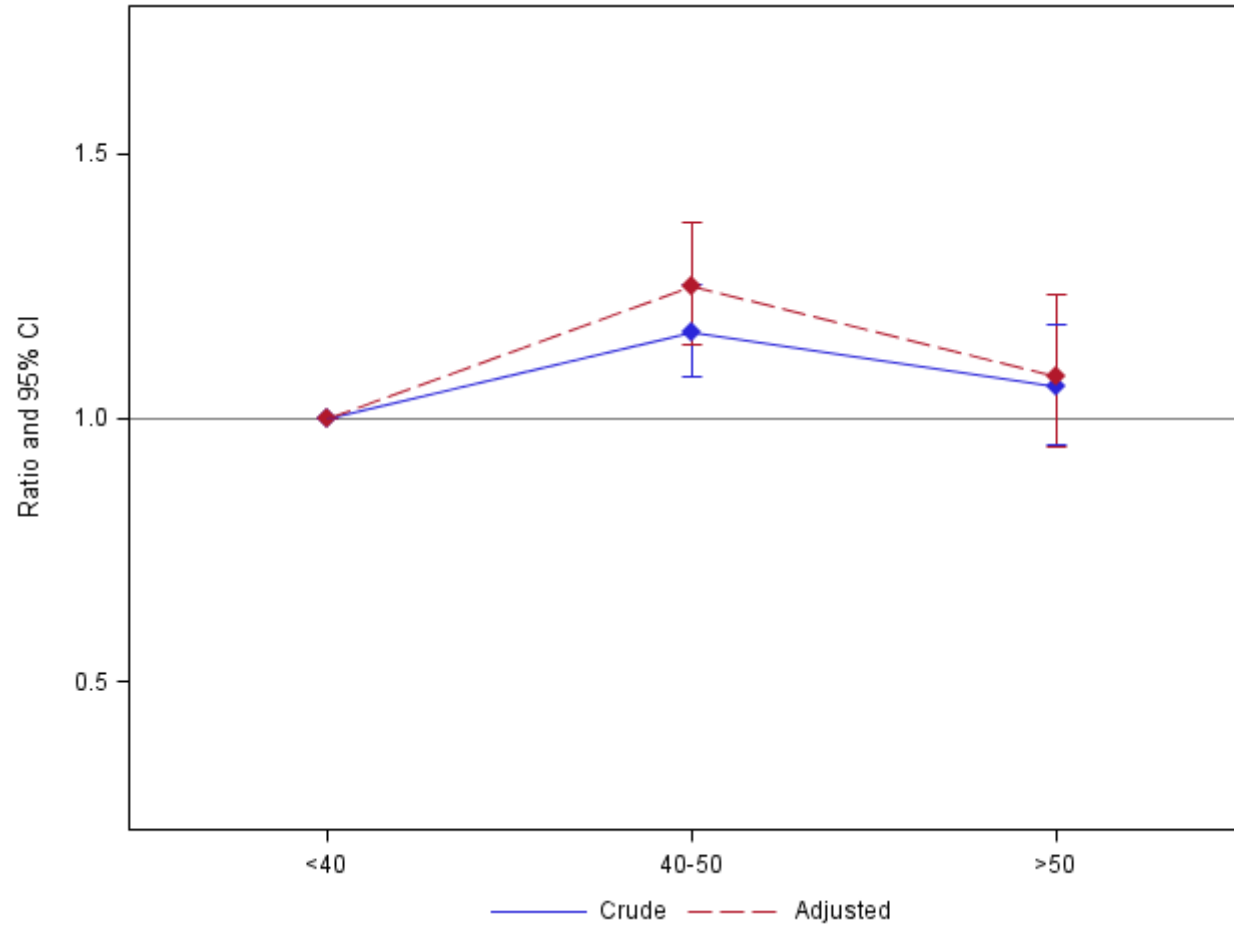
GEE Model. Time-updated co-variates; adjusted for ethnicity, CD4+ T-cell count, VL, ART use, previous AIDS, calendar year and hepatitis B/C co-infection



Results: Viral suppression



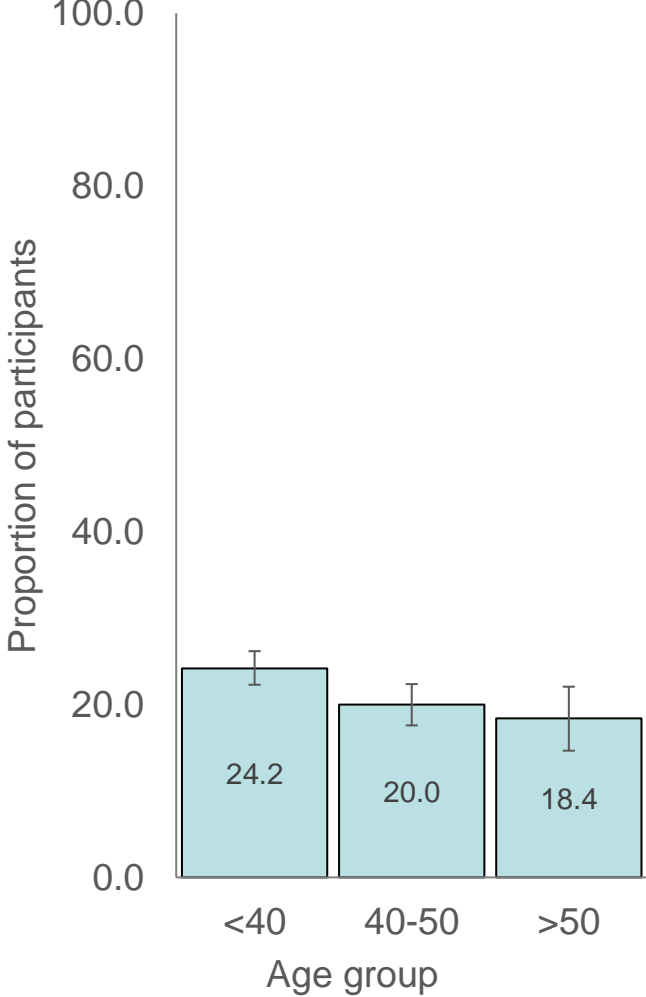
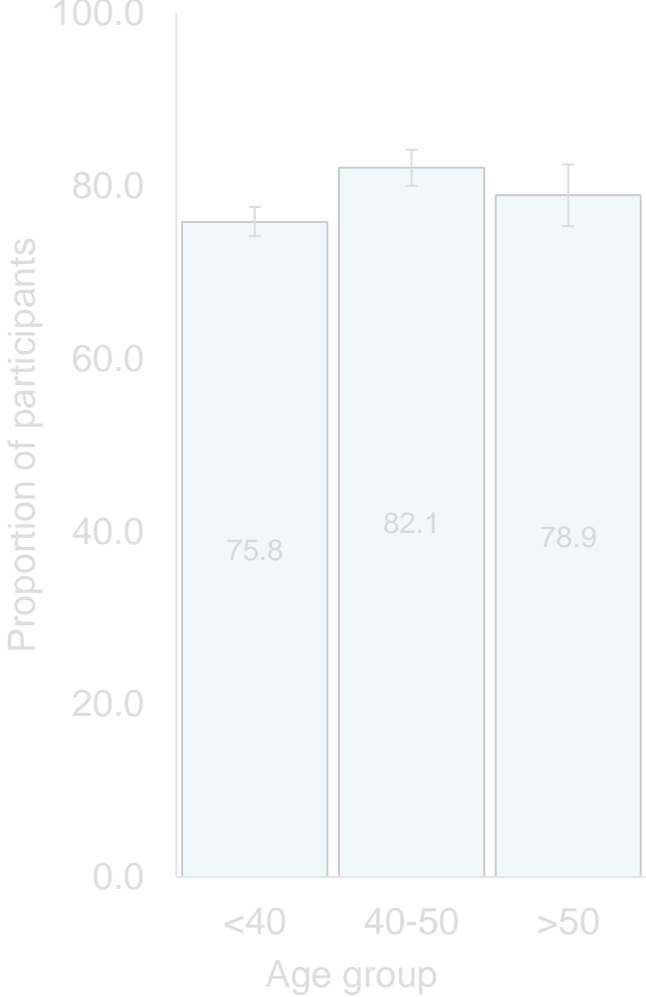
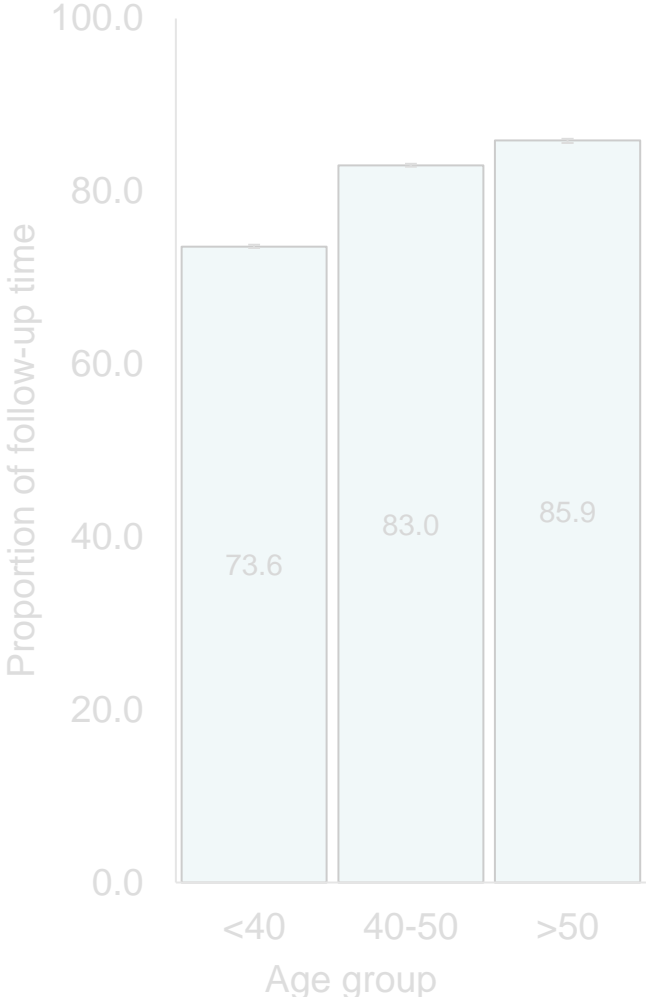
Results: Viral suppression



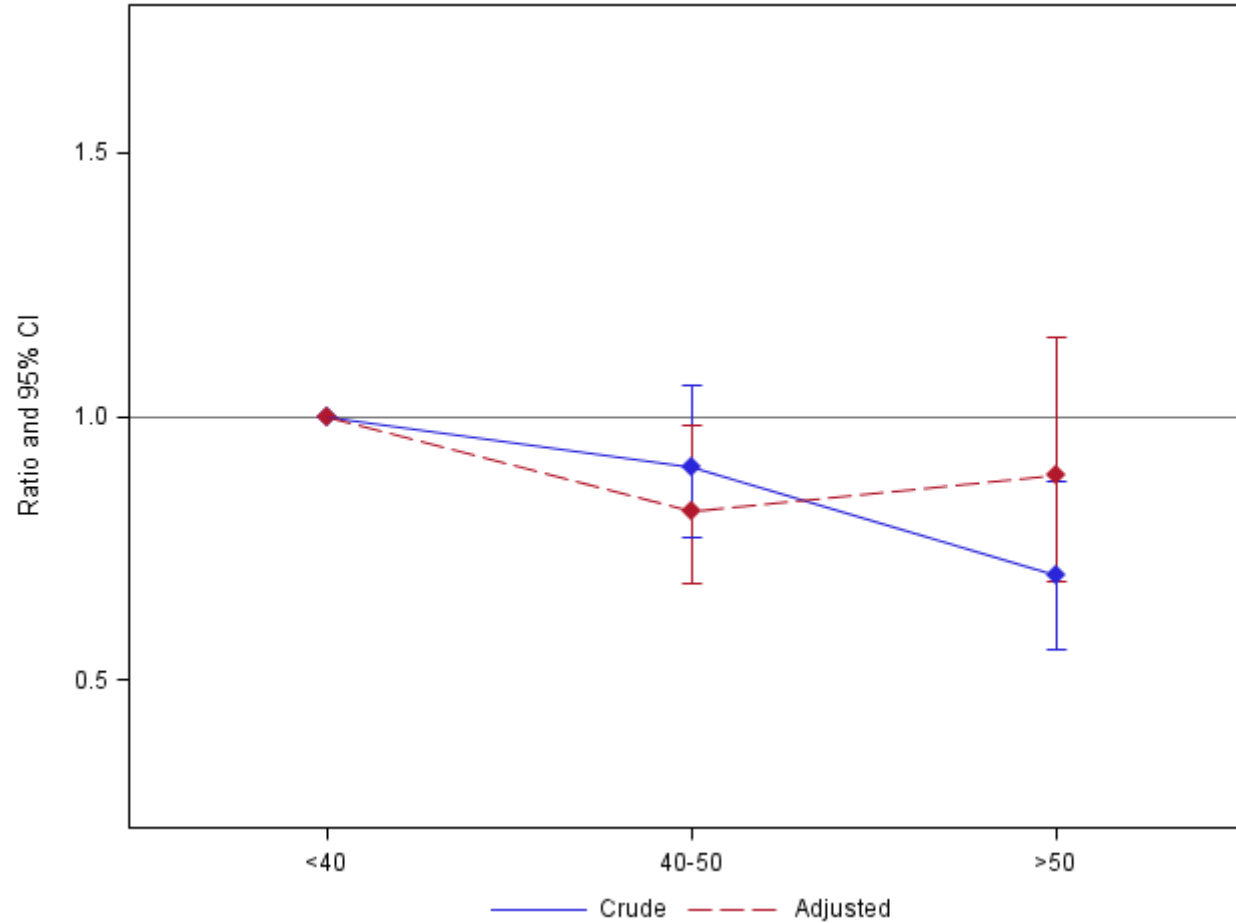
Proportional Hazard model. Adjusted for ethnicity, CD4+ T-cell count, VL, ART use, previous AIDS, calendar year and hepatitis B/C co-infection



Results: Viral rebound



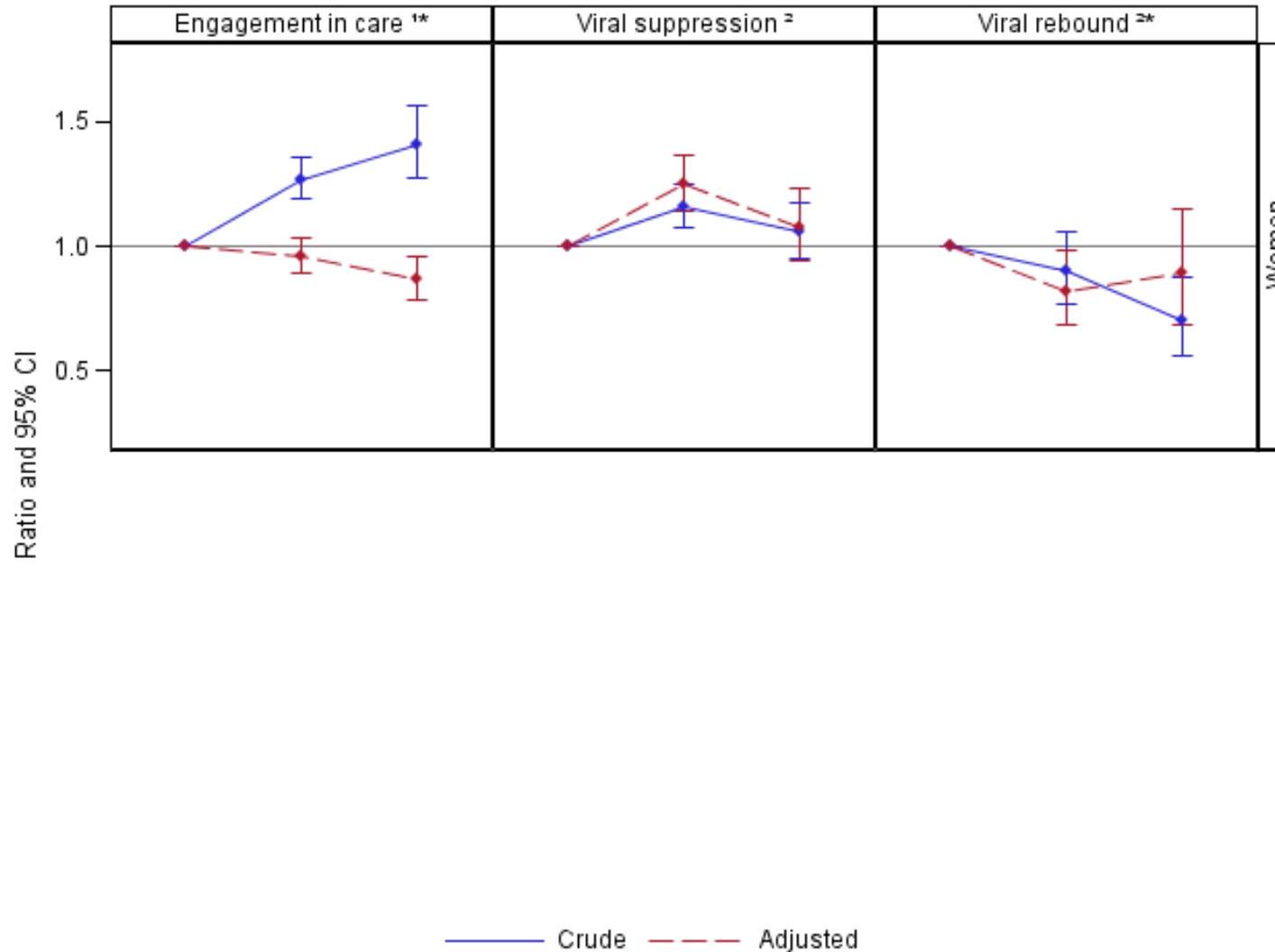
Results: Viral rebound



Cox Proportional Hazard model *Time-updated co-variates; adjusted for ethnicity, CD4+ T-cell count, VL, ART use, previous AIDS, calendar year and hepatitis B/C co-infection

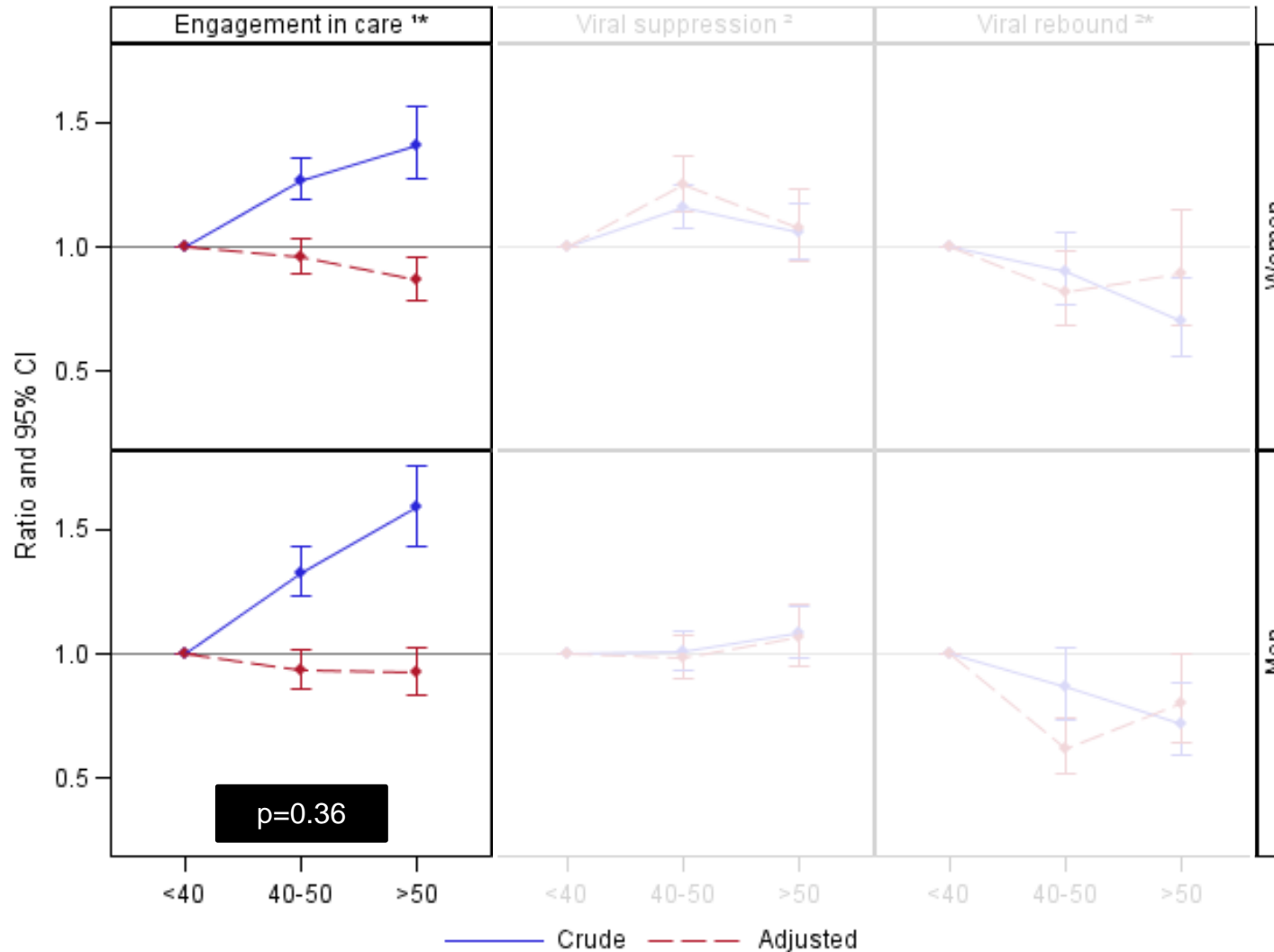


Results: Comparison with men



¹ GEE model ² Cox proportional hazard model. *Time-updated co-variates; adjusted for ethnicity, CD4+ T-cell count, VL, ART use, previous AIDS, calendar year and hepatitis B/C co-infection

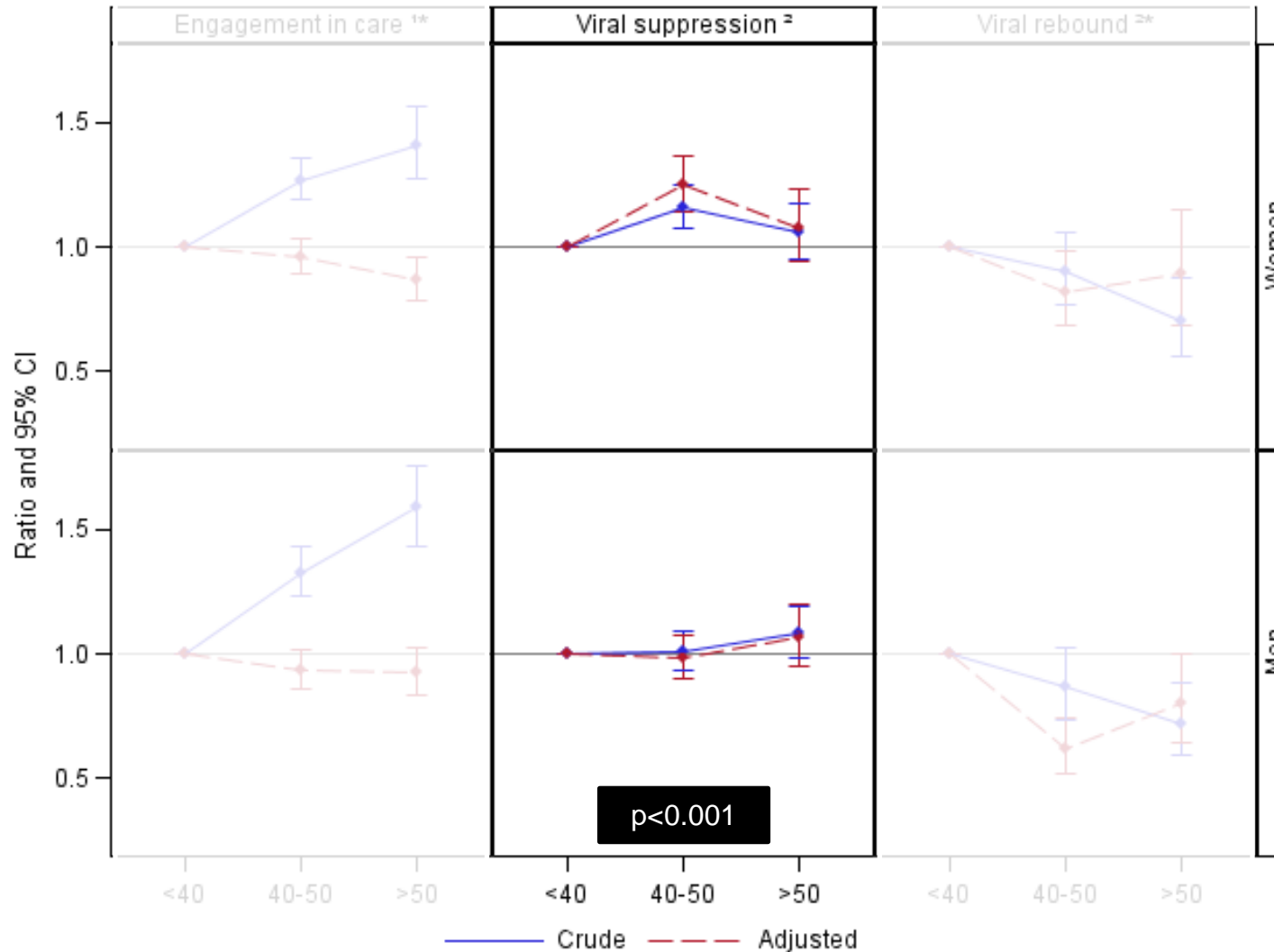
Results: Comparison with men



¹ GEE model ² Cox proportional hazard model. *Time-updated co-variables; adjusted for ethnicity, CD4+ T-cell count, VL, ART use, previous AIDS, calendar year and hepatitis B/C co-infection



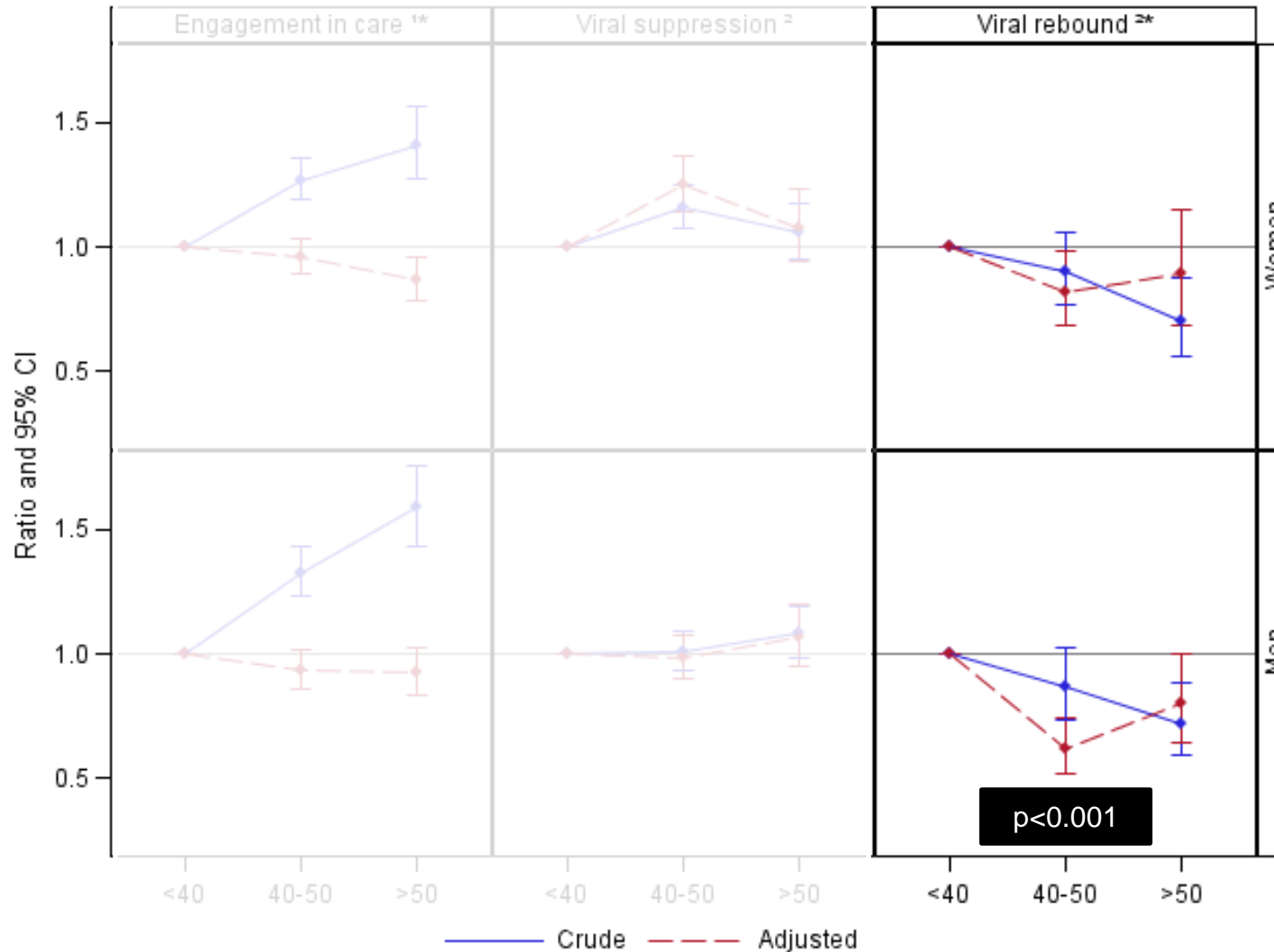
Results: Comparison with men



¹ GEE model ² Cox proportional hazard model. *Time-updated co-variables; adjusted for ethnicity, CD4+ T-cell count, VL, ART use, previous AIDS, calendar year and hepatitis B/C co-infection



Results: Comparison with men



¹ GEE model ² Cox proportional hazard model. *Time-updated co-variables; adjusted for ethnicity, CD4+ T-cell count, VL, ART use, previous AIDS, calendar year and hepatitis B/C co-infection



Limitations

- > No data on menopausal status or symptoms – age group used as a proxy measure
- > No information on lifestyle factors e.g. smoking, alcohol consumption
- > Majority of follow-up time between 2012-2017 and thus results relate to the modern ART era
- > Representative of UK heterosexual HIV epidemic but may lack generalisability to other settings

Summary

Engagement-in-care

- > Lower likelihood of EIC among post-menopausal women
- > Similar pattern seen in men – unlikely to relate to menopause

Viral suppression

- > Women in peri-menopausal age-group more likely to experience viral suppression
- > Appears to be specific to women

Viral rebound

- > Risk of viral rebound reduces with increased age in women and men – unlikely to relate to the menopause

UK CHIC: Acknowledgements

Steering Committee: Jonathan Ainsworth, Sris Allan, Jane Anderson, Ade Apoola, David Chadwick, Duncan Churchill, Valerie Delpech, David Dunn, Ian Fairley, Ashini Fox, Richard Gilson, Mark Gompels, Phillip Hay, Rajesh Hembrom, Teresa Hill, Margaret Johnson, Sophie Jose, Stephen Kegg, Clifford Leen, Dushyant Mital, Mark Nelson, Hajra Okhai, Chloe Orkin, Adrian Palfreeman, Andrew Phillips, Deenan Pillay, Ashley Price, Frank Post, Jillian Pritchard, Caroline Sabin, Achim Schwenk, Anjum Tariq, Roy Trelvelion, Andy Ustianowski, John Walsh.

Central Co-ordination: *University College London* (David Dunn, Teresa Hill, Hajra Okhai, Andrew Phillips, Caroline Sabin); *Medical Research Council Clinical Trials Unit at UCL (MRC CTU at UCL), London* (Nadine van Looy, Keith Fairbrother).

Participating Centres: *Barts Health NHS Trust, London* (Chloe Orkin, Janet Lynch, James Hand); *Brighton and Sussex University Hospitals NHS Trust* (Duncan Churchill, Stuart Tilbury, Elaney Youssef, Duncan Churchill); *Chelsea and Westminster Hospital NHS Foundation Trust, London* (Mark Nelson, Richard Daly, David Asboe, Sundhiya Mandalia); *Homerton University Hospital NHS Trust, London* (Jane Anderson, Sajid Munshi); *King's College Hospital NHS Foundation Trust, London* (Frank Post, Ade Adefisan, Chris Taylor, Zachary Gleisner, Fowzia Ibrahim, Lucy Campbell); *Middlesbrough, South Tees Hospitals NHS Foundation Trust*, (David Chadwick, Kirsty Baillie); *Mortimer Market Centre, University College London* (Richard Gilson, Ian Williams); *North Middlesex University Hospital NHS Trust, London* (Jonathan Ainsworth, Achim Schwenk, Sheila Miller, Chris Wood); *Royal Free NHS Foundation Trust/University College London* (Margaret Johnson, Mike Youle, Fiona Lampe, Colette Smith, Rob Tsintas, Clinton Chaloner, Caroline Sabin, Andrew Phillips, Teresa Hill, Hajra Okhai); *Imperial College Healthcare NHS Trust, London* (John Walsh, Nicky Mackie, Alan Winston, Jonathan Weber, Farhan Ramzan, Mark Carder); *The Lothian University Hospitals NHS Trust, Edinburgh* (Clifford Leen, Andrew Kerr, David Wilks, Sheila Morris); *North Bristol NHS Trust* (Mark Gompels, Sue Allan); *Leicester, University Hospitals of Leicester NHS Trust* (Adrian Palfreeman, Adam Lewszuk); *Woolwich, Lewisham and Greenwich NHS Trust* (Stephen Kegg, Victoria Ogunbiyi, Sue Mitchell), *St. George's Healthcare NHS Trust* (Phillip Hay, Christopher Hunt, Olanike Okolo, Benjamin Watts); *York Teaching Hospital NHS Foundation Trust* (Ian Fairley, Sarah Russell-Sharpe, Olatunde Fagbayimu); *Coventry, University Hospitals Coventry and Warwickshire NHS Trust* (Sris Allan, Debra Brain); *Wolverhampton, The Royal Wolverhampton Hospitals NHS Trust* (Anjum Tariq, Liz Radford, Sarah Milgate); *Chertsey, Ashford and St. Peter's Hospitals NHS Foundation Trust* (Jillian Pritchard, Shirley Cumming, Claire Atkinson); *Milton Keynes Hospital NHS Foundation Trust* (Dushyant Mital, Annie Rose, Jeanette Smith); *The Pennine Acute Hospitals NHS Trust* (Andy Ustianowski, Cynthia Murphy, Ilise Gunder); *Nottingham University Hospitals NHS Trust* (Ashini Fox, Howard Gees, Gemma Squires, Laura Anderson), *Kent Community Health NHS Foundation Trust* (Rajesh Hembrom, Serena Mansfield, Lee Tomlinson, Christine LeHegerat, Roberta Box, Tom Hatton, Doreen Herbert), *The Newcastle upon Tyne Hospitals NHS Foundation Trust* (Ashley Price, Ian McVittie, Victoria Murtha, Laura Shewan); *Derby Teaching Hospitals NHS Foundation Trust* (Ade Apoola, Zak Connan, Luke Gregory, Kathleen Holding, Victoria Chester, Trusha Mistry, Catherine Gatford); *Public Health England, London* (Valerie Delpech); *i-Base* (Roy Trelvelion).

Funding: UK CHIC is funded by the UK Medical Research Council and NSHPC/ISOSS by PHE IDPS Programme. The views expressed in this presentation are those of the researchers and not necessarily those of the Medical Research Council or Public Health England.

