**Background**

- Adolescents with perinatal HIV (PHIV) are entering adulthood, often with complex clinical and psychosocial issues which may affect adherence to ART.
- This is a time when they are increasingly expected to self-manage their HIV care.
- There have been many studies of adherence, as well as systematic reviews; a diverse range of predictors of adherence have been identified.
- Many studies have investigated only univariable associations, and the effect of individual level factors, and not broader family/ environmental factors, on adherence.
- We investigated predictors of short-term non-adherence in our AALPHI cohort of PHIV in England, collecting a broad dataset, including family and environmental factors, by face-to-face interviews.

**Difficult doses and use of reminders**

- 69 (27%) had problems taking weekday doses, and 98 (39%) weekend doses.
- 147 (56%) used reminders to help them take their ART; the most popular reminders were as follows:
  - Family member 73%
  - Pill box 20%
  - Timer 20%
  - Daily routine (e.g. breakfast time, TV show) 10%
  - Text message 7%
  - Friend 7%

**Actual missed doses**

- Figure 1 shows the proportion of PHIV reporting any missed doses in the last 3 days, and also the proportion who missed over two days in a row in the last month.
- 20 (8%) reported missing doses on the day of interview, 30 (11%) the preceding day, and 53 (20%) the day before that, with a total of 70 (27%) missing any doses in the last 3 days.
- 82 (31%) reported missing more than 2 days in a row in the last month.

**Factors associated with 3 day non-adherence**

- In a multivariable model (Table 2), predictors of 3 day non-adherence were:
  - Decreased quality of life
  - Ever having smoked cigarettes
  - Poorer self-perception about having HIV

**Discussion**

- In this cohort of long-term survivors of perinatal HIV, more than one in four reported poor adherence to ART in the previous 3 days.
- Lower quality of life, poorer perception about and adjustment to having HIV, and cigarette smoking, were the main predictors of recent non-adherence.
- Cognitive function, anxiety and depression may act as mediating influences for associations between quality of life, self perception about HIV, and non-adherence, rather than directly predicting non-adherence.
- No family- or environmental-level factors predicted non-adherence.

**Acknowledgements**

- We thank all PHIV and HIV-young people, parents and staff of all the clinics and voluntary services in AALPHI.
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- The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health.

**Methods**

- A total of 295 PHIV young people aged 13-21 years were recruited into the AALPHI cohort in England from 2013-2015; 261 were currently taking ART.
- Computer-assisted survey interviewing (CASI) collected data on adherence, defined as any missed doses in the last 3 days, and also having missed >2 days in a row in the last month.
- The effect of potential predictors on non-adherence (i.e. any missed doses) in the last three days was determined using logistic regression and Wald p-values.
- Potential predictors were:
  - A priori variables:
    - Age, sex, ethnicity, and being born outside the UK
  - Individual-level HIV-related clinical variables:
    - Age starting ART, diagnosis of encephalopathy, CDC stage and current EFV use, having transferred to adult care
  - Other individual-level variables:
    - Cognitive function, measured across 6 cognitive domains, and assessed using a summary NZP-6 score, calculated as the mean z-score across all 6 domains
    - Anxiety and depression (Hospital Anxiety and Depression Scale (HADS))
    - Quality of life (Pediatric Quality of Life Inventory™ (PedsQL™))
    - Drug and alcohol use
    - Self-perception about and adjusting to having HIV (composite score of level of upset, worry, sadness, loneliness, concern about future health)
  - Family and environmental-level variables:
    - Loss of one/both parents, whether fostered or adopted
    - Language spoken at home, deprivation score (IDACI), current education/employment status, living with parents, having a parent or carer in work.
    - Disclosure-related factors, including the number of people who the young people had told about their HIV, and the number of people they were able to talk to about their HIV

**Sample characteristics**

- Sociodemographic and HIV-related characteristics are shown in Table 1.
- The median age was 16 years, most were black African and born outside of the UK, and most attended school and lived with their parents.

**Table 1** - Sociodemographic and HIV-related characteristics of PHIV (n=261)

<table>
<thead>
<tr>
<th>Sociodemographic</th>
<th>N (%) or median (QR)</th>
<th>HIV-related</th>
<th>N (%) or median (QR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>124 (47%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>16 (15, 18)</td>
<td>Up to 1996</td>
<td>40 (15%)</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td>1997-2000</td>
<td>63 (24%)</td>
</tr>
<tr>
<td>≤15 years</td>
<td>115 (39%)</td>
<td>2001-</td>
<td>156 (60%)</td>
</tr>
<tr>
<td>16-18 years</td>
<td>119 (40%)</td>
<td>Age ART start</td>
<td>7 (3, 11)</td>
</tr>
<tr>
<td>≥18 years</td>
<td>61 (21%)</td>
<td>CDC stage at interview</td>
<td></td>
</tr>
<tr>
<td>Ethnicity (black)</td>
<td>250 (85%)</td>
<td>N/A/58</td>
<td>189 (72%)</td>
</tr>
<tr>
<td>Born outside UK</td>
<td>229 (78%)</td>
<td>C</td>
<td>72 (28%)</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td>Ever encephalopathy</td>
<td>10 (4%)</td>
</tr>
<tr>
<td>School</td>
<td>235 (80%)</td>
<td>Viral load at interview</td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>43 (14%)</td>
<td>≥500/ml</td>
<td>147 (78%)</td>
</tr>
<tr>
<td>Not in education/training</td>
<td>17 (6%)</td>
<td>CD4 nadir (c/ml)</td>
<td>218 (125, 330)</td>
</tr>
<tr>
<td>Live with parents</td>
<td>268 (91%)</td>
<td>CD4 at last visit (c/ml)</td>
<td>605 (450, 813)</td>
</tr>
<tr>
<td>Loss of one/both parents</td>
<td>100 (36%)</td>
<td>Current EFV use</td>
<td>79 (30%)</td>
</tr>
<tr>
<td>Fostered/adopted</td>
<td>13 (11%)</td>
<td>Transferred to adult care</td>
<td>50 (19%)</td>
</tr>
</tbody>
</table>

- In terms of HIV-related characteristics, 40% presented to care before 2001, 7 years, and 78% had a viral load <50c/ml at interview.

**Table 2** - Multivariable predictors of 3 day non-adherence

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adjusted OR (95%CI)*</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of life (PedsQL™)</td>
<td>Per 100 units decreased QL</td>
<td>1.1 (1.0, 1.2)</td>
</tr>
<tr>
<td>Ever smoked cigarettes</td>
<td>Yes</td>
<td>2.7 (1.3, 5.7)</td>
</tr>
<tr>
<td>Self-perception about having HIV</td>
<td>Per 5 units worse</td>
<td>1.1 (1.0, 1.2)</td>
</tr>
</tbody>
</table>

* All variables adjusted a priori for gender, age at interview, born in the UK vs. abroad, ethnicity and smoking status.