Early adolescents substance use (SU) and parental socio-economic position (SEP): UK birth-cohort analyses

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High Risk Behaviours (HRB) in adolescence
(led by *Prof Glyn Lewis* - Psychiatry)

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What is ALSPAC?

- "***Avon Longitudinal Study of Parents and Children***"
- **Design**: Population based birth-cohort study
- **N**: ~14,000 children and their parents followed up across time
- **Setting**: *Avon*, south-west England – early 90's
- **Eligibility criteria**: expected date of delivery between *Apr 1st 1991* and *Dec 31st 1992*

What data does ALSPAC have?

- Self completion **questionnaires**
  - Mothers, Partners, Children, Teachers
- Hands on **assessments**
  - 10% sample tested regularly since birth
  - Yearly clinics for all since age 7
- Data from **external sources**
  - SATs from LEA, Child Health database
- **Biological samples**
  - DNA / cell lines

Background

- Childhood social disadvantage
  - Psychological problems
  - problematic Substance Use
- Inconsistent evidence from longitudinal studies (Alcohol/Cannabis)
- “Binge-drinking” UK! (EU ↑ - US ↔)
- SEP non unitary and rarely the focus (Braveman, PA, *JAMA* 2005)

Binge drinking (*no consensus*)

consuming a large amount of alcohol on a single occasion

drinking to excess (*hedonistic drinking*)

- For kids:
  - –NIAAA, BAC≥80mg/dl (*adult alcohol intoxication*)
  - –9-13 yrs: 3+ drks in a row (Donovan JE, *Pediatrics* 2009)
- **ALSPAC: 3+ drks/24h**

ALSPAC – Participants

- **5,837 out of 10,569** invitees (55.2%) attended '*Teen Focus two*' (**TF2**)
  - **2,960** girls (50.7%), **2,877** boys (49.3%);
  - 4,700 (**80.5**%) <14 yrs, 1,137 (**19.5**%) ≥ 14yrs

SURVEY METHOD: *Face 2 Face Interview*

What questions were they asked?

- *Have you **ever** smoked **cigarettes**?*
- *Have you **ever** had a **whole drink**?*
  (can of beer, glass of wine, bottle of alcopop, shot of spirits or any other kind of drink with alcohol in it)
  - *Have you had any **whole drinks** in the **past 6 months**?*
- *What is the **largest number** of **whole drinks** you have ever had in a 24 hour period?*
- *Have you **ever** tried **cannabis**?*

TF2 – Substance Use

substance	N	BOYS n	BOYS % (95%CI)	GIRLS n	GIRLS % (95%CI)	p
ALCOHOL						
ever drank	5811	1479	51.6, (49.8-53.5)	1582	53.7, (51.9-55.5)	0.11
drank/6 mths	5804	1126	**39.4, (37.6-41.2)**	1250	**42.5, (40.7-44.3)**	**0.02**
binge drank	5732	577	20.4, (18.9-21.9)	609	21.0, (19.5-22.5)	0.54
drank <age 12	5723	400	**14.2, (12.9-15.5)**	359	**12.4, (11.2-13.6)**	**0.05**
SMOKING						
ever smoked	5813	465	**16.2, (14.9-17.6)**	652	**22.1, (20.6-23.7)**	**<0.001**
smoked/6 mths	5810	200	**7.0, (6.1-8.0)**	358	**12.2, (11.0-13.4)**	**<0.001**
CANNABIS						
ever cannabis	5791	152	**5.3, (4.5-6.2)**	116	**3.9, (3.3-4.7)**	**0.01**
cannabis/6 mths	5789	110	3.9, (3.2-4.6)	87	3.0, (2.4-3.6)	0.06

SEP – Major Dimensions

- **Registrar's General Social Class (*pregnancy*)**
  - –Mother's, partner's, highest **parental SC**
    I, II, (III nm, III m), (IV, V)
- **Education (*pregnancy*)**
  - –Mother's, partner's highest **educational qualification**
    <O level, O level, A level, Degree
- **Income (*33-47 months*)**
  - –**disposable income** (quintiles)
    (accounting for **family size**, **composition**, housing **benefits**, **rescaled** to the 1995 RPI) tks: *Liz Washbrook* (CMPO)

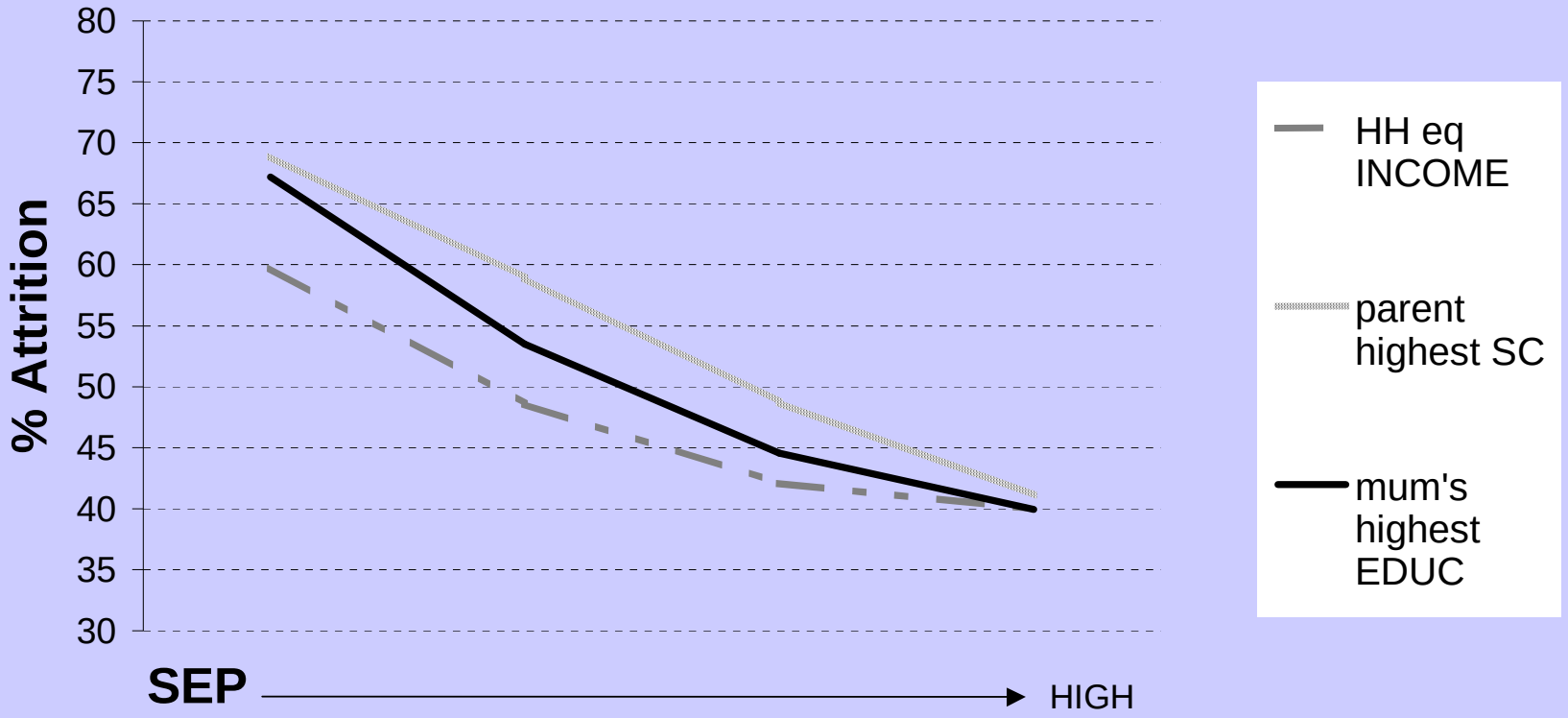
Polychoric Correlations

	social class	income	mum education
social class	-	0.49	0.57
income	0.49	-	0.47
mum education	0.57	0.46	-

Upper-right cells: pw correlations, n=9,050 to 10,958;
Lower-left cells: lw correlations, n=8,721.

Social patterning of Attendance @ TF2

N=5,837



χ^2: *each p<0.001*

STATS

- **individual SEP** logistic regressions
  - Adjust Age, gender
- **multiple SEP** logistic regressions
  - Adjust Age, gender + other SEP indicators

MISSING DATA

- Multiple Imputation by Chained Equations (**MICE**) – *switching regression* (van Buuren et al, *Stat Med* 1999)
- under MAR (familial socio-demographic characteristics)
- *ice* (stata) by P. Royston (*SJ*, 2004)
- m=60, c=10; results combined by *Rubin's Rule*.

SEP – Binge Drank & Drank/6months

Complete Cases ~4,700

	EVER Binge Drank	Drank/6 mnths
FACTOR	**OR (95%CI)**	**OR (95%CI)**
PARENTAL SOCIAL CLASS	0.97 (0.87-1.08), p=0.60	
MUM HIGHEST EDUC	**0.85 (0.78-0.93), p<0.001**	
INCOME	**1.06 (1.00-1.13), p=0.04**	

SEP – Binge Drank & Drank/6months

Complete Cases ~4,700

	EVER Binge Drank	Drank/6 months
FACTOR	**OR (95%CI)**	**OR (95%CI)**
PARENTAL SOCIAL CLASS	0.97 (0.87-1.08), p=0.60	1.01 (0.93-1.11), p=0.78
MUM HIGHEST EDUC	**0.85 (0.78-0.93), p<0.001**	**0.89 (0.83-.96), p<0.01**
INCOME	**1.06 (1.00-1.13), p=0.04**	**1.06 (1.01-1.12), p=0.01**

SEP – Smoking & Cannabis

Complete Cases ~4,700

	EVER Smoked	**EVER Cannabis**
FACTOR	**OR (95%CI)**	**OR (95%CI)**
PARENTAL SOCIAL CLASS	**0.89 (0.80-1.00), p=0.05**	
MUM HIGHEST EDUC	**0.83 (0.76-0.91), p<0.001**	
INCOME	0.97 (0.92-1.04), p=0.41	

SEP – Smoking & Cannabis

Complete Cases ~4,700

	EVER Smoked	**EVER Cannabis**
FACTOR	**OR (95%CI)**	**OR (95%CI)**
PARENTAL SOCIAL CLASS	**0.89 (0.80-1.00), p=0.05**	1.11 (0.90-1.37), p=0.34
MUM HIGHEST EDUC	**0.83 (0.76-0.91), p<0.001**	1.00 (0.85-1.18), p=0.99
INCOME	0.97 (0.92-1.04), p=0.41	0.90 (0.81-1.01), p=0.08

Multiply Imputed analyses

All frequencies of behaviour are
increased along with n
therefore more power

SEP – Alcohol

(CC) n~4700 - (MI) n=12,734

EVER Binge Drank	**Complete Cases**	**Multiply Imputed**
	OR (95%CI)	**OR (95%CI)**
INCOME	**1.06 (1.00-1.13), p=0.04**	1.04 (0.99-1.10), p=0.16
Drank/6 months	**Complete Cases**	**Multiply Imputed**
	OR (95%CI)	**OR (95%CI)**
INCOME	**1.06 (1.01-1.12), p=0.01**	**1.07 (1.02-1.12),p<0.01**

SEP – Cannabis

(CC) n~4700 - (MI) n=12,734

EVER Cannabis	Complete Cases	Multiply Imputed
	OR (95%CI)	**OR (95%CI)**
INCOME	0.90 (0.81-1.01), p=0.08	**0.84 (0.76-0.93), p=0.001**

Conclusions

- Affluence may increase availability (in their home), which favours consumption
- Maternal education “protective”, if at all
- Lower socio-economic groups more prone to unhealthy behaviours (e.g. *binge drinking*, *smoke*)
  - Alcohol: more normative behaviour?
  - *Self-sufficiency* theory (Luthar SS, *Child Development* 2003)
- …but affluence doesn’t seem to favour cannabis!
  - Cannabis: experimental/undesirable still?
- Smoking conforms to reverse social gradients and is particularly frequent in girls