Factors Influencing Response Rates to ALSPAC Questionnaires

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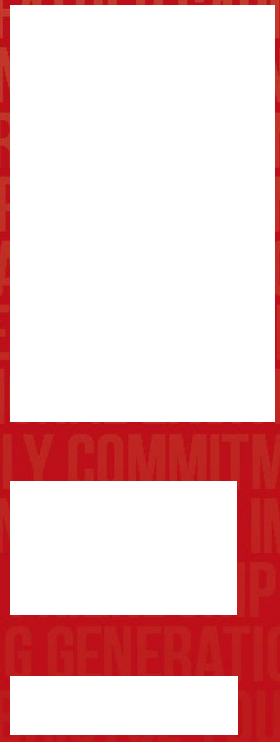
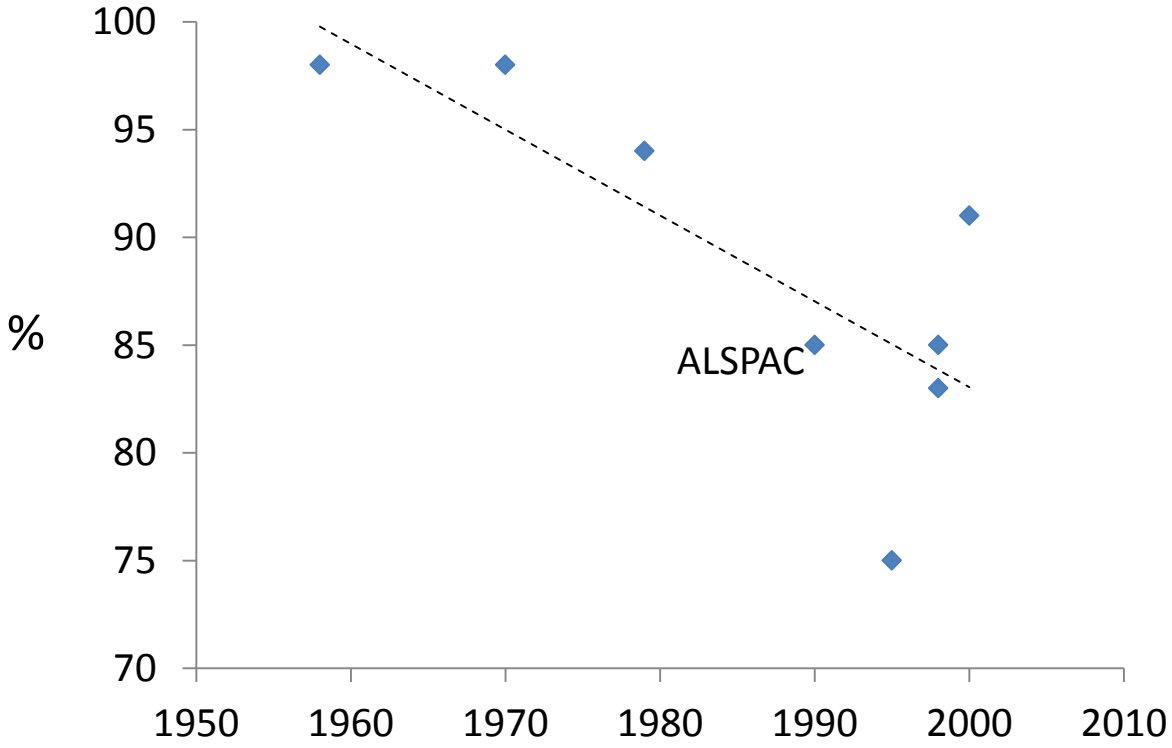
ALSPAC Scientific Conference 18/04/12



"One of the greatest challenges facing longitudinal surveys is to establish maximum representativeness of the cohort at the outset and to maintain this representativeness throughout the follow-up period"

Large Cohort Studies Across the World, Pirus & Leridon 2010

Initial response to child cohort studies (UK, US and Canada)



Designing Multidisciplinary Longitudinal studies of Human Development: Analyzing Past Research to Inform Methodology, Shulruf *et al.* 2007

Reasons for non-response

1. Failure to locate
2. Failure to contact
3. Refusal to take part

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   Sense of obligation to participate appears to have declined over time
   Recent studies cover more aspects of participants lives and often include more intrusive information
   Increase junk mail, telesales calls

Why do response rates matter?

Sample size (i) precision of estimates

(ii) ability to look at subgroups

Representativeness/Bias

Participation at 16-18 yrs

	Odds Ratio	95% CI
Sex - female	1.88	(1.74-2.03)
Ethnicity – white	1.34	(1.10-1.62)
Income – FSM	0.51	(0.44-0.60)

Cohort Profile: The 'Children of the 90s'; the index offspring of The Avon Longitudinal Study of Parents and Children, Boyd *et al* 2012 (in press)

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Eligible sample – defined area of Avon, EDD 01/04/91-31/12/92

Enrolled sample – mother or child has provided some data

Sent questionnaire – depends on participants choice & previous response

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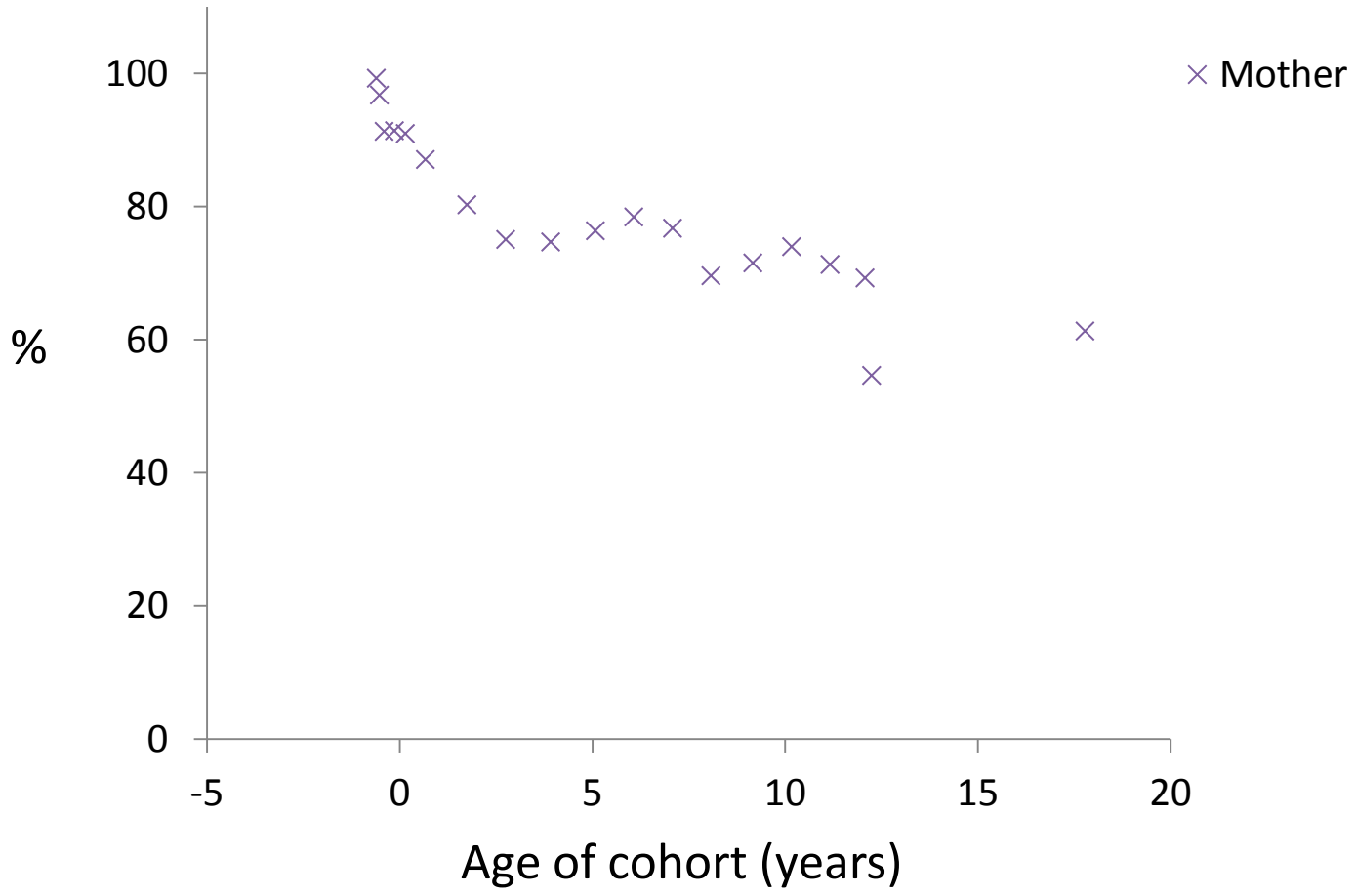
$$\frac{\text{Number completed}}{\text{Number sent}}$$

Questionnaire Response



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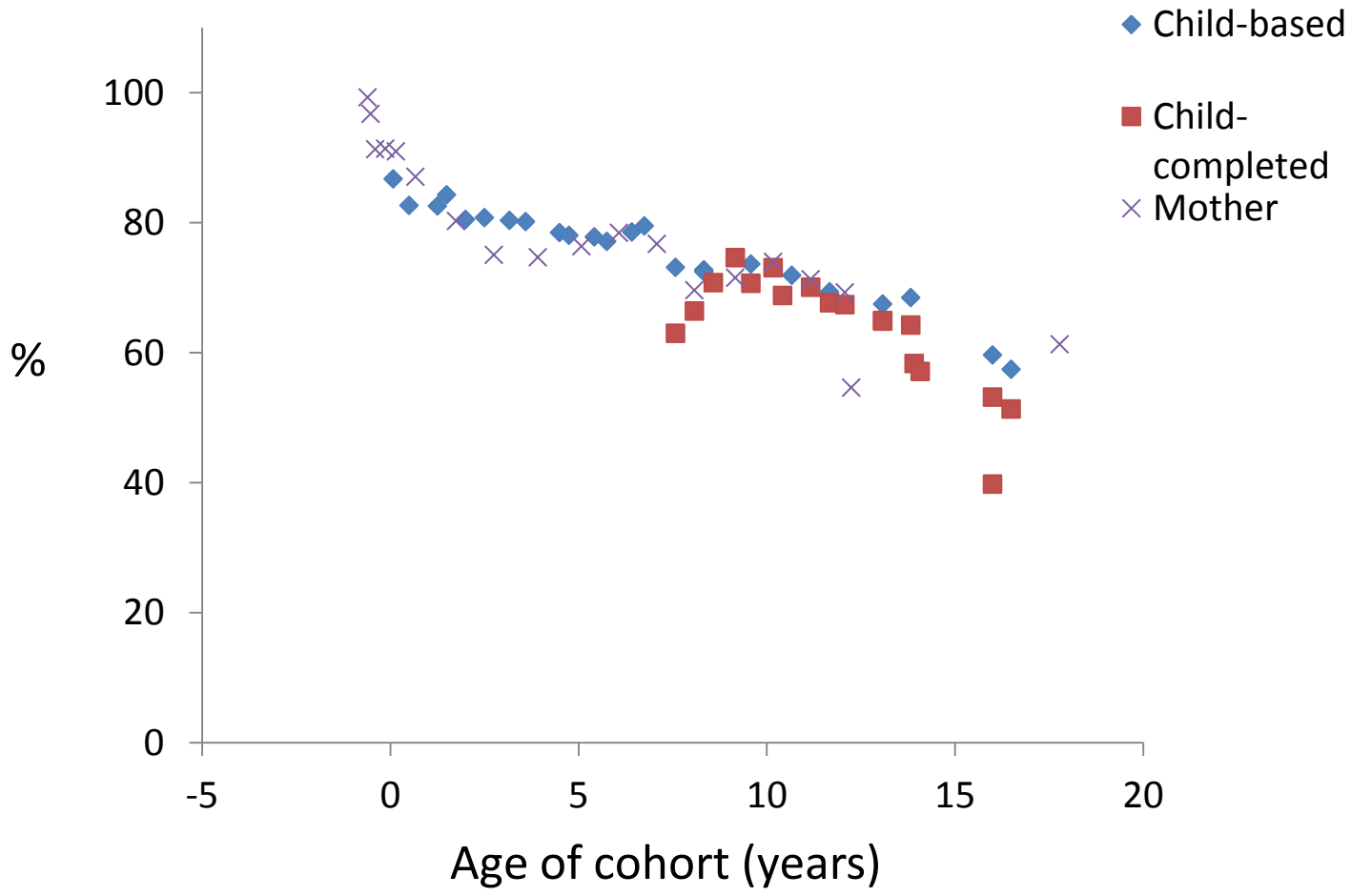

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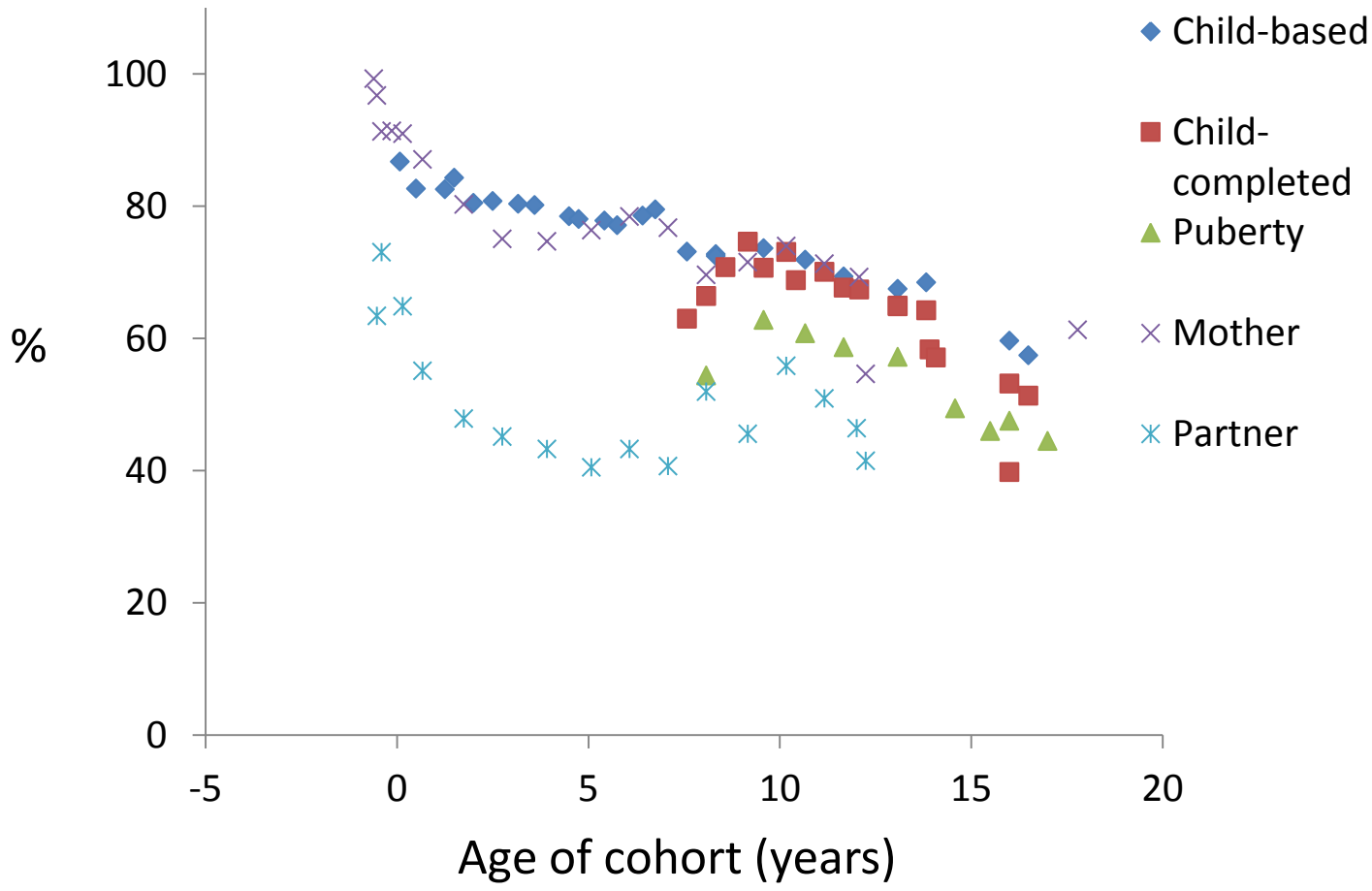

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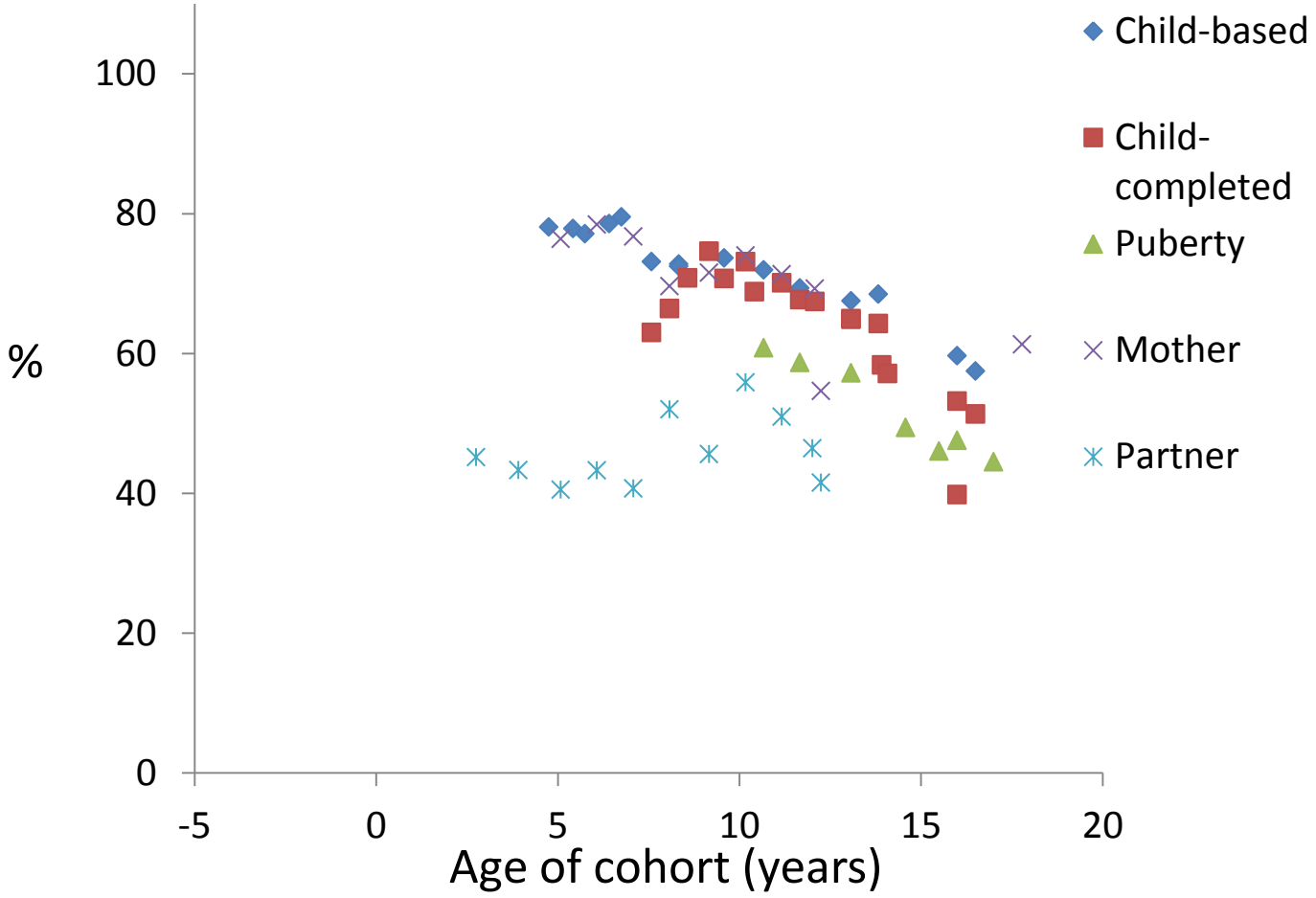

Factors affecting response

Individual e.g. age, gender, education, marital status

Family e.g. socio-economic status, ethnicity

Organisational e.g. reminders, home visits/phone calls

Analyses of response

1970 British Cohort Study Logistic regression performed separately for each wave of the study. Gender, mothers age at birth, social class of father, birthweight, parents' education, parity and marital status predicted response.

Non-response in the 1970 British Cohort Study from birth to 34 years
Ketende, McDonald and Dex 2010

UK Millenium Cohort Study. Mobility since wave 1, country, income, ethnicity, housing tenure, age, education and Child Poverty Index predicted response at wave 2

The contribution of residential mobility to sample loss in a birth cohort study: Evidence from the first two waves of the UK Millenium Cohort Study, Plewis *et al* 2008

Multilevel model of ALSPAC data

Binary dependent variable – questionnaire completed

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Explanatory variables:

- Individual/Family (e.g. education, marital status, parity)
- Organisational (e.g. length of questionnaire, reminders, home visits)

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- Individual/Family (e.g. education, marital status, parity)
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- Time in study (from first questionnaire)

In addition,

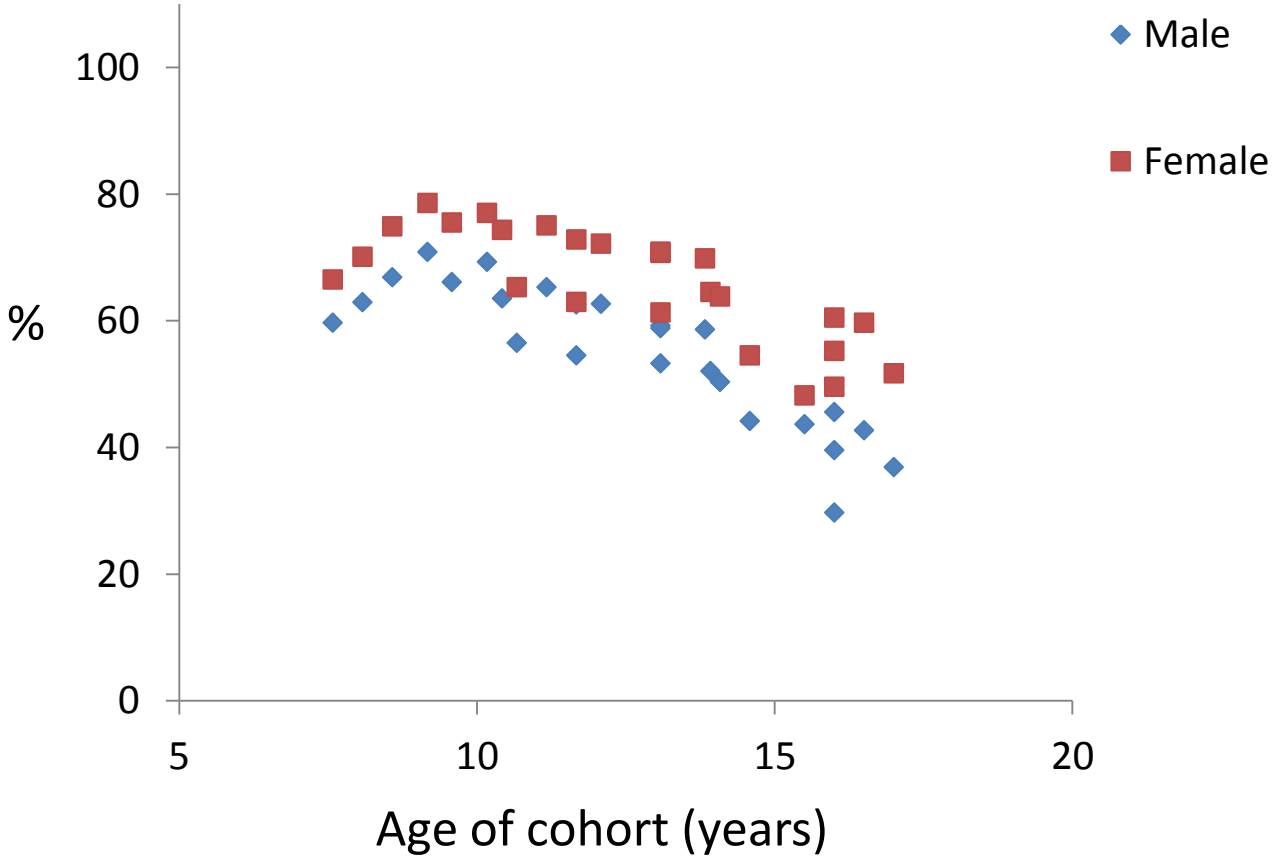
- Initial probability of response
- Decline in response over time
- Relationship between the two

} allowed to vary by individual

Final model – Mothers

	OR	95% CI
Age at delivery (years)	1.066	(1.060-1.072)
Multiple pregnancy (yes/no)	0.66	(0.49-0.90)
Parity	0.80	(0.76-0.83)
Ethnicity (baseline white)	1.00	
Black	0.63	(0.44-0.91)
Asian	0.38	(0.23-0.61)
Other	0.65	(0.42-1.02)
Home ownership (baseline mortgaged or owned)	1.00	
Rented	0.73	(0.66-0.80)
Other	0.89	(0.72-1.08)
Married (yes/no)	1.15	(1.06-1.26)
Education (4 ordered categories)	1.27	(1.23-1.32)
Regular smoker pre-pregnancy	0.78	(0.73-0.83)
Mothers health (4 ordered categories)	0.86	(0.81-0.91)
Length of questionnaire (per 10 pages)	**0.95**	**(0.94-0.97)**
Reminder (1,2)	**1.28**	**(1.19-1.38)**
Visits (yes/no)	**1.47**	**(1.39-1.56)**
Time in study (years)	**0.913**	**(0.908-0.917)**

Young People, by gender



Final model – Young People

	OR	95% CI
Female (baseline male)	1.38	(1.28-1.49)
Age at delivery (years)	1.047	(1.042-1.053)
Multiple pregnancy (yes/no)	0.69	(0.57-0.84)
Parity	0.81	(0.79-0.84)
Ethnicity (baseline white)	1.00	
Black	0.73	(0.52-1.01)
Asian	0.61	(0.39-0.94)
Other	1.07	(0.72-1.59)
Home ownership (baseline mortgaged or owned)	1.00	
Rented	0.73	(0.67-0.80)
Other	0.84	(0.70-1.01)
Married (yes/no)	1.08	(1.00-1.17)
Education (4 ordered categories)	1.22	(1.18-1.26)
Regular smoker pre-pregnancy	0.76	(0.72-0.80)
Mothers health (4 ordered categories)	0.85	(0.81-0.90)
Length of questionnaire (per 10 pages)	**0.97**	**(0.95-0.98)**
Puberty questionnaire (yes/no)	**0.83**	**(0.81-0.86)**
Reminder (0,1)	**1.44**	**(1.41-1.48)**
Time in study – males (years)	**0.839**	**(0.832-0.846)**
Time in study – females (years)	**0.871**	**(0.864-0.878)**

Final model – Partners

	OR	95% CI
Age at delivery (years)	1.022	(1.017-1.028)
Parity	0.84	(0.81-0.87)
Ethnicity (baseline white)	1.00	
Black	0.45	(0.31-0.66)
Asian	0.33	(0.20-0.55)
Other	0.82	(0.53-1.28)
Home ownership (baseline mortgaged or owned)	1.00	
Rented	0.74	(0.67-0.81)
Other	0.79	(0.65-0.97)
Married (yes/no)	1.44	(1.32-1.57)
Education (4 ordered categories)	1.22	(1.18-1.26)
Regular smoker pre-pregnancy	0.74	(0.70-0.79)
Mothers health (4 ordered categories)	0.86	(0.81-0.91)
Length of questionnaire (per 10 pages)	**0.91**	**(0.90-0.93)**
Time in study (years)	**0.950**	**(0.944-0.955)**

Conclusions

Individual/family effects confirm expected findings

Reminders & visits/phone calls improve response rates

Longer questionnaires associated with lower response rates

Time in study – overall drop in response rates over time

Further work - Questionnaires

Modelling continuous variables:

- Length of questionnaire – threshold effect?
- Time in study - consider change-points

More precise measurement – timings of questionnaires & reminders from administrative data

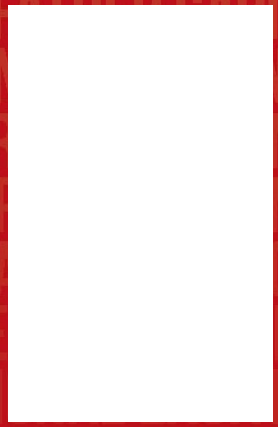
Other influences – family, school, friends

Further work - Clinics

Clinics – similar analysis for clinic attendance

Substudies – participant burden *v* benefit of more frequent contact

THANK YOU



MRC Medical Research Council

ANY QUESTIONS?