

Impact of Childhood Chronic Illness and Emotional and Behavioural Problems on Educational Outcomes at Nine-Years

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Introduction

- Between 10-20% of children <18 have a chronic illness in developed societies
- 11% of 9 year olds in GUII
- Chronic illness associated with higher school absence and lower educational attainment
- But, widespread evidence that children with a chronic illness are at increased risk of emotional and behavioural problems
- Chronic illness also associated with higher levels of bullying
- Possible direct and indirect effects of illness on educational attainment

Emotional and behavioural problems in subgroups of children with chronic illness: results from a large-scale population study

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Table 3. Mean scores of the Strengths and Difficulties Questionnaire (SDQ) subscales and impact scores, and between-group effect sizes (ES) (pooled deviations) for each illness group compared with healthy children

	Neurological (<i>n</i> = 86)			Asthma (<i>n</i> = 284)			Other illnesses (<i>n</i> = 74)			Healthy (<i>n</i> = 6469)	
	Mean	SD	ES	Mean	SD	ES	Mean	SD	ES	Mean	SD
SDQ subscales											
Emotional symptoms	2.4**	2.1	0.6	1.7**	2.1	0.2	1.2	1.5	0.0	1.3	1.7
Hyperactivity and inattention	5.0**	3.0	0.9	3.2**	2.5	0.3	3.0*	2.3	0.2	2.6	2.1
Conduct problems	1.6**	1.6	0.4	1.1*	1.4	0.1	1.2*	1.5	0.2	0.9	1.3
Peer problems	2.8**	2.6	0.9	1.1*	1.6	0.1	0.9	1.4	0.0	0.9	1.5
SDQ impact scores											
Home life	1.4**	0.9	0.7	0.9	1.0	0.1	0.9	0.9	0.2	0.8	0.8
Friendship	1.6**	1.0	1.1	0.7	0.7	0.2	0.7	0.6	0.1	0.6	0.8
Classroom learning	1.8**	1.0	1.2	0.7	0.8	0.0	0.8	0.8	0.1	0.7	0.9
Leisure activities	1.5**	1.0	1.2	0.6	0.9	0.2	0.8	0.3	0.3	0.5	0.0
Family	1.5**	0.9	0.8	0.9	0.9	0.1	1.0	0.1	0.1	0.8	0.8

P* < 0.05, *P* < 0.001.



Are adolescents with chronic conditions particularly at risk for bullying?

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ABSTRACT

Objective To compare the prevalence and intensity of victimisation from bullying and the characteristics of the victim of bullying, comparing adolescents with and adolescents without chronic conditions (CC).

Design School survey.

Setting Postmandatory schools.

Participants A total of 7005 students (48% females) aged 16–20 years, distributed into adolescents with CC (728, 50% females) and controls (6277, 48% females). *Chronic condition* was defined as having a chronic disease and/or a physical disability.

Outcome measures Prevalence of bullying—intensity

What is already known on this topic

Bullying is an aggressive behaviour repeated over time with the intention to harm the victim. The prevalence of bullying is greater among boys and decreases with age during adolescence. It is associated with poorer health status and psychological distress.



Hypotheses

- H1: children with chronic illness will have lower educational attainment on average
- H2: children with chronic illness will have higher mean emotional and behavioural problems
- H3: the effect of chronic illness on educational attainment can be explained by its indirect effect on emotional and behavioural problems



Sample Design

- 8,568 nine-year old children participating in the Growing Up in Ireland Project.
- Selected through the school system using a Probability Proportionate to Size (PPS) sampling method with schools serving as the primary sampling units (PSU's).
- 910 schools from the national total of 3,200 primary schools were selected for inclusion.
- 82% response rate at the school level and 57% at the household level (i.e. eligible child selected within the school)
- The data was weighted to be nationally representative.



Dependent Variables

- The Strengths and Difficulties Questionnaire (SDQ)

- It is a 25-item behavioural screening questionnaire which generates 5 scale scores:

- Hyperactivity/inattention
 - Emotionality
 - Conduct problems
 - Peer problems

Four deficit-focused scales sum to form a Total Difficulties score.

- Drumcondra Reading and Maths Scores

- Developed in Ireland and linked to national curriculum
 - Children completed age appropriate test
 - 40 item vocabulary test, 25 item maths test
 - Scored as proportion correct

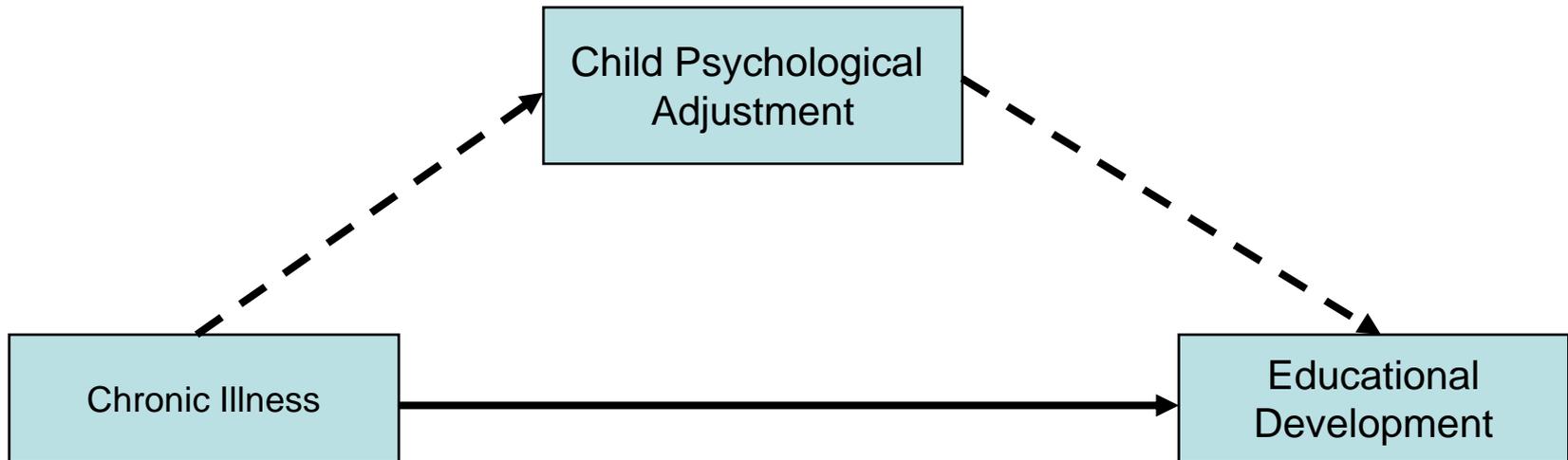


Independent Variables

- Childhood Chronic illness
 - whether the child has any *ongoing* physical or mental health problem, illness or disability'. Coded using ICD-10.
- Child's sex
 - male/female
- Mother's age (child age 9)
 - less than 30 / 30-39 / 40-49 / 50+ years
- Household Social Class
 - European Socio-Economic Classification (6 Groups)
- Mother's Education
 - Lower 2nd, Higher 2nd, Post 2nd, Tertiary
- Birth Characteristics
 - Gestation and weight at Birth
- Household Income (equivalised)
- Days Absent from School (Teacher Reported)
- Whether Bullied in school (child report in sensitive questionnaire)

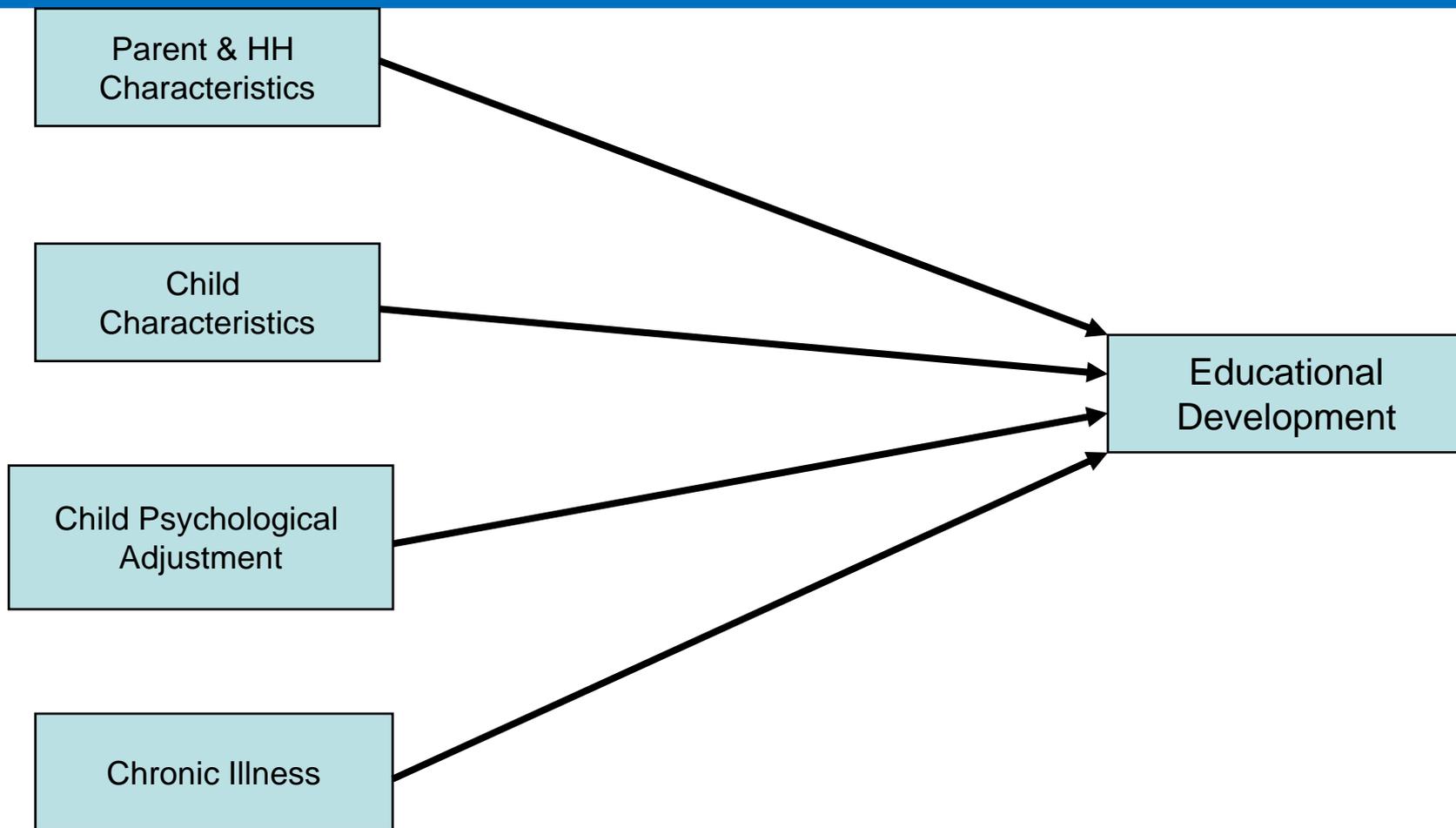


Conceptual Model

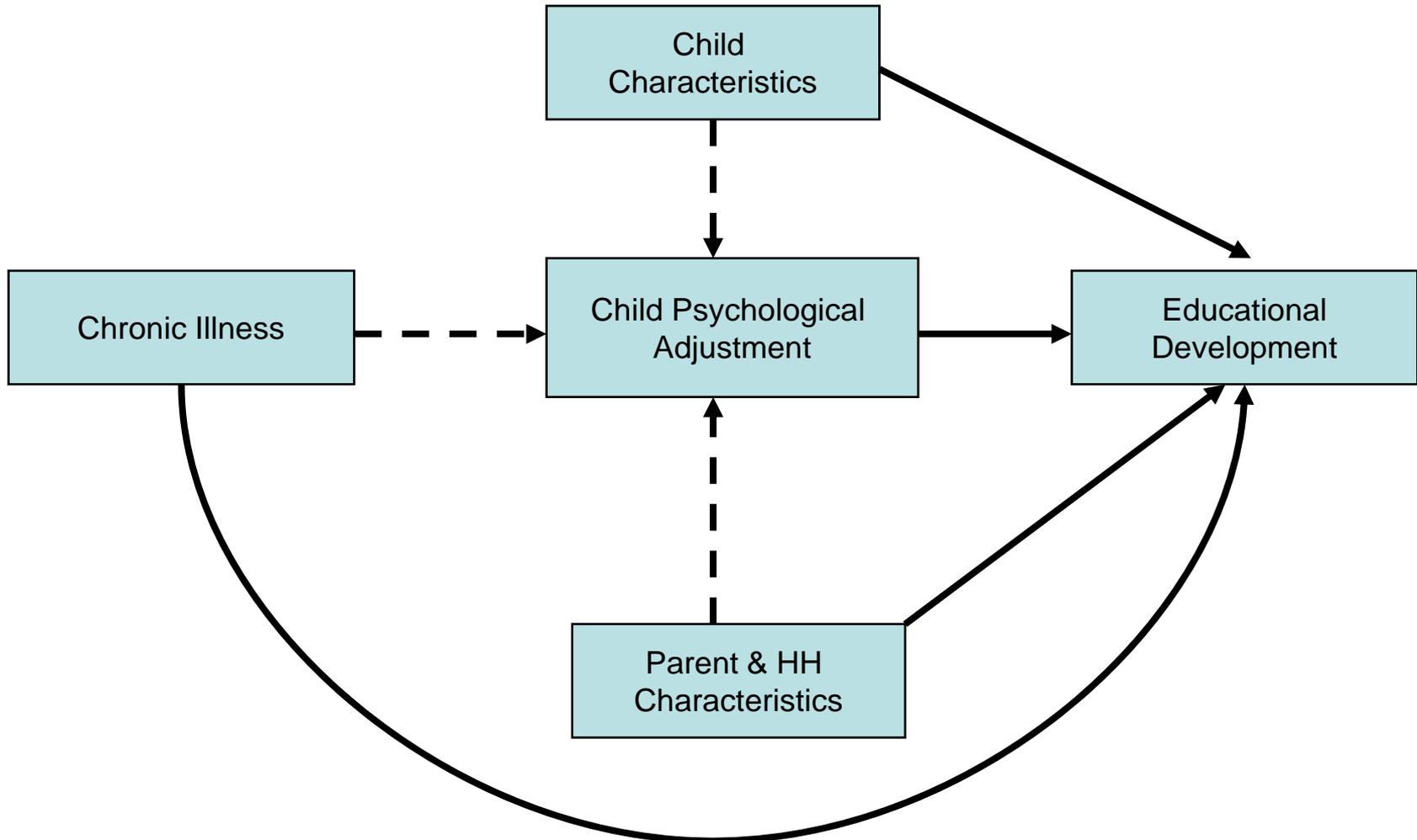




Standard Regression



Path Analysis





Path Analysis Model

- Two equations estimated simultaneously:
 - SDQ
 - Drumcondra scores
- Maximum likelihood estimation
- Weighted data
- Adjustment for sample clustering



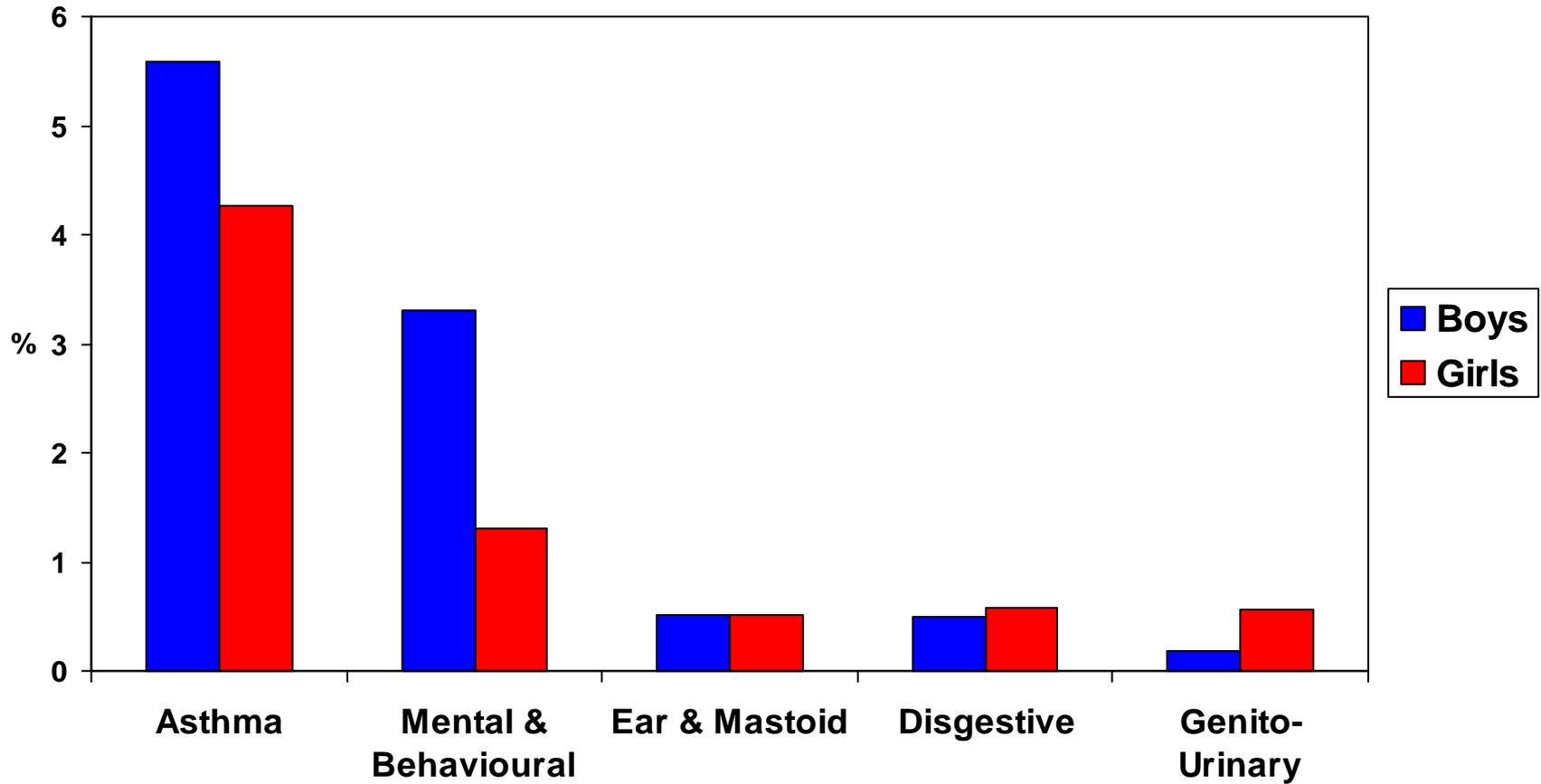
Prevalence of Chronic illness

Table 1: Distribution of Chronic Illness (ICD10 Codes)
(Unweighted)

	N	Weighted %
No Chronic Illness	7699	88.8
Total with Chronic Illness	871	11.2
Breakdown of Chronic Illness		
Asthma	373	42.8
Non-Asthmatic Chronic Illness		
Infectious and Parasitic	4	0.5
Neoplasms	3	0.3
Blood and Blood Forming Organs	4	0.5
Endocrine, Nutritional and Metabolic	23	2.6
Mental and Behavioural	116	15.8
Eye and Adnexa	15	1.7
Ear and Mastoid	37	4.2
Circulatory System	23	2.6
Other Respiratory System	13	1.6
Digestive System	33	3.8
Skin and Subcutaneous Tissue	28	3.2
Musculoskeletal	25	2.9
Genito-Urinary System	30	3.4
Congenital and Chromosomal	28	3.2
Other Chronic	45	5.2
Two or More Chronic Illnesses:		
Asthma + Other	28	3.2
Other	43	4.9
	871	100

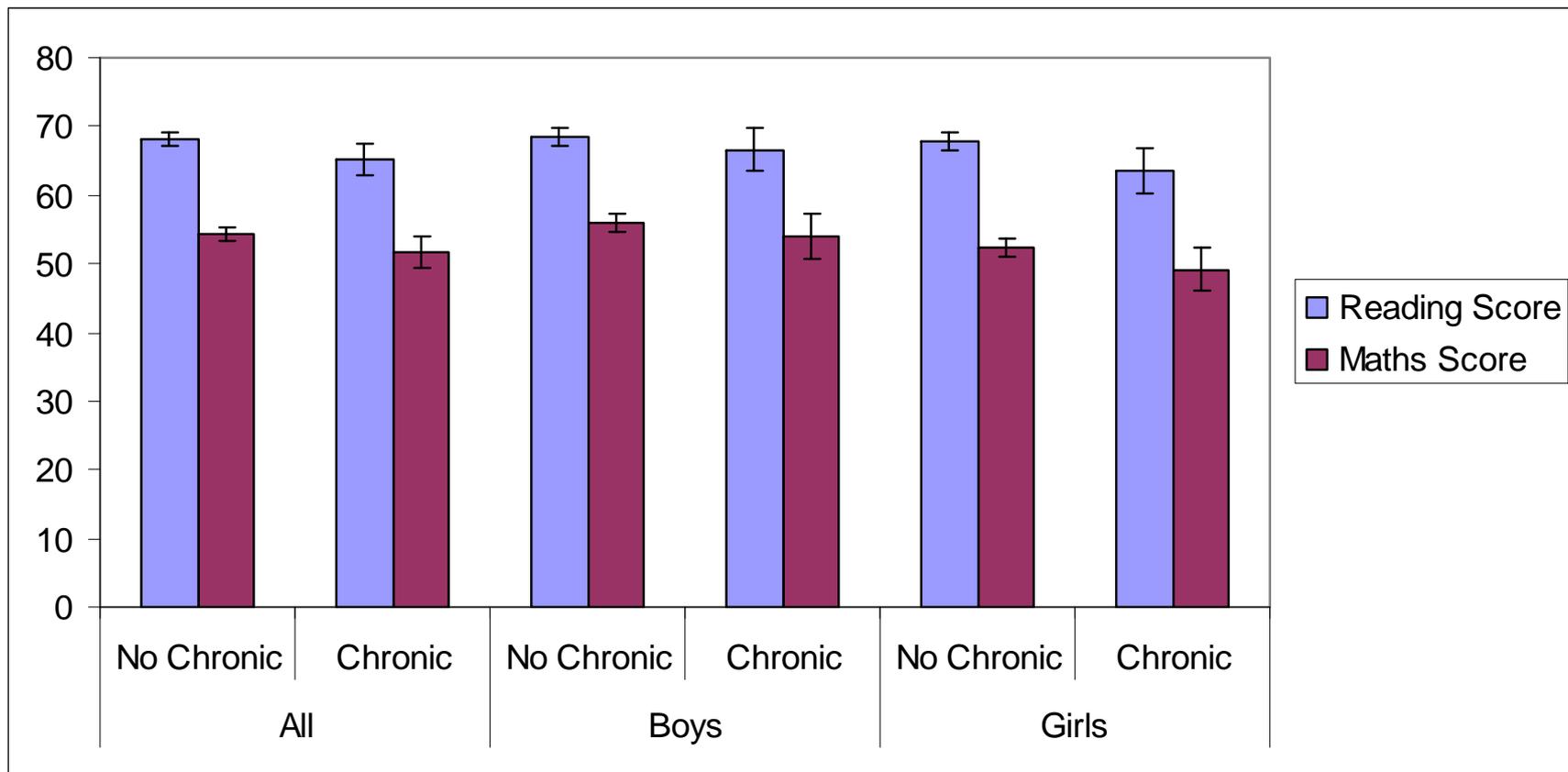


The Five Most Prevalent Chronic Illness Types by Sex



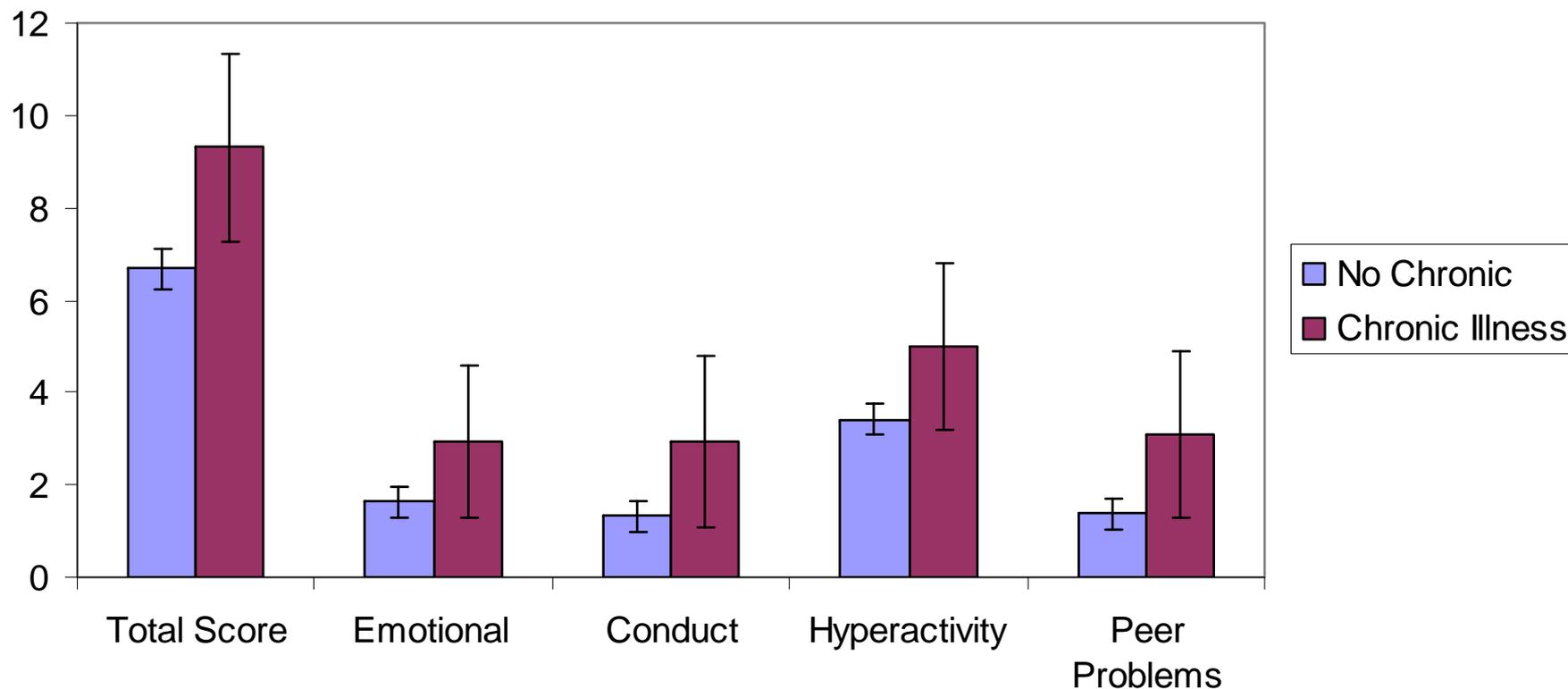


Reading and Maths Scores by Sex and Chronic Illness (Excluding Mental & Behavioural)



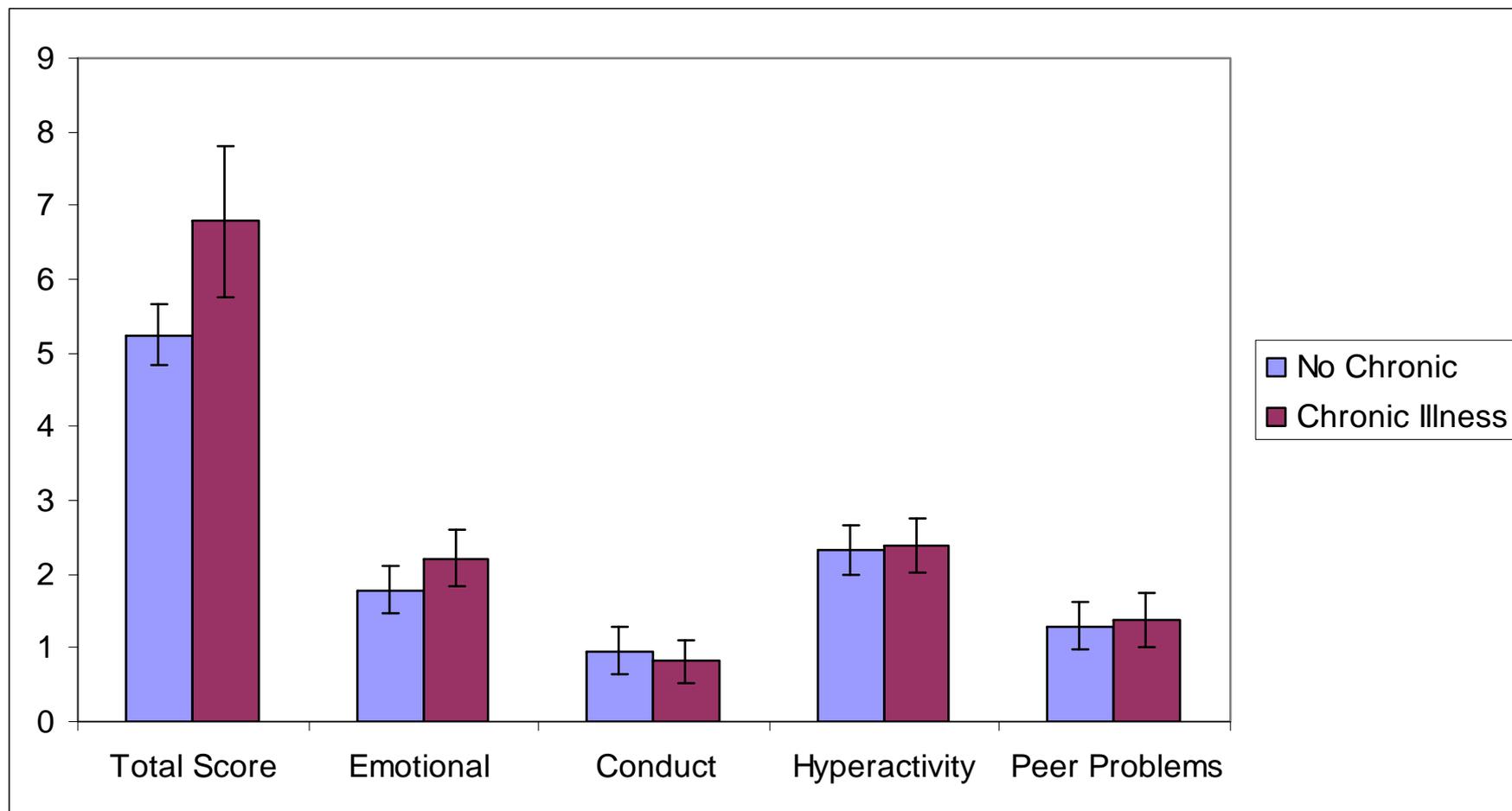


Mean SDQ Scale Scores for Boys by Chronic Illness (Excluding Mental & Behavioural)



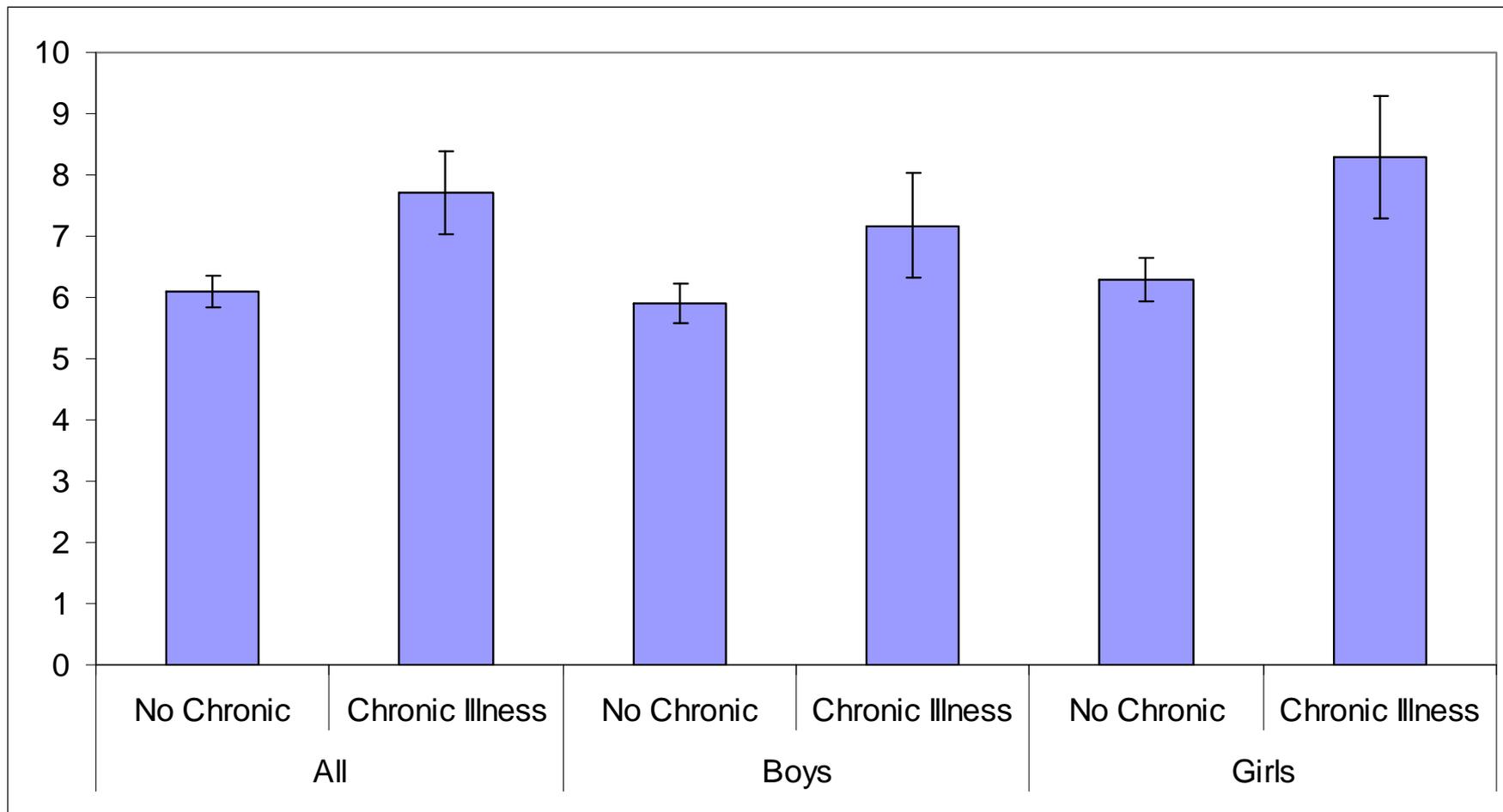


Mean SDQ Scale Scores for Girls by Chronic Illness (Excluding Mental & Behavioural)



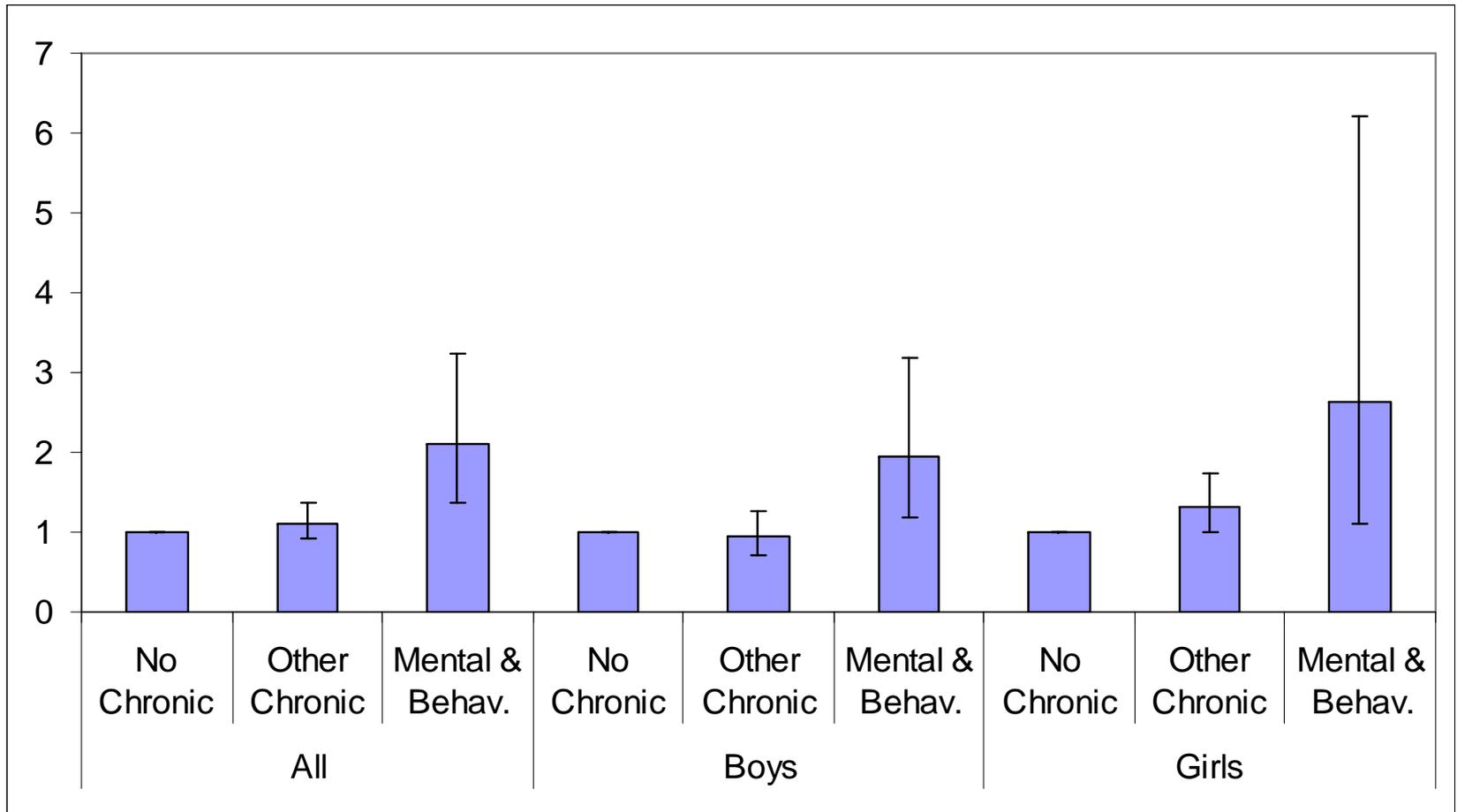


Days Absent from School by Sex and Chronic Illness (Excluding Mental & Behavioural)





Odds of Being Bullied by Sex and Chronic Illness Type





Direct Path Analysis

Coefficients

	SDQ Score		Reading Score		Maths Score	
	Coef.	Sig.	Coef.	Sig.	Coef.	Sig.
Days Absent from School			-0.06	n.s	-0.14	*
SDQ Total			-0.44	***	-0.45	***
Chronic Illness	1.01	*	0.41	n.s	0.79	n.s
Bullied at School	1.27	***	-0.12	n.s	-1.04	n.s
Female Child	-1.65	***	-0.06	n.s	-3.18	***
Birth Weight <2500g	-0.81	n.s	-4.37	*	-3.61	*
Mother 21-30 at Birth	-0.48	n.s	3.88	*	3.75	*
Mother Aged 31-40 at Birth	-0.78	n.s	7.27	***	6.84	***
Mother Aged 41+ at Birth	1.45	n.s	8.26	**	8.04	***
HH Intermediate Class	0.16	n.s	-1.89	n.s	-1.18	n.s
HH Self-Employed Class	0.07	n.s	-2.57	*	0.35	n.s
HH Supervisory/Technical Class	0.94	*	-7.00	***	-4.36	***
HH Routine/Sales/Service Class	1.01	*	-5.71	***	-5.19	***
HH Non-Classifiable Class	1.96	***	-3.24	**	-3.68	***
Mother Higher 2ndary Educ.	-0.85	**	5.07	***	6.85	***
Mother Post-2ndary Educ.	-0.83	*	7.40	***	8.17	***
Mother 3rd Level Education	-1.27	**	11.20	***	10.51	***



Indirect Path Coefficients

Reading Score Maths Score

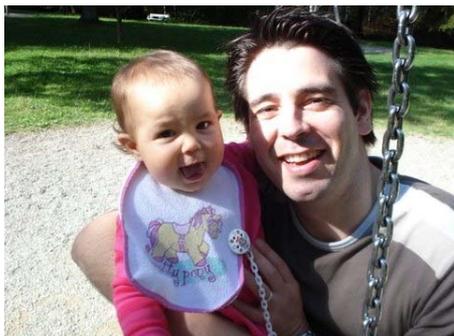
Coef. Sig. Coef. Sig.

Chronic Illness	-0.45	*	-0.62	*
Bullied at School	-0.57	***	-0.60	***
HH Intermediate Class	-0.07	n.s	-0.07	n.s
HH Self-Employed Class	-0.03	n.s	-0.03	n.s
HH Supervisory/Technical Class	-0.42	*	-0.41	*
HH Routine/Sales/Service Class	-0.45	*	-0.44	*
HH Non-Classifiable Class	-0.87	***	-0.98	***
Mother Higher 2ndary Educ.	0.38	**	0.45	**
Mother Post-2ndary Educ.	0.37	*	0.44	**
Mother 3rd Level Education	0.56	**	0.65	***



Conclusions

- Parents of 11% of Irish 9 year olds report a chronic illness. Half of this is respiratory, mostly asthma
- Chronic illness is associated with worse psychological adjustment and educational outcomes among Irish 9 year olds
- Effect on educational outcomes is indirect
- Bullying also has serious effects on educational attainment indirectly through SDQ
- Interventions for children with chronic illness could improve outcomes
- Research underlines the need for a holistic understanding of child well-being with physical health interacting with social and psychological well-being



Growing Up in Ireland
Research Conference 2010