

Caregiver health: Correlates of physical and immunological health in parents caring for children with developmental disabilities

Stephen Gallagher



UNIVERSITY of LIMERICK
OLLSCOIL LUIMNIGH

Caregiver Health

- Caregivers have higher morbidity and mortality (Pinquart & Sorensen, 2003).
- Positive aspects (Tarlow et al., 2004)
- However, much of this research is with older caregivers. Little attention given to physical or immunological health of young caregivers
- Maybe they can withstand the demands of caring (Vedhara et al., 2002)



Caregiving is associated with low secretion rates of immunoglobulin A in saliva

Stephen Gallagher ^a, Anna C. Phillips ^{a,*}, Phil Evans ^b,
Geoff Der ^c, Kate Hunt ^c, Douglas Carroll ^a

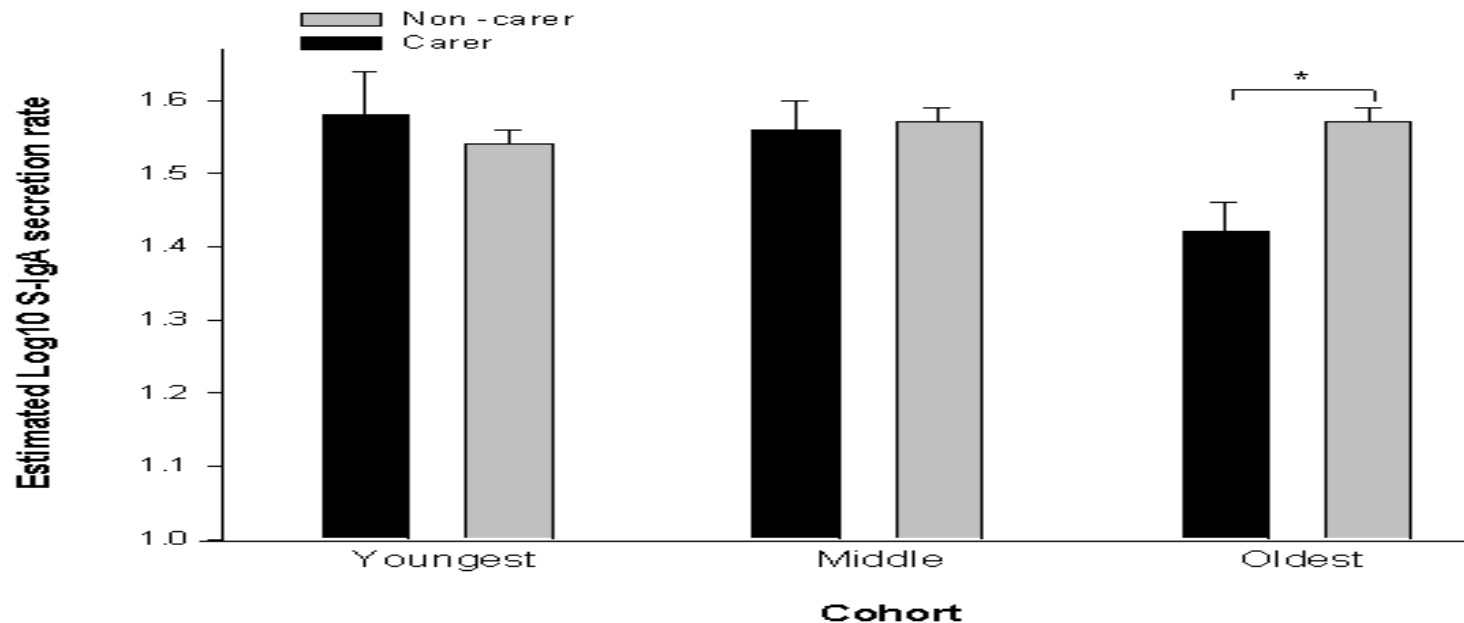
^a School of Sport and Exercise Sciences, University of Birmingham, Edgbaston, Birmingham B15 2TT, England, United Kingdom

^b Psychophysiology and Stress Research Group, University of Westminster, London, England, United Kingdom

^c MRC Social and Public Health Sciences Unit, University of Glasgow, Glasgow, Scotland, United Kingdom

Received 25 September 2007; received in revised form 13 November 2007; accepted 22 November 2007

Available online 21 February 2008



* = $p < .05$

Stress+ Age interaction

Some evidence

- Cerebral palsy - health problems such as back problems, headaches, intestinal ulcers, asthma and arthritis (Brehaut et al., 2004; Raina et al., 2005).
- However, to date, no studies have examined the **physical or immunological health of parents caring for children with other developmental disabilities** such as Autism & Down syndrome.

Aims

- Do parents caring for children with developmental disabilities report poorer 1) physical health and 2) have poor immunological functioning compared to parents of typically developing children?
- Two studies conducted:
 - **Study 1:** Examined physical health and its psychosocial correlates.
 - **Study 2:** Examined the immunological health (response to vaccination) and its psychosocial correlates.

Study 1: Psychosocial factors of interest

1. Child problem behaviour

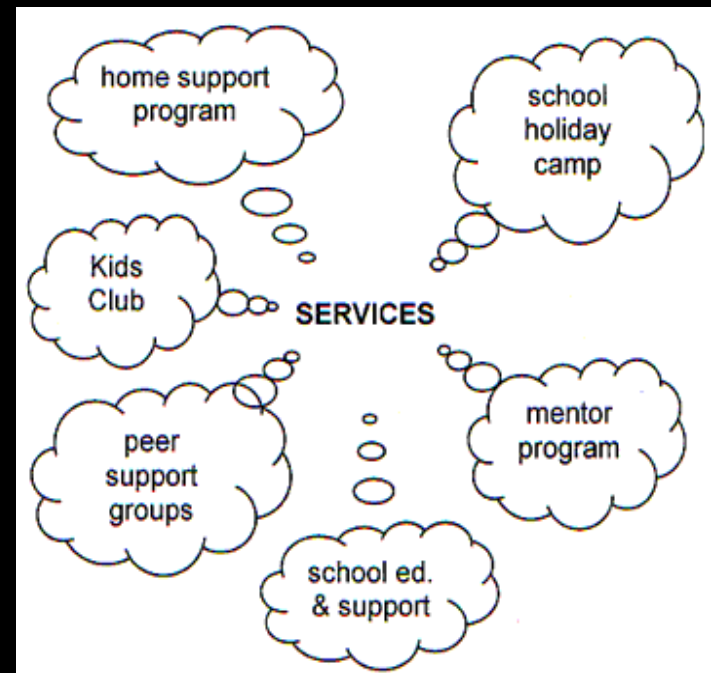
- Distress and child problem behaviour (Hastings et al, 2005)

Are they linked to physical health in young carers?



Stress & Support

- High stress (Smith et al., 2001); linked to physical health (Cohen et al., 1991, 1999) in other contexts.
- Is it related to **physical** health in these **young** caring parents?
- Social support mitigates distress (Dunn et al., 2001) in these caring parents
- Is it linked to **physical** health?



Coping: Mastery

- Mastery – internal coping resource - personal control

Example, “There is really no way you can solve some of the problems you have,” 1 = not able, 5 = very able)



- Linked to mental health in carers (Abi Daoud, 2004)
- The link between stress and health can be moderated by coping (Aldwin & Park, 2005)

Aims of study 1

- Are factors such as:
 - child problem behaviours
 - perceived stress
 - social support
 - mastery (internal coping)
- associated with self-reporting of ***physical health*** problems in caring parents.

Methods

- 50 caregivers (36% children with Autism + 64% mixed syndromes – e.g. Downs, Wolfram, CdIS).
43 controls (typically developing children).
- Parents completed (socio-demographics) and validated measures child problem behaviours, perceived stress, social support, mastery and physical health.

Analysis: between group and within (carer) group

Results: between group analyses

Table 1. Demographics, childcare characteristics of each parental group

	Caregivers (N = 50)	Controls (N = 43)	Test of difference
Sex (Female)	38 (59%)	27 (42%)	$\chi^2 (1) = 2.40, p = .12$
Marital status (Partnered)	42 (86%)	35 (85%)	$\chi^2 (1) = 0.02, p = .96$
Ethnicity (Caucasian)	48 (98%)	42 (98%)	$\chi^2 (1) = 0.09, p = 0.97$
Occupational status (Professional)	27 (57%)	34 (79%)	$\chi^2 (1) = 4.80, p = .03$
Mean age (SD) years	42.1 (9.18)	38.5 (8.43)	$F (1,90) = 3.77, p = .06$
Mean age of child cared for (SD) years	9.4 (3.93)	9.8 (4.43)	$F (1,91) = 0.36, p = .54$
Mean number of other children (SD)	1.0 (0.93)	1.1 (1.14)	$F (1,89) = 0.02, p = .87$
Hour spent caregiving (SD) per day	11.3 (5.17)	7.5 (5.12)	$F (1,84) = 11.91, p < .001$

Where relevant I controlled for these potential confounds in the analyses

Results:

Table 2. Psychosocial characteristics of each parental group

	Caregivers (N = 50)	Controls (N = 43)	Test of difference
Mean support score (SD)	32.8 (10.21)	39.8 (11.70)	$F(1,86) = 8.96,$ $p = .004$
Mean behaviour score (SD)	17.4 (4.69)	11.7 (4.64)	$F(1,86) = 32.05,$ $p < .001$
Mean stress score (SD)	7.1 (3.35)	5.4 (3.25)	$F(1,91) = 6.42,$ $p = .01$
Mean mastery score (SD)	18.9 (3.41)	21.6 (3.78)	$F(1,90) = 12.27,$ $p < .001$

Self-rated health: 67% of control parents vs 33% of carers rated their health as above average, $p = .003$.

Physical health:

Table 3. Reporting of physical health problems in each parental group

	Caregivers (N = 50)	Controls (N = 43)	Test of difference
Mean physical health score (SD)	51.4 (12.32)	41.8 (13.06)	F (1,91) = 13.98, $p < .001$
Mean sleep score (SD)	16.1 (3.37)	14.6 (2.53)	F(1,91) = 6.03, $p = .02$
Mean headache score (SD)	12.4 (3.66)	9.3 (5.09)	F (1,91) = 8.98, $p = .004$
Mean gastrointestinal score (SD)	12.7 (5.65)	8.7 (4.61)	F (1,91) = 13.59, $p < .001$
Mean infection score (SD)	10.3 (3.77)	9.0 (3.70)	F (1,91) = 2.79, p = .09

All of the above withstood adjustment for confounds, but occupation status was significant: carers classed as **manual workers reported poorer health**

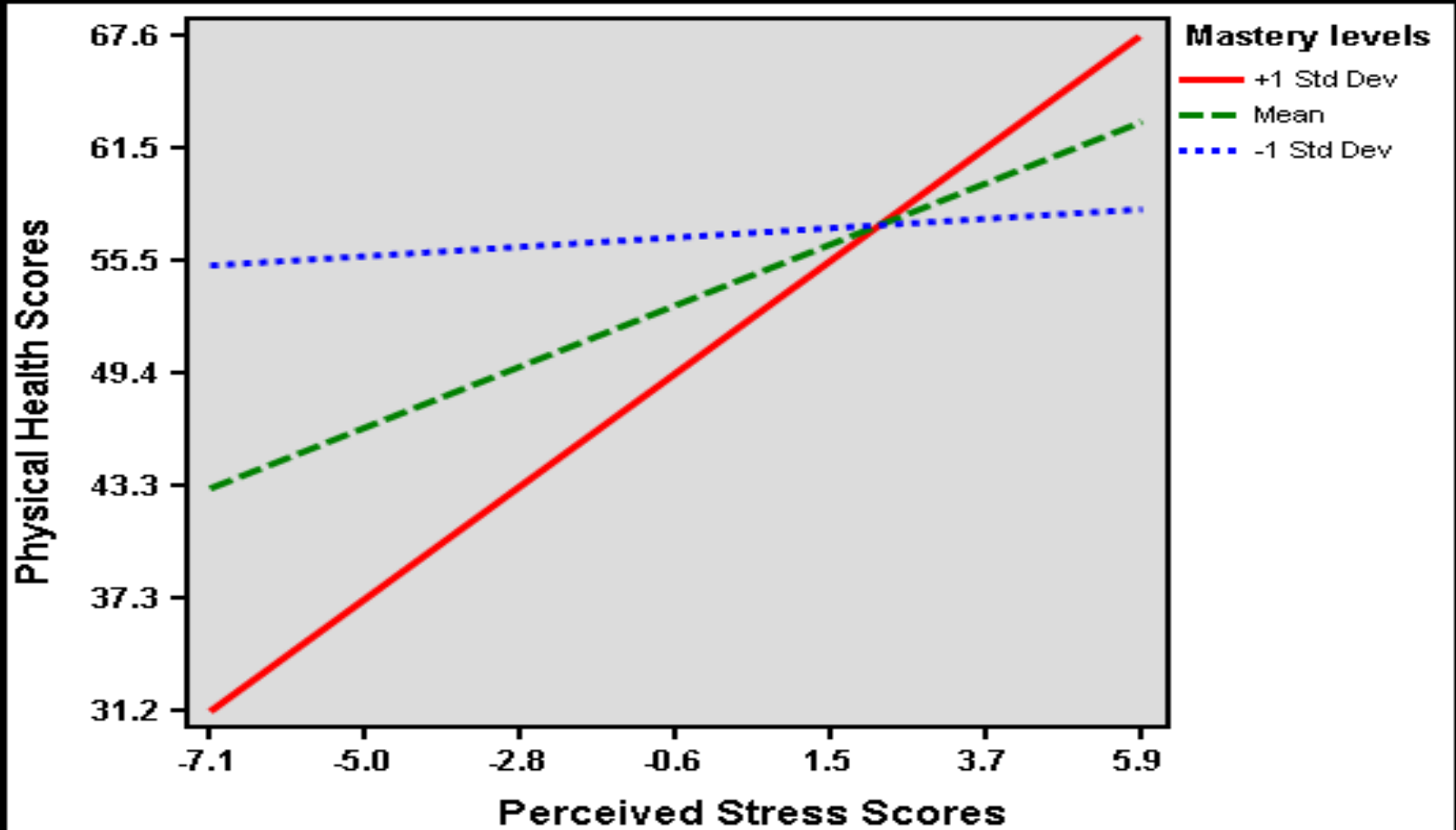
Within Carer (n =50)

- No association between child problem behaviours, social support and physical health in these caring parents.
- **HOWEVER,**

Within carer

- **Perceived stress** was positively related, $\beta = .49$, $t = 3.91$, $p < .001$ **Such that...**
- Whereas, **mastery** was negatively associated, $\beta = -.37$, $t = 2.77$, $p = .008$. **Such that**
- Withstood adjustment for occupation status
- **Tested for interaction** is the effect of stress on physical health influenced by levels of mastery?
- **YES**, $\beta = .28$, $t = 2.06$, $p = .04$.

Study 1- Figure 1: Interaction between mastery and stress on carer physical health scores



Mastery buffers against stress on carer physical health scores, **BUT** only in low stress situations!!

How do we get from caregiving factors to poor health?

Study 1: Self-report – subjective



Study 2: immunity in parental carers

- Vaccination response



- Model of infection
- *In vivo*
- Clinical relevance

Study 2: Hypotheses

- Parents of children with developmental disabilities



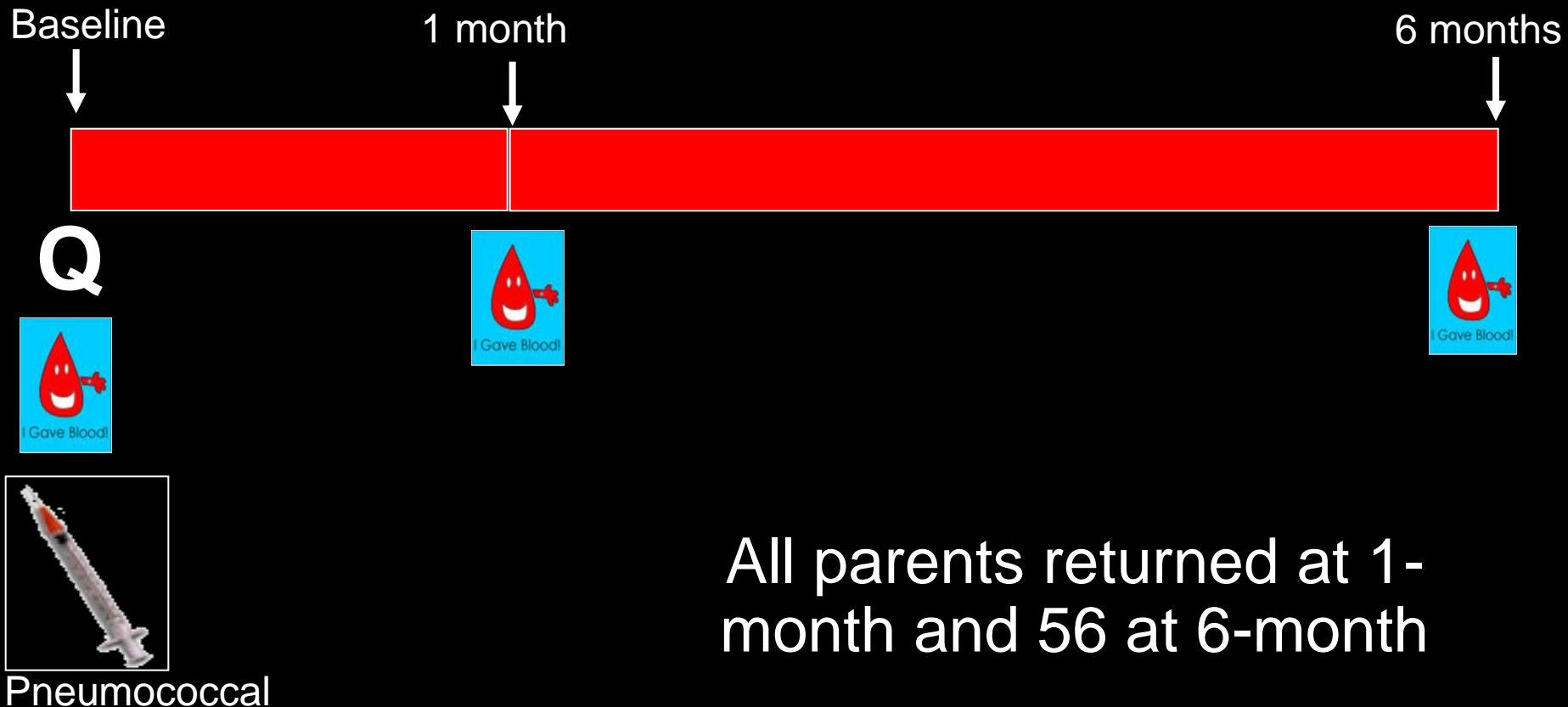
Antibody response to vaccination than control parents

- These differences in antibody responses will be explained by psychosocial factors including, child problem behaviour, stress, social support and carer burden.

Study 2: Methods

■ 31 caregivers (children with Autism, 66%; Downs, 22%; other, 12%).

29 controls (normally developing children).



Study 2: Results

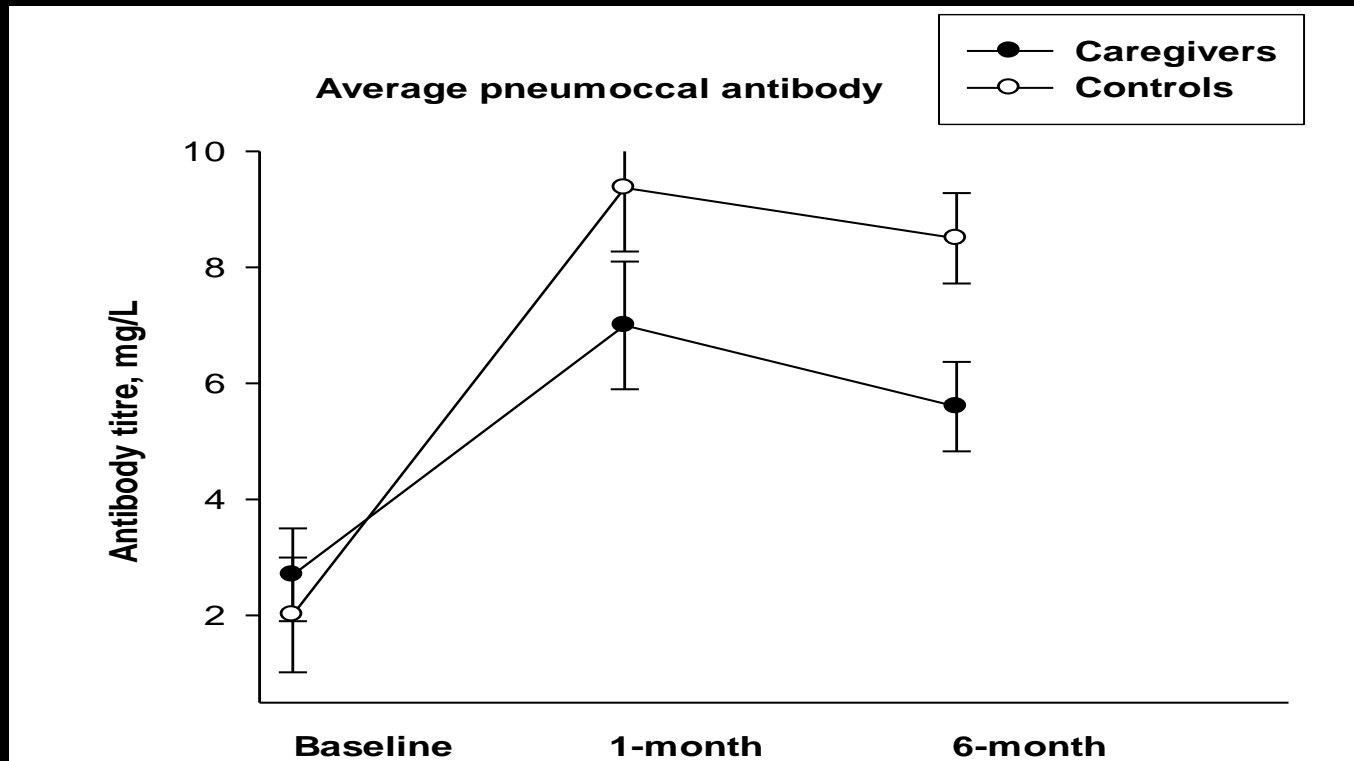
Table 2. Psychosocial characteristics of each parental group

	Caregivers (N = 30)	Controls (N = 29)	Test of difference
	Mean (SD)	Mean (SD)	
Depression score	8.4 (3.86)	3.2 (2.31)	F (1,57) = 38.40, <i>p</i> < .001
Perceived stress score	30.33 (8.40)	22.2 (7.48)	F(1,57) = 15.52, <i>p</i> < .001
Social support score	31.7 (9.82)	37.9(10.37)	F (1,57) = 5.62, <i>p</i> = .02
Caregiver burden score	44.0 (14.26)	22.9 (10.67)	F (1,57) = 40.94, <i>p</i> < .001
Child behaviour problem score	23.0 (5.97)	9.9 (4.89)	F (1,57) = 84.64, <i>p</i> < .001

Highly distressed group of carers

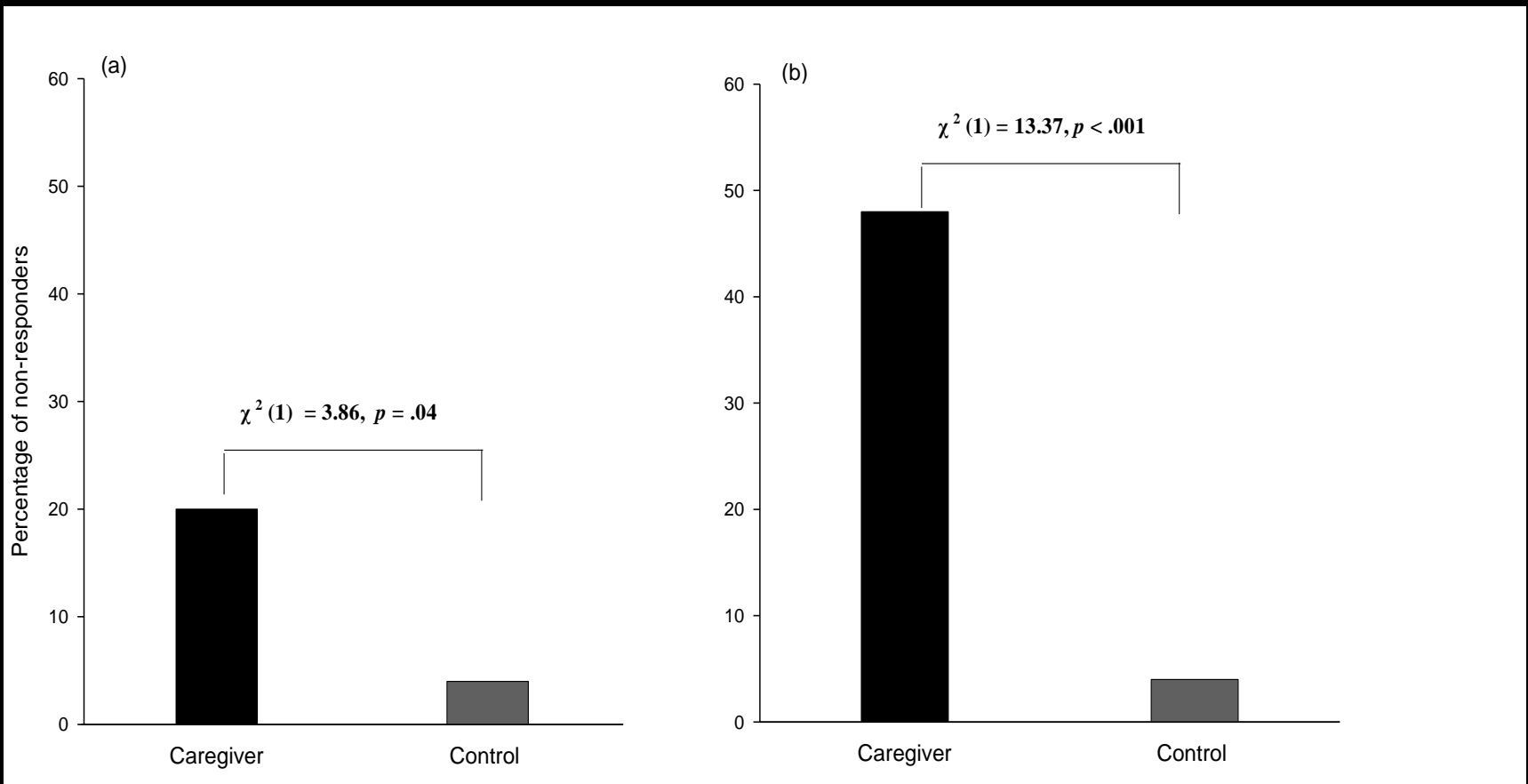
Antibody response to pneumococcal vaccine

Caregivers mounted a poorer antibody response compared to controls, at 1-month, $F(1, 57) = 5.65$, $p = .02$, $\eta^2_p = .095$, and 6-months, $F(1, 50) = 7.14$, $p = .01$, $\eta^2_p = .125$.



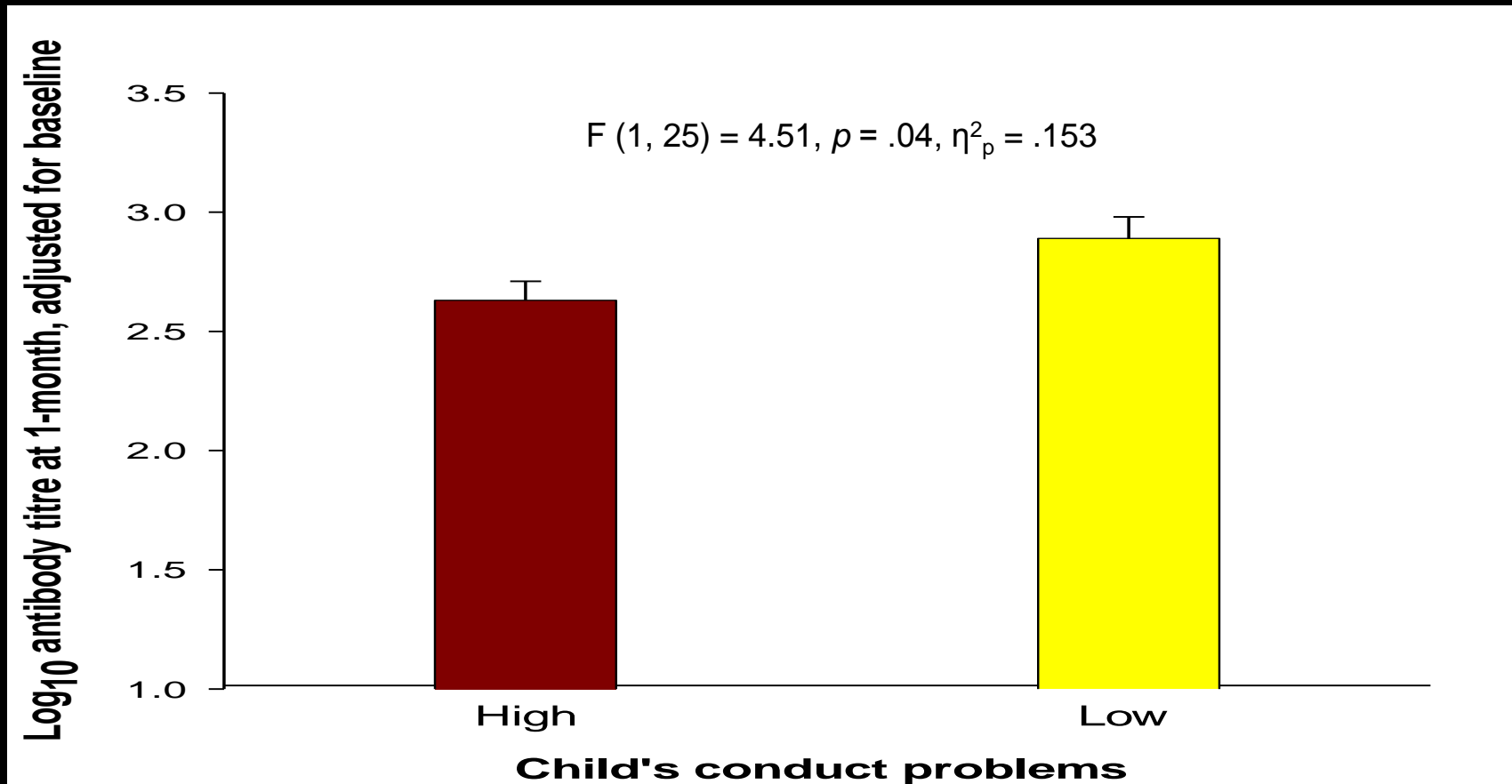
Percentages of non-responders

Parents of children with developmental disabilities were much more likely to be non-responders (< 2 fold) than control parents at both follow-ups



Within Caregivers

Child problem behaviours were associated with antibody response, especially conduct problems



All above, withstood adjustment for potential confounds

In summary

- Previous research: Older caregivers ↓ poor health and immune response
- Current research: this is **not** age specific
- Stress, coping and behavioral problems help us understand these associations.
- Interventions targeting stress, coping and behaviours may bring long-term benefits
- Policy change to include younger caregivers in annual vaccination initiatives

Future research

- Positive aspects of caregiving- resilience
- Positive psychology (intervention work)
- Different care-giver groups (mental + physical; lifespan perspectives)
- Longitudinal studies of caregivers 5 + years
- Collaboration with national and international partners
- Publish, from an Irish perspective, to international literature

Acknowledgements

- Doug Carroll, Anna Phillips (UoB)
- Jenny Whiteley (Staffordshire)
- Autism West-Midlands, Birmingham Carers, Downs Syndrome Association
- North Staffordshire Carers
- South Manchester Carers

ANY
QUESTIONS?

Methods

- 50 caregivers (36% children with Autism + 64% mixed syndromes – e.g. Downs, Wolfram, CdIS). 43 controls (typically developing children).

- Cross-sectional design

Q = Socio-demographics, parent and child + caring characteristics.

Stress: 4-item PSS (Cohen et al., 1983) 0-4

Child problem behaviour: 25 item SDQ (Goodman, 1997) 0-2

Methods:

Social Support: 12-item SFS Scale (Dunst et al., 1988) 1-5

Mastery: 7-item Perlin Mastery Scale (Perlin 1978) 1-4

DV: Physical Health: 14 item PHI (Schat et al., 2005) 1-7
subscales: sleep, headaches, gastrointestinal and minor infections

Analysis: between group and within (carer) group