



Not difficult, just sick: The relationship between temperament and early childhood illness

Brían Merriman, PhD
Educational Research Centre



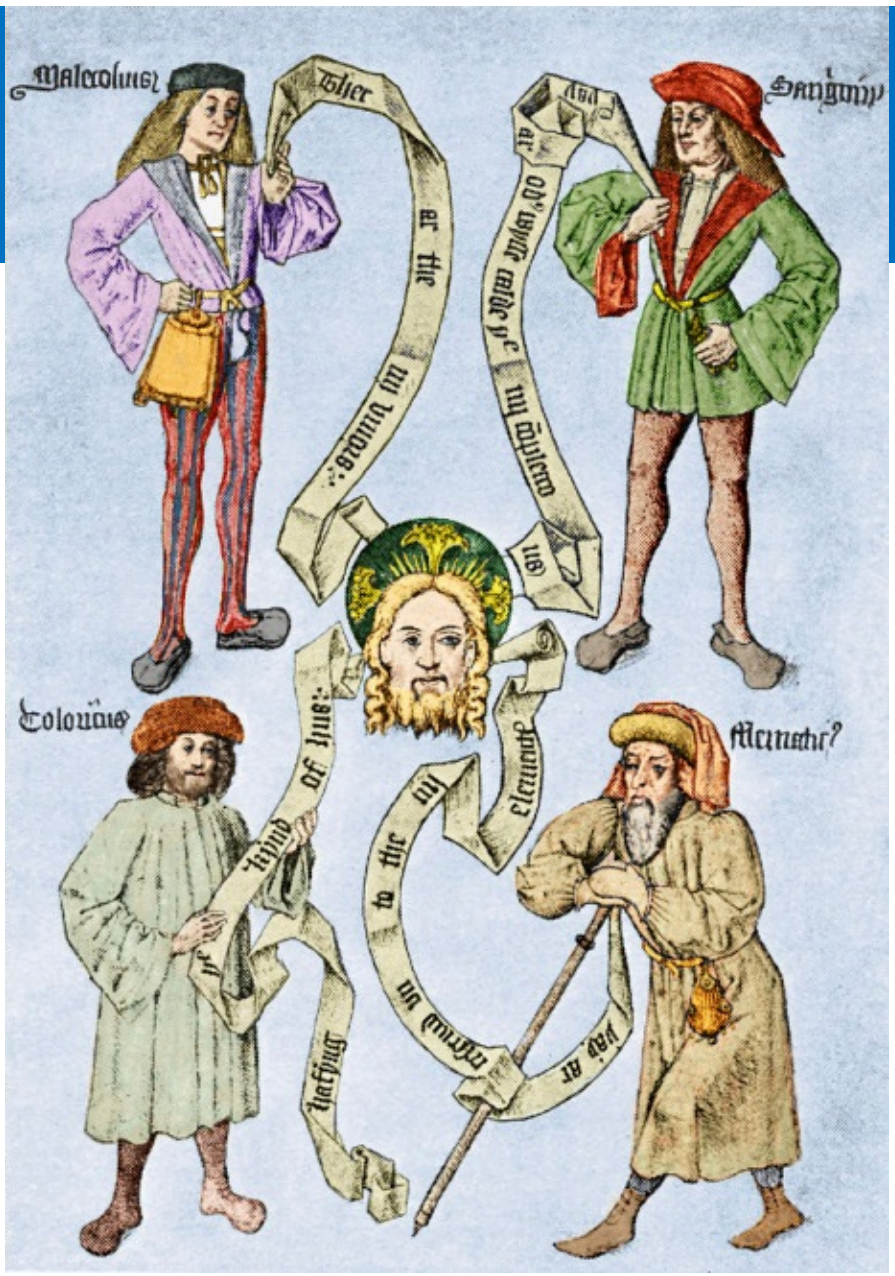
Temperament

- **Stable behavioural style, identifiable from early infancy (Wachs & Bates, 2010; Saudino, 2005)**
- **Linked to behaviours in childhood and adulthood (Saudino, 2005)**
 - Externalising behaviours (Rubin, Burgess, & Dwyer, 2003; Reef et al., 2011)
- **Behavioural genetics using twin studies (Saudino, 2005)**
 - 20% to 60% phenotypic variance
- **Effects maternal behaviour (Belsky et al., 1991; Putnam et al., 2002)**
 - Cycle of decreasing parental sensitivity, increasing temperamental difficulty
 - Potential source bias in parental self-report
 - Stress and sensitivity could impact how parents interpret child behaviour (Rothbart & Bates, 2008)



Results from *Growing Up in Ireland* (Nixon, Swords, & Murray, 2013)

- **Infant Characteristics Questionnaire – fussy-difficult subscale**
 - Mean = 14.8 ($SD = 5$; range = 6-42; $\alpha = .73$)
- **Difficult temperament associated with:**
 - Higher parental stress
 - Lower parental sensitivity
 - Poorer developmental outcomes





Golden Days for Boys and Girls,
Vol. XII, Jan. 3, 1891



Temperament = Crying?

- **Crying > Temperament**
- **Signal functions of early infant crying (Soltis, 2004)**
 - Alert caregivers to need
 - Separation
 - Manipulation
 - Vigour, to avoid infanticide
 - Transient distress
 - Colic
 - Chronic illness
- **Maternal style affects early infant crying**



backreaction.blogspot.com





Crying and Chronic Illness

- **Distinct acoustic characteristics of crying as signal of physical pain (Soltis, 2004)**
 - High frequency
- **Physiological impact on parent's autonomic nervous system (ANS)**
- **May result in reduction or withdrawal of parental care (Soltis, 2004)**
- **Difficult temperament associated with:**
 - Negative parental perceptions of child behaviour
 - Attention-seeking
 - Childhood illness (Merriman, Greene, Doyle, & McDaid, 2013)



The present study

- **To what extent can difficult temperament be attributed to illness?**
- **Exploratory sequential mixed methods design**
- **Study 1 – infant cohort qualitative study**
 - Interviews with 120 parents
 - Content analysis
- **Study 2 – infant cohort quantitative study**
 - $N = 11,134$ at Wave 1 and 9,793 at Wave 2
 - Temperament
 - Child health
 - ANOVA and chi-squared tests



Study 1 Method

- **Content analysis of responses to two questions:**
 - Is he easy to soothe if he is upset?
 - Easy
 - Not easy
 - Would you describe him as healthy?
 - Healthy
 - Not healthy



Study 1 Results

- **$n = 116$**
Four cases in which both questions not asked

	Healthy	Not healthy
Easy	51 (44%)	36 (31%)
Not easy	9 (7.8%)	20 (17.2%)

- **$\chi^2 (1) = 6.63, p = .01$**



Study 1 Results

- **Infants described by their parents as ‘difficult’ were significantly more likely to have experienced serious acute or mild chronic illness since birth**
- **Evidence that parental classification of temperament may be influenced by the additional demands on parents due to the child’s illness**



Study 1 Results

“Contrary, he suffers with his chest a lot”

“He has had a cough since he was born and he is like an old man of ninety!”

“He is contrary you know, he whinges. As soon as he hears his father’s voice he starts whinging because he wants to be picked up. He is very jealous of the next girl, the next little one up but he will soon grow out of that.”



Study 1 Results

“I don’t go out because I don’t know if anybody, getting a babysitter, she might go mental on them”

“Well she had bronchitis when she was seven months and she’s had the croup, poor thing”



Study 1 Results

“It was only the week [that he was in hospital for], he’s been in and out and up and down so he has. Em, he had @@an operation## there a little, a couple of weeks ago.”

“He was always in great form after he’s been fed and for the hour and a half afterwards. Come to bed time, he was always hard enough to put down, he’s nearly crying himself to sleep.”



Study 2 Method

- **Data from infant cohort Wave 1 and Wave 2**
- **Log transformation of Wave 1 ICQ fussy-difficult scores to address non-normal distribution**
- **ANOVA and Tukey post-hoc**
- **Chi-squared tests for health status**



Study 2 Results – Wave 1

- **Significant differences in fussy-difficult ratings by health status at birth, $F(3, 11094) = 25.6, p < .001$**
 - *Very healthy, no problems* significantly lower than others
- **Significant differences in fussy-difficult ratings by current health status, $F(3, 11060) = 54.4, p < .001$**
 - *Very healthy, no problems* significantly lower than others
- **Significant differences in fussy-difficult ratings by maternal depression status, $F(3, 10911) = 138.3, p < .001$**
 - Significant positive trend, $r = .17, p < .001$

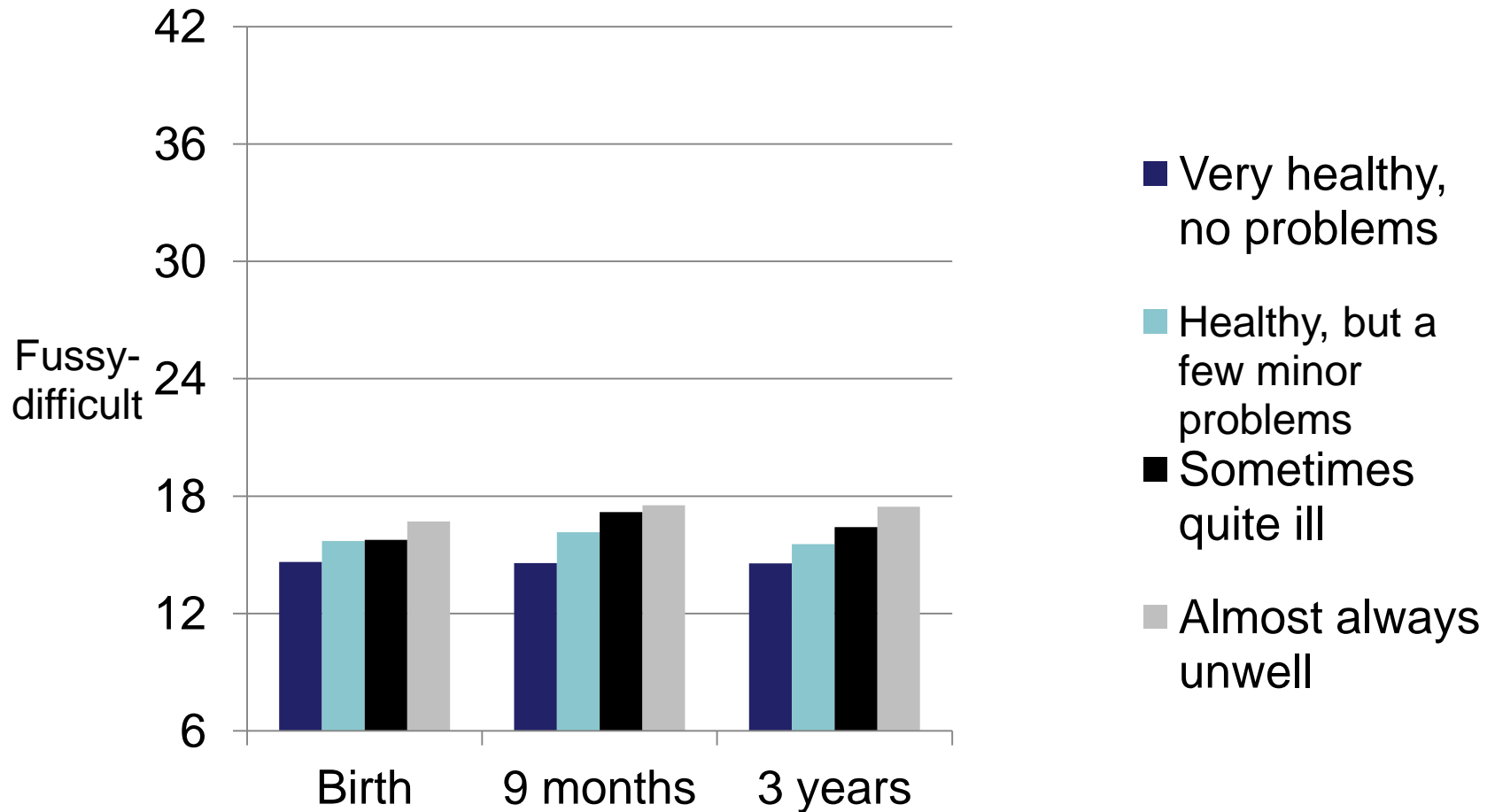


Study 2 Results – Wave 2

- **At three years, significant differences in fussy-difficult ratings by current health status, $F(3, 9756) = 29.9, p < .001$**
 - *Very healthy, no problems* significantly lower than others
- **Change in health status between Wave 1 and Wave 2, $\chi^2(9) = 318.2, p < .001$**
 - 9.7% disimproved
 - 17.9% improved



Study 2 Results





Study 2 in progress – Regression

- **Indications in regression modelling that**

- Illness at birth and at nine months
- Low birth weight
- Not being breastfed
- Higher parental stress
- Maternal depression

predict temperament at nine months, but more work to do, I'm afraid



Conclusions

- **Relationship between child health and parent rating of temperament**
- **Children who had health problems significantly higher fussy-difficult scores at nine months**
- **Classifying a child's behaviour as difficult could have an adverse effect on their development by creating expectations of poor behaviour**
- **A more sympathetic conceptualisation of infant temperament could change how children categorised as difficult are treated**



References

- Belsky, J. (1984). The determinants of parenting: A process model. *Child Development, 55*, 83-96.
- Belsky, J., Fish, M. and Isabella, R. (1991). Continuity and discontinuity in infant negative and positive emotionality. *Developmental Psychology, 27*, 421-431.
- Merriman, B., Greene, S., Doyle, E., & McDaid, R. (2013). *Growing Up in Ireland: Report on the Qualitative Study of Infants and their Parents at Wave 1 (Nine Months)*. Dublin: Department of Children and Youth Affairs.
- Nixon, E., Swords, L., & Murray, A. (2013). *Growing Up in Ireland: Parenting and Infant Development*. Dublin: Stationery Office.
- Putnam, S.P., Sanson, A.V., & Rothbart, M.K. (2002). Child temperament and parenting. In M.H. Bornstein (Ed.), *Handbook of Parenting. Volume 1: Children and parenting* (2nd ed.) (pp. 255-277). Mahwah, NJ: Lawrence Erlbaum Associates.
- Reef, J. Diamantopoulou, S. van Meurs, I., Verhulst, F.C., & van der Ende, J. (2011). Developmental trajectories of child to adolescent externalizing behavior and adult DSM-IV disorder: results of a 24-year longitudinal study. *Social Psychiatry and Psychiatric Epidemiology, 46*, 1233-1241. doi 10.1007/s00127-010-0297-9
- Rothbart, M.K. & Bates, J.E. (2008) Temperament. In W. Damon, & R. M. Lerner (Eds.), *Child and Adolescent Development. An Advanced Course* (pp. 54-92). Hoboken, NJ: Wiley.
- Rubin, K.H., Burgess, K.B., Dwyer, K.M., et al. (2003). Predicting preschoolers' externalizing behaviors from toddler temperament, conflict, and maternal negativity. *Developmental Psychology, 39*, 164-176. [PubMed:12518817]
- Saudino, K.J. (2005). Behavioral genetics and child temperament. *Journal of Developmental & Behavioral Pediatrics, 26*, 214-223.
- Soltis, J. (2004). The signal functions of early infant crying. *Behavioural and Brain Sciences, 27*, 443-490.
- van den Boom, D. (1989). Neonatal irritability and the development of attachment. In G.A. Kohnstamm, J.E. Bates, & M.K. Rothbart (Eds.), *Temperament in Childhood* (pp. 299-318). Chichester, England: Wiley.
- Wachs, T.D. & Bates, J.E. (2010). Temperament. In J.G. Bremner & T.D. Wachs (Eds.), *The Wiley-Blackwell Handbook of Infant Development. Volume 1: Basic Research* (2nd ed.) (pp. 592-622). Malden, MA: Wiley Blackwell.



Thank you

www.erc.ie

brian.merriman@erc.ie

[@brianmerriman](https://twitter.com/brianmerriman)

www.growingup.ie

