



Development of comorbid crying, sleeping, feeding problems across infancy: Neurodevelopmental vulnerability and parenting^{☆, ☆, ☆, ☆}



Ayten Bilgin^a, Dieter Wolke^{a,b,*}

^a Department of Psychology, University of Warwick, Coventry, UK

^b Division of Mental Health and Wellbeing, Warwick Medical School, University of Warwick, Coventry, UK

ARTICLE INFO

Keywords:

Regulatory problems
Crying
Sleeping
Feeding
Maternal sensitivity

ABSTRACT

Background: Regulatory problems (excessive crying, feeding, and sleeping difficulties), specifically their comorbidity, are early warning signs of future problems. Insensitive parenting and neurodevelopmental vulnerabilities have been suggested as factors explaining development or maintenance of regulatory problems. Nevertheless, none of the previous studies investigated these factors within the same sample across infancy, taking into account the reciprocal influences between maternal sensitivity and regulatory problems.

Aim: To investigate the prospective association between very preterm birth, comorbid regulatory problems and maternal sensitivity.

Subjects: 178 participants including 73 very preterm/very low birth weight and 105 full-term infants and their caretakers.

Study design: A prospective study from birth to 18 months.

Measures: Regulatory problems were measured at term, 3 months and 18 months with a structured parental interview. Maternal sensitivity was measured with a nurse observation at term; and a researcher observation of play tasks at 3 months and at 18 months.

Results: Very preterm birth was associated with regulatory problems at term ($\beta = 0.19$, $SE = 0.10$, $p < 0.05$) and at 18 months ($\beta = 0.21$, $SE = 0.10$, $p < 0.05$), while it had no association to maternal sensitivity across infancy. There were no cross-lagged reciprocal effects between maternal sensitivity and regulatory problems across infancy. Maternal sensitivity at term had a negative association to regulatory problems at 3 months ($\beta = -0.26$, $SE = 0.12$, $p < 0.05$), but not from 3 to 18 months.

Conclusions: Neurodevelopmental vulnerabilities provided more consistent prediction of regulatory problems in comparison to sensitive parenting.

1. Introduction

Regulatory problems (crying, sleeping, and feeding) during infancy affect approximately 20% of infants in the first year [1]. They have been shown to be relatively stable across the early years [2] and can lead to stable trajectories of dysregulation across childhood [3].

There is increasing evidence that infant regulatory problems are associated with increased childhood behaviour problems such as externalizing problems and ADHD as supported by the results of a meta-analysis of 22 longitudinal studies [1]. Since 2011, several longitudinal studies further supported the finding that regulatory problems have adverse impact on behaviour in childhood and even

adolescence [4]. Moreover, there is evidence that especially the co-occurrence of more than one regulatory problem has a stronger negative long term adverse impact than a single regulatory problem occurring in isolation [1,5].

Yet despite the growing evidence about multiple infant regulatory problems as precursors of later behaviour problems, there is a scarcity of research which focused on how these problems develop during infancy. Two major explanations have been suggested to understand how regulatory problems develop: a) neurodevelopmental vulnerabilities of the infant and b) maladaptive parenting [6]. The development of regulatory functions is dependent upon the maturation of the brain stem, which undergoes substantial changes after 33 weeks of gestation

Abbreviations: VP/VLBW, (very preterm/very low birthweight); FT, (full-term)

[☆] Funding source: Ayten Bilgin is supported by a PhD scholarship from the Republic of Turkey Ministry of Education.

^{☆☆} Financial disclosure: Ayten Bilgin and Dieter Wolke have no financial relationships relevant to this article to disclose.

[★] Conflict of interest: Ayten Bilgin and Dieter Wolke have no conflicts of interest to disclose.

^{*} Corresponding author at: University of Warwick, Department of Psychology, Coventry, CV4 7AL, UK.

E-mail address: D.Wolke@warwick.ac.uk (D. Wolke).

<http://dx.doi.org/10.1016/j.earlhumdev.2017.04.002>

Received 26 October 2016; Received in revised form 31 March 2017; Accepted 4 April 2017
0378-3782/ © 2017 Elsevier B.V. All rights reserved.

[7]. Specifically, the maturation of sleep-wake cycle and cardiac vagal tone are dependent on the development of the brain stem which has been found to predict later sleeping and crying patterns [8]. Converging evidence revealed that very preterm infants who are born before 32 weeks of gestation are at risk of disruptions in brain stem development [9]. The early warning signs of this disturbance include excessive crying, sleeping and feeding difficulties [10]. Hence, studying the effects of very preterm birth provides a human model to understand the neurodevelopmental underpinnings of infant regulatory problems.

Alternatively, infant regulatory problems may be best understood within a relational context [5]. Surprisingly few longitudinal studies examined the relationship between sensitive parenting referring to mothers' ability to respond appropriately to infant cues [11] and infant regulatory problems. Some that focussed on single regulatory problems such as sleeping or crying showed one-directional associations between maternal sensitivity and child regulatory problems [12], others noted a bi-directional relationship between these variables [13], and still others revealed no significant link [14,15]. Thus, the verdict is still out whether lower maternal sensitivity increases regulatory problems or vice versa or whether parenting has little influence on the development of regulatory problems. Consequently, in order to disentangle the currently unclear direction of influences between infant regulatory problems and maternal sensitivity, longitudinal cross-lagged designs are needed.

Overall, the purpose of the present study was to investigate the prospective association between very preterm birth, comorbid regulatory problems and maternal sensitivity across the first 18 months of life. We hypothesized that regulatory problems and maternal sensitivity will have a reciprocal relationships across infancy. We hypothesized that regulatory problems and maternal sensitivity will have reciprocal relationships across infancy. Furthermore, we hypothesized that very preterm birth as a proximate of neurodevelopmental vulnerability would be related to regulatory problems. In contrast, we hypothesized that preterm birth would be unrelated to maternal sensitivity in accordance with findings of a recent meta-analysis [16].

2. Method

2.1. Participants

Participants of this study comprised 178 infants and their caretakers. Seventy-three of the infants were very preterm/very low birth weight (VP/VLBW) and 105 of them were full-term (FT) born. The sample included 101 males and 77 females with a mean of 35 (4.9) weeks of gestational age and 2409 (1062) grams of birth weight. Mothers had a mean age of 30.6 years (5.8) and a majority had > 10 years of education (62.4%). Demographics for VP/VLBW and FT samples are shown in Table 1.

2.2. Procedure

VP/VLBW infants were recruited from three neonatal units in East of England during an 18 months period. Written consent was obtained from the mother in the presence of an independent witness (See Appendix A for a full description). Ethics approval was given by the NHS ethical review boards of the participating hospitals. Recruitment of FT infants was conducted in the postnatal wards of the same hospitals within 48 h of birth. FT infants (37–42 weeks gestation) were frequency-matched with VP/VLBW infants on socio-economic status, sex and twin birth.

2.3. Measures

2.3.1. Very preterm birth

Very preterm birth was coded as a dichotomous variable based on the gestational weeks of birth: 0) full-term (FT) infants, who were born

Table 1
Characteristics of the infants and mothers.

	VP/VLBW (N = 73)	FT (N = 105)
Gender: N (male/female)	41 (56.2%)/32 (43.8%)	60 (57.1%)/45 (42.9%)
Birth weight (g): (M/range)**	1285.8 (521–2158)	3205.1 (1820–4380)
Gestational age (weeks): (M/range)**	29.4 (25–33)	38.9 (37–42)
Multiple births: twins (N/%)	21/28.8%	32/30.5%
Maternal age (years): (M/SD)	30.5 (5.7)	30.7 (5.9)
Medical risk: (M/SD)	0.64 (0.73)	NA
1. Neurosensory deficits		
None (N/%)	57 (79.2%)	NA
Mild (N/%)	15 (20.8%)	NA
2. Rehospitalisation		
Not admitted (N/%)	57 (79.2%)	NA
One readmission (N/%)	12 (16.7%)	NA
> 1 readmission (N/%)	3 (4.2%)	NA
3. Surgical procedures		
No (N/%)	65 (90.3%)	NA
Yes (N/%)	7 (9.7%)	NA
4. Oxygen dependency		
Never (N/%)	63 (87.5%)	NA
Oxygen only at term (N/%)	5 (6.6%)	NA
Oxygen at 3 months (N/%)	4 (5.6%)	NA
Income (GBP): N (%)		
£0–£25 k	30 (41.1%)	38 (36.2%)
£25 k–£40 k	18 (24.7%)	25 (23.8%)
> £40 k	18 (24.7%)	41 (39%)
Maternal education: N (%)		
< 10 years ^a	2 (2.7%)	3 (2.9%)
10 years ^b	43 (58.9%)	60 (57.1%)
> 10 years ^c	23 (31.5%)	34 (32.4%)
Maternal sensitivity (M/SD)		
Term	4.52 (0.65)	4.41 (0.54)
3 months	3.98 (0.56)	3.87 (0.56)
18 months	5.71 (1.4)	6.13 (1.4)
Comorbid regulatory problems (N%)		
Term*	45 (61.6%)	49 (46.7%)
3 months	9 (12.3%)	13 (12.4%)
18 months*	28 (38.4%)	28 (26.6%)

VP/VLBW: very preterm/very low birth weight, FT: full-term; Medical risk: Composite score of neurosensory deficits, rehospitalization, surgical procedures, and oxygen dependency (oxygen use of > 21%).

^a No educational qualification.

^b Basic educational qualification (O-levels).

^c Further education (A-levels) or college education.

** $p < 0.001$.

* $p < 0.05$.

after 36 weeks of gestation; 1) very preterm/very low birth weight (VP/VLBW) infants, who were born at 28 to < 32 weeks of gestation. Additionally, in the VP/VLBW group there were 4 (5.5%) infants who were born at 32 weeks of gestational age but with a birth weight < 1500 g.

2.3.2. Maternal sensitivity

Maternal sensitivity was observed at term, 3 months and 18 months of age. Before discharge neonatal care nurses rated maternal sensitivity of mothers of preterm infants based on their observations in the last week on the Boston City Hospital Assessment of Parental Sensitivity (BCHAPS [17]). For full-term infants, midwives completed the BCHAPS during home visits in the first 10 days of infant's life. Both nurses and midwives were given structured instruction on how to complete the BCHAPS by the researchers. The BCHAPS measures how the mother cares for, interacts with and enjoys the relationship with her infant rated on thirteen items with 5-point Likert type scales (1 = poor; 5 = very competent). Internal consistency of the scale was high ($\alpha = 0.95$).

Maternal sensitivity at 3 months was measured with a structured

Download English Version:

<https://daneshyari.com/en/article/5691122>

Download Persian Version:

<https://daneshyari.com/article/5691122>

[Daneshyari.com](https://daneshyari.com)