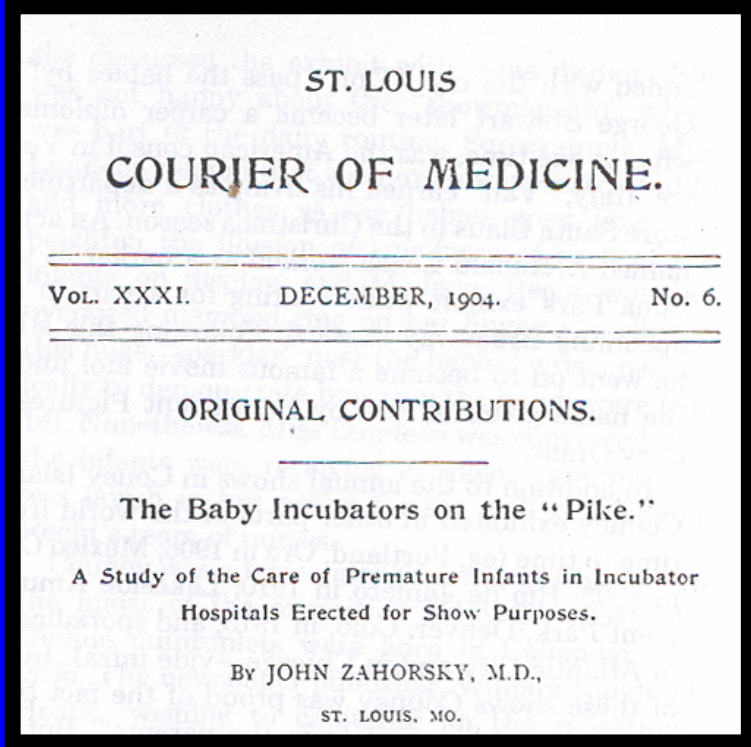


# Social Competence of Children Born Very Preterm



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# Introduction

- Initial focus on neurodevelopmental impairment, including CP, severe intellectual delay, and school achievement
- Recently, increased interest in broader range of outcomes, including behaviour, temperament, mental health, and social development
- Long term consequences of social competence problems (i.e., low self-esteem, implications of learning, employability and community living)
- Social reputations established early
- An important social and health issue

# Existing Research

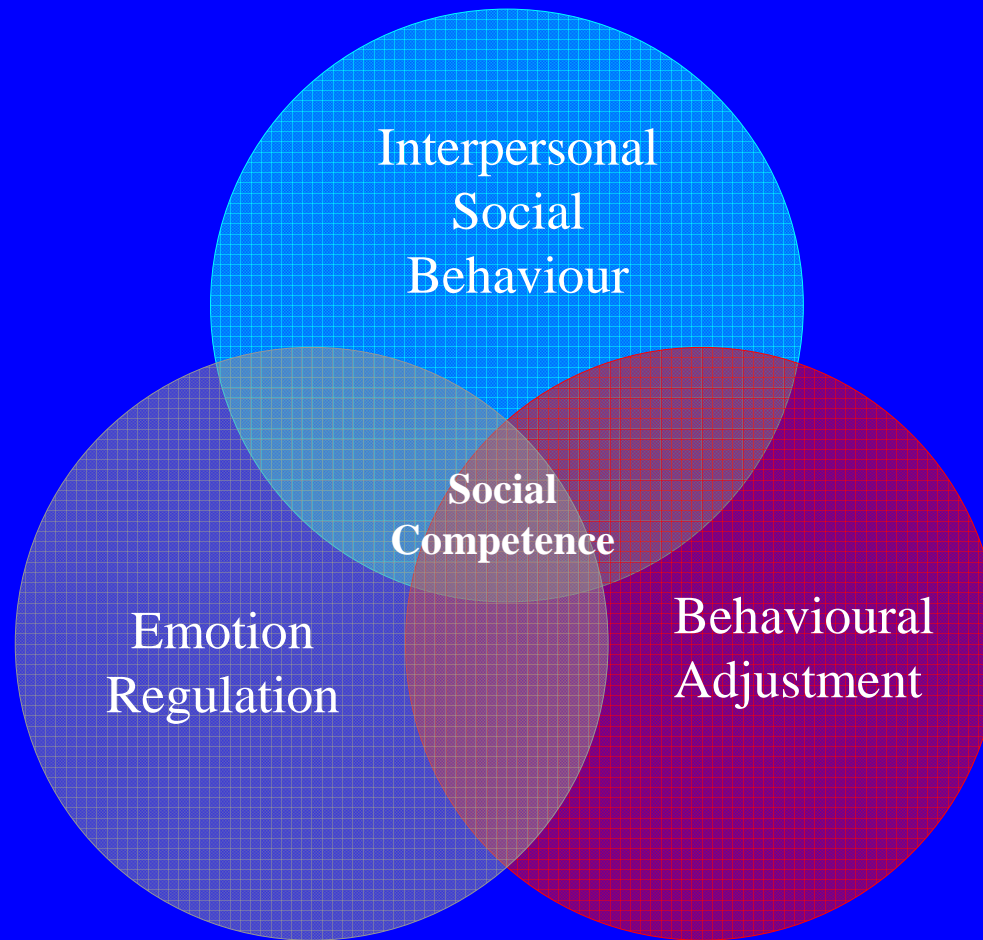
- Evidence of early physiological differences in emotion regulation, along with presence of greater levels of negative affect
- Adverse behavioural outcomes of **school-aged** children born preterm have been extensively reported. Estimates suggest 20% to 30% of children born VLBW exhibit the attention deficit hyperactivity disorder
- Preterm infants vary markedly in their early characteristics as social partners across first year of life



# Defining Social Competence

- Social competence is and continues to be difficult to define (for 29 different definitions see Anderson & Messick, 1974)
- Measures incorporate:
  - Behavioural outcomes  
(i.e., task persistence, and inattention)
  - Emotional regulation outcomes  
(i.e., mood changes and reactivity to events)
  - Particular spheres of social development  
(i.e., prosocial and play behaviours)

# Model of Social Competence



# Aims

- To examine the social competence of children born very preterm at age 4 years, including measures of emotional regulation, behavioral adjustment, and peer relations
- To examine the extent to which group differences in social competence could be explained by medical risk, social risk, and intellectual ability

# Sample

- **VLBW Group:**

111 consecutive VLBW (<1500g) infants admitted to regional level III NICU at Christchurch Women's Hospital were recruited between Nov 1998- Dec 2000

**Age 4 retention rate: 95%**

- **Full Term Comparison Group:**

At 2 years, 116 control children identified from hospital birth records and recruited (matched for gender and date of delivery)

**Age 4 retention rate: 93%**

# Measures (4 Years)

## Emotion Regulation

- Emotional Regulation (ERC)
- Self-Regulation (ITSC)
- Emotional Control (BRIEF-P)

## Behavioural Adjustment

- Inhibition (BRIEF-P)
- Hyperactivity/Inattention (SDQ)
- Conduct Problems (SDQ)
- Emotional Symptoms (SDQ)

## Interpersonal Social Behaviour

- Prosocial Behaviour (SDQ)
- Peer Relationships (SDQ)
- Play Interaction (PIPPS)
- Play Disruption (PIPPS)
- Play Disconnection (PIPPS)

# Results – Emotional Regulation

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Measure	Very Preterm (N=96)	Full Term (N=105)	t	p
M (SD) Emotional Regulation	25.06 (3.09)	26.12 (2.65)	-2.61	.01
M (SD) Self-Regulation Problems	4.63 (3.58)	3.03 (2.46)	3.70	<.0001
M (SD) Emotional Control Problems	16.01 (4.23)	14.99 (3.43)	1.87	.06

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# Results – Behavioural Adjustment

Measure	Very Preterm (N=103)	Full Term (N=107)	T	p
<u>Parent Report</u>				
Inhibition Problems	25.59 (6.03)	23.92 (5.14)	2.15	.03
Hyperactivity/Inattention	3.82 (2.45)	2.99 (2.20)	2.58	.01
Conduct Problems	2.68 (2.08)	2.21 (1.67)	1.82	.07
Emotional Symptoms	2.03 (1.76)	1.44 (1.39)	2.69	.008
<u>Teacher Report</u>				
Inhibition Problems	22.68 (7.46)	21.05 (6.55)	1.68	.09
Hyperactivity / Inattention	2.90 (2.56)	2.34 (2.73)	1.51	.13
Conduct Problems	1.27 (1.91)	1.19 (1.93)	.27	.79
Emotional Symptoms	1.65 (2.04)	1.42 (1.84)	.86	.39

# Results – Interpersonal Social Behaviour

Measure	Very Preterm (N=98)	Full Term (N=106)	T	p
<u>Parent Report</u>				
Peer Problems	1.38 (.71)	1.22 (.57)	1.78	.08
Prosocial Behaviour	1.18 (.52)	1.15 (.49)	.46	.65
Play Interaction	25.31 (2.84)	26.15 (3.08)	-2.03	.04
Play Disruption	27.06 (3.87)	26.82 (3.70)	.45	.65
Play Disconnection	15.04 (2.97)	14.79 (3.06)	.59	.56
<u>Teacher Report</u>				
Peer Problems	1.92 (2.00)	1.73 (1.95)	.70	.49
Prosocial Behaviour	6.97 (2.27)	7.00 (2.18)	-.09	.92
Play Interaction	23.33 (4.43)	24.01 (4.57)	-1.08	.28
Play Disruption	24.05 (6.04)	23.65 (5.70)	.45	.65
Play Disconnection	16.32 (5.24)	16.68 (4.53)	.49	.62

# Data Reduction

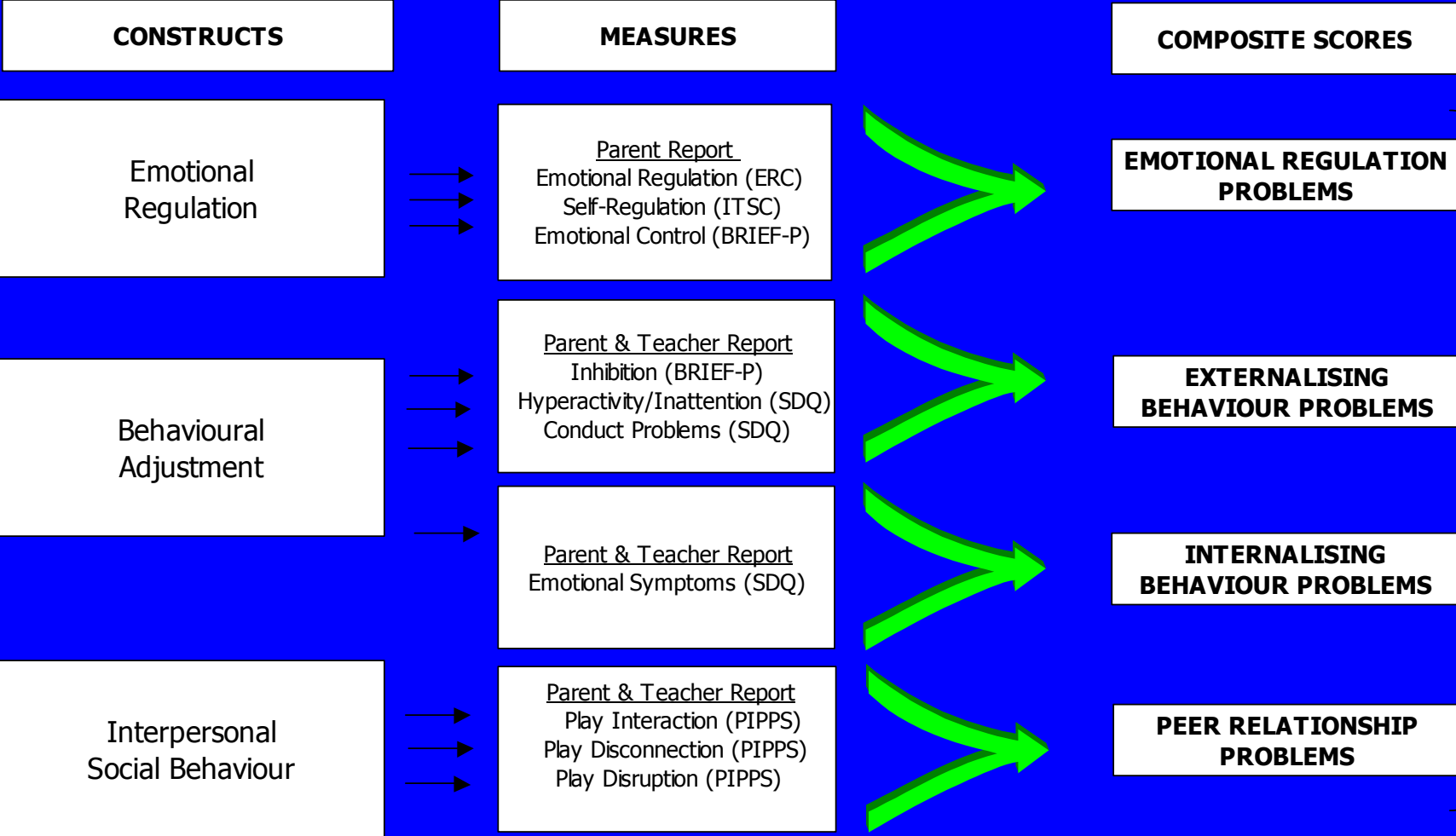
- Variable Correlations
- Factor Analysis (PCA).  
All resultant loadings were above .5  
(ranging from .60-.80)
- Computation of Scores following  
transformation into standardised z scores  
[M =100, sd 10]

# Data Reduction

Phase 1 - Conceptualisation of Measures

Phase 2 - Concrete Analyses

Phase 3 - Final Composite Measures



Supported by Principal Components Analysis (PCA)

# Results – Composite Measures

Measure	Very Preterm	Full Term	T	p	Effect Size (d)
Emotional Regulation Dysfunction	311.49 (35.48)	297.99 (24.22)	3.17	.002	.45
Externalising Behaviour Problems	614.39 (46.47)	599.99 (42.35)	2.34	.02	.33
Internalising Behaviour Problems	105.85 (13.51)	101.41 (10.64)	2.64	.009	.37
Peer Relationship Problems	500.29 (27.44)	499.19 (25.83)	.29	.77	NS

# Potential Risk Factors

- **Medical Risk Composite**

1 pt for gestational age < 28 wks, intrauterine growth restriction (IUGR), sepsis, oxygen use at 36 weeks, patent ductus arteriosus (pda), intraventricular hemorrhage (IVH), & periventricular leukomalacia (PVL)

- **Social Risk Composite**

1 pt for poor maternal education, ethnic minority status, & low SES

- **IQ** (WPPSI-R)

# Results – Adjusted for Medical Risk, Social Risk, and IQ

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Measure	Very Preterm	Full Term	T	p	Adjusted p
Emotional Regulation Dysfunction	311.49 (35.48)	297.99 (24.22)	3.17	.002	.08
Externalising Behaviour Problems	614.39 (46.47)	599.99 (42.35)	2.34	.02	.82
Internalising Behaviour Problems	105.85 (13.51)	101.41 (10.64)	2.64	.009	.79

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# Summary of Findings

- Overall, behavioural and emotional regulation difficulties were consistently more prevalent in children born very preterm, compared to full-term comparison children
- Clear tendency for preschool teachers to also report greater levels of behaviour problems evident in the preterm group
- Few interactive social differences in early interpersonal social, in terms of play and prosocial behaviours
- Following control for medical risk, social risk, and IQ, very preterm birth remained a significant predictor of emotion regulation problems

# Conclusions

- Suggestion greater social difficulties reported during the first year of life continue to be evident during the preschool years for children born very preterm
- Considering the potential long-term consequences, early identification of preterm children most at risk of later social competence difficulties and intervention is important prior to school age