


Historical Roots Of Developmental Care In Newborn Infants : A Bibliometric Analysis Using Reference Publication Year Spectroscopy

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Intro

- Improvement in neonatal care
 - Technological advances
 - Infant and family-centered “developmental care”
- History of developmental care has rarely been studied
- Question: “Which early works are still alive in more recent publications in the form of frequently cited references and are most important for the evolution of this research field?”
- Narrative historical review: risk of bias of subjectivity

Reference Publication Year Spectroscopy (RPYS): Theory

- Single scientists judge the origins of their research field subjectively; the overall community : a more objective picture.
- Early reference publication years (RPYs) not equally represented.
- Some years occur more frequently among the cited references than others: → pronounced peaks
- Pronounced peaks frequently based on single early publications → origins and intellectual roots

Reference Publication Year Spectroscopy (RPYS): methods



- ✓ Selection of publications in a given field of research
- ✓ Quantitative analysis of the cited references (CRExplorer)
 - ✓ Peak year analysis
 - ✓ Landmark publication analysis
- ✓ Quantifying the significance (N_TOP10 indicator)
- ✓ Revealing the historical roots

RPYS: examples

Scienometrics (2017) 110:335–353
Which early works are cited most frequently in climate change research literature? A bibliometric approach based on Reference Publication Year Spectroscopy
Werner Marx¹, Robin Haunschild¹, Andreas Thor², Lutz Bornmann³

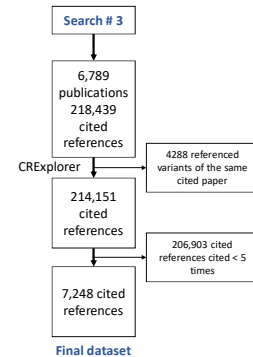
Depression: Detecting the Historical Roots of Research on Depression Prevention with Reference Publication Year Spectroscopy
Ehsan Geraei,
Ferozshah Shakhbabaev,
Elahieh Mazaheri¹

Historical roots of pain management in infants: A bibliometric analysis using reference publication year spectroscopy
Kanwaljeet J. S. Anand^{1,2}, Jean-Michel Roué³, Cynthia R. Rovnaghi², Werner Marx⁴, Lutz Bornmann⁵

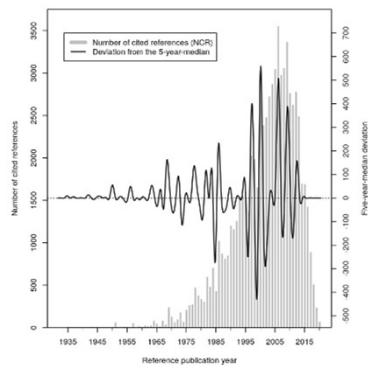
Methods

- Search carried out on Feb 2 2022
- No period limit
- Web of Sciences
 - Search # 1: Intervention-related synonyms : development care OR developmental care OR early intervention OR early interventions OR early development OR infant development OR neonatal development OR newborn development
 - Search # 2: infant-related synonyms: neonate OR neonates OR neonatal OR newborn OR newborns OR preterm OR premature birth OR low birth weight OR low birthweight OR full term OR infant human OR infant humans OR infant-preterm OR term neonate OR term neonates.
 - Search #3: Boolean operator « AND »
- Final dataset with cited references imported into CitedReferencesExplorer (CRExplorer)

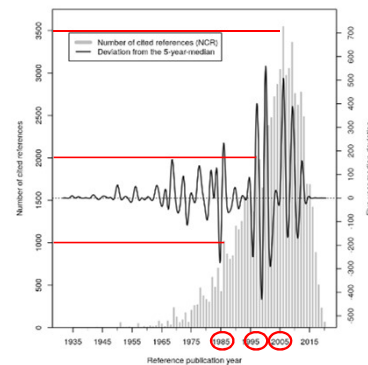
Results



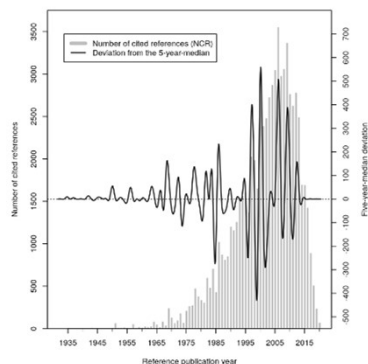
Results: peak year analysis



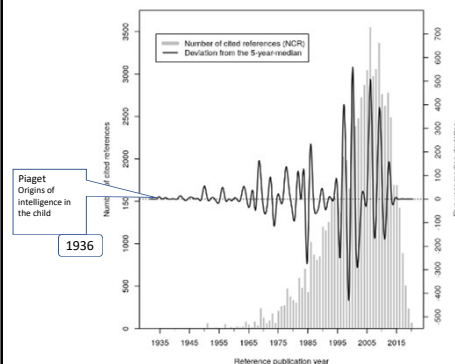
Results: peak year analysis



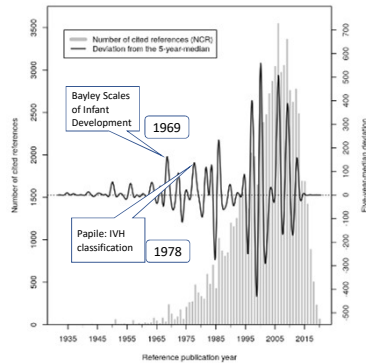
Results: peak year analysis



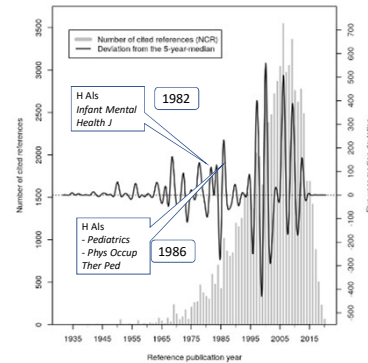
Results: peak year analysis



Results: peak year analysis



Results: peak year analysis



Results: peak year analysis (1982-2000)

Peak years and their corresponding most cited references	Number of cited references
1982	
Als H. <i>Infant Mental Health J</i> 1982; 2(4):229-43	119
Escalona S. <i>Pediatrics</i> . 1982 Nov;70(5):670-6.	29
1984	
Belsky J. <i>Child Dev</i> 1984; 55(1):83	28
Brazelton TB. <i>Neonatal Behavioural Assessment Scale</i> 2nd edition	27
1986	
Als H. <i>Pediatrics</i> 1986 78(6):1123-32	137
Als H. <i>Phys Occup Ther Ped</i> . 1986 1:2(3-4):3-53	75
1990	
Gross RT. <i>JAMA-J Am Med Assoc</i> 1990; 13:263(22):3035-42.	104
Rauh VA. <i>Clin Perinatol</i> 1990 Mar;17(1):31-45.	44
1995	
Buehler DM. <i>Pediatrics</i> 1995 1:96(5):923-32	97
Reischer BE. <i>Can Pediatrics</i> 1995 34(10):523-9	75
1997	
McCarton CM et al. <i>Jama-J Am Med Assoc</i> 1997; 8:277(2):126-32.	115
Palisano et al. <i>Dev Med Child Neurol</i> 1997 29;39(4):214-23	94
2000	
Vohr BR et al. <i>Pediatrics</i> 2000 1:105(6):1216-26	116
Westrup B et al. <i>Pediatrics</i> 2000 1:105(1):66-72	78

Results: landmark publication analysis

- N_TOP10 indicator : number of years in which a cited reference belongs to the 10% most frequently referenced publications in citing papers.

	Landmark publications	Absolute number of years top 10	% of years since publication*
NIDCAP	Papile LA. <i>J Pediatr</i> US 1978 92(4):529-34.	31	70%
	Als H. <i>JAMA J Am Med Assoc</i> 1986 21(277)(11):853-8.	27	100%
	Als H. <i>Pediatrics</i> 1986 78(6):1123-32.	25	69%
	Wong CC. <i>Pediatrics</i> 1986 78(6):1123-32.	24	75%
Infant Health and Development Program (IHDP)	Runney CT. <i>Pediatrics</i> 1982 69(5):654-65.	24	97%
	McCarton CM et al. <i>Jama-J Am Med Assoc</i> 1997; 8:277(2):126-32.	22	88%
	Westrup B et al. <i>Pediatrics</i> 2000 1:105(1):66-72.	22	89%
	Vohr BR et al. <i>Pediatrics</i> 2000 1:105(6):1216-26.	21	95%
	Als H. <i>Phys Occup Ther Ped</i> . 1986 1:2(3-4):3-53.	20	55%
	Bayley N. <i>Bayley Scales Infant</i> 1969.	20	38%
	Achenbach et al. <i>Pediatrics</i> 1993 Jan;91(1):45-55.	20	90%

Limitations

- RPYS measures the impact and not the scientific quality
- Choice of the search terms
- Automatic greater importance of older publications (« historical roots »)

Conclusion

- Developmental care emerged after a switch in consideration of the infant in the mid-1900s.
- A major turning point was the conceptualisation of the Synactive theory of development by Als in 1982
- Two main programs, NIDCAP and IHDP, provided the basis of the broad concept of infant and family-centred developmental care