

Does movement play a role in morality?

Motor development and the emergence of helping behaviour in 3 month old infants

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Introduction and literature review

PROSOCIAL BEHAVIOUR IN INFANTS

- Early *prosocial behaviour* (PSB), voluntary behaviour that helps others, is primarily studied in toddlers, starting at around 14 months of age and up
- Only a small number of studies have examined the emergence of PSB before the first birthday (e.g., Hammond et al., 2017)
 - These behaviours may first appear in routine interactions (e.g., dressing; feeding) in which the child acts in ways that help and assist their caregiver
 - These actions are self-directed (i.e., the infant acting on their own body; Reddy et al., 2013)
- However, the role of infants' own motor development in the emergence of PSB remains unexplored



FINE MOTOR DEVELOPMENT IN INFANTS

- Fine motor development begins in the prenatal period (Futgi et al., 2012), and by 3 months, most infants show a *grasp reflex* (i.e., will grab onto a small object put in their hand [Malina, 2004]).
 - Gradually, grasping (and letting go) comes under the infants' volitional control around 12 months of age
- In terms of PSB, handing things to another (e.g., giving or retrieving a needed, dropped, or requested object) is one of the principle forms of PSB in toddlers

THE PRESENT STUDY

- In this pilot report on a larger longitudinal study, we hope to look at how this motor development relates to the emergence of prosocial behaviours

Methods

Recruitment (ongoing)

- 14 parents of 3-4 month old infants recruited through social media advertisements

Data collection

- Video-recorded behavioural data was collected using video-conferencing technology (Skype; Facetime; Google Hangout)
 - This novel method of data collection was based on Libertus and Violi's (2016) study of early motor development, and has been used for the first time to collect data on prosocial behaviour in this study

Measures

- Questionnaires were collected via Qualtrics, an online survey program. At 3-4 months, motor development assessed with Ages and Stages Questionnaire (ASQ)
- During video sessions, parents are asked to perform three tasks: (1) *Marker task*: giving a marker to the child and trying to retrieve it, (2) *Clothing task*: placing and removing clothing (a hat and sock), and (3) *Free play task*: two minutes of unstructured play

Data analysis

- For this present study, data was collected from the questionnaires and interviews to identify helping behaviours (quantitative and qualitative data respectively)

Results

QUALITATIVE OBSERVATIONS

Marker task

- Children will often fixate their gaze onto the marker, and follow it with their eyes
- Pre-reaching is uncommon; some babies will maneuver their limbs and are able to touch the marker, while for others, the parents will place the marker in their hand, ultimately the grasp reflex will occur once the child feels the marker
- The infant will hold the marker, but does not appear to be cognitively aware of the marker in their hand
 - The child will simply drop it or the parents will have to pry it out of their hands



Clothing task

- The infant tends to stay still while the clothing is put on, however if the child is moving, the parent will grab and stabilize the child's body
- The infant does not appear to be aware (does not react) of the introduction clothing



Free play task

- The child will often move their limbs in order to engage with the parent during play
- Involves the movement of the head and neck to maintain contact with the caregiver, as well as forms of pre-reaching towards a toy



QUANTATIVE FINDINGS

ASQ fine motor	Mean	Standard deviation
Does your baby hold his hands open or partly open (rather than in fists, as they were when he was a newborn)?	1.33	0.49
When you put a toy in her hand, does your baby wave it about at least briefly?	1.42	0.67
Does your baby grab or scratch at his clothes?	1.33	0.65
When you put a toy in her hand, does your baby hold onto it for about 1 minute while looking at it, waving it about or trying to chew it?	1.83	0.84
Does your baby grab or scratch his fingers on a surface in front of him either while being held in a sitting position or when he is on his tummy?	1.67	0.89
When you hold your baby in a sitting position, does she reach for a toy on a table close by, even though her hand may not touch it?	2.17	0.84

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Discussion and future directions

- Based on the video data, the 3 month old infants display very limited motor control beyond their reflexes
 - Much of the movement is based on the parent's stimulation prompting the infant to orient their heads to face them, as well as grabbing toys during play
- Some individual differences were found in the ASQ data, suggesting some diversity in fine motor development
- There is no concrete evidence of prosocial behaviour at Time 1, rather the infants display rudimentary movements that could become relevant to helping later on
 - Through pilot data with older infants (5 months old), we have already found signs of helping behaviour that stems from the basic motor skills seen at 3 months of age
- As the study continues to monitor these infants through to 12 months of age, we hope to see that as the motor skills develop, there will be an increase in helping behaviour as well

Notes on data collection method

- One of the greatest difficulties of infancy studies is the recruitment phase, which often takes months of advertising in order to reach parents
- Through this study's use of video-conferencing, we were able increase the accessibility and ease for parents – and recruited 15 infants in the span of a few weeks
- This is the first application of Libertus and Violi's (2016) method for data collection in prosocial behaviour, particularly with young infants; this method appears to be a promising new direction for infancy studies to guide and ease both the recruitment and data collection aspects



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