UNRAVELING THE EFFECTS OF BREASTFEEDING DURATION AND EXCLUSIVE BREAST MILK ON CHILDREN'S EARLY COGNITIVE ABILITIES

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INTRODUCTION

Breastfeeding and human milk have several beneficial effects including nutrition and growth, fostering immune-microbiome interplay, promoting mother–child interaction, and improving neurobehavioral outcomes[1,2].

Potential mechanisms:

- Nutrient hypothesis[3]
- Early skin-to-skin contact[4]
- Cognitively stimulating home environment[5]

This study aims to examine how the duration of breastfeeding and exclusive use of breast milk are longitudinally associated with children's early memory-span and math skills, while controlling the selection bias for breastfeeding due to confounding variables.

METHODS

Sample:

- 2,210 Canadian families with children assessed longitudinally from age 4 to 7 years on their memory-span and math skills;

Measures:

- Breastfeeding practices were collected via maternal reports
- Child early math skills were measured at ages 4, 5, and 6 years with the Number Knowledge Test[6];
- Child memory-span was assessed at ages 4, 5, 6, and 7 years with the Visually Cued Recall task[7];

Data analyses:

- Propensity scores were applied to control for social selection bias ;
- Latent Growth Modeling (LGM) was used to investigate how the breastfeeding groups were longitudinally associated with changes in children's math ability and memory-span across time.

RESULTS

Four groups of mothers were derived :

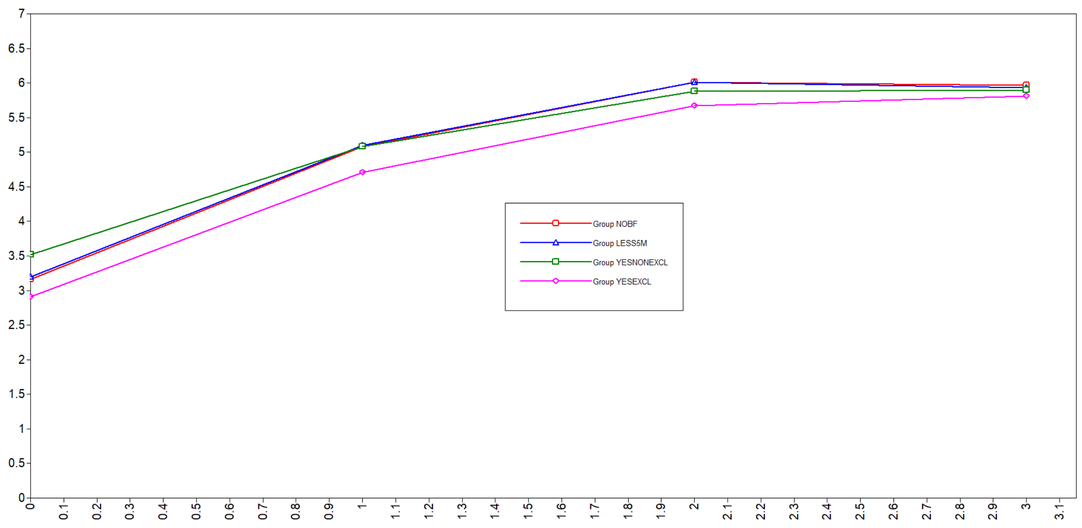
(1) non-breastfeeding group
n = 600, 28.3%

(2) non-exclusive breastfeeding for 5 months or less
n = 809, 38.2%

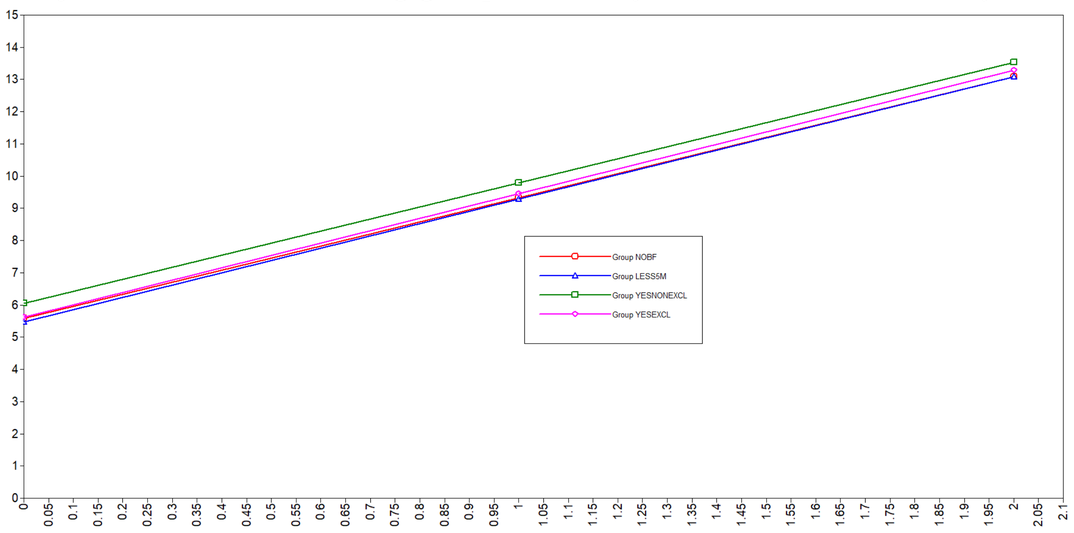
(3) non-exclusive breastfeeding for more than 5 months
n = 356, 16.8%

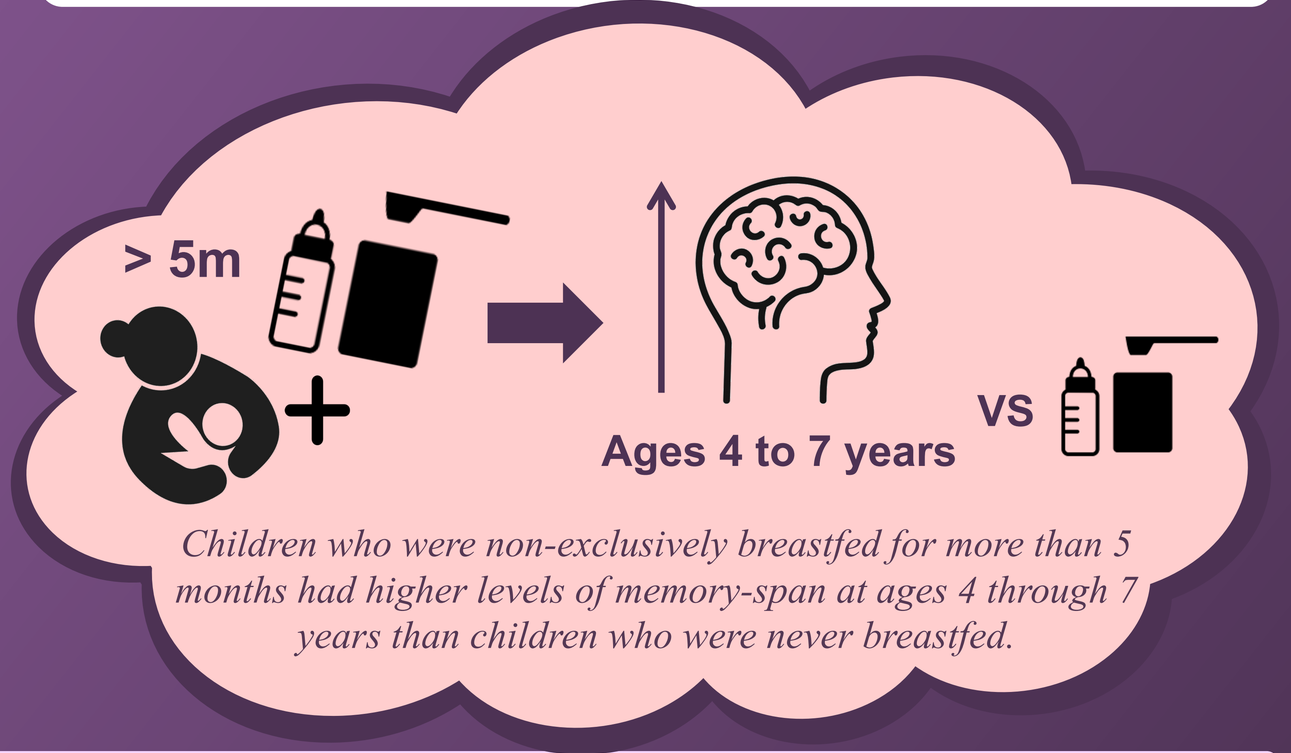
(4) exclusive breastfeeding for more than 5 months
n = 355, 16.7%

Trajectories of breastfeeding groups and memory-span from 4 to 7 years



Trajectories of breastfeeding groups and early math skills from 4 to 7 years





Children who were non-exclusively breastfed for more than 5 months had higher levels of memory-span at ages 4 through 7 years than children who were never breastfed.

DISCUSSION

- **No significant differences were found between non-breastfed children and those being non-exclusively breastfed for 5 months or less, or those being exclusively breastfed for more than 5 months.**
- Our findings partially supports the need to keep breastfeeding for more than 5 months.
- Contrary to the WHO guidelines[8] that recommend exclusive breast milk for the first 6 months and to continue breastfeeding with complementary foods until 2 years or beyond, our results rather show that it is a mix of breast milk and formula that confer benefits on memory-span.
- Future studies should explore how perinatal risk factors may moderate the association between breastfeeding and child cognitive development.

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