

April 24, 2006

Cognitive Development

Research Paper

Expectant mothers are often faced with many choices and options when carrying for their new child. With all the new information given it is easy to feel overwhelmed. When it comes to the nutritional health for your ^{new} born infant a mother wants what is best. One issue that arises is whether or not to breastfeed your baby. Most mothers want to know what the benefits and consequences of breastfeeding are. One mother writes to inquire about breastfeeding and the connection to intellectual advantages. She has heard that breastfeeding your baby increases their IQ. Being a working mother can make it difficult to breastfeed and now this mother is trying to decide whether to breastfeed her baby for at least a while. This is hot topic among mothers and has been studied by many researchers.

Scientists all over the country have been researching the correlation between breastfeeding and higher IQ scores and trying to find answers to this complicated question. In recent research studies the data suggests that there is an association between the duration of breastfed children and their intelligence quotient. In one study done by Horwood and Fergusson, ^{my} ₍₁₉₉₈₎ children from birth to 1 year of age were monitored and maternal breastfeeding practices were recorded. This study's objective was to examine the association between duration of breastfeeding and childhood cognitive ability and the academic achievement of children in an 18-year longitudinal study. When the children in

the study entered school at the age of 8 they were assessed on a range of measured cognitive and academic outcomes. They were assessed until they reached age 18.

Methods of intelligence such as standardized testing, school performance; teacher ratings and passing school rates were all used in this study. Methods of data collection also included collecting ^{information about} maternal breastfeeding practices during the period birth to age 1. The

results of this study found that breastfeeding is associated with detectable increases in cognitive ability in children and ⁱⁿ achievement in the classroom. Interestingly, the mothers

that chose to breastfeed the longest were women who were better educated and from higher socio-economic statuses. The women were also from 2-parent families, did not smoke and had above average income and living situations (Horwood, 1998). The

researchers were interested in duration of breastfeeding as a major component in later cognitive abilities too. Further research will also need to be done to determine if higher income is an actual direct deterrent in higher ^{work} academic outcome. ^{This} (incomplete sentence) ^{which} may prove to be

the bigger determining factor, rather than breastfed versus non-breastfed children's intelligence. However, other types of factors associated with breastfeeding, such as income levels, reduced the association between breastfeeding and cognitive outcomes.

However, in 82% of the models duration of breastfeeding remained significant. - even w/ ^{parent} ID included?

Breastfeed children ^{for} more than 8 months had test scores that were 0.11 and 0.30 SD units higher than children ^{who were} not breastfeed (Horwood, 1998). Thus, the conclusion that ^{is}?

breastfeeding is associated with an increase in cognitive abilities. ^{JP} The findings of Harwood and Fergusson are similar to those of Gomez-Sanchiz in 2003. ←→

SO BIE
possible that
to why BF
predicted higher
scores, or did
you control
for that?

I am not following...
parent ID included?
IS that what you mean?

In the Gomez-Sanchiz study done by five doctors, the issue of breastfeeding and mental development framed the research topic for these doctors. In their study the purpose was to analyze the effects of breastfeeding on cognitive and motor development. The study involved 249 babies from two rural and urban regions. The cognitive development of these babies was assessed at the age of 18 months. Using the Bayley's Mental and Psychomotor Development Indices and consideration of other factors, such as parental IQ or income level, makes this study similar to the Horwood study mentioned earlier. The Bayley Scale scores mental and psychomotor development. The Gomez-Sanchiz study differs for the Horwood study in the fact that a cohort study was used ✓ rather than a longitudinal study. The results of this study revealed that scores from the mental development index were higher in breast-fed babies that were breast-fed for more than 4 months. ^{frankly?} In fact the scores were 4.6 points higher ^{than} (Gomez-Sanchiz, 2003). There was also a significant correlation between the duration of breastfeeding and the Bayley's mental development index. ^{incomplete sentence} (Concluding that breast-feeding for more than 4 months can have a positive effect on the mental development of your young baby). However, in the Horwood study they concluded that breast-feeding your baby for more than 8 months increases your babies IQ level. Either way both the Horwood Study and the Gomez-Sanchiz study show a positive correlation between breast-fed babies and higher test scores, higher IQ levels and greater academic achievement. In both studies other factors were taken into account. These factors were mentioned in greater depth in the Horwood study.

In the Horwood study factors that might also attribute to greater mental developments included higher socioeconomic income levels, greater parental IQ, two-

parent families and mothers who did not smoke during pregnancy. These issues were discussed in the results of the study. However, the Gomez-Sanchiz study vaguely mentions including factors as part of the results. This would lead one to conclude there were interpretational differences. However, another contributing factors that may cause a slight difference in recommended breast-feeding time is the difference between the sample subjects. Two cohort study groups were used in the Gomez-Sanchiz study and one large longitudinal study was used in the Horwood study. Different scoring and methods of statistical analysis can be the factors in differences in mean test scores between the two studies.

soaked my account for effects of BF?

But it seems like the biggest issue with the way used vastly different time delays to measure effects of BF?

Differences in the types of studies used and difference in mean test scores were very small. Results in both studies concluded that mothers who breast-feed their babies for more than 4 months, up to 8 months, have babies with higher IQ's and greater mental development. Based on the evidence in the two research studies, it seems as if breast-feeding you baby is beneficial for the mother and child. The Gomez-Sanchiz study also concluded that mothers who breast-feed their babies have a 25 percent decrease in postpartum depression. Concluding that breast-fed children have greater mental development and happier mothers. Also, factors that might contribute to higher IQ's in children, such as higher income families, two-parents households, and non-smoking mothers, can lead to higher test scores. These factors however, were taken into consideration during the two studies. The pattern of results between the two studies suggests breast-feeding your child is recommended. For mothers who work outside the home, pumping your breast milk and bottle feeding your child your own breast milk is always better than formula feeding your infant. Given the recent studies and information

so longer than 8 mos is not good?

Incomplete sentence

effects of BF were still found

know a little more about what earlier points...

on this subject, and more specifically the two aforementioned studies, you might be helping your child and yourself in the long run when you breast-feed ^{him or her} them.

Good paper... but I still had a number of questions about the studies that weren't clearly addressed. Also your synthesis & conclusions really should have emphasized that the Howwood study found very long term effects of BF & therefore really extends findings of Gomez-Sanchez. Could that be one reason why BF had to be for 8 mos to last over very long term? These sorts of issues are important to discuss.

References:

- Gomez-Sanchiz, M., Canete, R., Rodero, I., Baeza, J.E., Avila, O., (2003). Influence of Breast-Feeding on Mental and Psychomotor Development. Clinical Pediatrics, 42, 35-42.
- Horwood, L.J., Fergusson, D.M., (1998). Breastfeeding and Later Cognitive and Academic Outcomes. Pediatrics, 101, 1-7.

Paper Grading Rubric

	Exemplary	Good	Limited	Unsatisfactory
Points:	11	8	5	2
Introduction	Thesis is clearly defined and focused	Thesis is clear; provides some direction for paper	Thesis is inappropriate, unclear, or incomplete	Ineffective or missing introduction
Study 1 Description	Accurate, appropriate level of detail	Sufficient and accurate	Partly inaccurate, incomplete, or unclear	Missing, inappropriate study
Study 2 Description	Accurate, appropriate level of detail	Sufficient and accurate	Partly inaccurate, incomplete, or unclear	Missing, inappropriate study
Synthesis/ Comparison	Interesting, sophisticated, insightful comparison of 2 studies	Sufficient and accurate comparison of 2 studies	Inaccurate, incomplete, or unclear comparison; summarizes previously stated information	Missing comparison of 2 studies
Conclusion/ Recommendations	Extends and connects ideas; insightful comments	Satisfactory; Purposeful; appropriate comments	Unclear, incomplete, or inappropriate; Summarizes previously stated information	Missing
Total Points Earned	21	24		
Points:	4	3	2	1
Paragraph Order	Contributes to effective arguments; reinforces content	Demonstrates a plan	Ineffective or inconsistent	Random
Transitions	Effective and varied	Clear and functional	Mechanical	Absent
Sentence Structure	Complete and varied/interesting	Complete and correct	Some errors are evident	Repetitious; fragments and run-ons are frequent
Word Choice	Engaging, powerful choice of words	Appropriate to task	Uneven	Inappropriate or incorrect words are frequent
References	Complete list of references; studies are clearly referred to in text	Complete list of references; studies not always clearly referred to in text	Reference list is incomplete	Reference list is absent
Total Points Earned	4	6	4	

Overall Points Earned: 59 (out of 75)

Letter Grade: C⁺