The Role Of Breast Feeding In Cognitive Development Of A Child

The World Health Organization (WHO) recommends breastfeeding commonly for the first six months of life. That means that no other foods or drinks other than possibly vitamin D are typically administrated. After the introduction of soled foods at six months of age, recommendations include continued breastfeeding until at least one to two years of age. Additionally, about 38% of infants are only breastfed during their first six months of life. In the United States, about 75% of women begin breastfeeding and only 13% continue breastfeeding until the age of six months. Medical conditions contra indicates and do not allow breastfeeding rarely. Mothers who take certain recreational drugs and medications should not breastfeed, were as smoking, limited amounts of alcohol, or coffee are not reasons to avoid breastfeeding. More recently, a large cluster randomized trial of breastfeeding promotion using an experimental design demonstrated a large effect of breastfeeding on cognition, adding credence to the evidence for beneficial effects seen in past observational studies.

Factors related to breastfeeding versus cognitive development

Anderson and colleagues, Meta-analysis showed that after appropriate adjustments, breastfeeding was associated with an advantage of around 3 points on tests of cognition in children born at term and around 5 points in those born preterm. The implication is that, over and above social factors, one or more constituents of breast milk benefit neurodevelopment, particularly so in those born preterm, at a more sensitive stage of brain development.

On addition, the evidence on the association between breastfeeding and cognitive growth is to date inconsistent and inconclusive, with some studies reporting a positive relationship and others failing to detect such effects after adjusting for relevant covariates. Moreover, comprehensive review of 84 relevant studies on breastfeeding practices and intelligence concluded that any observed associations between the two were best explained by residual confounding.

Other studies on the effects of breastfeeding-intelligence association focused on the important to differentiate children's differences in early life intelligence. At the beginning of their cognitive growth trajectories from the differences that children show in cognitive growth or intelligence gains over time. If there were nutritional benefits of breastfeeding for cognitive growth, breastfeeding should be more strongly associated with early life cognitive ability or IQ starting points but to a lesser degree with children's later intelligence gains. Furthermore, if

breastfeeding was mainly related to long term cognitive development rather than initial intelligence. An association was likely to result from confounding and be attributable to breastfeeding's interrelatedness with other variables that exert favorable influences on development.

It is well known that the relationship between breastfeeding and intelligence may not be causal in nature but instead reflected other factors such as the interconnection of favorable variables associated with breastfeeding. These were referred to advantaged family socioeconomic status and higher parental intelligence.

It was recently reported (Huang and colleagues), that the above-mentioned hypothesis focused on the data from 2,784 children, who were initially aged 0 to 12 years and assessed up to three times on cognitive ability over a study period of 10 years. Breastfeeding was modeled as a dichotomous predictor of children's cognitive ability test scores at each assessment wave, adjusting for relevant covariates. The results of the study showed that children who had been breastfed had significantly higher initial intelligence test scores than those who had not been breastfed. Oppositely, beyond that breastfeeding was not associated with cognitive growth trajectories. It was shown that there was no difference in cognitive development between breastfeeding and not breastfeeding children, supporting the nutritional benefits hypothesis, even though the initial breastfeeding gap persisted over time. Additionally, reports by other authors also concluded that breastfeeding had a 'true' effect on cognitive development.

Although positive benefit of breastfeeding was found by using propensity score matching, the effect size was modest in practical terms. No support was found for statistically significant gains at age of 5 years, suggesting that the earlier observed benefit from breastfeeding may not be maintained once children enter school.

Period of feeding more than 4 months had a significant of adaptability and communication. Additionally, it was reported a connection between breastfeeding and mastery of developmental milestones including polysyllabic babbling increased length. The study was supported by the findings in a New Zealand report that showed benefits and domains of intelligence, comprehension and expression when the infants were also breastfed for the same duration. For infants who had not been breastfed it was found a significant delay in developmental for gross motor skills.

The effect of human milk on cognitive development

Many empirical studies focused on investigations about early breastfeeding in early life benefits result in later cognitive development. Relation with breastfeeding and cognition are thought to be because of the existence of long-chain polyunsaturated fatty acids (PUFA), which are

present in human breast milk but not in milk from animals or common formula, enhancing neurodevelopment. In another study, it was suggested that in humans when all infants were breastfed, genetic variants could have influenced individual differences in intelligence.

To explore the effect of human milk, a study of a cohort of adolescents who had participated in a large randomized trial examining the health and developmental effects of early infant nutrition, conducted between 1982-5. In exploratory analyses, those receiving breast milk, after allowing for confounding factors, had an 8,3-point IQ advantage at 7-8 years. A subset of this cohort has been followed to 13-19 years of age for MRI scanning and cognitive testing. Data collected on these subjects where in the neonatal unit provided precise information on the volumes of breast milk consumed (via nasogastric tube), giving a rare opportunity to explore the potential dose response effect of breast milk feeding on brain volumes and cognition at adolescence. It is important to note that all neonatal data were recorded for this study at the time and were not obtained retrospectively from charts. Although some IQ data for the larger group had been reported previously, neither IQ data for this group nor information regarding breast milk in the diet had been published.

Many current studies suggested two factors, the now likely causal relationship between breast feeding and cognition and the previous observation that cognitive scores in preterm babies were related to head circumference and brain size measured by quantitative volumetric analysis of MRI scans. Have in mind this background, it was examined the relationships between breast milk feeding, cognition and brain volume determined from MRI scans. The authors purpose that there was evidence for the hypothesis that cognitive benefits of breastfeeding are mediated though an effect on brain growth, ultimately influencing mature brain volume. In another study, it was found that the duration of exclusive breastfeeding has a significant impact on cognitive development without compromising growth among children born small for gestational age. These data suggested that mothers should breastfeed exclusively for 24 weeks to enhance cognitive development.

In addition, it is reported that breastfeeding protects children against gastrointestinal and respiratory infections because of each immune protection effect. Recurrent infections are thought to be very harm full to children’s social development and consequently each cognitive development.

In conclusion, human milk is unique for human babies and exclusively contains polyunsaturated fatty acids. The latter is significantly correlated with human brain development, head circumference as well as brain volume as evaluated with MRI.

The relation between socioeconomic and educational status of breastfeeding mothers with psychosocial outcome of their infants

There is grade evidence to support a possible link between breastfeeding and the psychosocial development of children resulting in adolescent as well as the adulthood obesity, the latter is associated with damaging the self-image.

During the first year of life, breastfeeding is obviously related to psychosocial development. In a study by Horwood, it was presented a follow up of children from birth to 18 years. This study showed a relationship between breastfeeding and socially adept status. The author underline the longer the babies' well breastfed the better psychosocial outcome was found in comparison to those bottle–fed.

In another study focused on psychosocial benefits in relation to breastfeeding it was suggested that there is no easy way to approach these relations. The pathways by which breastfeeding affects psychosocial and emotional development are difficult to be explained and are not always unidirectional. Possible maternal educational status is one main factor which is closely associated with the practice of breastfeeding, as well as it is correlated with psychosocial development. Environmental factors are interesting and are associated of the place of mothers living. Engle et al reported that maternal place is one of the main environmental factors affecting breastfeeding followed by cognitive development of the infants.

Obviously, breastfeeding may be particularly important for the cognitive development of preschool children born small for gestational age. In contrast, breastfeeding was not associated with any crude IQ advantage or difference in neurological soft signs in children at 9 years. The greater IQ score associated with breastfeeding is accounted for by confounding, with maternal and socio-economic characteristics particularly important.

Results on a total of 1218 breastfed children were followed up, median duration being 12 weeks. Before adjustment, breastfeeding was significantly associated with higher total, verbal and visual IQ scores and increasing duration was significantly correlated with IQ scores. Total IQ was 5,49 points higher in breastfed children (P

Despite their intentions to breastfeed, women with high pre-pregnancy body mass index (BMI) had psychosocial characteristics associated with poor breastfeeding outcomes. However, these characteristics did not fully explain the association between maternal obesity and breastfeeding outcomes. On this point, we may suggest that it could be related not only to socio economic but also educational status as well as environmental effect on the child.

Socio economic and educational status of mothers can be characterized as environmental factors implicated with cognitive development of an infant. Consequently, we may consider that it is not only breastfeeding, the quantity and quality of human milk but also the mentioned environmental factors, associated with parents, as essential factors for the cognitive

development of the child.

Conclusion

In conclusion, breast feeding seems to play a very significant role in cognitive development. It is recommended mothers especially those who live under low socioeconomic status to breastfeed their infants for better outcome. Additionally, PUFA which are exclusively contained in human milk are very important in brain function, as mention above. Similarly breastfeeding is associated with the prevention of gastrointestinal and a respiratory infection as well as it is important for the normal body weight of children thus avoiding obesity. It is well known that obesity is strongly correlated with the presence of cardiovascular disorders and diabetes mellitus (type 2). Over all, breastfeeding plays a significant role not only in cognitive development but also in the prevention of many above mentioned diseases.