**INTRODUCTION**

Breastfeeding is a natural process of providing adequate nutrients for infants in order for them to achieve ideal growth and development. Pediatric nutrition is an important subject in dietetics. As future dietitians, it is our role to recommend the optimal nutrition during infancy.

Numerous studies have attempted to explain the association between breastfeeding in relation to cognitive and psychosocial abilities. In the same vein, a large and growing body of literature has investigated the impact of breastfeeding on body mass index (BMI), however, few studies have examined the three outcomes together in a single study, up to our knowledge none of which had been conducted in our region.

**Objective** To examine the difference between intelligence quotient (IQ), social intelligence (SI) and body mass index (BMI) among girls with different types of feeding completely breast-fed, bottle-fed and mixed feeding.

**METHODS**

**Study design**

A cross-sectional study was conducted on 111 Saudi girls students (ages 7-9 years) from nine government and private schools in Dammam city. Subjects with hearing and sight problems, mental disorder, preterm, and those who live away from their mothers were excluded.

**Data collection**

- Raven's Colored Progressive Matrices (RCPM)
- Vineland Social Maturity (VSMS)
- Assessing mental intelligence quotient
- Assessing Social intelligence

**Anthropometric measurement**

Weight in Kg and height in cm where measured for all children. The body mass index then was assessed using CDC growth chart.

**Statistical analysis** was done by SPSS program and Pearson's Chi-squared test.

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**RESULTS**

<table>
<thead>
<tr>
<th>Number of Participants</th>
<th>Breast Feeding</th>
<th>Bottle Feeding</th>
<th>Mixed Feeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>22</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Mean Age (yr)</td>
<td>7.6</td>
<td>7.8</td>
<td>7.3</td>
</tr>
<tr>
<td>Mean Weight (Kg)</td>
<td>35.5</td>
<td>30.33</td>
<td>30</td>
</tr>
<tr>
<td>Mean Height (cm)</td>
<td>131.6</td>
<td>134.6</td>
<td>137</td>
</tr>
<tr>
<td>Mean BMI</td>
<td>16.3</td>
<td>16</td>
<td>17</td>
</tr>
</tbody>
</table>

**Economic Status**

- Low (<1000): 6
- Moderate (1000-10000): 17
- High (>10000): 14

**Iron Supplementation**

- Yes: 26
- No: 11

**Schools**

- Private: 12
- Government: 25

**Mother Education Frequency**

- No education: 1
- Elementary: 1
- Intermediate: 4
- High school: 14
- College: 14
- Higher graduate: 3

**Region Frequency**

- Eastern: 21
- Western: 16

**Table 1: Characteristics of participants.**

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**DISCUSSION**

This study shows the proportion of subjects with above average IQ, high SI (>140) and normal BMI were more among breastfed group than bottle-fed group (35% vs 23%; P=0.479, 78% vs 55%; P= 0.066, 68% vs 41%; P= 0.045 respectively).

Although sample size was small, Mixed-fed children group was the only group that had gifted children, and bottle-fed children was the only group that showed children with SI category 80-90. This finding raises a flag to further investigate. Our main limitation was that the question in the survey for the mixed-feed group, we limited the choices to six months, while some mother breast feed for 4 months. This could have affected our analysis when comparing with the mixed-feed group.

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**CONCLUSION**

Breastfed group showed relatively higher IQ, SI and significantly more normal BMI children compared to bottle-fed group. Even so, the results were not significant. Mixed-fed group had the highest results among the three groups. However, this may be due to the larger sample size of mixed-fed group compared to breast and bottle-fed groups.

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**CLINICAL RELEVANCE**

Obesity is an epidemic problem nowadays. In agreement with Yan et al, breast-feeding is associated with normal body weight. As for IQ and SI it is too soon to come to a conclusion, further analysis is required.

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**REFERENCES & CONTACT**

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