Discussion

Discussion about Review of Literature:
Developmental delay; a condition being not completely described in Ayurvedic text is considered as Anukta Vikara & all the principles described to treat Anukta Vikara were kept into consideration. Efforts were made to recognize diagnostic Triad of Anukta Vikara; Dosha, Samutthan & Adhisthna in Developmental delay. [1] Focusing on presenting symptoms identification of involved Dosha was concluded which turns out to be predominantly Vata Dosha. Hence Vata Prakopaka Hetu were kept in to consideration while forming questionnaire for assessment. Along with it Samhitas were also explored for finding references for formation of Prakrutha & Vikrutha Garbha.

A large no of reference are found in Ayurvedic Text to elaborate formation of Prakrutha garbha[2] & a whole lot of Practices (Garbhini Paricharya) are described to avoid creation of Vikrutha Garbha[3].

These Factors can be grouped as Pre natal & Antenatal factors as follows.

Prenatal factors [2] [3] [4]:

- Atulya Gotra
- Beeja dushti - Shukra dushti
- Beeja dushti - Aartav Dushti
- Aashaya Dushti (Genital organ)
- Aatma Karma
- Age of Mother
- Age of Father.
- Beeja Bhaga Dushti[5]


- Aaharatmaka
- Viharatmaka
- Manasika bhava
- Dauhrida avaman
- Akal Aavi Pravartan
Discussion

After detailed evaluation, it is observed that the majority of factors to be avoided during pregnancy are similar to those of Vata Prakopaka Hetu, which is summarized in Table 1 as follows.

Table 1: Compilation of Garbha - Upghatkar bhav with Vata Prakopaka Hetu [12] [13] [14]

<table>
<thead>
<tr>
<th>Factors</th>
<th>Garbha Upghatkar Bhava</th>
<th>Vata Prakopaka Hetu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vyayam</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Vyavaya</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Langhana/ Apatarpana</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Ratri Jagrana</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Diva swapa</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Yaana Arohan</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Vega Vidharana</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Shoka</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Krodha (Manasika Bhava)</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Bhaya (Manasik Bhava)</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Utkat Visam Aasan</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Katu Rasa Excess sevan</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Tikta Rasa Excess Sevana</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Kashaya Rasa Excess sevana</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

Causes like Madyapana (Alcohol), Mamsahar sevana (Non-veg food), & Uttan shayan are not included under Vata Prakopaka category but are described by all four Acharya to be avoided during pregnancy.

Thus both the important elements to be probably responsible for Garbha viktruti & thus Developmental delay were assessed simultaneously.
Discussion

Discussion About clinical Observations:

In this study entitled ‘Etiological assessment of developmental delay in children with Ayurvedic Perspective’ a total of 256 Respondent were observed.

Developmental delay is a broad spectrum Condition with involvement of different areas & with different clinical picture.

Experience of developmental evaluation clinics have shown that nearly 50% of referral for developmental delay are without any specific clinical diagnosis. Following are the observation regarding diagnosis of developmental delay in present study in which children having developmental delay without any specific diagnosis were estimated to 46 %, which correlates to above reference.

Table: 2 Frequency Of Diagnosis Base = 256

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asd &amp; Autism Spectrum Disorder</td>
<td>52 (20)</td>
</tr>
<tr>
<td>Cerebral Palsy</td>
<td>61 (24)</td>
</tr>
<tr>
<td>Down's syndrome</td>
<td>23 (09)</td>
</tr>
<tr>
<td>Pierre Robin syndrome</td>
<td>02 (01)</td>
</tr>
<tr>
<td>Turner Syndrome</td>
<td>01 (0.00390)</td>
</tr>
<tr>
<td>Developmental Delay</td>
<td>133 (46)</td>
</tr>
</tbody>
</table>

All the Etiological factors observed were classified into Pre natal, Antenatal & Post natal group as given below.

Prenatal factors:

Atulya Gotra (Consanguinity):

Suprajajanan is a very important topic described in detail in Ayurvedic text. Out of various factors discussed Atulya Gotra is first & foremost. Atulyagotra means marriage should be done in that families not having same gotra (Surname) [16]. Thus concept of non-consanguinity is well written and understood in Ayurvedic Text. In
Discussion

Present study H/O consanguinity was found in 18 % Mothers. Chi Square value of consanguinity for fine motor delay in development came 4.7 at degree of freedom 1 which is significant at P < 0.05 (Table 5).

Age Of parents:

For the Utpati of Nirogi Garbha; Age of mother should be above 16 & age of father above 20[7], although no specific upper age limit is described in Ayurvedic text for conception, but it is observed that higher rates of congenital anomalies are associated with increase in mother’s age[17]. In present study age group of mother & father below thirty year of age was found to be 38 % & 60 % respectively whereas age group of mother & father above thirty was 62% & 40 % respectively.

Beeja Dushti:

Beeja Dushti is one important factor causing Vikruti in Garbha[18]. Here Beeja means Shukra & Aartav. Beeja Dushti implies Shukra dushti & Aartava dushti[19] [20]. Any such dushti would lead to difficulty in conception .Thus this factors were assessed indirectly by asking H/o any Treatment needed for conception in parents or not. In case of Females, irregular Menstruation is many times associated with defective ovulation which in turn leads to Infertility[21] Hence Maternal Menstrual History was also assessed.

1. Maternal Menstrual history for Regularity: It was found to be regular in 79% of & Irregular in 21% of Mothers, Statistically not significant in current study.
2. H/o of Treatment for conception needed or not needed in both Parents.

Beeja Bhagavaya Dushti[22] :

Fraction part of Beeja is called Beeja Bhagavayava which is responsible for formation of various Avayava. Any dushti in Beeja bhagavayav can lead to structural defects & such chromosomal anomalies are associated with repeated spontaneous abortions. This factor was evaluated by the H/o repeated abortion in mother. It was found to be positive in study only in 4% of Mothers & Statistical Test could not be applied to it.
Discussion

Aatma Karma $^{[22]}^{[23]}$: 

It is nothing but Actions done in Past life. Assessment of this factor was not done in the study because it was out of scope of this study to prove Punarjanma.

Kaal $^{[24]}^{[25]}$: 

Another factor responsible for Garbha Vikruti is Dushita Kaal. It is a broad terminology which is classified into two major classes: Samvatsara & Avasthika Kaal.

Samvatsar kaal defines Time duration of entire year which is further divided into different kaal depending upon seasonal variation into Two (Visarga & Aadan Kaal), Three (Sheeta, Ushna & Varsha), Six (Seasons) & 12 (Months) Types.

Avasthika kaal: Depending upon Patients Avastha (Condition/ Stage of disease) it is characterized & it helps in fine tuning line of treatment for patient.

Hence in context with Garbha Vikruti Samvatsar Kaal was taken as Kaal. In present study 20.70 % Children were born in Varsha Rutu, 14.84% in Sharad Rutu, 14.06 % in Hemanta Rutu, 19.53 % in Vasanta Rutu, 12.10 % in Grishma Rutu & 18.75 in Pravrut Rutu.

Antenatal Factors:

Garbhini Aahar – Vihar:

Practicing unhealthy Gaabhini Paricharya is another important risk factor for Vikruta Garbha Utpatti. A clear cut reference found in Ashtang Samgraha states that if a pregnant females consumes Vata Prakopak aahar $^{[26]}$ - Vihar then the corresponding off spring can suffer from Jadata, Panguta, Mukata, Gad-gadatva, Minminatva, Vamanata, Hinang, Adhikang & any other Vata dosha related Vyadhi. In present study mothers were asked for Antental history and following Factors were assessed in three category. Aahar related, Vihar related & Manasika bhava.

1) Modification in Diet Habits: Nutritional requirement of pregnant females increases during pregnancy which needs modification in diet. Also from Ayurvedic Perspective change in life style is expected during pregnancy. This Factor was observed for change in Diet Habit modification during pregnancy.
Discussion

In this Study only 14% of Mother did Change in their diet habits during pregnancy.

2) Consumption of Sheet Aahar – Vihar: Sheet gunantmak Aahar – Vihar causes increase in Vata dosha. This factor was observed in following area & Positive response in more than 3 factors was counted as Positive for Sheet Aahar.
   - Temperature of food eaten
   - Consumption of Paryishut-anna (Stale food)
   - Consumption of food directly eaten from Refrigerator (Cold food)
   - Ice-cream eating history
   - Use of AC during Pregnancy

3) Consumption of Alpa Aahar: Alpa Aahar consumption can cause increase in Vata dosha by Samnya- Vishesh sidhhant. Alpa Aahar consumption was observed in following way, Frequency of Fasting for more than once /week was considered positive & if two out of three factors positive then result was counted as positive.
   - Keeping Fast/ Upvasa / Roza during pregnancy
   - Frequency of food intake
   - Eating less food than hunger.

4) Consumption of Ruksha Aahar: Ruksha & Laghu Aahar is Aptarpaniya, which should be avoided during Pregnancy. Consumption of Bakery Products like Bread, Biscuits, Toast, Khari, butter & Pav are the food items which can be termed as Ruksh aahar from new life style eating habits which were also observed in study along with classical Ruksha Aahariya Drvya. Following were the points observed in study.
   - Virudhaka yaahar
   - Shushka mamsa
   - Kalaya
   - Chanaka
   - Karira
   - Kalingaka
   - Chibhit
   - Jambava
   - Mudga
   - Mudga daal
Discussion

- Masu rdaal
- Aadhaki daal
- Chana daal
- Harenuka
- Nishpav
- Bis
- Shaluk
- Shushka shaka
- Tinduka
- Trina Dhanya

5) Consumption of one rasa in excess: Shad rasatmak Aahar sevan is one of the prerequisite for healthy eating habit & consumption of any one rasa in excess is as harmful in pregnancy as it is in any other stage of human life.

In Present study it was found to be positive in 53% for consumption of one or the other rasa in excess.

Viharatmaka Hetu:

1) Sleep:

Sleep (Nidra) is an important factor included in Trayo- Upstambha to keep Sharira Nirogi along with Aahar & Brmhacharya\(^2^{27}\).Delayed in sleep or Lack of Sleep is considered as Ratri Jagrana, another important cause leading to Vata Prakopa. These three factors were combined together & if mother slept for less than 8 hrs/24 hrs including day & night sleep was considered as Lack of sleep\(^2^{28}\). This was perceived in the study as follows.

- Sleeping hrs of mother - sleeping after 10 pm was considered late and hence positive.
- Sleeping duration of mother - if less than 8 hrs - positive
- Day time sleeping – was included in total hrs of sleep along with night sleep.

2) Vyayam:

Vyayam is a good Upkara for Langhana which is not required during pregnancy because it is one of the element that increases Vata dosh\(^2^{29}\). Walking was the type of exercise practiced by most Respondents. It was
Discussion

counted as positive when history of Vyayam for more than 150 mins/week [30].
In the present study positive history came in 57% of respondent.

3) Vyavaya: Another important factor to be avoided during pregnancy described by all Acharya is Vyavaya [31]. It is a known Hetu causing Vata Prakopa by doing Dhatukshaya. Finding of Vyavaya in study are described in table 5

4) Travelling: Travelling is related to Motion or Gati, A word which is used to derive ‘Vata’[32] & it is another significant element leading to Vata Prakopa. In the present study 65% Respondent gave positive history of travelling for more than half an hr / week.

5) Fall/Injury/ Marmaghat: Fall or injury during pregnancy is as fatal to fetus as it is for mother. The observations from the study were 23% respondent gave positive history of fall or injury during pregnancy.

6) Dauhrida Avaman [33][34][35][36]:

Dauhrida is the unique concept in which after the formation of heart, fetus expresses his desires through mother, which if remain unfulfilled leads to vitiation of Vata dosha and intern disease in Garbha In present study only 7% respondant gave positive history of Dauhrida avaman.

Akaal Avi Pravartan[37][38]:

Proper Bearing down when strong contractions comes, cannot be evaluated retrospectively. Hence this factor could not be evaluated in current study.

Manasika Bhava:

Body & mind are interrelated. Any imbalance in one site causes disturbance in other too. Specific Manasika Vegas to be avoided during pregnancy are Chinta, Bhaya, Krodha, Shoka, Utkantha. Udiran in any of these bhava can cause Vata Prakopa in Mother & disease in child. Following are the observation of Manasika bhava in this study. 43% of Respondent gave positive history of vega udirana of one of the Manasika bhava.

Watching Television has impact on human emotions. In this study it was observed that 79% watched tv for more than 2 hrs /day. Majority of them have watched daily
Discussion

soaps focusing on melodrama stories & such shows can also cause Udiran of above bhava in the subject. But statistically results were not significant.

Natal Factors:

Birth is an important event in a child’s life & so is uneventful natal history. Natal history was found in the study as follows.

Table 3: Natal History

<table>
<thead>
<tr>
<th>Natal Factor</th>
<th>Frequency ( Base =256) %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Place of Birth</strong></td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td>229 (89)</td>
</tr>
<tr>
<td>Home</td>
<td>18 (07)</td>
</tr>
<tr>
<td>Corridor</td>
<td>05 (02)</td>
</tr>
<tr>
<td>On the way</td>
<td>04 (02)</td>
</tr>
<tr>
<td><strong>Maturity of child at birth</strong></td>
<td></td>
</tr>
<tr>
<td>Pre term</td>
<td>85 (33)</td>
</tr>
<tr>
<td>Term</td>
<td>165 (64)</td>
</tr>
<tr>
<td>Post term</td>
<td>06 (02)</td>
</tr>
<tr>
<td><strong>Mode of delivery</strong></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>149 (58)</td>
</tr>
<tr>
<td>LSCS</td>
<td>96 (38)</td>
</tr>
<tr>
<td>Forceps</td>
<td>06 (02)</td>
</tr>
<tr>
<td>Vacuum</td>
<td>05 (02)</td>
</tr>
<tr>
<td><strong>H/o Multiple birth</strong></td>
<td></td>
</tr>
<tr>
<td>Singleton</td>
<td>251 (98)</td>
</tr>
<tr>
<td>Twins</td>
<td>05 (2)</td>
</tr>
</tbody>
</table>

Post Natal:

Post natal events like hypoxic attack can have major impact on the future development of the child. Following factors were observed in this study.

Table 4: Natal History
Post Natal Factor | Frequency ( Base =256)
--- | ---
Birth Asphyxia  
Yes | 171 (33)
No | 85 (67)

Birth weight (In Kilograms) :  
< 1.5 | 15 (06)
Between 1-5 to 2.49 | 55 (21)
Between 2.5- 3.49 | 166 (65)
> 3.5 | 20 (08)

Birth cry :  
CIAB | 171 (67)
DNCIAB | 85 (33)

H/o NICU Admission  
Yes | 102 (40)
NO | 154 (60)

The calculation of chi square for various factor is shown in below table.

Table 5: $x^2$ value for various etiological factors for different area of development.
With Degree of freedom at 1

<table>
<thead>
<tr>
<th>Etiological factor</th>
<th>X2 value for Gross motor</th>
<th>X2 Value for Fine motor</th>
<th>X2 Value for Language</th>
<th>X2 Value for Social</th>
<th>X2 Value for GDD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consanguinity</td>
<td>2.80</td>
<td>4.77</td>
<td>0.27</td>
<td>2.11</td>
<td>0.42</td>
</tr>
<tr>
<td>Age of mother</td>
<td>6.42</td>
<td>0.031</td>
<td>0.28</td>
<td>1.39</td>
<td>0.38</td>
</tr>
<tr>
<td>Age of father</td>
<td>4.20</td>
<td>7.29</td>
<td>1.55</td>
<td>0.01</td>
<td>3.59</td>
</tr>
</tbody>
</table>
Discussion

<table>
<thead>
<tr>
<th></th>
<th>2.84</th>
<th>0.07</th>
<th>0.60</th>
<th>0.19</th>
<th>2.84</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MMH</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Birth Asphyxia</strong></td>
<td>15.54</td>
<td>10.37</td>
<td>1.38</td>
<td>4.40</td>
<td>2.85</td>
</tr>
<tr>
<td><strong>H/O Abortion</strong></td>
<td>0.23</td>
<td>0.32</td>
<td>0.15</td>
<td>2.85</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>Ruksha Aahar</strong></td>
<td>18.82</td>
<td>16.98</td>
<td>4.80</td>
<td>6.02</td>
<td>2.56</td>
</tr>
<tr>
<td><strong>Sheeta Aahar</strong></td>
<td>1.58</td>
<td>0.25</td>
<td>0.59</td>
<td>1.17</td>
<td>3.32</td>
</tr>
<tr>
<td><strong>Vihar</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Alpa Aahar</strong></td>
<td>5.58</td>
<td>0.12</td>
<td>0.41</td>
<td>1.56</td>
<td>0.18</td>
</tr>
<tr>
<td><strong>Vyayam</strong></td>
<td>0.56</td>
<td>20.91</td>
<td>0.40</td>
<td>0.80</td>
<td>0.80</td>
</tr>
<tr>
<td><strong>Vyavaya</strong></td>
<td>1.90</td>
<td>15.79</td>
<td>15.10</td>
<td>10.13</td>
<td>7.20</td>
</tr>
<tr>
<td><strong>Sleep</strong></td>
<td>6.00</td>
<td>5.08</td>
<td>0.23</td>
<td>0.14</td>
<td>3.92</td>
</tr>
<tr>
<td><strong>Travelling</strong></td>
<td>0.83</td>
<td>0.09</td>
<td>4.99</td>
<td>5.71</td>
<td>0.99</td>
</tr>
<tr>
<td><strong>Manasika</strong></td>
<td>0.09</td>
<td>7.55</td>
<td>2.07</td>
<td>0.90</td>
<td>5.10</td>
</tr>
<tr>
<td><strong>Bhava</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>T.V. watching</strong></td>
<td>2.87</td>
<td>0.11</td>
<td>0.002</td>
<td>0.25</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Evaluation of the Result assessed from chi square test:

**Consanguinity:**

Chi Square value of consanguinity for fine motor delay in development came 4.7 at degree of freedom 1 which is significant at P < 0.05 (Table 5).

Value of Chi square for Consanguinity in all other area of development was below 3.8 At Degree of freedom 1 which means it is not significant.
Discussion

Age of mother:

Chi Square value of Age of mother for Gross motor delay in development came 6.42 at degree of freedom 1 which indicates it is significant at $P < 0.05$ (Table 5).

Value of Chi square for age of mother in all other area of development was below 3.8 At Degree of freedom 1 which means it is not significant.

Age of Father:

Chi Square value of Age of Father for Gross motor delay in development came 4.20 at degree of freedom 1 which indicates it is significant at $P < 0.05$ (Table 5).

Chi Square value of Age of Father for Fine motor delay in development came 7.29 at degree of freedom 1 which indicates it is significant at $P < 0.01$ (Table 5).

Value of Chi square for age of Father in all other area of development was below 3.8 At Degree of freedom 1 which means it is not significant. (Table 4 & 5)

Birth Asphyxia:

Chi Square value of Birth Asphyxia for Gross motor delay in development came 6.42 at degree of freedom 1 which indicates it is significant at $P < 0.05$ (Table 5).

Chi Square value of Birth Asphyxia for Fine motor delay in development came 6.42 at degree of freedom 1 which indicates it is significant at $P < 0.05$ (Table 5).

Chi Square value of Birth Asphyxia for delay in Social development came 6.42 at degree of freedom 1 which indicates it is significant at $P < 0.05$ (Table 5).

Value of Chi square for Birth Asphyxia in all other area of development was below 3.8 At Degree of freedom 1 which means it is not significant. (Table 4 & 5)

Ruksha Aahar:

Chi Square value of Ruksha Aahar for Gross motor delay in development came 18.82 at degree of freedom 1 which indicates it is Highly significant at $P < 0.001$ (Table 5).

Chi Square value of Ruksha Aahar for Fine motor delay in development came 16.98 at degree of freedom 1 which indicates it is Highly significant at $P < 0.001$ (Table 5).
Discussion

Chi Square value of Ruksha Aahar for delay in Language development came 4.8 at degree of freedom 1 which indicates it is significant at P < 0.05 (Table 5).

Chi Square value of Ruksha Aahar for delay in Social development came 6.01 at degree of freedom 1 which indicates it is significant at P < 0.05 (Table 5).

Value of Chi square for Ruksha Aahar in Global Developmental Delay was below 3.8 At Degree of freedom 1 which means it is not significant. (Table 4 & 5)

Alpa Aahar:

Chi Square value of Alpa Aahar for delay in Gross Motor development came 5.58 at degree of freedom 1 which indicates it is significant at P < 0.05 (Table 5).

Values of Chi square for Alpa Aahar in all remaining area of development were below 3.8 At Degree of freedom 1 which means they were not significant. (Table 4 & 5)

Vyayam:

Chi Square value of Vyayam for Fine motor delay in development came 20.90 at degree of freedom 1 which indicates it is Highly significant at P < 0.001 (Table 5).

Values of Chi square for Alpa Aahar in all remaining area of development were below 3.8 At Degree of freedom 1 which means they were not significant. (Table 4 & 5)

Vyavaya:

Chi Square value of Vyavaya for Fine motor delay in development came 15.79 at degree of freedom 1 which indicates it is Highly significant at P < 0.001 (Table 5).

Chi Square value of Vyavaya delay in Language development came 15.10 at degree of freedom 1 which indicates it is Highly significant at P < 0.001 (Table 5)

Chi Square value of Vyavaya for delay in Social development came 10.13 at degree of freedom 1 which indicates it is significant at P < 0.01 (Table 5).

Value of Chi square for Vyavaya in Global Developmental Delay came 7.20 at degree of freedom 1 which indicates it is significant at P < 0.01 (Table 5).

Value of Chi square for Vyavaya in Gross area of development was below 3.8 At Degree of freedom 1 which means it was not statistically significant. (Table 4 & 5)
Discussion

Sleep:

Chi Square value of Sleep for delay in Gross Motor development came 6.00 at degree of freedom 1 which indicates it is significant at \( P < 0.05 \) (Table 5).

Chi Square value of Sleep for delay in Fine Motor development came 5.08 at degree of freedom 1 which indicates it is significant at \( P < 0.05 \) (Table 5).

Chi Square value of Sleep for delay in Global Developmental Delay came 3.92 at degree of freedom 1 which indicates it is significant at \( P < 0.05 \) (Table 5).

Values of Chi square for Sleep in all remaining area of development were below 3.8 At Degree of freedom 1 which means they were not significant. (Table 4 & 5)

Travelling:

Chi Square value of Travelling for delay in Language development came 4.99 at degree of freedom 1 which indicates it is significant at \( P < 0.05 \) (Table 5).

Chi Square value of Travelling for delay in Social development came 5.71 at degree of freedom 1 which indicates it is significant at \( P < 0.05 \) (Table 5).

Values of Chi square for Travelling in all remaining area of development were below 3.8 At Degree of freedom 1 which means they were not significant. (Table 4 & 5)

Manasika Bhava:

Chi Square value of Manasika Bhava for delay in Fine motor development came 7.55 at degree of freedom 1 which indicates it is significant at \( P < 0.05 \) (Table 5).

Chi Square value of Manasika Bhava for delay in Global developmental Delay came 5.10 at degree of freedom 1 which indicates it is significant at \( P < 0.05 \) (Table 5).

Values of Chi square for Manasika Bhava in all remaining area of development were below 3.8 At Degree of freedom 1 which means they were not significant. (Table 4 & 5)

Table 6: Chi square value of Etiological factors with affected area along with Level of significance:
<table>
<thead>
<tr>
<th>Etiological factor</th>
<th>Area of development</th>
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### Discussion

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GM = Gross motor, FM = fine motor, LA= Language, So = Social delay, GDD = Global Developmental delay. S= Significant, HS= Highly Significant

**Discussion based on above statistical analysis:**

Thus from all the above findings it is evident that Developmental delay is a multidimensional entity & so is Vata Prakopaka Aahar Vihar.

It was also observed that impact of one factor on all different area of development was not same.

**Various etiological factors have statistically significant impact on Different Domain of Developmental Delay.**

As compared to Prenatal & Post natal factors, more no. of Antenatal factor are statistically significant.

Statistically Significant effect of Etiology on different domain of Development is observed as follows.
Discussion

Gross motor & statistically significant Etiological factors:

Etiological factor - Chi Square Value

- Age of mother – 6.42
- Age of father - 4.20
- Birth Asphyxia – 4.40
- Ruksha Aahar – 18.82
- Alpa Aahar – 5.58
- Sleep – 6.00

Fine motor & statistically significant Etiological factors::

- Consanguinity – 4.77
- Age of father – 7.29
- Birth Asphyxia – 10.37
- Ruksha Aahar – 16.98
- Sleep – 5.08
- Vyayam – 15.79
- Vyavaya – 5.08
- Manasika Bhava- 7.55

Language & statistically significant Etiological factors::

- Ruksha Aahar – 4.80
- Vyavaya – 15.10
- Travelling- 4.99

Social development & statistically significant Etiological factors::

- Birth Asphyxia – 4.40
- Ruksha Aahar – 6.01
- Vyavaya- 10.13
- Travelling – 5.71

Global Developmental Delay & statistically significant Etiological factors:

- Vyavaya – 7.20
Discussion

- Sleep- 3.92
- Manasika Bhava- 5.10

[Probability of Larger Value of $x^2$ at degree of freedom 1 at $P < 0.05$ is 3.84, $P < 0.01=6.63$ & $P < 0.001 = 10.83$.]

Thus individually fine motor delay was the area of development where maximum etiological factors were statistically Significant & Delay in language development had least causes that were statistically significant. Three factors that had statistically significant association with Global Developmental delay are Sleep, Vyavaya & Manasika bhava.

Another important finding can be drawn from these results is whatever may be the Viprakrushta Hetu, Dominant Sannikrusta Hetu in all Developmental Delay remains Vata Prakopa.

As very rightly said by author Elizabeth, most important part of any research is its application. Developmental delay is a burden not just for family but for entire society. Be it called ‘Differently able’ or ‘Divyang’ the aim should be reducing the incidence of the disease. It can be reduced by preventing avoidable causes. Statistically significant causes can be categorized into Avoidable & unavoidable causes as follows.

**Unavoidable causes:**

Birth asphyxia

Travelling: In some cases like working women, travelling could not be avoided in urban area. But Travelling for Leisure Purpose must be avoided.

**Avoidable causes.**

These causes can be avoided by applying simple practices before & during conception, during pregnancy & Post labour care.

- Consanguinity: Spreading awareness about marriages not to be done with immediate blood relatives is a effortless but effective avoidable cause.
- Doing modification in diet habits & practicing healthy eating habits during Pregnancy is very simple factor.
Discussion

- Doing any kind of Fasting (Religious or non-religious purpose) can be avoided.
- Ruksha Aahar & bakery products: Consumption of Bakery Product was found very extensively in the study especially as breakfast meal, this should be replaced by homemade nutritious cost effective food items.
- Sleep: Timing of sleeping hrs & duration especially in urban area is another factor that can be easily modified.
- Vyavaya: Avoiding Vyavaya can also be a simple avoidable cause.
- Manasika bhava:
  Practice of Achar Rasayana, following advices described in Sadvriuta, practicing mediation etc will help in reducing ill effect Of Manasika bhava. Similarly activity like TV watching or screen activity that can cause emotional disturbance should be avoided or at least reduced.
- These avoidable factors can be taught & practiced in society through Mass awareness Programs.

Excessive indulgence of anything; food eating habits or any activity is fatal & keeping a balance is the key to healthy life. Following simple life style modification as illustrated in Ayurvedic classics as Garbhnini Paricharya can be the solution in reducing this condition. Propagation of such custom can be made aware in society through mass awareness program.
References:

Discussion


30. www.who.int/dietphysicalactivity


