ETIOLOGICAL ASSESSMENT OF DEVELOPMENTAL DELAY IN CHILDREN WITH AYURVEDIC PERSPECTIVE

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Submitted By

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Under the Guidance of

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DECLARATION

I hereby declare that the thesis entitled ***'Etiological Assessment of Developmental Delay in children with Ayurvedic Perspective'*** completed and written by me has not previously been formed for the award of any Degree or other similar title upon me of this or any other Vidyapeeth or examining body. I understand that if my Ph. D. Thesis (or part of it) is found duplicate at any point of time my research degree will be withdrawn.

Place: **Signature of the Research Student**

Date: **(Dr. Hetal Tilakchand Nagda)**

CERTIFICATE

This is to certify that the thesis entitled *'**Etiological assessment Of Developmental Delay in children With Ayurvedic Perspective'*** which is being submitted herewith for the award of the degree of Vidyavachaspati (Ph.D.) in **Kaumarbhritya** in the **Dept. of Ayurveda** of Tilak Maharashtra Vidyapeeth, Pune is the result of original research work completed by **Dr. Hetal Tilakchand Nagda** under my supervision and guidance. To the best of my knowledge and belief the work incorporated in this thesis has not formed the basis for the award of any Degree or similar title of this or any other University or examining body upon him.

Place: **Signature of the Research Guide**

Date: **(Dr. Kalpanaben S. Patel)**

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Abstract

INTRODUCTION

Development Specifies maturation of different biological functions at an anticipated age. A child is said to have developmental delay when he/she doesn't attain the specified developmental milestones at the expected age (with the adequate provision for the broad variation among normal children.)

Developmental Delay is one condition not only affecting thinking capacity but also causing physical limitations in child. Statistics from different sources indicate that in India, 3.8 % of the population has some form of disability and the same was found to be more common in the children of lower socio-economic class. According to ICMR task force study carried out at three different centres (Delhi, Jaipur , Lucknow) the prevalence rate of disability among children below 6 year of age was found to be 8.8 per thousand in Delhi , 6.5 per thousand in Jaipur & 12.6 per thousand in Lucknow. In spite of improved understanding of causative factors, in large majority of cases, etiological factors cannot be attributed reliably. Hence there is a need to study this condition from different perspective.

From Ayurvedic perspective Developmental delay falls into 'Anukta Vikara' category where in direct references are not found in the Ayurvedic classics presenting all the aspects of this condition. To simplify the complexity of Anukta Vikara the key is to understand its Diagnostic Triad viz Dosha, Samutthan & Sansthan of Vikara. Samutthan or Hetu is also the important aspect of any disorder which is one of the features of Panchanidaan, its identification & prevention (Nidan parivarjan) becomes first line of treatment.

Clinical symptoms of Phakkaroga, in which child is not able to walk by the age of one year; correlates partially with Delay in Gross motor development. To understand other domain of Developmental delay, Samhitas were explored for finding references about formation of Prakruta Garbha, Vikruta Garbha Uttpatti & Various Garbha-Upghatkar bhava. These references were utilized in identifying Etiological factors. Nidaan of Phakkaroga were also taken in to consideration.

Compilations of all such Hetu from Ayurvedic Samhita were done & they were further categorized in Prenatal, Antenatal & Post natal category. These Factors were the base in forming questionnaire.

A total of 256 children suffering from Developmental Delay were diagnosed with the help of Denver Developmental Screening test (2^{nd} edition) & were subjected to questionnaire prepared to identify any such Hetus present in them. Data thus collected were analyzed with statistical test.

In This manner identification & assessment of Hetu or Samutthan, the etiological factor of Developmental delay might prove a vital step in diagnosing this condition from Ayurvedic perspective, which was the intention of this study.

Methodology

- Study design : Survey type of study
- Study Type: Clinical observational
  Sampling:
  - Sample size – Optimum Sample was calculated by using the formula with approximation for large population which came out as 228. Ultimately data were collected for 256children (out of 289 children)
  - Sample collection - Stratified Open Sampling.
  - Stratification: (Minimum required 76 Patients in each group)
    - Age Group Birth to 2 years – 86 patients
    - Age Group 2 to 4 years – 82 patients
    - Age Group 4 to 6 years – 88 Patients

Inclusion Criteria:

- Children suffering from Neurological Developmental delay in any of Sub group; motor, fine motor, Language and social Development.
- Developmental assessment was done with Denver Developmental screening test (2^{nd} edition) (Denver II)
- Age Eligible: Birth to 6 years.
- Gender – Either

Exclusion criteria:

- Children having Progressive Encephalopathy.
- The respondents who didn't give consent, or whose mother was not available to give history or who had adopted children were excluded from the study, since perinatal details were not available.

Observation:

- Questionnaire (Survey Sheet) was Prepared on the basis of different Hetu described in Ayurvedic Samhita;
- The study was conducted to explore the conditions encountered during pre natal, antenatal & post natal period by mother & child, which probably led to Developmental Delay.
- Data were collected by face to face interview of the respondents, where Mothers were the respondents.
- Records of children were also referred for data including birth details & other investigations.

Data analysis:

- Chi square test of association was applied on the data collected.

Review of Literature:

- All Samhitas with respective commentaries have been referred.
- Various paediatric books are referred for better understanding of Developmental delay.
- Various journals are referred for Research article for Delayed Developmental entities

Results & Observation:

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

distribution of data was found to be 34 % in the age group birth to 2 years, 32% in the age group to 2 to 4 years & 34 % in the age group 4 to 6 years.

Subjects were observed for Developmental delay in any one or all the four areas such as Delay in Gross motor (73%), Delay in Fine motor (69 %), Delay in Language (87%) & Delay in Personal Social area (85 %). Subjects having significant Developmental delay in two or more than two were termed as Global Developmental delay GDD (91%).

Observations regarding diagnosis of Developmental delay in present study in which children having developmental delay without any specific diagnosis were estimated to 46 %, which correlates with the Textual reference.

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

Prenatal factors:

1. Atulya Gotra (Consanguinity):
2. Beeja Dushti - It is one important factor causing Vikruti in Garbha. Beeja Dushti implies Shukra dushti & Aartava dushti. These factors were indirectly assessed by H/o Treatment needed for conception or not in both parents & Maternal Menstrual History for irregularity.
3. Beeja Bhagavayav Dushti: Fraction part of Beeja is called Beeja Bhagavayava which is responsible for formation of various Avayava. Dushti of this factor was evaluated by the H/o Repeated abortion in mother
4. Aatma Karma**:** 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.
5. Age of Mother.
6. Age of Father.

Antenatal factors:

Garbha- Upghatkar bhava:

Aaharatmaka: following factors were observed in this catgory

- Modification in Diet habits during pregnancy

- Consumption of Sheet Aahar
- Consumption of Alpa Aahar
- Consumption of Ruksha Aahar
- Consumption of one rasa in excess

Viharatmaka: Viharatmaka Hetus were assessed for following factors.

- Sleep
- Vyayam
- Vyavay
- Travelling
- Fall/Injury/ Marmaghata

Manasika bhava: Manasika Bhava were assessed for following elements.

- Chinta
- Bhaya
- Krodha
- Shoka
- Utkantha

Dauhrid Avman (Cravings of mother during pregnancy): Daurhrida 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 in turn diseases in Garbha. In present study only 7 % respondent gave positive history of Dauhrid avaman

Akaal Avi Pravartan:

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

Post Natal Factors:

Natal Factors:

Birth is an important event in a child's life & so is uneventful natal history. Natal history was assessed for following factors

- Place of Birth
- Maturity of child at birth
- H/o Multiple birth
- Mode of delivery

Post Natal Brain Insult:

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

- Birth Asphyxia
- H/o NICU Admission
- Birth cry
- Birth weight (In Kilograms)

Data Analysis:

All the data thus collected were analyzed with the help of Chi square test of Association.

Discussion based on above statistical analysis:

Based on analysis of Data obtained 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. Also as compared to Prenatal & Post natal factors, more no. of Antenatal factor were statistically significant.

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

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
- 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. 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.

Conclusion:

- Delay in development is a multi-factorial condition & there is no single entity described in Ayurvedic Classics that can be directly correlated to this condition completely.
- Gross motor developmental delay can be correlated with Phakkaroga, a disease diagnosed when child doesn't walk by the age of one year.
- Developmental delay thus can be considered as Anukta Vikara. By combining & applying all the principles described to treat Anukta Vikara this condition can be simplified. Dosha, Samutthan & Adhisthan are the diagnostics triad to understand diseases not described in Ayurvedic Text.
- Predominant Dosha Affected in Developmental Delay is Vata Dosha, Specifically Praana Vayu, Udaan Vayu & Vyaan Vayu.
- Etiological factors in Developmental delay can be classified into Pre natal, Antenatal & Post natal category.
- Factors included under Prenatal factors are Atulya Gotra (Consanguinity), Beeja dushti, Beeja Bhagavayav Dushti, Aatma Karma, Age of Parents.
- All the Garbha Upghatkar bhava were included under Antenatal category where in consumption of Vata Prakopaka Aahar vihar causes Vitiation of Vata Dosha thus affecting Growth & development of fetus. They are further sub categorized into Aahar related, Vihar related, Manasika bhava related & Dauhrida avaman related
- Events Related with birth & post natal brain insult are considered as Post natal Hetu.
- Out of a total of 256 patients 46% of children were without any specific clinical diagnosis & 91% of Subjects are having Global Developmental delay which is significant developmental delay in two or more than two domain
- Developmental delay is a multidimensional entity & so is Vata Prakopaka Aahar Vihar.

- ***Each & every etiological factors had different statistically significant impact on Different Domain of Developmental Delay.***
- More no. of Antenatal factors have statistically significant results as compared to Prenatal & post natal factors.
- Statistically significant Association of Etiological factors & Gross motor Delay was Age of mother, Age of father ,Birth Asphyxia ,Ruksha Aahar , Alpa Aahar & Sleep
- Maximum number of Etiological factors found to be statically significant in Fine motor development & they were Consanguinity, Age of father ,Birth Asphyxia, Ruksha Aahar , Sleep, Vyayam ,Vyavaya & Manasika Bhava.
- Three Etiological factors that were Statistically Significant in Language development were Ruksha Aahar, Vyavaya & Travelling.
- In the area of Social development Birth Asphyxia, Ruksha Aahar, Vyavaya & Travelling were statistically significant Etiological factors
- Three factors that had statistically significant association with Global Developmental delay are Sleep, Vyavaya & Manasika bhava.
- 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.

Introduction

"A Model man is the one, who possesses a creative brain, skilful hands and an affectionate heart"

By Sawmi Vivekanand

Above statement stands as valid in pediatric health as it is for spiritual health. Both growth & Development are important aspect of a child's wellbeing, for him to become an effective learner & a better communicator. According to Vedic Philosophy Growth & Development are synchronized and coordinated programme by various biological factors.[1]

Development Specifies maturation of different biological functions at an anticipated age. A child is said to have developmental delay when he/she doesn't attain the specified developmental milestones at the expected age (with the adequate provision for the broad variation among normal children.)

Statistics from different sources indicate that in India, 3.8 % of the population has some form of disability and the same was found to be more common in the children of lower socio-economic class[2]

According to ICMR task force study carried out at three different centres (Delhi, Jaipur , Lucknow) the prevalence rate of disability among children below 6 year of age was found to be 8.8 per thousand in Delhi , 6.5 per thousand in Jaipur & 12.6 per thousand in Lucknow[3]. It is also observed that out of 2.5 % prevalence rate of the Developmental delay /disability among under 5 year children majority had speech & Language problems.[4] Advances in Perinatal care have improved the survival chances of Low birth weight babies, adding to the burden of developmental delay.[5]

Experience of developmental evaluation clinics have shown that nearly 50%of referral for developmental delay are without any specific clinical diagnosis.[6] In spite of improved understanding of causative factors, in large majority of cases, etiological factors cannot be attributed reliably.[7]

Thus reviewing different aspects of Developmental delay from conventional science starting from epidemiology to etiopathogensis and to clinical spectrum it becomes clear that there is an immense necessity to study this topic from different outlook.

From Ayurvedic perspective Developmental delay falls into 'Anukta Vikara' category where in direct references are not found in the Ayurvedic classics presenting all the aspects of this condition. Clinical symptoms of Phakkaroga[8], in which child is not able to walk by the age of one year; correlates partially with Delay in Gross motor development. And Etiological factors of Phakkaroga were also kept into consideration while establishing Nidaana of Developmental delay. But to understand other aspects of this disorder more detail study from Ayurvedic Perspective was required.

To simplify the complexity of Anukta Vikara [9] the key is to understand its Diagnostic Triad viz Dosha, Samutthan & Sansthan of Vikara. Samutthan or Hetu[10] is also the important aspect of any disease which is one the feature of Panchanidan, its identification & prevention (Nidan Parivarjan) becomes first line of treatment.

One of the important parts of this Research was identifying & establishing Etiological Factors for Developmental delay & various reference form Ayurvedic Samhita were explored for the same purpose.

Few references found in Ayurvedic classics highlights factors affecting Prakruta &Vikruta Garbha-utpatti which in turn affects the growth & development of fetus[11].

Another description found in Charaka Samhita Sharira sthan states that Beeja, Aatmakarma (Purvajanmakrut karma), Asshay Dushti (Genital organ Dushti), Kaal dosha, Matru-Aahar vihar dosha can cause dusti in Sansthan, Varna & Indriya Vikruti in fetus [12]. These Vikruti in turn can cause Delayed development in child.

Similarly as stated by Acharya Vriddha Vagbhatt in Ashtanga Samgraha [13] that if a pregnant female follows Vata Prakopaka Aahar – Vihar, then Vitiated Vata Dosha will affect the Garbha (Fetus) & will cause Various Vata disorder in child viz Badhirta (Deafness), Muktva (Unable to speak), Minminatva (Stammering), Gad –gad (Stuttering), Khanja (Limping), Kubjatva (Deformity in body), Vamanatva (Short stature), Hinanga, Adhikanag & other similar Vata Predominant Diseases. These conditions can be correlated with Developmental delay.

Compilations of all such Hetu from Ayurvedic Samhita were done & they were further categorized in Prenatal, Antenatal & Post natal category. These Factors were the base in forming questionnaire.

Disease are nothing but imbalance in dosha & harmony in dosha is considered as diseases free condition.[14] [15] Thus while conducting the study to understand Hetu ; a special importance was also kept pertaining to identifying & Establishing predominant Dosha involvement in this Study.

Thus identification & assessment of Hetu or Samutthan, the etiological factor of Developmental delay might prove a vital step in diagnosing this condition from Ayurvedic perspective, which was the intention of this study..

Hence this study has been undertaken in which A total of 256 children suffering from Developmental Delay in the age group starting from birth till 6 year of life were diagnosed with the help of Denver Developmental Screening test (2nd edition) Denver II & were subjected to questionnaire prepared to examine & assess etiological factors from Ayurvedic Perspective.

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Review of Literature

Development:

Your genes are the building blocks, your nutrition is the mortar & your environment is the architect that shapes your destiny. [1]

The above quote is also pertinent to development which is a multi-factorial subject. Development Specifies maturation of different biological functions at an anticipated age . [2] It is intimately related to the maturation of central nervous system.[3] It is a continuous process from conception to maturity.[3][4] A child is said to have developmental delay when he/she doesn't attain the specified developmental milestones at the expected age (with the adequate provision for the broad variation among normal children.)[4]

Brain Growth &development [5]:

Brain continues to grow & myelinate starting from few weeks after conception till adolescence. The process to brain growth and acquisition of developmental process is summarized as follows

Process of Brain Growth:

In the ectoderm, notochord develops to form a neural groove- neural tube (cavity with- overlying neural crest) from 18- 24 days. Any Error results in spina bifida, anencephaly like Neural tube defects.

Cells inside the tube form central nervous system (CNS)

Cells from outside & the ectoderm form autonomic nervous system (ANS)

Process of Myelination:

Myelination Of nerve tracts begins in 4th month [6] (Embryology) And Myelination of some of Sensory and motor areas occur within first month to first year of life – any training and practice are effective only after myelination.

Maximum myelination occurs by 6 years of life. [5]

Prefrontal cortex is not myelinated until close to adolescence.

Table 1: Developmental Profile [5]:

Brain part	Time frame
Early brain stem & cord	Birth
Brain stem & early subcortical areas	2.5 months
Midbrain & subcortical areas	7 months
Initial cortex	12 months
Early cortex	18 months
Primitive cortex	36 months
Sophisticated cortex	72 months

This indicates Process of brain growth begins very much from intrauterine life & hence intrauterine events have a significant effect on development.
Following table explains growth of fetus during intrauterine life. [7]

Table 2: Growth of fetus during intrauterine life

Important fetal growth events :	Week
Heart beats	4
External genitals	8
Circulation –	10-12
Bile secretion	12
Foetal movement	14
Early swallowing	14
Meconium	16
Respiration	18
Surfactant	20
Phonation	22
Early suckling	28
Coordinated suckling	34

The central Nervous system is most sensitive to teratogens between 3rd-5th weeks of intra uterine life. However maturation of brain continues after birth also hence brain growth can be retarded even by teratogens acting late in pregnancy. [8]

Definition of Developmental Delay [9]:

Developmental delay exists when a child does not reach developmental milestones at the expected age (with the adequate provision for the broad variation among normal children).

Developmental delays may occur in any or all of the major areas of child development: gross motor, fine motor, language and social.

Identification of developmental delay is useful for introducing early intervention programs, with the objective of reducing childhood disability.

By doing developmental assessment, opinion on the present status in relation to age and average performance of other children of same age can be given but accurately future intelligence cannot be predicted.

Principle of Developmental delay [10]:

The development proceeds to a cephalo-caudal direction. The infant initially develops head control followed by ability to rollover and grasp, sitting, crawling, standing, walking etc. The development of language is early and advanced in girls as compared to boys. The child with odd-looking face does not necessarily have associated mental sub normality. Timing of dentition is not a criterion for assessment of Neuro motor development.

Developmental Delay

Epidemiology:

Developmental disability is considered the most important source of vulnerability among children, especially in developing countries [11].

Statistics from different sources indicate that in India, 3.8 % of the population has some form of disability and the same was found to be more common in the children of lower socio-economic class. [9]

According to ICMR task force study carried out at three different centres (Delhi, Jaipur , Lucknow) the prevalence rate of disability among children below 6 year of age was found to be 8.8 per thousand in Delhi , 6.5 per thousand in Jaipur & 12.6 per

thousand in Lucknow[3]. It is also observed that out of 2.5 % prevalence rate of the Developmental delay /disability among under 5 year children majority had speech & Language problems [11]

Etiopathogensis:

Child development is a dynamic process optimally utilizing the genetic potential of the baby, within the context of the available environment, enabling achievement of full potential.

Less common forms of severe disability are often due to congenital, genetic, metabolic causes or intrauterine infections and need specific preventive strategies. [9]

A risk factor is something that increases the likelihood of getting a disease or condition. The risk factors for developmental delay can be classified as follows:

1) Established risk [12][13]: These include medical disorders that can lead to developmental delay. It includes

- Maternal disease during first 3 months of gestation.
- Teratogenic effects of certain drugs.
- Exposure to X-rays – (Avoid from 2nd half of menstrual cycle.)
- Chromosomal anomalies like Down syndrome.
- Infection of mother with German measles during first trimester.
- Genetic & metabolic diseases.

2) Environmental risk: This includes limited environmental factors, which put a child at risk for developmental delay. The various factors are:

- A very young mother.
- Extreme poverty.
- low socioeconomic status
- Single parent.

3) Biological risk: These are factors which operate in the prenatal, natal and postnatal periods. These include

- Prematurity,
- Low birth weight,

- Neonatal hypothermia,
- Birth asphyxia.
- Neonatal Hypoglycaemia.
- Neonatal Hyperbilirubinemia
- Neonatal Convulsions
- Septicaemia.

4) No apparent risk: Developmental delays also occur in infants without any apparent risks. In not more than 10% of cerebral palsy cases perinatal asphyxia could be attributed as the true cause.

Advances in perinatal care have improved the survival chances of low birth weight babies, adding to the burden of developmental delay.

Other Contributing factors [14]

5) Genetic factors: Even though genetic factors are thought to be the final limits of biologic potential, they are intimately interwoven with the environment.

6) Physical factors: Prenatal as well as postnatal physical insults affect growth and development.

7) Nutritional factors: Nutritional factors influence growth and development chronic malnutrition causes stunting of physical growth. Prenatal and early postnatal malnutrition affects development and reduces the ability of the individual to adapt to the environment.

8) Emotional factors: Emotional factors like position of the child in the family the child rearing practices in the family and community etc., affect growth and development.

9) Socio-cultural factors: Socio-cultural factors either limit or expand the range of behaviour of children. The schedule for acquisition of skills, such as sit-ting, walking etc., which were earlier thought to be the result of maturation alone are now found to be influenced by the conventional expectations. Socioeconomic factors are also reflected in the nutritional status of the child.

Thus Development is dependent upon an interaction between innate genetic potential and environmental factors like emotional security, love and attention, stimulating home environment, optimal nutrition, ethnic and cultural factors. [15]

Developmental Assessment:

Assessment is defined as obtaining information about the skills and potential of individual. [16]

Growth and development are sometimes used interchangeably. But growth implies increase in size of organs and body and development implies differentiation and maturation of function. The former indicates quantitative growth and the latter indicates qualitative growth.

In early childhood, cognitive growth and development are difficult to differentiate from neurologic and behavioural maturation. In later childhood, it can be measured by communicative skills and cognitive abilities. The development of each child is unique and the pattern of development may be profoundly different for each child within the broad limits of 'normality' [17]

Delayed cry at birth, increasing age of the child, presence of feeding problems, assisted delivery and birth injury were found to be associated with increasingly abnormal developmental test. [18]

A few details about developmental assessment [19]

Every baby follows his or her own unique schedule of development within fairly broad limits

- Assessment may take on special significance in a suspected developmentally abnormal infant.
- The score obtained is not an IQ score, but rather a relatively short term, best estimate of developmental progress.
- It can prove useful in detecting the precursors of later impairment.
- Despite limitations assessment techniques continue to be effective means of identifying infants at risk for developmental disabilities.

- Identification of risk status can lead to early intervention services aimed at prevention and amelioration of potential problems.
- Infant assessors must be well trained professionals who not only have a sound background in child development but have training in the use of the measures and understand their strengths and limitations.

The Purposes of Assessment [19]: Clarifying the main purpose for which young children are assessed can help determine what kinds of assessments would be most appropriate.

Assessment of individual children might serve one of the following purposes: Developmental assessment is conducted

- To determine the existence of a developmental delay
- To identify strengths and needs.
- To develop strategies for intervention.
- To determine progress on significant developmental achievements
- To serve as a basis for reporting to parents

Tools & Techniques of Developmental Assessment:

Maturity, behaviour and mental functions can be evaluated by the assessment of development and intelligence.

The neurodevelopment status of children should be assessed in order to understand the deviation, impairment or retardation and to plan appropriate recommendations and interventions. The most important component of neurological history is a child's developmental examination [20].

Observation based on casual examination should be interpreted with caution because a child, who is irritable, hungry, sleepy or ill, does not perform at his or her expected level. A future examination may be needed in such children. [21]

For infants born prematurely, the developmental level may be compared to 'corrected chronological age' during the first two years of life, i.e., obtained by reducing the period of prematurity from the chronological age.

The role of developmental assessment is to understand whether the child is progressing as per norms set by large majority of children of the same age group.

However, it is not a predictor of future IQ and any deviation from normal should be brought to the notice of the parents in a reassuring way.

The developmental tests mainly measure maturity and behaviour in four functional areas, namely, gross motor, fine motor adaptive, language and personal-social. The four functional areas are closely related and overlapping. But in defective development, they show some dissociation.

A child may be advanced in one area and retarded in the other. Thus each function must be evaluated separately

A large no. of methods has been standardized to assess the development of children. Following are a few to mention. [21]

1. The Denver Developmental Screening Test (DDST II)):
   - It is increasingly used as a tool for routine developmental assessment.
   - It is suitable for quick assessment of all the four areas of development in children up to 6 years of age.
   - This will take 10-25 minutes only.
2. Gesell Developmental Schedule:
   - This measures the four functional areas of development in children up to five years of age.
   - It will take 30-40 minutes.
   - It is more concerned with the diagnosis and evaluation of abnormalities than the attainment of various milestones.
3. Bayley Scale of Infant Development (BSID):
   - This scale provides the motor scale, the mental scale and the infant behaviour record in children up to 30 months of age
   - It takes approximately 30-60 minutes.
4. Baroda Developmental Screening Test:
   - This is a screening test based on BSID. It is standardized on Indian Children.
   - It evaluates motor and mental development & Infant behaviour.

- An abbreviated BSID is also available for follow up of high risk neonates.

5. Trivandrum Developmental Screening Chart :
   - This simple tool can be administered and interpreted by anyone with minimal Training.
   - It takes 5 to 7 minutes only.
   - Children up to 24 months can be evaluated based on 17 selecteditems from BSID, Baroda norms.
6. Developmental Screening Test (DST):
   - This is a simple scale that Can he administered up to the age of-15 years.
   - It was standardized on Indian children.
7. Brazelton Neonatal Behavioural Assessment Scale:
   - This scale is based on the observation of the baby and the response to 20 primitive reflexes.
8. Developmental Observation Card (DOC):
   - This was designed based on the observation that large majority of developmental delays can be identified using four key milestones, namely, social smile, head holding, sitting alone and standing alone and taking a few steps with or without support that generally appear not later than 2, 4, 8 and 12 months respectively .
   - (DOC) is a simple developmental card that can be used by parents to identify delay.
9. Amiel-Tison method of assessment :[22]
   - It Payes Special attention to Muscle tone (Active & passive), Neurosensory response (Visual &auditory) &Neuro- behavioural assessment.
10. Vineland & Raval's Social maturity scale :
    - It assesse the social &adaptive mental behaviour.
11. Vojta Technique (Postural reaction & central coordination):

However, these developmental tests have very low predictive value regarding future IQ and have several limitations. A screening test is only meant to identify children who might have a delay and who are in need of further developmental evaluation.

The cross-cultural use of these scales is also not often ideal. Indian children have motor skills ahead of others. But the language and personal-social skills are often behind.

Developmental assessment furnishes information on the stage of development and gives the parents a chance to perceive in what stage the child is and the degree of retardation if there is any. But the selection of the test is very important.

Developmental Quotient (DQ):DQ is computed using the following formula: [21]

$$\frac{\text{Developmental age}}{\text{Chronological age}} \times 100$$

Denver Developmental screening test (2nd Edition) (Denver II): [23]

- The purpose of the DDST-II is to screen children or possible developmental problems, to confirm suspected problems with an objective measure, to monitor children at risk for developmental problems.
- 125 Performance based and parent report items are used to screen children's development in four areas of functioning: fine motor-adaptive, gross motor, personal-social, and language skills.
- There is also a testing behaviour observation filled out by the test administrator.
- Child's exact age is calculated and marked on the score sheet; for premature infants, Examiner should subtract the number of months premature from the infant's chronological age.
- Examiner administers selected items based on where the age line intersects each functional area.
- The Examiner can then determine if child's responses fall into or outside of the normal expected range of success on that item for the *child's age.*
- *The number of* items upon which the child scores below the expected age range determines whether the child is classified as within normal range, or delayed.
- The test takes approximately 20 minutes to administer and interpret.

- There may be some variation in time taken, depending on both the age and co-operation of the child.
- The items are recorded through direct observations of the child plus, for some points, the mother reports whether the child is capable of performing a given task.
- Younger infants can sit on their mother's lap.
- The test should be given slowly.

Management [24]:

Management of Developmental delay is Early Stimulation & Early intervention programme.

Infant Stimulation Programs: It means early interventional therapy for babes at risk for developmental delay & Periodic assessment in all four domains of development.

Aims of Early stimulation:

1. Stimulating the child through the normal developmental channels
2. Prevention of Developmental delay.
3. Prevention of asymmetries and abnormalities

- To prevent atrophy of muscles
- To prevent fixity of joints
- To prevent contractures of joints
- To decrease the tone of muscles.
- To prevent tightening of tendons.

4. Detection of transient abnormalities and minimization of persistent abnormalities.

Early Stimulation Programme:

It can be applied remarkably to infants at-risk during infancy itself, in order to arouse their actions and feelings, ultimately giving them a normal experience of development through interaction with the mother and environment.

For different age group different stimulations are offered in following different domain.

- Auditory
- Visual
- Tactile
- Vestibulo/ Kinesthetic
- Other Activities.

Early intervention for developmental delay:

It encompasses a wide variety of medical, educational, and psychological treatments for an at-risk baby or one with neurodevelopment abnormalities as well as socio-economically disadvantaged children.

Various Domains in which interventions are offered are

- Head control
- To promote rolling
- To promote creeping
- To promote Crawling
- To promote sitting
- To promote standing.
- To promote development of hand functions
- Visual & Hearing stimulation.

Global Developmental delay [25]:

Global Developmental delay is defined as a significant delay in two or more of the following developmental domain ; Gross motor, fine motor, Language or speech & Social – Personal development.

Epidemiology:

The exact incidence and prevalence of GDD is not known in India. Multiple burdens of poverty, infectious diseases, malnutrition, and risk associated with urbanization & exposure of mother & infants to toxic substances may contribute to the increasing number of children with GDD in developmental countries.

Etiopathogenesis:

It is evident from various studies that this condition is heterogeneous in nature because of the underlying diseases.

In nearly two third of children global functional delay occurs because of cerebral dysgensis, chromosomal disorder, multiple malformation syndromes, Hypoxic ischemic encephalopathy and antenatal toxins exposure. Knowledge of prime factors for observed etiology is not sufficient. Establishment of an accurate etiological diagnosis is not always possible.

Clinical Picture [25]**:**

There is no distinctive clinical picture as GDD is symptom complex associated with a variety of condition.

Child invariably present with significant delay in two or more domain.

GDD from prenatal causes may be associated with growth retardation and multisystem involvement (CHD, Hepatospleenomegaly, Seizure etc).

In both prenatal & postnatal insults Adaptive problems & behavioural alterations are common.

Associated sensory problems in hearing, vision and disequilibrium reactio9ns may be seen with a specific etiological yield.

Diagnostic evaluation [25]:

A developmental assessment based on in depth history and clinical examination is vital. A detailed developmental history including prenatal, perinatal, neonatal history and developmental pattern in infancy may suggest diagnosis.

Regular newborn follow up & periodic evaluation for developmental lag in the first two year of life helps in early diagnosis of GDD.

Various tools are used for specific diagnosis. Like Bayley scales of infant development

Investigations:

Basic screening may include Thyroid profile, Torch screening, MRI / CT scan of brain.

Neuroimagining & karyotyping may be done for all with dysmorphism and congenital anomalies.

Metabolic testing and biochemical analysis are additionallyundertaken in tertiary setting for specific management.

Management:

It includes early intervention with a Trans-disciplinary approach

Ayurvedic Review of Literature

Delay in development is a multi-factorial condition & there is no single entity described in Ayurvedic Classics that can be directly correlated to this condition completely.

Development Specifies maturation of different Biological function at an anticipated age,which is related to maturation & mylination of the nervous system.

Four different area in which development is assessed in children are Motor; fine motor, language & Social development. It is clear that delay in any of the above group is termed as delay in development of the child.

Although entire disease is not described in its breath & depth, a few scattered references found in text which can be kept into consideration while dealing with this disease practically. One such reference is about Phakkaroga described in Kashyapa samahita; the cardinal symptom of Phakkaroga states that child is not able to walk by the age of 1st year of life [26].

The main aspect dealt in Phakkaroga is delay in walking. Depending upon causative factor it is sub grouped as Garbhaja, Ksheeraja & Vyadhi Sambhavaja.

Following table explains other symptoms of Phakkaroga which can be attributed to associated symptoms with Developmental delay.

Table 3: Correlation of Symptoms of Phakkaroga – Associated Symptoms of DD

Other Symptoms of Phakkaroga[26]	Associated symptom of Developmental Delay
Ksheen Mamsa	Muscle wasting
Samshushka Sphika & Bahu	Rigidity in Joints.
Mahodar Shiro Mukh	Macrocephaly
Nicheshtha Adhar kayo	Diplegia
Nitya Mutra Purishkrita	Incontinence of bladder & Bowel
Mand Cheshta	Decreased movement

Few other conditions described while describing Phakkaroga are Pangu (Crippled), Jada (Partially Deaf), Muka (Aphonic), Badhira (Deaf). Manas & Indriya also gets affected in Phakkaroga.

Delayed walking can also be seen due to orthopaedic causes; but after evaluating entire spectrum of symptoms described by Kashyapa Acharya, Phakkaroga looks more of Neurological origin. Thus Chikitsa - siddhant of Phakkaroga can be applicable in the treatment of motor component of Developmental delay from Ayurvedic perspective.

Reference of Phakkaroga helps in understanding one aspect of Developmental delay, but to understand other aspects reference of 'Anukta Vikara' can be used, where determining triad of Dosha, Samutthan & Adhishthana is important in treating unknown diseases.[27]

Anukta Vikara:

In Charka chikitsa sthana 30th chapter Acharya Charka has mentioned that since Roga's are innumerable with their numerous symptoms; each & every disease is not described in detail in text. But all of them can be treated by correcting Dosha - Dushyadi factors.[28].

It is also been concluded that all described & undescribed disorders can be treated successfully by giving converse treatment of that of affected Dosha, Dushya, Nidan etc.[28]

This implies that Acharya were very well aware that with changing era life style of society will change which will bring in new diseases & to treat them Acharyas have given subtle directives.

Another illustration found in Charka Samhita sutra sthana where it is clearly mentioned that knowledge of Triad of Affected Dosha, Samutthan & Sansthana is good enough in treating unknown or novel disorders.[27].

In Sushruta Samhita one reference is found stating diseases cannot occur without the Prakopa of Dosha. & Anukta Vikara can be treated by focusing on its symptoms & identifying their association with respective Dosha. [29]

Diseases are nothing but imbalance in Dosha & Harmony in Dosha is disease free condition. [30][31]. Thus to understand Dosha involvement exploring symptoms of the disease can be the approach

Establishing Dosha association in Developmental delay:

Following table includes some of the Developmental objects (Symptoms) that gets delayed [32].

Table 4: Delayed Development in different domain

Gross motor	**Fine motor & Adaptive**	**Language**	**Personal social**
Lift Head	Grasp rattle	Respond to bell	Smile responsively
Pull to sit- no head lag	Follow object 180	Turns to rattling sound	Smile spontaneously
Sit no support	Reaches	Turn to voice	Feed self
Stand holding on	Pass cube	Single syllable	Indicate want
Stand alone	Take 2 cubes	Combine syllables	Wave bye bye
Walks well	Thumb finger grasp	Dada/mama specific	Drink from cup
Runs	Scribbles	One word	Use spoon or fork
Walks up steps	Tower of 4 cube	Two word	Remove Garment
Jump up	Thumb wiggle	6 words	Put on clothing
Heel to toe walking	Copy ‘0’	Combine words	Dress no help

Out of all 4 different region; Gross motor & Fine- Adaptive Delay is mainly associated to movement (Cheshta) & Language is related to speech (Vani). Personal Social development also comprises movement but the core feature here is knowledge of a particular behaviour which can be attributed to Mana & Buddhi. Vayu is Pravartaka of all the cheshta (Movement) in the body & is also responsible for Vani

(Speech) [33]. It also does Niyaman of Mana & Budhhi .Thus it becomes clear that Vayu is predominantly involved dosha in Developmental Delay.

Depending upon its Sthana (site in body) this Vayu is further sub divided in to 5 sub types. In the following table specific site of Vayu & its specific karma are described.[34].

Table 5: 5 Sub type of Vayu with their functions:

Name of Vayu	Sthana	Vicharanasthana	Vishishth Karma
Praan	Murdha	Ura, Kanth	Dharan of Budhhi, Hriday, Indiriya&chitta Shthivan, Kshvathu, Udgar, Nishwas, Annapravesh
Udaan	Ura	Nasa, Nabhi, &Kanth	VaakPravruti, Prayatna, Urja, Bala, Varna, Smruti
Vyaan	Hriday	SarvaSharir	All Chesta of body
Samaan	Agni Samipa	Koshta	Anna Grahan, Pachan, Vivechan&munchan
Apaan	Apaan (Guda)	Shroni, Basti, Medhra, Uru,	Shukra ,Aartav, Mala, Mutra&GrabhaNishkraman.

Thus similar to any other disease all Dosha may get vitiated in Developmental Delay but predominant Dosha in this condition is Vata dosha, Specifically VyaanVayu, PraanVayu & UdaanVayu.

Establishing Samutthan / Hetu in Developmental Delay:

Following references are found in Ayurvedic classics that can be related to Hetu or Samutthan of Developmental Delay.

1) Akupita Vayu is Responsible in forming Prakruta Garbha-Akruti & Kupita Vayu causes defect in Garbha-Akruti[35]. This can be taken as Structural defect in fetus, which can also be one of the reasons for Delay in development.

2) Another reference found in Charaka Samhita Sharira sthana states that Beeja, Aatmakarma (Purvajanmakrut karma), Asshay Dushti (Genital organ Dushti), Kaal dosh, Matru-aaha rvihar dosh can cause dusthi in Sansthan, Varna & Indriya Vikruti in fetus [36]. These Vikruti in turn can cause Delayed development in child.
3) A little more specific reference found in Ashtanga-Samgraha , where in Acharya Vagbhata has mentioned very clearly that if a pregnant female follows Vata Prakopak Aahar – vihar, then Vitiated Vata dosha will affect the Garbha (Fetus) & will cause Various Vata disorder in child viz Badhirta (Deafness), Muktva (Unable to speak), Minmintava (Stammering), Gad –gad (Stuttering) , Khanja (Limping), Kubjatva (Deformity in body), Vamanatva (Short stature), Hinanga , Adhikanag & other similar Vata Predominant Diseases[37].

Vata Prakopaka Hetu:

According to Samanya – Vishesh sidhhdant all the Rasa- guna- Karma having properties similar to Vata dosha will increase Vata dosha & opposite properties of it will cause Vata Kshaya. Acharya Charaka Sushruta & Vagbhata all have mentioned Vata Prakopaka Aahar Vihar & Manasika bhava in detail. More or less similar factors are described by them with a few exceptions & the can be categorized as follows in the table.

Table 6: Vata Prakopaka Aahar [38] [39] [40] [41]:

Sr. No.	Aahar	Charak Samhita	Sushrut Samhita	Ashtang Samgrah	Ashtang Hriday
1	Ruksha Anna	Y	Y	Y	Y
2	Laghu Anna	Y	Y	Y	
3	Sheeta Anna	Y	Y	Y	
4	Alpa Anna	Y			Y
5	Aama	Y			
6	Abhojana/Anshana	Y	Y		
7	Vishamashan		Y		

8	Adhyashana		Y		
9	Pramitbhojana				Y
10	Heen Bhojan			Y	
11	Sushka Bhojan			Y	
12	Trushitashana			Y	
13	Kshuditambupan			Y	
14	Vishtambhi			Y	
15	Katu Rasa		Y	Y	Y
16	TiktaRasa		Y	Y	Y
17	KashayRasa		Y	Y	Y

Table 7: Specific Vata Prakopaka Aahariya Drvya:

Sr. No.	Aahar	Charaka Samhita	Sushruta Samhita	Ashtanga Samgrah	Ashtang Hriday
1	Virudhaka			Y	
2	Trina Dhanya		Y	Y	
3	Kalaya		Y	Y	
4	Chanaka			Y	
5	Karira			Y	
6	Tumbika			Y	
7	Kalingaka			Y	
8	Chibhit			Y	
9	Bis			Y	
10	Jambav			Y	
11	Tinduka			Y	
12	Shaluka			Y	
13	Shyamaka		Y		
14	Nishpav		Y		
15	Harenuka		Y		
16	Vallura		Y		

17	Mudga				
18	Masura		Y		
19	Aadhaki		Y		
20	Kodalak		Y		
21	Shushka shaka		Y		
22	Varatika		Y		
23	Nirvar		Y		

Table 8: Viharatamaka Vata Prakopaka Hetu:

Sr. No.	Vihar	Charaka Samhita	Sushruta Samhita	Ashtanga Samgrah	Ashtanga Hriday
1	Ati Vyayam	Y	Y	Y	Y
2	Ati Vyavay	Y	Y	Y	Y
3	Visham Upchar	Y			
4	Dosh Sravan	Y			
5	Asruk Srvan	Y			
6	Langhan	Y	Y		
7	Plavan	Y	Y		
8	Ati adhva/ Bhraman	Y	Y	Y	
9	Roga Atikarshan	Y		Y	
10	Dukh Shaiyaa	Y			
11	Dhatu Samkshaya	Y			
12	Diva Swap	Y			
13	Vega Samdharan	y	Y	Y	
14	Vega Udirana			Y	Y
15	Abhighat	Y	Y	Y	Y
16	Marmaghat	Y			
17	Gaja/Ushtra/AshvaShigroyan/ Ratha Yatra	y	Y		
18	Bala Vigraha		Y	Y	

19	Adhyayana		Y	Y	
20	Prapatana		Y		
21	Pradhavana		Y	Y	
22	Prapidana		Y		
23	Prataran/ Salila Tarana		Y	Y	
24	Ratri Jagran/Ati Jagrana	Y	Y	Y	Y
25	Bhar harana		Y		
26	Uchha bhashana				Y
27	Kriya atiyoga			Y	Y
28	Ati khar cha Apakarshana			Y	
29	Ati Uchha Visham Langhana			Y	
30	Adamya, Goa- Aji- Gaja Nigraha			Y	
31	Gadha Achhadan			Y	

Table 9: Manasika Bhav :

Sr. No.	Vihar	Charaka Samhita	Sushruta Samhita	Ashtanga Samgrah	Ashtanga Hriday
1	Chinta	Y			Y
2	Krodha	Y			
3	Shoka	Y		Y	Y
4	Bhaya	Y		Y	
5	Utkantha			Y	

Thus various factors have been given by different Acharya as Vata Prakopak Hetu. Following is summarization of Hetu mentioned by all the Acharya.

Related to Aahar:

1. Ruksha ,Laghu , Sheeta, Alpa Aahar
2. Katu Tikta Kashaya Rasatmak Aahar
3. Langhana

Related to Vihar:

1. Ati Vyayama
2. Ati Vyavaya
3. Vega Samdharan
4. Ratri Jagrana
5. Ati Adhva / Ati Bhramana
6. Bala Vigraha
7. Abhighata
8. Plavan / Salila Taran

Related to Manasik Bhav :

1. Chinta
2. Bhaya
3. Krodha

Other Factors Responsible for the formation of Prakruta Garbha:

Utpatti of Samparipurna Deha Garbh (Healthy Complete form of Garbha with Vitality) depends upon correct unification of elements like Shuddha Shukra, Shuddha Artava, Shuddha Aashaya, Atma ,Kaal along with Hitkar aahar- & upachar of mother during pregnancy. [42]

Marriage in Atulya Gotra (Non consanguineous marriage) is another substantial factor in forming healthy Fetus. [43]

A lot of importance is given to the Hitkar diet& daily routine regimen to be followed by Garbhini. [44]

Description in Ashtanga hriday emphasizes on the age of mother above 16, that of father above 20, with Shuddha Shukra, Shuddha Aartava ,Shuddha Garbhashaya & other Genital organs & Pure Hridaya for the Vitality of fetus.[45]

Elements responsible for Vikruti in Garbha:

- As Described in Charaka Samhita sharira sthana factors responsible for Vikruti in Garbha are Beeja Dosha, Aatmakarma, Aashya dosh, Kaal dosh,

&Aahar-Vihar dushti of mother leading to Vitiation of Dosha causing Vikruti (Defect) in Sansthan, Varna & Indriya Viktruti in fetus. [36]

- Beeja Bhaga :

  Another more detail description elaborates about defect in Beeja bhag, Beejabhagavayav (smaller fragment of Beeja). Any defect in these causes defect in the corresponding organ or Indriya formed. [46]
- Consumption of Dosha Prakopaka Aahar &Vihar by mother causes Dusthi in Aartava leading to defect in its Beejabhaga & Beejabhagavayav. [47]
- Factors casing vikruti in Garbha are due to, Nastikatva of Parents (Atheist) due to Ashubha karma (immoral actions in past life), & Dosha Prakopaka Aahar-vihar. [48]
- A little more specific reference found in Ashtanga-Samgraha, where in Acharya Vagbhat has mentioned very clearly that if a pregnant female follows Vata Prakopaka Aahar – Vihar, then Vitiated Vata will affect the Garbha (Fetus) & will cause Various Vata disorder in child viz Badhirta (Deafness), Muktva (Unable to speak), Minmintava (Stammering), Gad –gad (Stuttering) , Khanja (Limping), Kubjatva (Deformity in body), Vamanatva (Short stature), Hinanga , Adhikanag & other similar Vata Predominant Diseases. [37]
- Similar description if found in Ashtanga Hridaya where it is stated that Consumption of Vata Prakoapa Hetu causes Kubja, Andha, Jada, Vaman in Garbha, Pitta-prakopaka hetu causes Khalitya & Pingatva where as Kapha Prakoapa Hetu causes Shvitra & Panduta in Garbha.[49]
- Another sutra states Vata Prakopa or Dauhrida aavman causes deformity in Garbha leading to Kubjata, Kuni, Pangu (Crippled), Muka (unable to speak), Minmin (Stammering) & other Vata Related diseases.[50]
- Because of Doshabhighata whatever fragment of Garbhini gets affected, the same fragment in Garbha also gets affected; this probably refers to Beeja Bhaga Dushti & its genetic defect in the child. [51]

Dauhrida avaman:

After the formation of heart in 3rd month, Garbha express its desire through mother, which is then called as Dwihridaya. And such desires are termed as Dauhrida (Craving during pregnancy). When such desires are not fulfilled it is called Dauhridavman, it causes Vata prakopa, which can be one of the reasons for Garbha Vikruti. [52][53][54][55]

Akal Avi Pravahan:

During labour if Garbhini bears down without proper uterine contraction that leads to Vata Prakopa & consequently child born will suffer from Badhira, Muka, Kubja, Shawas, Kasa & dysmorphic Features.[56][57]

Garbha Upghatkar Bhava:

Garbha-Upghatkar bhava are the factors harmful for the health of fetus. All the Acharyas have described various factors not to be followed by Garbhini for the benefit of fetus & mother both. If practiced can be fatal for fetus. These are complied in table form as follows.[58][59][60][61][62][63]

Table 10: Garbha- Upghatkar bhava

Sr. No.	Garbha- Upghatkar Bhava	Charaka Samhita	Sushruta Samhita	Ashtanga Samgrah	Ashtanga Hriday
1	Vyavaya	Y	Y	Y	Y
2	Vyayam/Aayasa		Y	Y	Y
3	Ati bhara				Y
4	Apatarpan		Y	Y	
5	Guru Pravan				Y
6	Ati Karshan		Y	Y	
7	Ratri Jagrana/ Akal Jagrana		Y	Y	Y
8	Diwaswapa /Akala Swapna		Y	Y	Y
9	Yaan Arohana	Y	Y	Y	

10	Shoka	Y	Y	Y	Y
11	Krodha			Y	Y
12	Bhaya		Y	Y	Y
13	Udwega				Y
14	Trasa			Y	
15	Upvasa			Y	Y
16	Adhva				Y
17	Utkata- Visham- Kathin aasan	Y	Y	Y	Y
18	Shwa - Bhru- Kupa Prapata	Y		Y	Y
19	Snehadi kriya		Y		Y
20	Raktamokshana				Y
21	Vega- Vidharana	Y	Y	Y	Y
22	Shradhha vidharana				Y
23	Apriya avalokana	Y		Y	
24	Apriya shrvana	Y		Y	
25	Ati- Guru-Ushana- Tikshna- Ruksha Annapana	Y		Y	Y
26	Vishtambhi Bhojana				Y
27	Darun Cheshta	Y		Y	
28	Abhighata	Y		Y	
29	Ajirna			Y	
30	Tapagni			Y	
31	Madypaan	Y		Y	Y
32	Mamsa Ashinyata	Y		Y	Y
33	Rakta Nivasan	Y		Y	Y
34	Utan shayan	Y		Y	Y
35	Vivrut shayan	Y		Y	
36	Kalahsheela	Y		Y	
37	Abhidhyaynini	Y		Y	

38	Stena	Y		Y	
39	Amarsh	Y		Y	
40	Swapnashila	Y		Y	
41	Godha mamsa sevan	Y		Y	
42	Varah Mamsa	Y		Y	
43	Matsya mamsa sevan	Y		Y	
	Ek rasa adhika sevan			Y	
44	Madhura Rasa	Y		Y	
45	Amla Rasa	Y		Y	
46	Lavan Rasa	Y		Y	
47	Katu Rasa	Y		Y	
48	Tikta Rasa	Y		Y	
49	Kashaya Rasa	Y		Y	
50	Pramitashan	Y			
51	Malina-Vikrut- Hin Gatrani Sprushyate		Y	Y	
52	Durgandha		Y	Y	
53	Durdarshana		Y	Y	
54	Udvejaniyan Katha		Y	Y	
55	Shushka Prayushit - Kuthita -Klinna anna		Y	Y	
56	Bahi Nishkraman in Shunyagar- Chaitya-Smashan- Vrukshayan		Y	Y	
57	Uchha Bhashyadik		Y	Y	
58	Tail Abhyanga Utsadan		Y	Y	

Thus if one summarizes all above factors it becomes clear that not just dietary elements but also life style factors like how to sleep are also described along with Emotional & Behavioural Practices to be followed during pregnancy are included in Garbhini Praicharya in depth.

It also becomes clear that most of factors that are described as Vata Prakopaka Aahar - Vihar are similar to that of Garbha- Upghatkar bhava.

All these etiological factors can be grouped under prenatal and antenatal causes of disease & prevention of them becomes important line of treatment.

Establishing Adhisthan:

From mentioned symptoms it is evident that Developmental delay is a disease of nervous system where in developing brain is affected creating symptoms in entire body. From this it becomes clear Adhisthan of this Vikara is Uttamanga[64]& its Vyaktisthana is sampurna Sharira.

Summarizing the Samprapti of Developmental Delay:

- Dosh – Predominantly Vata dosha (PraanVayu, Udaan Vayu, Vyaan Vayu)
- Dushya – Majja DhatuRasa Dhatu, Mamsa Dhatu,
- Samutthan – Prenatal Antenatal & Post natal
- Adhisthan – Uttamanga ,Vyaktisthana Sarvang Sharira.

Other factors to be considered:

From all above discussion it is evident that the predominant dosha involvement in Developmental Delay is Vata Dosha hence the chief line of treatment in this condition is harmonizing Vata dosha with Vatahara, Balya, Brihaniya & Medhya treatment. But Developmental delay being a multi factorial disease with a Varity in its etiology causes very diverse symptoms & hence for archaic specific treatment other aspects of disease need further evaluation & association from Ayurvedic Perspective

Prognosis from Sadhyasadhytva Point of view: Being a disease occurring in children Developmental Delay falls into Krichchhsadhya group [65]. But considering other factors outcome of treatment will vary.

1) Presence of Hetu, Purvarupa, rupa: The lesser the number present in the disease better the outcome, Which is evident by the fact that Global Developmental delay has bad prognosis as compared to Delay in any one or two area.

2) Identification of Hetu: Genetic condition or Beeja Dushti leading to developmental delay like Down syndrome will have a diverse perspective than Developmental delay from other etiological factor.
3) Rupa : It is observed clinically that children with Developmental delay may have associated complaints viz Mental Retardation, convulsions, Visual impairment, Hearing impairment, Structural Defect, Excessive drooling of Saliva, Constipation like viz. With rise in no. of associated complaints, intricacy of disease rises, growing the chance of poor prognosis. Also Vikalpa Samprapti differs with each associated complaints which will modify line of treatment. Following table simplifies it.

Table11: Different approach to Developmental delay through associated Symptoms

Associated Complaints	**Vikalpa Samprapti**	**Modification in Treatment**
Mental Retardation	Matimandatva.	Additional Medhajanan
Convulsion (Aakshepak)	Chala guna of Vata increased	Sthira Gunatmaka chikitsa
Visual Impairment	Netragat Vikar	Kriyakalp Chikitsa
Hearing impairment	Further investigation for Deafness & its management	
Drooling of Saliva	Muscle weakness of oral cavity	Local Balya Chikitsa
Constipation	Ruksha Guna Of Vata increased	Snigdha,Vatanuloman chikitsa
Hypotonia	Mamsa Shaithilya	Stambhana Chikitsa

4) Chronicity Of disease: More chronic disease bear poor prognosis. This fact is applicable to Developmental delay too; the earlier the diagnosis the better will be prognosis. Thus child diagnosed in first or second year of life has better prognosis than diagnosed at later age.

5) Complications: Presence or absence of complications like contractures or strictures is another deciding point of prognosis, the lesser the presence the better the outcome of disease. Associated structural defects like congenital cataract or CHD needs surgical intervention increasing the complexity of the condition & hence the consequence.

   Thus all these points should be observed in any child with Developmental delay for precise outcome of treatment.

Previous work done:

- Book of Dr. M.S. Bagel was referred & other online sources were also used to collect any previous work done on Developmental Delay from Ayurvedic Perspective.

- A lot of Work is done on individual topics like Cerebral Palsy & Mental Retardation but none of the study were found related to collectively Developmental delay

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Research Methodology

Aim

- To Study Developmental Delay in Children in order to assess Etiological Factor (Hetu) with Ayurvedic Perspective.

Material & Methodology

Material:

- Paediatric Patients suffering from Developmental delay.
- Questionnaire for Children suffering from Developmental delay.

Methodology:

- Study design : Survey type of study
- Study Type: Clinical observational Retrospective type.
- Sampling:
  - Sample size – Optimum Sample was calculated by using the formula with approximation for large population which came out as 228. Ultimately data were collected for 256 children (out of 289 children) who gave consent to participate in the study.
  - Sample collection - Stratified Open Sampling.
  - Stratification: (Minimum required 76 Patients in each group)
    - Age Group Birth to 2 years – 86 patients
    - Age Group 2 to 4 years – 82 patients
    - Age Group 4 to 6 years – 88 Patients

Inclusion Criteria:

- Children suffering from Neurological Developmental delay in any of Sub group; motor, fine motor, Language and social Development.
- Developmental assessment was done with Denver Developmental screening test (2^{nd} edition) (Denver ll)
- Age Eligible: Birth to 6 years.
- Gender – Either

Exclusion criteria:

- Children having Progressive Encephalopathy.
- The respondents who didn't give consent, or whose mothers were not available to give history or who were adopted children were excluded from the study, since perinatal details were not available.

Observation:

- Questionnaire (Survey Sheet) was Prepared on the basis of different hetu described in Ayurvedic Samhita; for eg. Hetu of 'Vikruta santan utpati' such as Beeja, Aatma-karma, Aashya, Kaal, Matru Aahar- Vihar, were taken into consideration**.** Similarly other such references from Ayurvedic Texts were utilized to prepare Questionnaire.
- The study was conducted to explore the conditions encountered during pre natal, antenatal & post natal period by mother & child, which probably led to Developmental Delay.
- Data were collected by face- to- face interview of the respondents on a predesigned questionnaire.
- Mothers were the respondents.
- Records of children were also referred for data including birth details & other investigations.

Data analysis:

- Chi square test of association was applied on the data collected.

Place of Work:

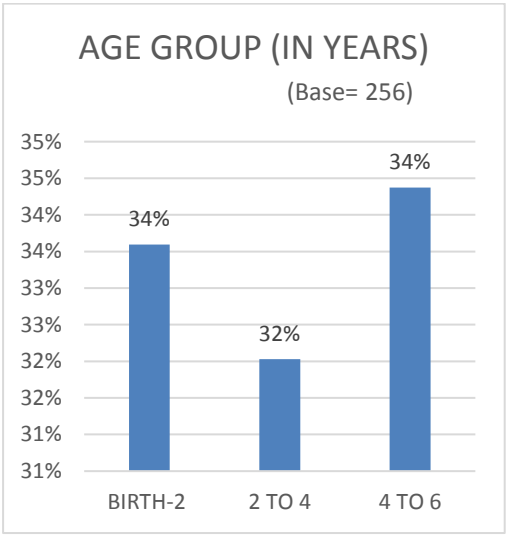
- Shri J.G.C.H. society's Ayurvedic Medical College, Ghataprabha.
- Help from following Medical institute & Centres for Development of children were also taken for collection of data.
- Dr. D. Y. Patil School of Physiotherapy – Neurology department; Nerul Navi Mumbai.

- Education & Training centre for PWDs, Vashi, Navi Mumbai
- ADAPT's National Resource centre for Inclusion (NRCI), Bandra
- Sunshine centre, Mankhurd
- Aakansha Rehabilitation centre , Thane
- National Society for Equal Opportunities For Handicapped India (NASEOH India) Chembur.
- Kini's nursing home, Mulund.
- Pooja Nursing home, Mulund
- Shree Physiotherapy clinic , Mulund
- Pankha Pediatric Therapy centre, Mulund.

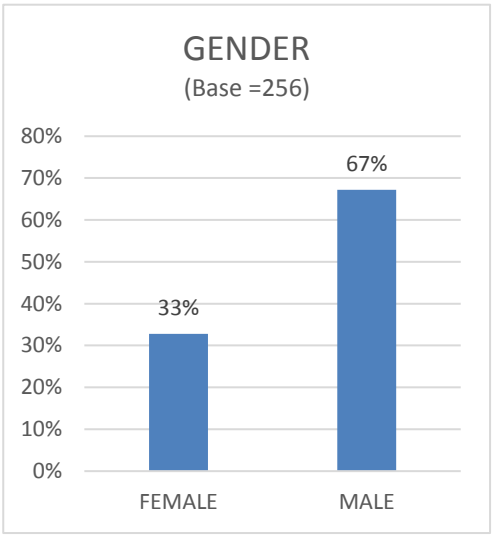
Results & observations

A total of 256 subjects were included in this study. The baseline demographics (age & gender are) shown in graph 1 & 2.

Graph 1



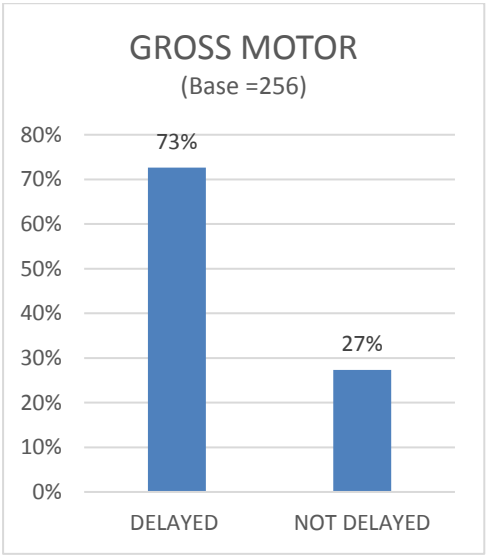
Graph 2



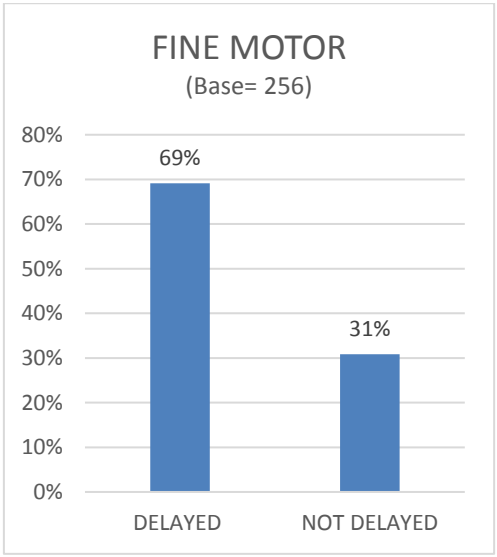
In current study ratio of male children (67 %)was found to be more as compared to female children (33 %).

Subjects were observed for developmental delay in all the four areas. And following graph represents findings of involvement of subject in each area.

Graph 3

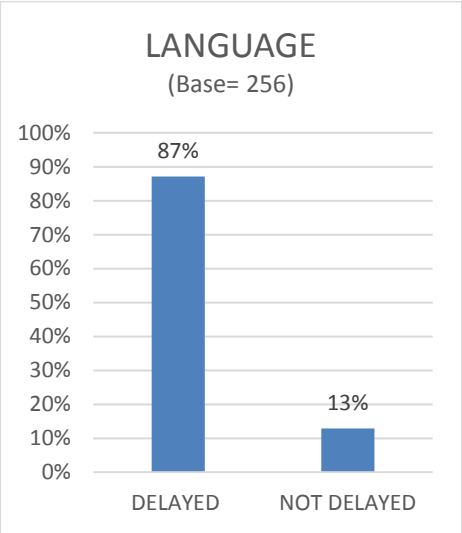


Graph 4

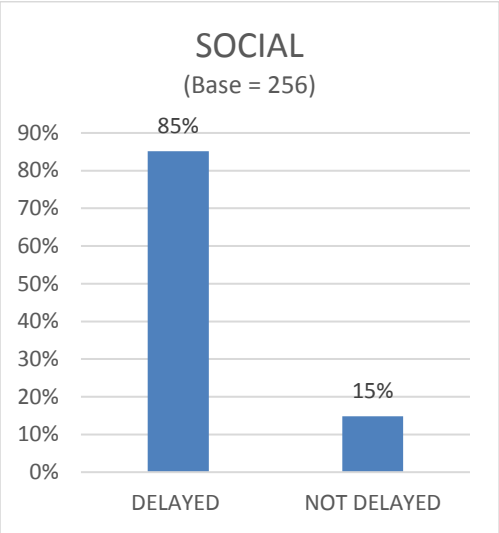


Delay in Language & Social Development.

Graph 5

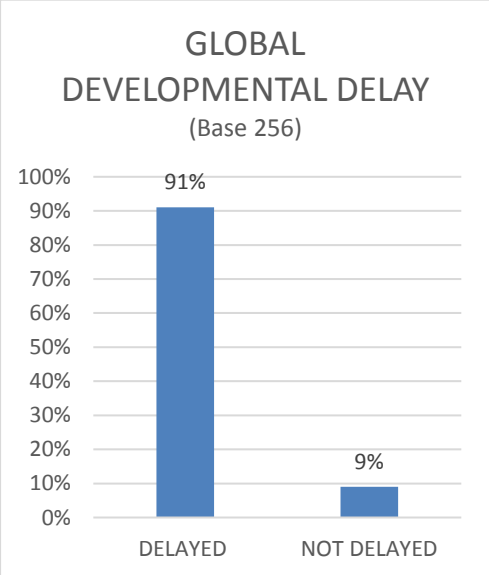


Graph 6

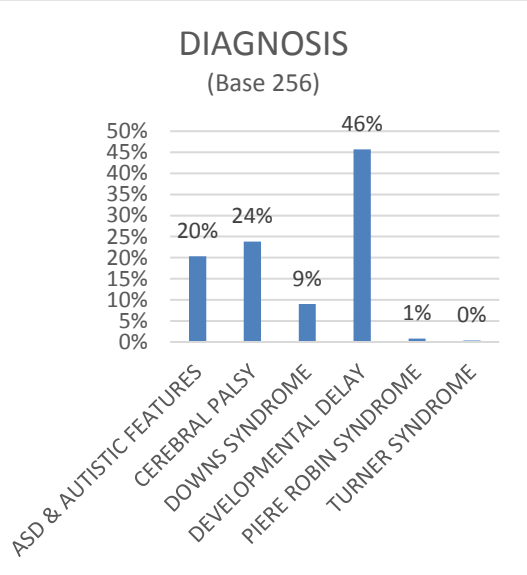


Subjects having developmental delay in all four areas are termed as GDD.

Graph 7



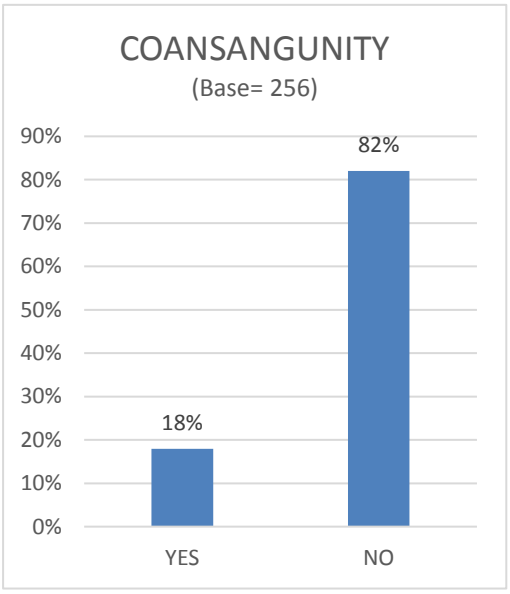
Graph 8



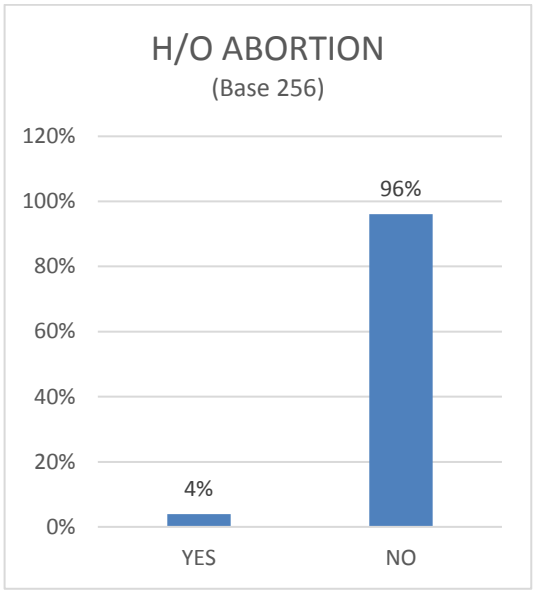
All the included subjects were grouped under specific diagnosis, which is presented in graph 8. Those children who didn't fall into specific diagnosis are labeled as Developmental delay.

These children were observed retrospectively for various etiological factors from Ayurvedic perspective. Out of prenatal factors consanguinity, & H/0 spontaneous abortion is observed in this study is expressed as follows.

Graph 9

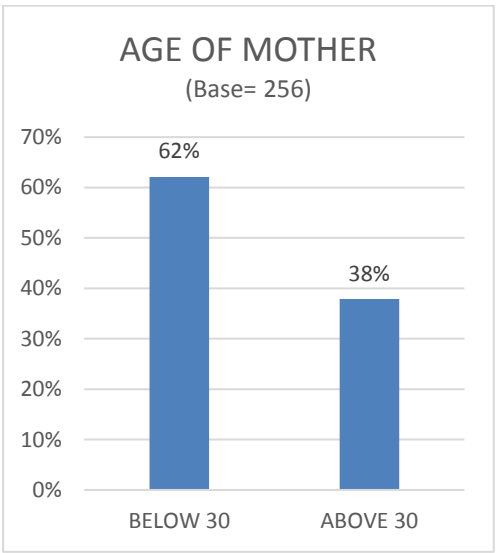


Graph 10

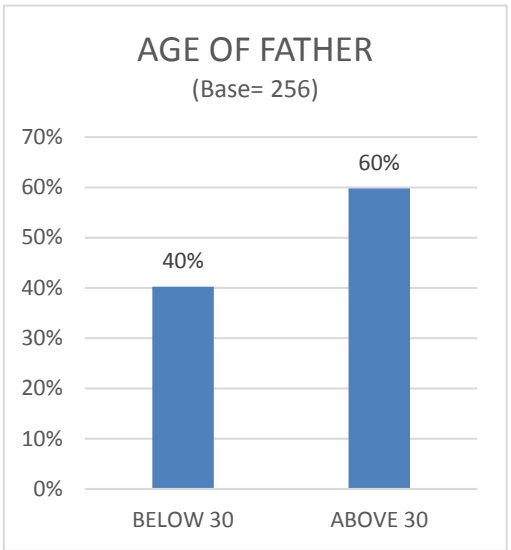


Prenatal factors: Age of mother & age of father.

Graph 11



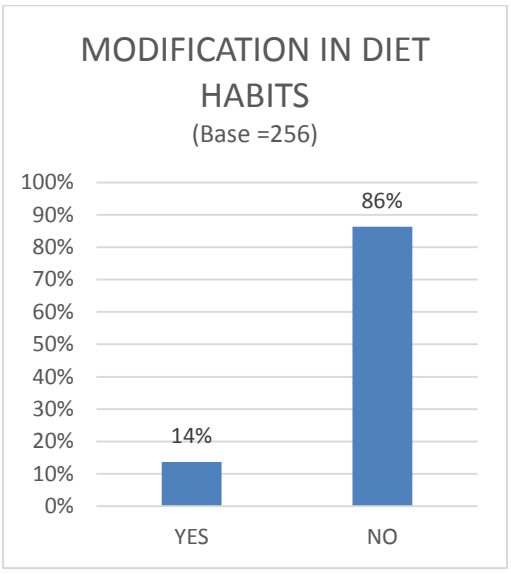
Graph 12



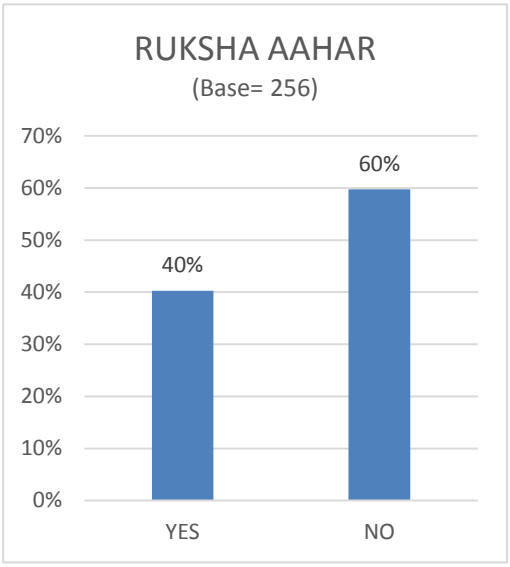
Subjects were assessed for various Vata prakopak Aahar consumption by Garbhini.

Results are observed as follows.

Graph 13

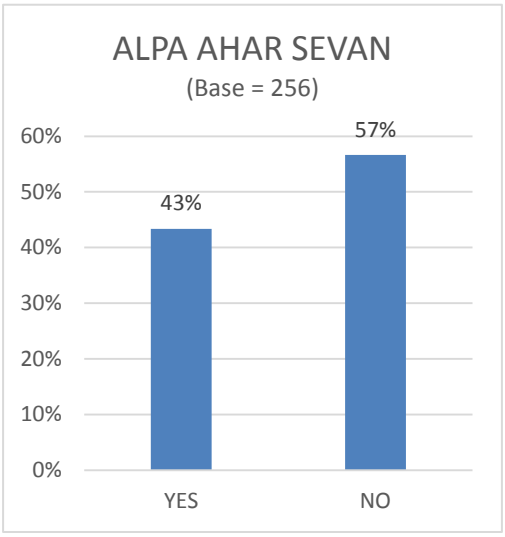


Graph 14

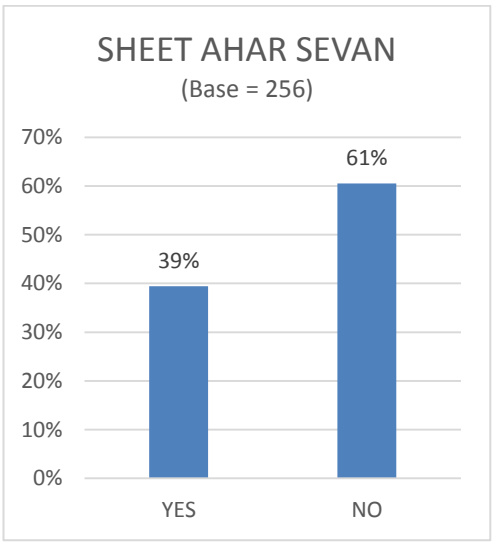


Vata prakopaka Aahar consumption by Garbhini.

Graph 15

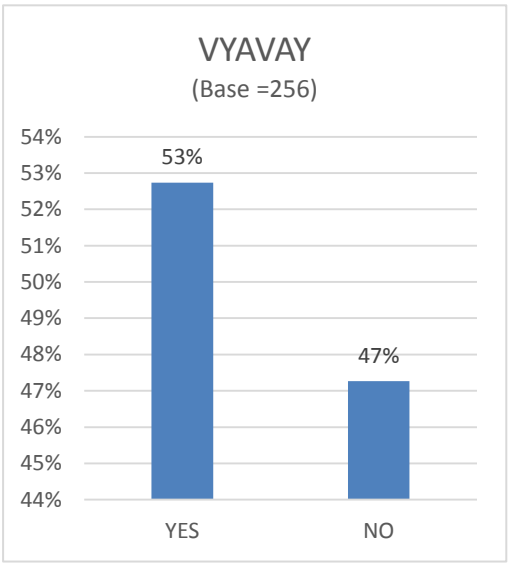


Graph 16

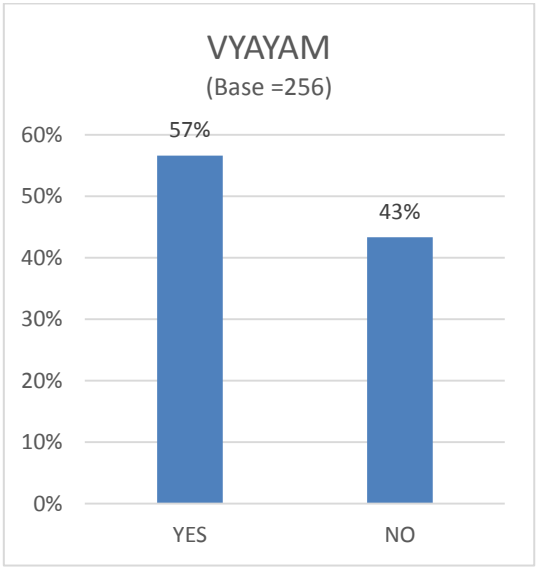


Following are finding about Viharatmaka Hetu sevan in subject during Pregnancy.

Graph 17

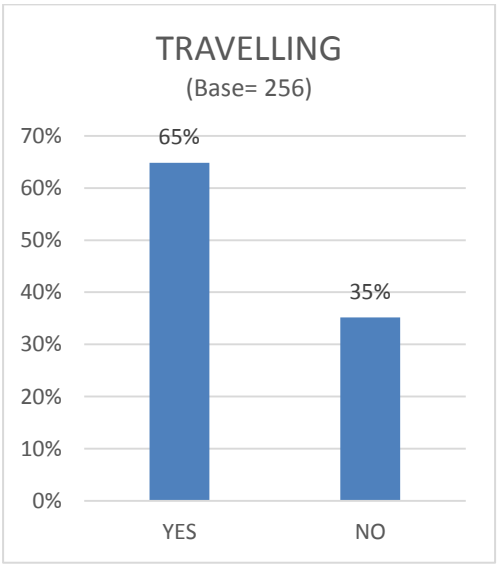


Graph 18

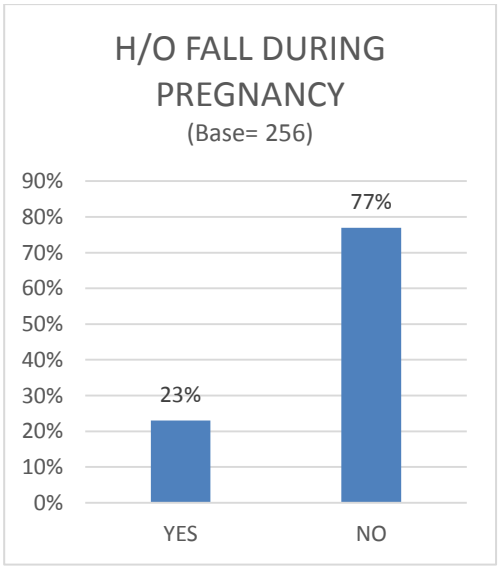


Following are finding about Viharatmaka Hetu sevan in subject during Pregnancy.

Graph 19

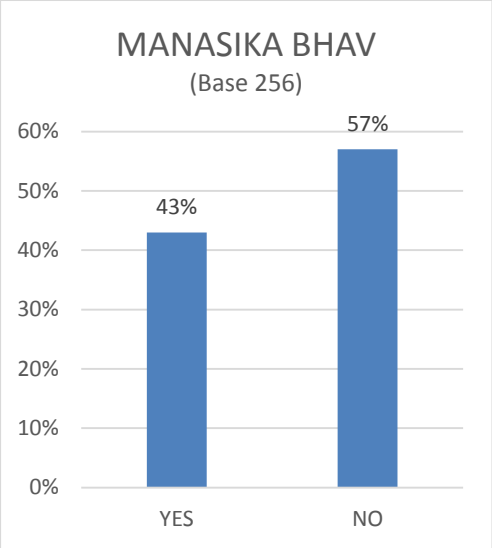


Graph 20

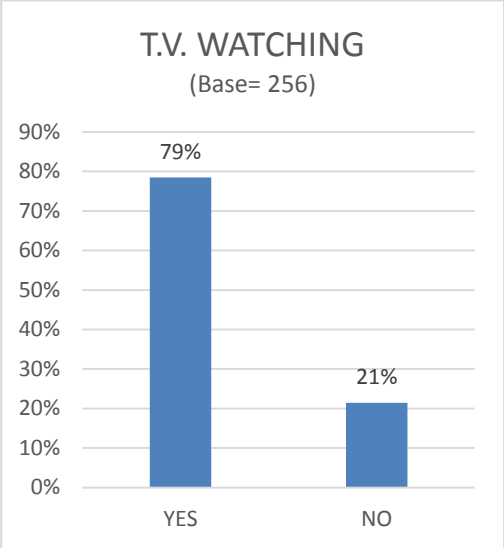


Respondents were also subjected to Manasik bhav evaluation; results in percentage are as follows.

Graph 21



Graph 22



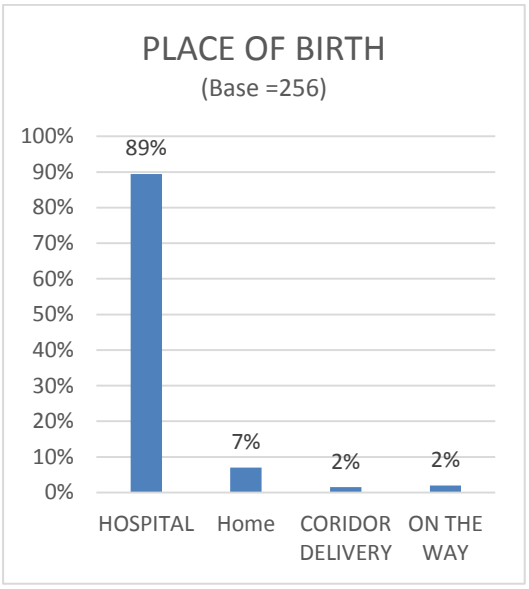
With Change in life style a few new factors were observed which are not directly written in text but can be correlated with some of the Hetu's described in text.

Television Watching/mobile screen activity is one such factor. It is a well know fact now that fetus can feel various activities like listening music done by mother.

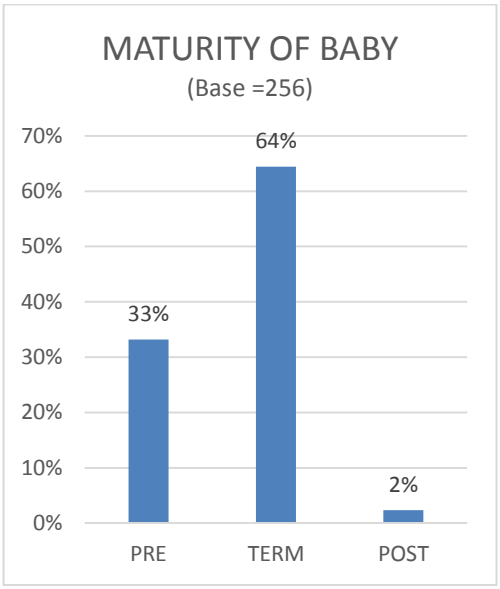
It was observed that most of the mother had Television watching activity & majority of them were seeing Melodrama type daily shows, which may cause emotional disturbance in them. Hence this is considered as one indirect Manasika Bhava affecting factor. Those mother who have watched Television for more than 2 hrs/day for 5 days a week is considered as positive findings. & observed results are presented as follows.

Natal History Details observed in patients is represented as follows:

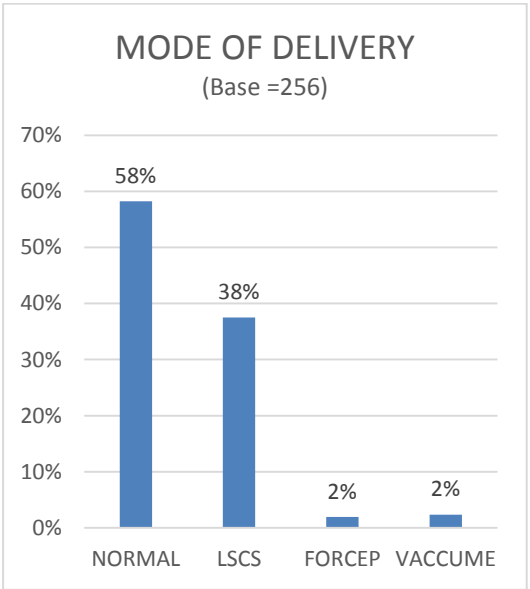
Graph 23



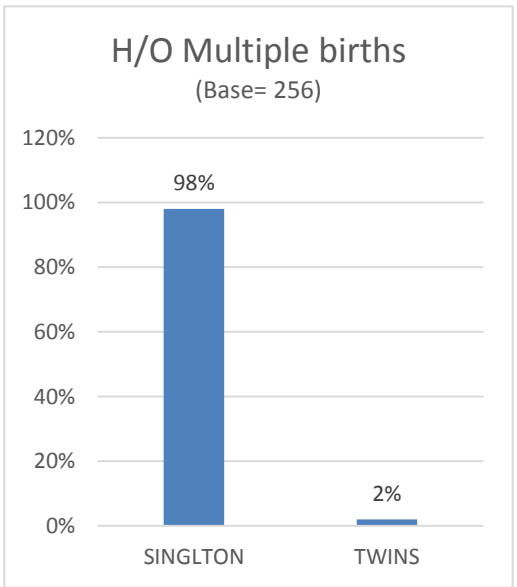
Graph 24



Graph 25

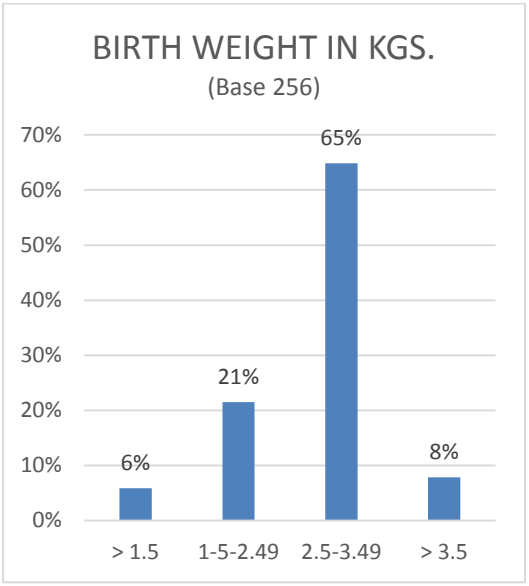


Graph 26

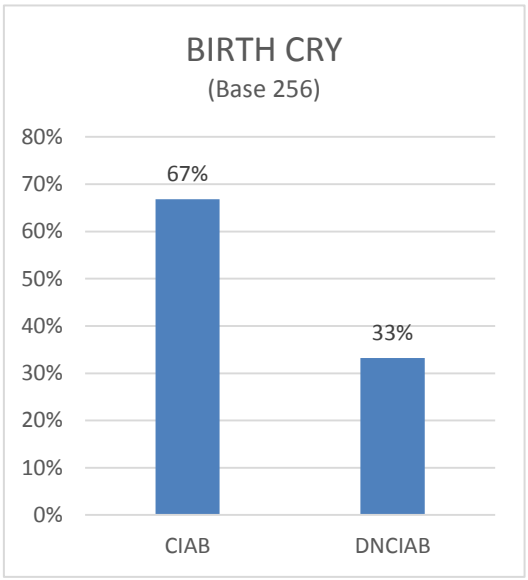


Post natal brain insult was assessed by following elements.

Graph 27



Graph 28



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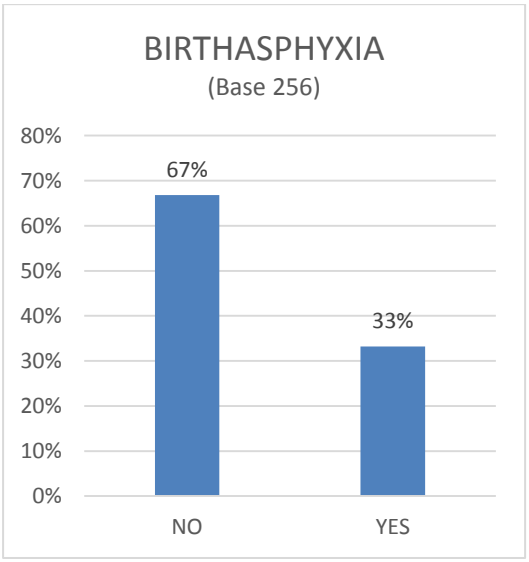
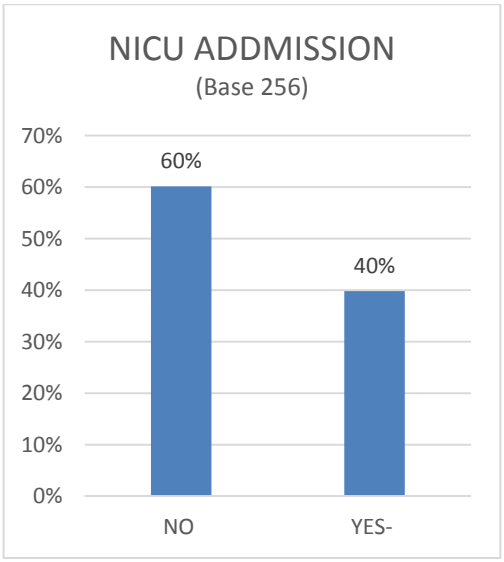
Post natal brain insult was assessed by following elements.

Graph 29



Graph 30



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 Prakruta & Vikruta Garbha.

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

Antenatal Factors: Garbha- Upghatkar bhava [6] [7] [8] [9] [10] [11]:

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

Discussion

After detail evaluation it is observed that Majority of factors to be avoided during Pregnancy are similar to that of Vata Prakopaka Hetu, which is summarized in table as follows.

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

Factors	**Garbha Upghatkar Bhava**	**Vata Prakopaka[15] Hetu**
Vyayam	*Y*	*Y*
Vyavaya	*Y*	*Y*
Langhana/ Apatarpana	*Y*	*Y*
Ratri Jagrana	*Y*	*Y*
Diva swapa	*Y*	*Y*
Yaana Arohan	*Y*	*Y*
Vega Vidharana	*Y*	*Y*
Shoka	*Y*	*Y*
Krodha (Manasika Bhava)	*Y*	*Y*
Bhaya (Manasik Bhava)	*Y*	*Y*
Utkat Visam Aasan	*Y*	*Y*
Katu Rasa Excess sevan	*Y*	*Y*
Tikta Rasa Excess Sevana	*Y*	*Y*
Kashaya Rasa Excess sevana	*Y*	*Y*

Causes like Madyapana (Alcohol), Mamsahar sevana (Nonveg 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 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[6]. 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

Diagnosis	Frequency %
Asd & Autism Spectrum Disorder	52 (20)
Cerebral Palsy	61 (24)
Down's syndrome	23 (09)
Piere Robin syndrome	02 (01)
Turner Syndrome	01 (0.00390)
Developmental Delay	133 (46)

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

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.

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: Samvastsara & 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.

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

- 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[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 [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 Upkarama for Langhana which is not required during pregnancy because it is one of the element that increases Vata dosh[29]. Walking was the type of exercise practiced by most Respondents. It was

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

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

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

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

Etiological factor	**X2 value for Gross motor**	**X2 Value Fine motor**	**X2 Value Language**	**X2 Value Social**	**X2 Value GDD**
Consanguinity	2.80	4.77	0.27	2.11	0.42
Age of mother	6.42	0.031	0.28	1.39	0.38
Age of father	4.20	7.29	1.55	0.01	3.59

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

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.

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).

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)

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:

Etiological factor	Area of development	X2 value For DD in area	Probability of Larger Value of x^2 at degree of freedom 1			Level Of significance
			P < 0.05	P < 0.01	P<0.001	
CONSANGUNITY	FM	4.77	**3.84**	6.63	10.83	S at P <0.05
Age of mother	GM	6.42	**3.84**	6.63	10.83	S at P <0.05
Age of father	GM	4.20	**3.84**	6.63	10.83	S at P <0.05
Age of father	FM	7.29	3.84	**6.63**	10.83	S at P < 0.01
BIRTH ASPHYXIA	GM	15.54	3.84	6.63	**10.83**	HS at P<0.001
BIRTH ASPHYXIA	FM	10.37	3.84	6.63	**10.83**	S at P<0.001
BIRTH ASPHYXIA	SO	4.40	**3.84**	6.63	10.83	S at P <0.05
RUKSH AAHAR	GM	18.82	3.84	6.63	**10.83**	HS at P<0.001

RUKSH AAHAR	FM	16.98	3.84	6.63	**10.83**	HS at P<0.001
RUKSH AAHAR	LA	4.80	**3.84**	6.63	10.83	S at P <0.05
RUKSH AAHAR	SO	6.01	**3.84**	6.63	10.83	S at P <0.05
APLA AHAR	GM	5.58	**3.84**	6.63	10.83	S at P <0.05
VYAYAM	FM	20.90	3.84	6.63	**10.83**	HS at P<0.001
VYAVAY	FM	15.79	3.84	6.63	**10.83**	HS at P<0.001
VYAVAY	LA	15.10	3.84	6.63	**10.83**	HS at P<0.001
VYAVAY	SO	10.13	3.84	**6.63**	10.83	S at P<0.01
VYAVAY	GDD	7.20	3.84	**6.63**	10.83	S at P < 0.01
SLEEP	GM	6.00	**3.84**	6.63	10.83	S at P <0.05
SLEEP	FM	5.08	**3.84**	6.63	10.83	S at P <0.05

SLEEP	GDD	3.92	**3.84**	6.63	10.83	S at P <0.05
TRAVELLINNG	LA	4.99	**3.84**	6.63	10.83	S at P <0.05
TRAVELLINNG	SO	5.71	**3.84**	6.63	10.83	S at P <0.05
MANASIK BHAV	FM	7.55	3.84	**6.63**	10.83	Sat P < 0.01
MANASIK BHAV	GDD	5.10	**3.84**	6.63	10.83	S at P <0.05
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.

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

- 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.

- 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 Achaar 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 Garbhini Paricharya can be the solution in reducing this condition. Propagation of such custom can be made aware in society through mass awareness program.

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Conclusion

This clinical observational study entitled ***'Etiological assessment of developmental delay in children with Ayurvedic Perspective***' was aimed To Study Developmental Delay in Children in order to assess Etiological Factor (Hetu) with Ayurvedic Perspective.

- Out of a total of 256 patients 46% of children were without any specific clinical diagnosis. Out of all the children observed, 91% of Subjects are having Global Developmental delay GDD which is significant developmental delay in two or more than two domain
- ***Various etiological factors have statistically significant impact on Different Domain of Developmental Delay.***
- Out of Pre Natal, Antenatal & Post natal etiological factors, more number of Antenatal factors have statistically significant results as compared to Prenatal & post natal factors.
- Statistically significant Association of Etiological factors & Gross motor Delay was Age of mother, Age of father ,Birth Asphyxia ,Ruksha Aahar , Alpa Aahar & Sleep
- Maximum number of Etiological factors found to be statically significant in Fine motor development & they were Consanguinity, Age of father ,Birth Asphyxia, Ruksha Aahar , Sleep, Vyayam ,Vyavaya & Manasika Bhava.
- Three Etiological factors that were Statistically Significant in Language development were Ruksha Aahar, Vyavaya & Travelling.
- In the area of Social development Birth Asphyxia, Ruksha Aahar, Vyavaya & Travelling were statistically significant Etiological factors
- Three factors that had statistically significant association with Global Developmental delay are Sleep, Vyavaya & Manasika bhava.
- 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.
- Thus Developmental delay is a multidimensional entity & so is Vata Prakopaka Aahar Vihar. Each etiological factor has different impact on different Areas of Development at different significance level.

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Master Chart

Master Chart 1 Demographic Information

Reg.no	S. O. G.	Gross motor	Fine motor	Language	Social	GDD	Age in years	Gender
1	B	D	D	D	D	D	3.4	F
2	B	D	D	D	D	D	2.4	F
3	C	D	D	D	D	D	5.9	F
4	B	D	D	D	D	D	3.8	M
5	C	N	N	D	D	D	5.9	M
6	C	D	D	N	D	D	6	M
7	C	D	D	D	D	D	5.9	F
8	C	D	D	D	D	D	5.3	M
9	A	D	D	D	D	D	2.7	M
10	C	D	N	N	N	N	4.8	F
11	C	D	D	N	D	D	5.11	M
12	B	D	D	D	D	D	3.4	M
13	C	D	D	D	D	D	4.7	M
14	A	D	D	D	D	D	1.3	M
15	A	D	D	D	D	D	1.8	F
16	C	D	D	D	D	D	5.7	M
17	C	D	D	D	D	D	5.2	M
18	C	D	D	D	D	D	5.6	M
19	C	D	D	D	D	D	5.7	M
20	C	D	D	D	D	D	6	M
21	C	D	D	D	D	D	6	M
22	C	N	N	D	D	D	5.6	F
23	B	D	D	D	D	D	3.6	M
24	A	D	N	N	N	N	1.9	M
25	C	D	N	N	N	N	5.8	M
26	C	N	N	D	D	D	5.7	F
27	C	D	D	D	D	D	5.11	M
28	C	D	D	D	D	D	5.6	M
29	C	D	D	N	D	D	4.1	M
30	C	D	N	N	N	N	4.6	M
31	C	D	D	D	D	D	5.6	M
32	A	D	D	D	D	D	1.9	F
33	A	D	D	D	D	D	1.1	M
34	A	D	N	D	D	D	1.3	F
35	C	D	D	D	D	D	5.2	F
36	b	D	N	N	N	D	5	F
37	C	N	N	D	D	D	4.1	M
38	C	D	N	D	N	D	5.11	M
39	C	D	N	N	N	N	6	F
40	b	N	N	D	D	D	4	F

S.O.G= Stratification of Group, D = Delayed, N = Normal , GDD= Global Developmental delay

Master Chart

Reg.no	S. O. G.	Gross motor	Fine motor	Language	Social	GDD	Age in years	Gender
41	B	D	D	D	D	D	3.6	M
42	C	D	D	D	D	D	5.2	M
43	b	D	D	D	D	D	4.3	M
44	B	D	D	D	D	D	4.6	M
45	B	D	D	N	D	D	3.9	F
46	C	D	D	D	D	D	5.9	F
47	B	D	D	D	D	D	3.9	M
48	B	N	N	D	D	D	2.1	M
49	A	D	D	D	D	D	0.11	M
50	A	D	D	D	D	D	0.11	F
51	A	D	D	D	D	D	1.5	M
52	A	D	D	N	D	D	1.3	M
53	A	D	D	D	D	D	0.7	M
54	C	D	N	D	D	D	5.9	F
55	B	D	D	D	D	D	2.6	M
56	A	N	D	D	N	D	1.4	M
57	B	D	D	D	D	D	3.6	M
58	B	D	D	D	D	D	2.3	M
59	B	D	D	D	D	D	3.11	M
60	B	D	D	D	N	D	4.11	F
61	B	D	D	D	D	D	5	M
62	B	D	D	D	D	D	3.9	M
63	B	D	D	D	D	D	2.11	M
64	B	D	D	D	D	D	2.2	M
65	C	D	D	D	D	D	5.9	M
66	C	D	D	D	D	D	5.6	M
67	B	D	N	D	N	D	3.1	M
68	B	D	N	D	N	D	4.11	F
69	B	D	D	D	D	D	3	M
70	C	D	D	D	D	D	4.3	M
71	B	D	D	D	D	D	1.1	F
72	C	D	D	D	D	D	4.5	M
73	A	D	D	D	D	D	1.9	M
74	B	D	D	D	D	D	5	M
75	A	D	D	D	D	D	1.1	M
76	B	D	D	D	D	D	2.5	M
77	B	D	D	D	D	D	2.5	M
78	C	D	D	D	D	D	5.5	M
79	A	D	D	D	D	D	1.3	M
80	A	D	D	D	D	D	1.9	M
81	A	D	D	D	D	D	1.11	F
82	B	D	D	D	D	D	2.4	M

S.O.G= Stratification of Group, D = Delayed, N = Normal , GDD= Global Developmental delay

Master Chart

Reg.no	S. O. G.	Gross motor	Fine motor	Language	Social	GDD	Age in years	Gender
83	C	D	N	N	N	N	4.4	M
84	B	D	D	D	D	D	3.1	F
85	B	D	N	N	D	D	3.4	F
86	A	D	D	D	D	D	2.9	F
87	C	D	D	N	N	D	5.1	M
88	A	D	D	D	D	D	1.8	F
89	B	N	N	D	D	D	4	M
90	A	D	D	D	D	D	2.1	M
91	C	D	D	D	D	D	5.8	F
92	A	D	D	N	D	D	1.1	M
93	A	N	D	D	D	D	2.1	M
94	B	D	D	D	D	D	2.3	F
95	B	D	D	D	D	D	3.9	M
96	B	N	N	D	D	D	2.6	M
97	B	N	N	D	D	D	3	M
98	B	D	D	D	D	D	2.1	M
99	B	N	N	D	D	D	3.1	F
100	A	D	D	D	D	D	1.1	M
101	A	D	D	D	D	D	1.8	M
102	A	D	N	D	N	D	2.3	M
103	A	D	D	D	D	D	1.1	M
104	A	D	N	N	D	D	1.4	M
105	A	D	D	D	D	D	1.3	M
106	A	D	N	N	D	D	1.6	M
107	A	D	D	D	D	D	2	M
108	A	D	D	D	D	D	1.2	F
109	C	D	D	D	D	D	4.11	M
110	C	N	N	D	D	D	3.2	M
111	C	D	D	D	D	D	5.3	F
112	C	D	D	D	D	D	5.5	F
113	B	N	D	D	D	D	3.2	M
114	C	D	D	D	D	D	5.11	F
115	A	D	D	D	D	D	1.1	M
116	C	D	D	N	D	D	5.3	F
117	C	D	D	D	D	D	4.1	M
118	A	D	D	D	D	D	1.5	M
119	B	D	D	D	D	D	2.6	F
120	C	N	N	D	D	D	5.5	M
121	C	N	N	D	D	D	5	F
122	C	D	D	D	D	D	5.1	M
123	A	N	N	D	D	D	1.11	M
124	B	D	D	D	D	D	2.8	M

S.O.G= Stratification of Group, D = Delayed, N = Normal , GDD= Global Developmental delay

Master Chart

Reg.no	S. O. G.	Gross motor	Fine motor	Language	Social	GDD	Age in years	Gender
125	B	D	D	D	D	D	3.9	M
126	B	N	D	D	D	D	3.11	F
127	B	N	N	D	D	D	3.1	M
128	A	D	N	D	D	D	2.3	M
129	A	N	N	D	D	D	3.2	M
130	C	N	N	D	D	D	5.2	M
131	B	N	N	D	D	D	3.6	F
132	C	N	D	D	D	D	5.3	M
133	C	N	D	D	D	D	4.6	M
134	B	N	D	D	D	D	4.1	M
135	A	N	N	D	D	D	1.1	M
136	C	D	N	D	D	D	4.6	M
137	B	D	D	D	D	D	4.2	F
138	B	D	D	D	D	D	3.3	F
139	C	D	D	D	D	D	5.3	M
140	A	D	D	D	D	D	0.9	M
141	B	D	D	N	N	D	3.9	M
142	B	D	D	D	D	D	4	F
143	C	N	D	D	D	D	4.8	M
144	A	D	D	N	N	D	0.5	F
145	A	N	N	D	D	D	1.9	M
146	B	N	N	D	D	N	2.6	M
147	C	D	D	D	D	D	4.3	F
148	b	N	N	D	D	D	3.3	M
149	C	N	D	D	D	D	4.3	M
150	C	D	D	D	D	D	4.4	M
151	C	D	D	D	D	D	4.3	F
152	B	N	N	D	D	D	3.6	M
153	B	N	D	D	D	D	3.9	F
154	B	N	D	D	D	D	2.4	M
155	B	N	D	D	D	D	2.4	M
156	B	N	D	D	D	D	2.6	M
157	A	D	D	D	D	D	1.4	F
158	A	D	N	D	D	D	1.1	F
159	B	D	N	N	N	D	3.11	M
160	B	D	D	D	D	D	2.8	M
161	A	D	N	D	N	D	1.9	F
162	C	D	D	D	D	D	4.1	F
163	C	D	D	D	D	D	5.7	F
164	A	D	D	D	N	D	0.11	M
165	C	D	D	D	D	D	5.8	F
166	C	D	N	D	D	n	4.9	M

S.O.G= Stratification of Group, D = Delayed, N = Normal , GDD= Global Developmental delay

Reg.no	S. O. G.	Gross motor	Fine motor	Language	Social	GDD	Age in years	Gender
167	B	N	N	D	D	D	4.2	M
168	B	N	N	D	D	D	4.4	M
169	A	D	D	D	D	D	1.4	F
170	C	N	D	D	D	D	5.9	M
171	A	D	D	D	D	D	1.2	M
172	B	N	N	D	D	D	4.11	M
173	A	D	N	N	N	N	1.11	M
174	A	D	D	D	N	D	0.9	M
175	C	D	D	D	N	D	4.2	F
176	C	N	D	D	D	D	4.3	M
177	A	D	D	D	D	D	0.11	M
178	C	D	D	D	D	D	5.8	M
179	C	D	D	D	D	D	5.1	M
180	A	D	D	D	N	D	0.6	F
181	A	N	N	D	D	D	1.1	M
182	C	D	D	D	D	D	5.1	M
183	A	N	N	D	D	D	1.3	M
184	A	D	D	D	D	D	1.4	F
185	A	N	N	D	D	D	1.11	F
186	B	D	D	D	N	D	2.1	F
187	B	N	N	D	D	D	3.9	F
188	A	D	D	D	D	D	1.11	M
189	C	D	N	N	N	N	4.1	M
190	A	D	D	D	D	D	1.7	M
191	A	D	D	D	D	D	2	F
192	C	D	D	D	D	D	5.09	M
193	B	D	D	D	D	D	3.11	F
194	C	N	N	D	D	N	4.2	F
195	A	D	D	D	N	D	1.1	M
196	A	D	D	D	D	D	1.6	F
197	A	N	N	D	D	D	1.7	M
198	A	D	D	D	D	D	1.1	F
199	C	N	N	D	D	D	4.5	M
200	C	D	N	N	N	N	5.9	F
201	C	D	N	D	D	D	4.2	M
202	C	N	N	D	D	D	5.1	M
203	C	N	N	D	D	N	5.5	M
204	A	D	D	D	N	D	0.11	M
205	B	N	D	D	D	D	3.1	M
206	C	D	D	D	D	D	4.8	F
207	B	N	N	D	D	D	2.5	F
208	C	D	D	D	D	D	5.1	F

S.O.G= Stratification of Group, D = Delayed, N = Normal , GDD= Global Developmental delay

Master Chart

Reg.no	S. O. G.	Gross motor	Fine motor	Language	Social	GDD	Age in years	Gender
209	A	N	N	D	D	N	1.1	F
210	A	D	D	D	D	D	1.2	M
211	A	D	D	D	D	D	1.8	M
212	A	D	D	D	D	D	0.11	M
213	C	N	D	D	D	D	5.1	M
214	A	D	D	D	D	D	1.8	M
215	B	D	N	D	D	D	3.5	F
216	A	N	D	D	D	D	1.11	M
217	B	D	D	D	D	D	3.6	F
218	B	D	N	N	N	N	3.9	F
219	C	N	D	D	D	D	5.11	M
220	B	D	D	D	D	D	2.4	M
221	A	D	N	N	N	N	1.1	M
222	A	D	D	D	D	D	1.9	M
223	A	N	D	D	D	D	1.11	M
224	C	N	N	D	D	D	4.2	M
225	A	D	D	D	D	D	1.6	F
226	B	N	N	D	D	N	4.1	F
227	A	N	D	D	D	D	1.9	M
228	A	N	D	D	D	D	1.9	M
229	C	N	D	D	D	D	4.2	F
230	A	N	N	D	D	N	1.8	F
231	B	D	N	N	N	D	4.9	F
232	B	D	D	D	D	D	2.2	F
233	C	D	D	D	D	D	4.1	M
234	A	N	N	D	D	D	1.8	M
235	A	D	D	N	N	N	1.1	F
236	A	D	D	D	D	D	0.11	M
237	B	D	D	D	N	D	3.2	M
238	B	D	N	N	N	N	3.3	F
239	C	N	D	D	D	D	4.1	M
240	C	N	N	D	D	D	4.8	M
241	A	N	N	D	D	D	1.8	M
242	C	D	N	D	D	D	4.1	M
243	B	D	D	D	D	D	3.1	M
244	B	D	D	N	N	D	2.3	M
245	B	N	N	D	D	N	3.9	F
246	A	D	N	N	N	N	1.8	M
247	A	D	D	D	D	D	1.4	M
248	C	N	D	D	D	D	5.8	F
249	A	D	D	D	D	D	1.7	M
250	B	N	N	D	D	D	2.8	M

S.O.G= Stratification of Group, D = Delayed, N = Normal , GDD= Global Developmental delay

Reg.no	S. O. G.	Gross motor	Fine motor	Language	Social	GDD	Age in years	Gender
251	B	D	D	N	D	D	2.2	M
252	A	D	N	N	N	N	1.11	F
253	C	D	D	D	D	D	4.1	M
254	A	D	D	D	N	D	1.1	M
255	C	D	D	D	D	D	4.1	F
256	A	D	D	D	D	D	0.11	F
S.O.G= Stratification of Group, D = Delayed, N = Normal , GDD= Global Developmental delay								

Master chart 2: Pre Natal Factor

Reg. no	Consan-guinity	Age of mother	Age of father	MMH Regularity	RX for conception -Mother	RX for conception -Father	H/O Abortion	Birth asphyxia
1	N	26	29	R	N	N	N	N
2	N	28	35	R	N	N	N	Y
3	N	35	37	R	N	N	N	N
4	Y	36.4	44.4	R	N	N	N	Y
5	N	36	40	R	N	N	Y	N
6	N	30	35	R	N	N	N	Y
7	N	26	27	R	N	N	Y	Y
8	N	30	35	R	N	N	N	N
9	Y	21	24	R	N	N	N	Y
10	N	19	30	I	N	N	Y	N
11	N	32	35	R	N	N	Y	N
12	N	35	39	R	Y	N	Y	N
13	N	22	25	R	N	N	N	N
14	N	21	29	R	N	N	N	Y
15	N	26	32	R	N	N	N	Y
16	Y	25	30	R	N	N	N	N
17	Y	25	26	R	N	N	N	N
18	Y	17	22	R	N	N	N	N
19	N	30	35	R	N	N	Y	Y
20	N	30	32	R	N	N	Y	Y
21	N	22	28	R	N	N	Y	Y
22	N	23	26	R	N	N	N	N
23	N	27	30	R	N	N	N	N
24	N	28	34	R	N	N	N	N
25	N	28	35	I	Y	Y	Y	Y
26	N	25	34	R	N	N	Y	Y
27	N	22	28	R	N	N	Y	N
28	N	22	24	R	N	N	N	Y
MMH = Maternal Menstrual History, R= Regular, I = Irregular, Rx = Treatment, N= no, Y= yes								

Master Chart

Reg. no	Consan-guinity	Age of mother	Age of father	MMH Regularity	RX for conception -Mother	RX for conception -Father	H/O Abortion	Birth asphyxia
29	Y	32	36	R	N	N	Y	Y
30	N	31	36	I	N	N	N	N
31	N	32	37	R	Y	Y	Y	Y
32	Y	22	25	R	N	N	N	Y
33	N	31	38	R	Y	N	Y	N
34	N	30	32	R	N	N	Y	N
35	N	37	38	R	Y	Y	N	Y
36	N	30	35	R	N	N	N	N
37	N	28	32	R	N	N	N	N
38	Y	30	33	R	N	N	Y	N
39	Y	22	24	R	N	N	N	N
40	N	32	33	R	Y	N	N	N
41	Y	23	27	R	N	N	N	N
42	Y	25	29	R	N	N	N	Y
43	N	34	38	R	N	N	N	N
44	N	22	29	R	N	N	N	N
45	N	36	42	R	N	N	Y	N
46	Y	27	30	R	N	N	N	N
47	N	27	29	R	N	N	N	N
48	N	27	29	R	N	N	N	N
49	N	22	29	R	N	N	N	N
50	N	22	28	R	N	N	N	N
51	N	34.5	37	R	Y	N	Y	N
52	Y	25	31	R	N	N	N	N
53	N	24	27	R	N	N	N	Y
54	N	28	32	R	N	N	N	Y
55	N	23	28	R	N	N	N	Y
56	N	28	29	R	N	N	Y	N
57	Y	26	36	R	N	N	Y	N
58	N	23	30	R	N	N	N	N
59	N	21	26	R	N	N	Y	N
60	Y	22	28	R	N	N	Y	N
61	Y	20	25	R	N	N	N	N
62	N	21	23	R	N	N	N	Y
63	N	24	31	R	N	N	Y	N
64	N	22	27	R	N	N	N	Y
65	Y	21	24	R	N	N	N	N
66	N	28.6	31.6	R	Y	N	N	N
67	N	22	25	R	N	N	N	Y
68	N	21	32	R	N	N	N	N
69	N	25	28	I	N	N	N	N
MMH = Maternal Menstrual History R = Regular, I = Irregular, Rx = Treatment, N= no, Y= yes								

Master Chart

Reg. no	Consan-guinity	Age of mother	Age of father	MMH Regularity	RX for conception -Mother	RX for conception -Father	H/O Abortion	Birth asphyxia
70	N	39	38	R	N	N	N	N
71	N	24	26	R	N	N	N	Y
72	Y	28	29	R	N	N	N	N
73	Y	19 .6	26.6	I	N	N	N	N
74	N	24	34	R	N	N	N	N
75	Y	27	28	R	N	N	N	Y
76	N	40	2	I	N	N	N	Y
77	N	23	28	R	N	N	N	Y
78	N	25	27	R	N	N	N	Y
79	N	23	24	R	N	N	N	Y
80	N	29	39	I	N	N	N	N
81	Y	23	32	R	N	N	Y	N
82	Y	28	33	R	N	N	Y	N
83	N	31	38	R	N	N	Y	N
84	Y	33	38	R	Y	Y	Y	N
85	N	27	31	R	N	N	Y	N
86	N	23	26	R	N	N	N	Y
87	N	21	27	R	N	N	N	N
88	Y	31	34	I	N	Y	Y	N
89	N	32	32	R	N	N	N	N
90	N	20	32	I	N	N	Y	Y
91	N	32	35	I	Y	N	N	Y
92	N	25	26	R	N	N	Y	N
93	N	22	28	I	N	N	N	N
94	N	28	32	R	Y	N	N	N
95	N	23	27	R	Y	N	N	N
96	N	26	32	I	Y	N	N	N
97	N	23	33	R	N	N	N	N
98	N	25	27	R	N	N	Y	Y
99	N	30	32	R	N	N	Y	N
100	N	31	33	R	Y	N	Y	Y
101	N	32	35	I	N	N	N	Y
102	N	26	35	R	N	N	Y	Y
103	N	30	34	R	N	N	N	N
104	N	30	30	R	N	N	N	Y
105	N	24	25	R	Y	N	N	Y
106	N	24.6	29	R	N	N	N	Y
107	N	34	34	R	N	N	Y	N
108	N	27	36	R	N	N	N	Y
109	N	22	25	I	N	Y	Y	N
110	N	31	34	I	Y	N	N	Y
MMH = Maternal Menstrual History, R = Regular, I = Irregular, Rx = Treatment, N= no, Y= yes								

Master Chart

Reg. no	Consan-guinity	Age of mother	Age of father	MMH Regularity	RX for conception -Mother	RX for conception -Father	H/O Abortion	Birth asphyxia
111	N	21	30	R	N	N	Y	Y
112	N	41	52	R	Y	N	N	N
113	N	39	44	R	N	N	N	N
114	N	33	37	I	N	N	Y	N
115	N	20	26	R	N	N	N	N
116	N	20	30	R	N	N	N	Y
117	N	19	24	R	N	N	Y	Y
118	Y	31	33	R	Y	N	Y	N
119	N	33	36	I	N	Y	Y	Y
120	Y	34	35	I	Y	N	Y	N
121	N	26	26	R	N	N	N	N
122	N	31	38	R	N	N	Y	N
123	N	25	30	r	n	n	N	N
124	N	32	36	R	N	N	N	Y
125	N	30	34	R	Y	N	Y	Y
126	N	22	27	R	N	N	Y	N
127	N	35	38	R	N	N	N	N
128	N	28	31	I	N	N	N	N
129	N	33	41	R	N	N	N	N
130	N	28	32	R	N	N	Y	N
131	N	30	34	R	N	N	N	N
132	N	35	30	R	N	N	Y	N
133	N	37	42	R	N	N	Y	N
134	N	25	29	R	N	N	Y	Y
135	N	27	31	R	N	N	Y	N
136	N	26	36	I	N	N	Y	Y
137	N	22	24	R	N	N	Y	N
138	N	26	37	R	N	N	N	N
139	Y	26	32	I	Y	N	N	N
140	N	21	35	I	N	N	N	Y
141	Y	27	32	R	N	N	Y	N
142	N	23	22	R	N	N	N	Y
143	Y	32	36	R	N	Y	N	N
144	N	28.6	35	R	N	N	N	N
145	Y	26	36	R	N	N	Y	N
146	N	30	31	R	N	N	N	N
147	N	29	39	R	N	N	N	N
148	N	27	34	R	N	N	N	Y
149	Y	23	33	R	N	N	Y	Y
150	N	31	36	R	N	N	N	N
151	N	26	31	R	N	N	Y	Y
MMH = Maternal Menstrual History, R = Regular, I = Irregular, Rx = Treatment, N= no, Y= yes								

Master Chart

Reg. no	Consan-guinity	Age of mother	Age of father	MMH Regularity	RX for conception -Mother	RX for conception -Father	H/O Abortion	Birth asphyxia
152	N	41	41	R	Y	N	Y	N
153	N	31	31	R	Y	N	N	N
154	N	32	35	R	N	N	N	N
155	N	32	35	R	N	N	N	N
156	N	27	29	R	N	N	N	N
157	N	25	28	I	N	N	Y	Y
158	N	27	31	I	N	N	N	N
159	N	24	29	R	N	N	Y	N
160	N	29	34	R	N	N	N	Y
161	N	25	27	I	N	N	Y	N
162	Y	32	37	R	N	N	N	Y
163	N	34	37	R	N	N	N	Y
164	N	24	27	I	N	N	Y	N
165	N	28	29	R	N	N	N	N
166	N	31	34	R	N	N	N	N
167	N	32	35	R	N	N	N	N
168	N	33	37	R	N	N	Y	N
169	Y	24	27	I	N	N	Y	Y
170	N	34	38	I	N	N	Y	N
171	N	22	26	R	N	N	N	N
172	N	35	36	R	N	N	N	N
173	N	27	32	I	N	Y	Y	N
174	Y	32	37	I	N	N	Y	N
175	N	32	34	R	N	N	Y	N
176	Y	32	36	I	N	N	Y	N
177	N	24	26	R	N	N	Y	N
178	N	35	39	R	N	N	Y	N
179	N	28	31	I	N	N	N	Y
180	N	25	26	R	N	N	N	Y
181	N	23	27	I	N	N	N	N
182	N	26	29	R	N	N	Y	Y
183	N	22	24	R	N	N	N	N
184	N	24	27	R	N	N	Y	Y
185	N	22	26	I	N	N	N	N
186	N	31	34	R	Y	N	Y	N
187	Y	31	36	I	N	N	Y	Y
188	N	25	28	R	N	N	Y	N
189	N	29	32	R	N	N	N	Y
190	N	24	28	R	N	N	Y	N
191	N	33	37	R	N	Y	Y	N
192	N	32	35	I	N	N	N	Y
MMH = Maternal Menstrual History ,R = Regular, I = Irregular, Rx = Treatment, N= no, Y= yes								

Master Chart

Reg. no	Consan-guinity	Age of mother	Age of father	MMH Regularity	RX for conception -Mother	RX for conception -Father	H/O Abortion	Birth asphyxia
193	N	31	33	R	N	N	Y	Y
194	N	29	34	I	N	N	Y	N
195	y	22	23	R	N	N	Y	Y
196	N	32	34	R	N	N	Y	N
197	N	24	27	R	N	N	N	N
198	N	32	35	I	N	Y	N	N
199	Y	31	36	R	N	N	Y	N
200	Y	35	36	R	Y	N	N	N
201	N	29	30	I	N	N	N	Y
202	N	33	37	R	N	Y	N	N
203	N	34	38	R	Y	N	Y	Y
204	Y	27	29	I	N	N	Y	N
205	N	32	36	R	N	N	Y	Y
206	N	32	34	R	N	N	Y	N
207	N	25	28	I	N	N	N	N
208	N	34	38	I	N	N	Y	N
209	N	22	25	R	N	N	Y	N
210	N	31	35	I	N	N	Y	N
211	Y	22	26	R	N	N	Y	N
212	N	34	36	I	N	N	Y	Y
213	N	34	38	R	N	Y	N	N
214	N	24	29	I	N	N	N	Y
215	N	35	38	R	N	N	Y	N
216	N	27	28	R	N	N	N	N
217	N	37	42	I	Y	N	Y	N
218	Y	32	35	I	Y	N	Y	N
219	N	32	36	R	N	N	Y	N
220	N	32	39	I	N	N	Y	Y
221	N	25	30	R	Y	N	Y	N
222	N	31	34	R	N	N	Y	Y
223	N	26	29	R	Y	N	Y	N
224	N	31	33	R	N	N	Y	N
225	N	24	26	R	N	N	N	N
226	N	33	34	I	N	N	N	N
227	N	33	37	R	N	N	Y	N
228	N	33	37	R	N	N	N	N
229	N	28	34	I	Y	N	N	Y
230	N	24	27	R	N	N	N	N
231	N	28	34	R	N	N	N	N
232	N	33	37	R	N	N	Y	Y
233	N	36	39	R	N	N	N	N
MMH = Maternal Menstrual History, R = Regular, I = Irregular, Rx = Treatment, N= no, Y= yes								

Reg. no	Consan-guinity	Age of mother	Age of father	MMH Regularity	RX for conception -Mother	RX for conception -Father	H/O Abortion	Birth asphyxia
234	N	23	25	R	N	N	N	N
235	N	28	33	I	N	N	N	N
236	N	22	25	R	N	N	N	Y
237	Y	34	36	R	Y	N	Y	N
238	N	34	388	R	Y	N	Y	N
239	N	32	37	R	N	N	N	N
240	N	34	35	R	N	N	Y	N
241	N	27	29	R	N	N	N	N
242	N	34	37	R	N	N	Y	N
243	N	28	29	I	N	N	N	Y
244	N	25	29	R	N	N	N	N
245	N	28	31	R	N	N	N	Y
246	N	32	36	R	Y	N	N	N
247	N	24	29	R	Y	N	Y	N
248	Y	38	42	I	N	N	Y	N
249	Y	23	27	R	N	N	Y	Y
250	N	31	34	R	N	N	Y	N
251	Y	33	37	R	Y	N	Y	Y
252	N	31	35	R	Y	N	Y	N
253	N	33	34	I	N	N	Y	N
254	N	23	25	R	N	N	N	Y
255	N	32	35	R	N	N	Y	N
256	N	33	35	R	Y	N	Y	Y
MMH = Maternal Menstrual History, R = Regular, I = Irregular, Rx = Treatment, N= no, Y= yes								

Master chart 3: Ante Natal Factor

Reg. no	Diet modification	Alpa Aahar	Ruksha Aahar	Sheet Annapan	Single rasa in excess	Dauhrida avaman
1	Y	N	N	No	N	N
2	N	N	Y	No	N	N
3	N	Y	N	No	Y	N
4	N	N	Y	No	N	N
5	Y	N	N	Yes	Y	N
6	N	Y	Y	No	Y	y
7	N	N	Y	No	Y	N
8	N	N	Y	No	Y	N
N = No, Y= yes						

Master Chart

Reg. no	Diet modification	Alpa Aahar	Ruksha Aahar	Sheet Annapan	Single rasa in excess	Dauhrida avaman
9	N	Y	Y	Yes	N	N
10	N	N	N	No	N	N
11	N	N	N	No	N	N
12	N	Y	N	No	N	N
13	N	Y	N	No	N	N
14	N	N	Y	No	Y	N
15	N	Y	Y	Yes	Y	N
16	N	N	N	No	Y	N
17	Y	Y	Y	No	N	N
18	N	N	Y	No	N	N
19	N	N	Y	No	N	N
20	Y	N	Y	No	N	N
21	Y	N	Y	Yes	Y	N
22	N	N	N	Yes	Y	N
23	N	N	Y	No	Y	N
24	Y	N	N	No	Y	N
25	N	N	Y	No	N	N
26	N	N	Y	No	N	N
27	N	N	N	No	Y	N
28	N	Y	Y	No	N	N
29	N	Y	Y	No	Y	N
30	N	N	N	No	Y	N
31	N	Y	Y	Yes	Y	N
32	Y	Y	Y	No	Y	Y
33	N	N	N	No	N	N
34	N	N	N	No	Y	N
35	N	N	Y	Yes	N	N
36	N	Y	N	Yes	N	Y
37	N	N	N	No	N	N
38	N	Y	N	No	N	N
39	N	Y	N	Yes	N	N
40	Y	N	N	No	N	N
41	N	N	N	No	N	N
42	N	N	Y	Yes	Y	N
43	N	N	Y	Yes	N	N
44	N	Y	N	No	N	N
45	N	N	N	No	Y	N
46	N	N	N	No	N	N
47	N	N	Y	No	N	N
48	Y	N	N	Yes	Y	N
49	N	Y	N	No	N	N
N = No, Y= yes						

Reg. no	Diet modification	Alpa Aahar	Ruksha Aahar	Sheet Annapan	Single rasa in excess	Dauhrida avaman
50	N	Y	N	No	N	N
51	N	Y	N	No	N	N
52	N	N	N	No	Y	N
53	N	Y	Y	No	N	N
54	N	Y	Y	No	Y	N
55	N	Y	Y	No	Y	N
56	N	N	N	Yes	Y	N
57	N	N	N	No	Y	N
58	N	N	N	No	N	N
59	N	N	N	No	N	N
60	Y	N	N	No	Y	N
61	N	Y	Y	Yes	Y	N
62	N	Y	Y	Yes	Y	N
63	N	Y	N	No	N	N
64	N	Y	Y	Yes	Y	N
65	N	Y	N	Yes	N	N
66	Y	N	N	No	N	Y
67	N	N	Y	Yes	Y	N
68	N	Y	N	Yes	Y	N
69	N	N	N	No	N	N
70	N	Y	N	Yes	Y	N
71	N	N	Y	No	Y	N
72	Y	N	N	Yes	Y	N
73	N	N	Y	Yes	N	N
74	N	N	N	No	N	N
75	N	N	Y	No	N	N
76	N	Y	Y	No	N	Y
77	N	Y	Y	Yes	N	N
78	N	N	Y	Yes	Y	N
79	N	Y	Y	Yes	Y	N
80	N	Y	N	Yes	Y	N
81	Y	Y	N	No	Y	N
82	N	N	Y	No	Y	N
83	Y	Y	N	No	Y	N
84	N	Y	Y	No	N	N
85	Y	N	N	No	Y	N
86	Y	Y	Y	Yes	N	N
87	N	N	N	No	Y	N
88	N	N	N	No	Y	N
89	N	Y	N	Yes	Y	N
90	N	Y	Y	Yes	Y	N
N = No, Y= yes						

Reg. no	Diet modification	Alpa Aahar	Ruksha Aahar	Sheet Annapan	Single rasa in excess	Dauhrida avaman
91	N	N	Y	No	Y	N
92	N	N	N	Yes	Y	N
93	N	N	N	No	N	N
94	N	N	N	No	N	N
95	N	N	N	No	Y	N
96	N	Y	N	No	Y	N
97	N	Y	N	Yes	Y	N
98	N	Y	Y	Yes	Y	Y
99	N	N	N	No	Y	N
100	N	N	Y	No	Y	N
101	N	N	Y	No	Y	N
102	N	N	Y	No	N	N
103	N	N	N	No	N	N
104	N	N	Y	Yes	Y	N
105	N	Y	Y	No	Y	N
106	N	N	Y	No	Y	N
107	N	N	N	No	Y	N
108	N	N	Y	No	Y	N
109	N	Y	Y	Yes	N	N
110	N	Y	Y	Yes	Y	N
111	Y	Y	Y	No	N	N
112	N	Y	N	Yes	Y	N
113	N	N	N	Yes	N	N
114	N	Y	N	No	N	N
115	N	N	N	No	Y	N
116	N	Y	Y	Yes	N	N
117	N	Y	Y	Yes	Y	N
118	N	Y	N	Yes	N	N
119	N	N	Y	No	Y	N
120	N	N	N	No	N	N
121	N	Y	N	Yes	Y	N
122	N	Y	Y	Yes	N	N
123	N	N	N	No	Y	N
124	N	N	Y	No	Y	N
125	N	N	Y	No	Y	N
126	Y	N	N	No	Y	Y
127	N	Y	N	Yes	N	N
128	N	N	N	No	N	N
129	N	N	N	Yes	Y	N
130	N	N	N	No	Y	N
131	N	N	N	No	Y	N
N = No, Y= yes						

Master Chart

Reg. no	Diet modification	Alpa Aahar	Ruksha Aahar	Sheet Annapan	Single rasa in excess	Dauhrida avaman
132	N	Y	N	Yes	Y	N
133	N	N	N	No	N	N
134	N	N	Y	No	N	N
135	N	Y	N	No	Y	N
136	N	N	Y	No	Y	N
137	N	Y	N	Yes	Y	N
138	N	Y	N	No	N	N
139	N	Y	Y	Yes	N	N
140	N	Y	Y	Yes	Y	N
141	N	Y	N	No	N	N
142	N	Y	Y	Yes	Y	N
143	N	Y	N	No	N	N
144	N	Y	N	Yes	Y	N
145	N	Y	N	Yes	Y	N
146	N	Y	N	Yes	Y	N
147	N	N	N	No	N	N
148	N	N	Y	No	Y	N
149	N	Y	Y	Yes	Y	N
150	N	N	N	Yes	N	N
151	N	N	Y	No	Y	N
152	N	Y	N	Yes	Y	N
153	N	N	N	Yes	N	N
154	N	N	N	No	Y	N
155	N	N	N	No	Y	N
156	N	N	N	Yes	Y	N
157	N	Y	Y	Yes	Y	N
158	N	N	N	No	Y	N
159	N	Y	N	Yes	N	N
160	N	N	Y	No	N	Y
161	N	Y	N	Yes	Y	N
162	N	Y	Y	Yes	Y	N
163	N	N	Y	No	N	N
164	Y	Y	N	No	Y	N
165	N	Y	N	No	N	Y
166	N	Y	N	No	N	N
167	N	Y	N	No	N	N
168	N	N	N	No	N	N
169	Y	Y	Y	Yes	Y	N
170	Y	N	N	No	N	N
171	N	N	N	No	N	N
172	N	N	N	Yes	Y	N
N = No, Y= yes						

Master Chart

Reg. no	Diet modification	Alpa Aahar	Ruksha Aahar	Sheet Annapan	Single rasa in excess	Dauhrida avaman
173	N	Y	N	No	Y	N
174	N	Y	Y	Yes	Y	N
175	N	N	N	Yes	Y	N
176	N	Y	N	No	N	N
177	N	Y	N	Yes	Y	N
178	N	N	Y	No	Y	N
179	N	Y	Y	No	Y	N
180	N	N	Y	Yes	N	N
181	Y	N	N	No	N	N
182	Y	Y	Y	No	N	N
183	N	N	N	Yes	Y	N
184	N	N	Y	No	N	N
185	N	Y	N	Yes	N	N
186	N	N	N	No	N	N
187	Y	N	Y	Yes	Y	N
188	N	Y	N	No	N	N
189	N	Y	Y	No	N	N
190	N	Y	N	Yes	Y	N
191	N	N	N	No	N	N
192	Y	Y	Y	No	Y	N
193	N	N	Y	Yes	N	N
194	N	N	Y	No	N	N
195	N	Y	Y	No	N	N
196	N	N	N	Yes	N	N
197	N	N	N	No	N	N
198	N	N	N	Yes	Y	Y
199	N	Y	N	Yes	N	N
200	N	N	N	Yes	Y	Y
201	N	N	Y	Yes	Y	N
202	N	N	N	Yes	N	Y
203	N	N	Y	No	Y	N
204	N	Y	Y	Yes	Y	N
205	Y	N	Y	No	Y	N
206	N	Y	N	No	Y	N
207	N	N	N	No	Y	N
208	N	Y	N	Yes	N	N
209	Y	N	N	No	N	N
210	Y	N	Y	No	N	N
211	N	Y	N	Yes	N	Y
212	N	N	Y	No	N	N
213	N	N	N	No	N	N
N = No, Y= yes						

214	N	N	Y	No	N	N
215	N	Y	N	No	Y	N
216	N	N	N	Yes	N	N
217	N	N	N	Yes	Y	Y
218	N	Y	N	No	N	N
219	N	N	N	Yes	N	N
220	N	Y	Y	No	Y	N
221	N	N	N	Yes	N	N
222	N	N	Y	No	N	N
223	N	N	N	No	Y	N
224	N	Y	N	Yes	N	N
225	N	N	N	Yes	Y	N
226	Y	N	N	No	N	N
227	N	N	N	No	Y	N
228	N	N	N	No	Y	N
229	N	Y	Y	Yes	Y	N
230	N	N	Y	No	N	N
231	N	Y	N	No	Y	N
232	Y	N	Y	Yes	N	N
233	Y	Y	Y	No	N	N
234	N	N	N	Yes	N	N
235	Y	N	N	No	Y	N
236	N	Y	Y	Yes	Y	N
237	N	N	N	Yes	Y	N
238	Y	Y	N	Yes	N	N
239	Y	N	N	No	N	N
240	N	Y	N	No	Y	N
241	N	N	N	Yes	Y	N
242	N	Y	N	No	Y	N
243	N	N	Y	No	N	N
244	N	Y	N	Yes	Y	N
245	N	N	Y	No	Y	N
246	N	N	N	No	N	N
247	N	Y	N	Yes	N	Y
248	N	Y	N	Yes	Y	N
249	N	N	Y	No	N	N
250	N	Y	N	Yes	Y	Y
251	N	N	Y	No	N	N
252	N	Y	N	No	Y	N
253	N	N	N	Yes	N	N
254	N	N	Y	Yes	Y	Y
255	Y	Y	N	No	Y	N
256	N	Y	Y	Yes	Y	N
N = No, Y= yes						

Master chart 4: Antenatal factors Viharatamka

Reg. no	Vyavaya	Vyayam	Travelling	Sleep	Mansika bhava	H/o TV watching	Fall / injury
1	N	N	N	N	N	N	Y
2	N	N	N	N	N	Y	Y
3	N	Y	Y	N	N	N	Y
4	N	N	N	Y	Y	Y	N
5	N	N	Y	N	Y	Y	N
6	y	y	n	N	N	N	y
7	N	Y	Y	N	N	Y	N
8	Y	N	Y	N	N	Y	N
9	N	Y	Y	N	N	Y	Y
10	Y	N	Y	Y	n	y	N
11	N	Y	Y	N	N	Y	N
12	N	Y	N	N	Y	Y	N
13	Y	N	N	N	N	Y	Y
14	N	N	N	Y	Y	Y	Y
15	N	Y	N	Y	Y	Y	N
16	N	Y	N	N	N	Y	N
17	Y	Y	N	N	Y	N	N
18	N	N	Y	N	Y	Y	N
19	N	Y	Y	Y	Y	Y	N
20	N	N	N	N	Y	Y	Y
21	Y	Y	N	N	N	Y	N
22	N	N	N	Y	N	N	N
23	N	Y	N	N	N	Y	N
24	N	N	Y	N	Y	N	N
25	N	N	Y	N	Y	Y	N
26	N	N	N	N	Y	N	N
27	Y	N	N	N	N	Y	N
28	N	N	N	N	N	N	N
29	N	Y	Y	Y	N	Y	Y
30	N	Y	Y	N	Y	Y	n
31	N	N	N	Y	Y	N	N
32	Y	Y	N	N	Y	Y	N
33	Y	Y	N	Y	Y	Y	N
34	Y	N	Y	Y	N	Y	Y
35	N	Y	Y	N	Y	N	N
36	N	N	N	N	Y	N	Y
37	N	Y	Y	N	N	Y	N
38	N	N	Y	N	N	Y	N
39	Y	Y	Y	N	N	Y	Y
N= No, Y= Yes							

Master Chart

Reg. no	Vyavaya	Vyayam	Travelling	Sleep	Mansika bhava	H/o TV watching	Fall / injury
40	N	N	Y	Y	N	Y	N
41	N	N	N	Y	Y	Y	N
42	Y	N	Y	N	N	Y	Y
43	N	Y	Y	N	N	N	N
44	N	N	Y	N	N	Y	Y
45	N	Y	Y	N	N	Y	N
46	N	N	N	Y	N	Y	N
47	Y	Y	Y	Y	N	Y	Y
48	N	N	Y	N	Y	N	N
49	N	Y	Y	Y	N	Y	N
50	N	N	N	N	Y	N	N
51	N	Y	Y	N	Y	Y	N
52	Y	Y	Y	N	N	N	N
53	N	Y	Y	Y	Y	Y	Y
54	N	N	Y	N	N	Y	N
55	N	Y	N	N	Y	Y	N
56	N	Y	Y	Y	Y	N	Y
57	Y	Y	Y	Y	Y	N	N
58	N	Y	Y	N	N	Y	N
59	Y	Y	Y	N	N	Y	Y
60	N	N	Y	N	N	Y	N
61	Y	Y	Y	N	N	N	N
62	N	N	Y	N	N	Y	N
63	Y	Y	Y	N	Y	Y	N
64	Y	N	Y	Y	Y	Y	Y
65	Y	Y	Y	N	N	Y	N
66	Y	N	Y	Y	N	Y	N
67	N	N	Y	N	N	Y	N
68	Y	N	Y	N	Y	Y	N
69	Y	Y	Y	N	N	Y	N
70	Y	N	Y	N	N	Y	N
71	Y	N	N	N	Y	Y	Y
72	Y	Y	Y	N	Y	Y	N
73	Y	Y	Y	N	N	Y	N
74	Y	Y	Y	N	N	Y	N
75	N	Y	Y	Y	Y	Y	N
76	Y	Y	Y	N	Y	Y	N
77	N	N	N	N	Y	Y	Y
78	Y	N	N	N	N	N	N
79	Y	Y	N	N	N	Y	N
80	Y	Y	Y	N	N	N	N
N= No, Y= Yes							

Master Chart

Reg. no	Vyavay	Vyayam	Travelling	Sleep	Mansika bhava	H/o TV watching	Fall / injury
81	Y	N	Y	N	N	Y	N
82	Y	N	Y	N	N	N	Y
83	Y	N	Y	N	Y	Y	N
84	N	N	N	N	N	N	N
85	N	N	Y	N	Y	Y	N
86	Y	Y	Y	N	N	Y	N
87	N	Y	Y	Y	N	Y	Y
88	Y	Y	Y	N	Y	N	N
89	Y	N	Y	Y	Y	N	N
90	Y	N	Y	N	Y	Y	N
91	Y	Y	Y	N	N	Y	N
92	N	Y	Y	N	Y	Y	N
93	Y	Y	Y	N	N	Y	N
94	Y	N	Y	N	N	Y	N
95	Y	Y	Y	N	N	Y	N
96	N	N	N	N	N	Y	N
97	N	Y	Y	N	Y	Y	Y
98	Y	N	Y	Y	N	Y	N
99	Y	N	Y	N	N	Y	N
100	Y	N	Y	N	N	Y	N
101	Y	N	N	N	Y	N	N
102	Y	N	Y	N	Y	Y	N
103	Y	Y	N	N	N	Y	N
104	N	N	Y	N	Y	Y	N
105	Y	N	Y	Y	Y	Y	N
106	N	N	Y	N	Y	Y	N
107	N	N	N	N	N	N	Y
108	N	Y	Y	Y	N	Y	Y
109	N	N	Y	Y	N	Y	Y
110	N	N	Y	N	N	Y	Y
111	Y	Y	N	N	N	Y	N
112	Y	Y	Y	N	N	Y	N
113	Y	N	Y	Y	Y	Y	N
114	N	Y	Y	N	N	Y	N
115	Y	Y	N	N	N	Y	N
116	Y	Y	Y	N	N	Y	Y
117	Y	N	Y	N	Y	Y	y
118	Y	Y	Y	Y	N	Y	N
119	Y	Y	Y	N	Y	N	N
120	N	N	Y	N	Y	N	N
121	Y	N	Y	N	N	Y	Y
N= No, Y= Yes							

Master Chart

Reg. no	Vyavaya	Vyayam	Travelling	Sleep	Mansika bhava	H/o TV watching	Fall / injury
122	Y	N	N	N	Y	Y	N
123	N	N	N	Y	Y	N	N
124	Y	Y	Y	N	N	Y	N
125	Y	Y	N	N	Y	Y	N
126	Y	N	Y	N	Y	Y	N
127	N	Y	Y	N	N	N	N
128	N	N	Y	N	Y	N	N
129	Y	N	Y	Y	Y	N	N
130	N	N	N	N	N	N	Y
131	Y	N	N	N	N	Y	N
132	Y	Y	Y	N	N	Y	N
133	Y	N	Y	N	N	Y	N
134	Y	Y	Y	N	Y	Y	N
135	N	N	Y	N	N	Y	N
136	Y	N	Y	N	N	Y	N
137	Y	Y	Y	N	N	Y	N
138	N	Y	N	N	N	N	Y
139	Y	N	Y	Y	N	Y	N
140	Y	Y	N	N	Y	Y	N
141	N	Y	Y	N	N	Y	N
142	Y	Y	Y	N	N	Y	N
143	Y	N	Y	Y	N	N	N
144	N	Y	Y	Y	N	Y	N
145	Y	N	Y	Y	N	N	N
146	Y	Y	Y	Y	N	N	N
147	Y	Y	Y	N	N	Y	N
148	N	N	Y	N	N	Y	N
149	Y	Y	Y	N	N	N	N
150	Y	N	N	N	Y	Y	N
151	Y	Y	Y	Y	N	N	N
152	N	N	Y	N	Y	Y	N
153	Y	Y	Y	N	N	Y	N
154	N	N	Y	N	Y	N	Y
155	N	N	Y	N	Y	Y	Y
156	Y	N	Y	Y	Y	Y	Y
157	Y	N	Y	N	N	Y	N
158	Y	Y	Y	N	Y	Y	Y
159	N	N	N	N	Y	N	N
160	Y	Y	Y	N	Y	Y	Y
161	Y	N	Y	N	Y	Y	N
162	N	Y	Y	Y	Y	Y	N
N= No, Y= Yes							

Master Chart

Reg. no	Vyavaya	Vyayam	Travelling	Sleep	Mansika bhava	H/o TV watching	Fall / injury
163	Y	Y	Y	Y	Y	N	N
164	Y	Y	Y	N	Y	N	N
165	Y	Y	Y	N	N	Y	N
166	Y	N	Y	Y	Y	Y	Y
167	Y	Y	N	Y	Y	Y	N
168	Y	Y	N	Y	Y	Y	N
169	Y	N	N	N	Y	Y	N
170	N	Y	N	N	N	Y	N
171	N	Y	N	Y	N	Y	N
172	N	Y	N	Y	N	N	N
173	N	N	Y	Y	Y	Y	N
174	Y	Y	Y	N	N	Y	N
175	N	Y	Y	N	N	Y	N
176	Y	Y	N	N	N	N	N
177	Y	Y	Y	N	N	Y	N
178	Y	Y	N	N	Y	N	N
179	N	Y	Y	N	N	Y	N
180	N	Y	Y	N	N	Y	Y
181	N	N	Y	Y	Y	Y	N
182	N	Y	N	N	Y	Y	Y
183	N	Y	N	N	N	Y	N
184	Y	N	N	N	N	Y	N
185	N	Y	N	N	Y	Y	N
186	Y	Y	N	N	N	Y	N
187	Y	Y	Y	N	Y	Y	Y
188	N	N	Y	N	N	Y	Y
189	N	Y	Y	N	Y	Y	Y
190	N	Y	Y	N	Y	Y	N
191	Y	N	N	N	Y	Y	N
192	Y	Y	Y	N	N	Y	N
193	Y	Y	Y	Y	N	Y	Y
194	N	Y	N	Y	Y	Y	N
195	Y	Y	Y	N	N	N	N
196	Y	Y	N	N	Y	Y	Y
197	N	Y	N	Y	Y	Y	N
198	Y	N	Y	Y	N	Y	N
199	Y	Y	Y	Y	N	Y	N
200	N	N	Y	Y	Y	Y	Y
201	N	N	N	N	Y	Y	N
202	N	N	N	Y	Y	Y	N
203	N	Y	Y	N	Y	Y	Y
N= No, Y= Yes							

Master Chart

Reg. no	Vyavaya	Vyayam	Travelling	Sleep	Mansika bhava	H/o TV watching	Fall / injury
204	Y	Y	Y	N	N	Y	N
205	Y	Y	N	N	N	Y	Y
206	Y	Y	Y	N	Y	Y	N
207	Y	Y	N	N	N	Y	N
208	Y	Y	Y	N	N	N	N
209	N	Y	Y	N	N	Y	N
210	Y	N	N	N	N	Y	N
211	Y	Y	Y	N	N	N	N
212	N	Y	Y	N	N	Y	N
213	N	Y	N	Y	N	N	N
214	N	Y	N	Y	Y	N	N
215	Y	N	Y	N	Y	Y	N
216	Y	N	N	N	N	Y	Y
217	Y	Y	Y	N	N	Y	N
218	N	N	N	Y	Y	Y	N
219	Y	Y	N	N	Y	Y	N
220	Y	Y	Y	N	Y	Y	N
221	N	N	Y	Y	Y	Y	Y
222	Y	Y	N	N	Y	Y	N
223	Y	Y	Y	Y	N	Y	N
224	N	Y	Y	N	N	Y	N
225	N	N	Y	N	N	Y	N
226	N	Y	N	N	N	Y	N
227	N	N	Y	N	Y	N	Y
228	N	N	Y	N	Y	Y	Y
229	Y	Y	N	N	N	Y	N
230	Y	Y	Y	Y	N	Y	N
231	N	N	Y	N	N	Y	N
232	Y	Y	Y	N	Y	Y	Y
233	Y	Y	N	N	N	Y	N
234	N	Y	N	Y	N	Y	N
235	N	Y	Y	N	N	Y	N
236	N	Y	N	Y	Y	Y	Y
237	N	Y	N	N	N	Y	Y
238	N	N	Y	N	Y	N	Y
239	Y	Y	Y	N	N	Y	N
240	Y	Y	N	Y	N	N	Y
241	N	Y	N	Y	N	Y	N
242	Y	N	Y	N	Y	Y	N
243	Y	N	N	Y	Y	Y	N
244	N	Y	Y	N	N	Y	N
N= No, Y= Yes							

Master Chart

Reg. no	Vyavaya	Vyayam	Travelling	Sleep	Mansika bhava	H/o TV watching	Fall / injury
245	N	N	N	N	N	Y	N
246	N	Y	N	Y	Y	Y	N
247	N	Y	N	N	N	Y	N
248	N	N	Y	N	Y	Y	N
249	Y	N	N	N	N	Y	N
250	Y	Y	N	Y	N	Y	N
251	Y	Y	Y	N	N	N	Y
252	N	N	N	N	Y	Y	N
253	Y	Y	N	N	N	Y	N
254	N	Y	Y	N	N	Y	N
255	Y	Y	N	N	Y	Y	N
256	Y	Y	N	N	Y	Y	N
N= No, Y= Yes							

Tilak Maharashtra Vidyapeeth

Department of Ayurveda

CASE RECORD FORM

Title: Etiological assessment of Developmental delay in pediatric patient with Ayurvedic perspective

PhD Scholar
Vd. Hetal T. Nagda
MD (Kaumarbhritya)

Supervisor
Vd. Kalpanaben Patel
MD,PhD. (Ayu)
HOD &Professor,
Department Of Kaumarbhritya
IPGT & R A,
Jamnagar.

General Information:

Name of the patient: Age: Gender:
Religion: Education:

Address:

Contact details:

Scocio-economic status / family Income:

Date of commencement:

Registration no:

Chief complaints with duration:

Associated complaints

History of present illness:

History of Past illness With Treatment:

Family history: Infectious disease/ Genetic disease/ Allergic disease
Matru kul -
Pitru kul -
Swakul -
Any other -
H/o Preterm child in Other Siblings: Yes / No

Prenatal History:
H/o Consanguinity: Yes / No If yes Relation:
Age of Parents at the time of conception:
Mother: Father:
Maternal Menstrual History:
Regular/ Irregular With Pain / Without Pain
Flow: Moderate/ Low/ Heavy
Any Medication needed For Menstruation: Yes / No
H/o Contraceptive Devises Used: Yes/ No Type:
H/o Any Treatment Taken for conception: Yes/No
For Mother:
For Father:
Gestation History:G P A L D
H/o Conception during Lactation Period: Yes/ No

Antenatal History:
Conception Kaal (L.M.P): EDD:
Diet of Mother during Pregnancy:
1. Modification in Diet before & After Pregnancy : Yes / No
2. Approx timing of food eaten after it is prepared :
3. H/o food eaten from Tifin/Dabba Frequency per week :
4. Food taken – Warm / Cold Frequency :
5. Daily food quantity / meal (Approx.)

6. Food Taken on full stomach : Yes /No Frequency :
7. H/o Fast/ Roza/ Skipped meals Frequency : D/W/M/O
8. Approximate Gape between two meals :
9. H/o Eating less food then hunger : Frequency : D/W/M/O
10. H/O Drinking water/ Any other drinks on empty stomach : Yes /No
    Frequency: D/W/M/O

11. H/o Consumption Of Soft beverages: Yes/ No Frequency : D/W/M/O
12. H/o Consumption Of Outside Meal : Yes/ No Frequency : D/W/M/O
13. Food/ fruits directly eaten from Refrigerator : Yes / No Frequency:
14. H/o Consumption of Pav / Bread/ Biscuits/ Cake/ Khakhra / Kurmura / Papad
    Quantity: Frequency:

15. H/o Consumption of Chinese food/ Italian food/ Thai / Mexican food :
    Frequency : D/W/M/O
16. H/o Consumption Of Any Single Ras in Excess : Yes/ No Type: M / A/ L/ C/T/K
17. Specific H/o Following Food Items :

Sr no.	Food Item	Frequency: Daily/ Weekly /Monthly/Twice Daily	Quantity	Any other specification
1	Sprouted food			
2	Shushka Shak			
3	Shuska Mansa			
4	Trina Dhanya			
5	Kalaya - Triputak			
6	Chanak			
7	Karir -			
8	Kalinga -			

9	Chibhit -			
10	Bis			
11	Shaluka			
12	Jambav			
13	Tinduka			
14	Mudga			
15	Munga daal			WithTadka: Yes/ No
16	Masur			
17	Adhaki			WithTadka :Yes/ No
18	Harenuk–Vartul kalay			
19	Nishpav - Rajshimibi			
20	Ice-creams			
21	Smoothes/Thick Shakes/Milk Shakes			

Paricharya of Mother during Pregnancy:

1. Sleeping time of mother:
2. Sleeping hrs (Duration) of mother :
3. Quality Of sleep : Sound /Interrupted/ Disturb/
4. Quality of Bed : Comfortable / Uncomfortable
5. H/o Sleeping during day time: Yes/ No Frequency: D/W/M/O
6. Day time sleeping-Duration :
7. H/oSexual relations during Pregnancy : Yes/ No Frequency: D/W/M/O
8. H/o Panchkarma Procedures Done: Yes/No If yes _____
9. H/O Antenatal bleeding: Yes / No Duration,
10. Antenatal bleeding Duration Throughout Pregnancy: Yes/ No
11. H/o Placental Anomaly : Yes/ No
12. H/o Amniotic Fluid : Adequate / Oligo hyrdomnios / Poly hydromnios
13. H/o Exercise : Yes/ No Duration: Frequency: D/W/M/O Type of Exercise
14. H/o Walking : Yes/No Duration : Frequency: D/W/M/O
15. H/o Running/ Jogging: Yes/ No Duration : Frequency: D/W/M/O
16. H/o Weight Bearing Exercise: Yes/ No Duration : Frequency: D/W/M/O
17. H/o Swimming: Yes/ No Duration : Frequency: D/W/M/O
18. H/o Any Hard Physical activity: Yes/ NoDuration : Frequency: D/W/M/O
19. Approximately weight gain during Pregnancy :
20. H/o Any illness: Yes/ No
21. H/o Fall /Injury / Trauma : Yes/ No
22. H/o Marmaghat: Yes/ No
23. Ride of Gaja /Ashwa/ Ushtra/2 wheeler Duration : Frequency: D/W/M/O
24. H/o Traveling: Yes /No Duration : Frequency: D/W/M/O
25. Mode of traveling Approx speed:
26. H/o Studies/ Reading: Yes/ NoDuration : Frequency: D/W/M/O
27. H/o Controlling Natural Urges: Yes/ No

Type: Kshudha/ Trishna / Micturaion/ Stool/ Flatulous/Sneezing/Nidra / Ashru/

28. H/o Veg-Udiran – Mansik Bhav: Yes/ No

Types:Chinta/ Bhaya/Krodh/Shok/Utkantha

29. H/o Television Watching Hrs: Duration : Frequency: D/W/M/O
Type of Shows watched:
30. H/o Use Of Air-condition: Yes/No Duration : Frequency: D/W/M/O

Diseases of Mother:
Antenatal Bleeding: Placenta Previa/ Abrtuptio Palcenta / Eclampsia/ Pre- eclampsia

Diabetes / High Blood pressure / Hyper Emesis Gravidum/ Thyroid Disease

Infectious Disease: Typhoid / Malaria/ Tuberculosis/ HIV/ Any Other

Any Other Illness:

Drug Consumption: Yes /No

Alcohol/Tobacco/ Any other Addition:

Birth History:

Birth Date Birth Weight:

Gestational Age: Pre Term/ Term/ Post Term

Labor: Spontaneous / Induced

Mode of delivery: Normal/ L.S.C.S/ Ventuse/Vacuum/ Forcep/Water/Painless delivery

Place of Birth: Home/Hospital / Any Other

Presentation: Vertex/ Breech /Transverse/ Any other

Duration of delivery after rupture of membrane:

Cry of baby: Good/ Spontaneous/ Resuscitative measures required : Yes/No

Birth Asphyxia: Yes /No

Post Natal History:

NICU Admission: Yes/ No

H/o congenital Anomaly /Some other Disorder:

H/o Neonatal Jaundice: Yes /No Treatment Required: Yes/ No

H/o Any Other Disorder: Convulsions / Sepsis/ Bleeding Disorder/ Infection

Dietary History:

Exclusive Breastfeeding (Duration):

Topfeeding if started at what age: what food used:

Weaning: Home made food / Ready Made food

Immunization History:

BCG:	OPV	DTP	Measles
MMR:	Hepatitis B:	Hib	Rota virus

Any Other:

Social History:

	Age	***Education***	***Occupation***
Mother			
Father			

Family status: Joint / Nuclear
Total no of Family members:
Alcohol/Tobacco consumption in Family: Yes /No
Pets in family: Yes /No

Anthropometric measurements:

Weight: Total Length: MAC:

Head Circumference: Chest Circumference

Rugna Parikshan :

1) Ashtvidh Parikshan -

Nadi : Jivha : Mala:

Mutra: Sparsh: Druka:

Shabda: Aakruti :

2) Dashvidh Parikshan -

Dushya: Desh:

Bala : Rugna bala - P / M / A Kaal :

Vyadhi bala- P /M /A

Anal : (Sama/ Visham/Manda/Tikshana) Prakruti:

Vaya: Satva:

Satmya : Aahar Shakti :

3) Anya Parikshan -

Twacha Jivha

Nakha Kesha

Danta Koshtha

Kshudha Trishna:

Nidra : Dehoshma:

4) Indriya Parikshan :

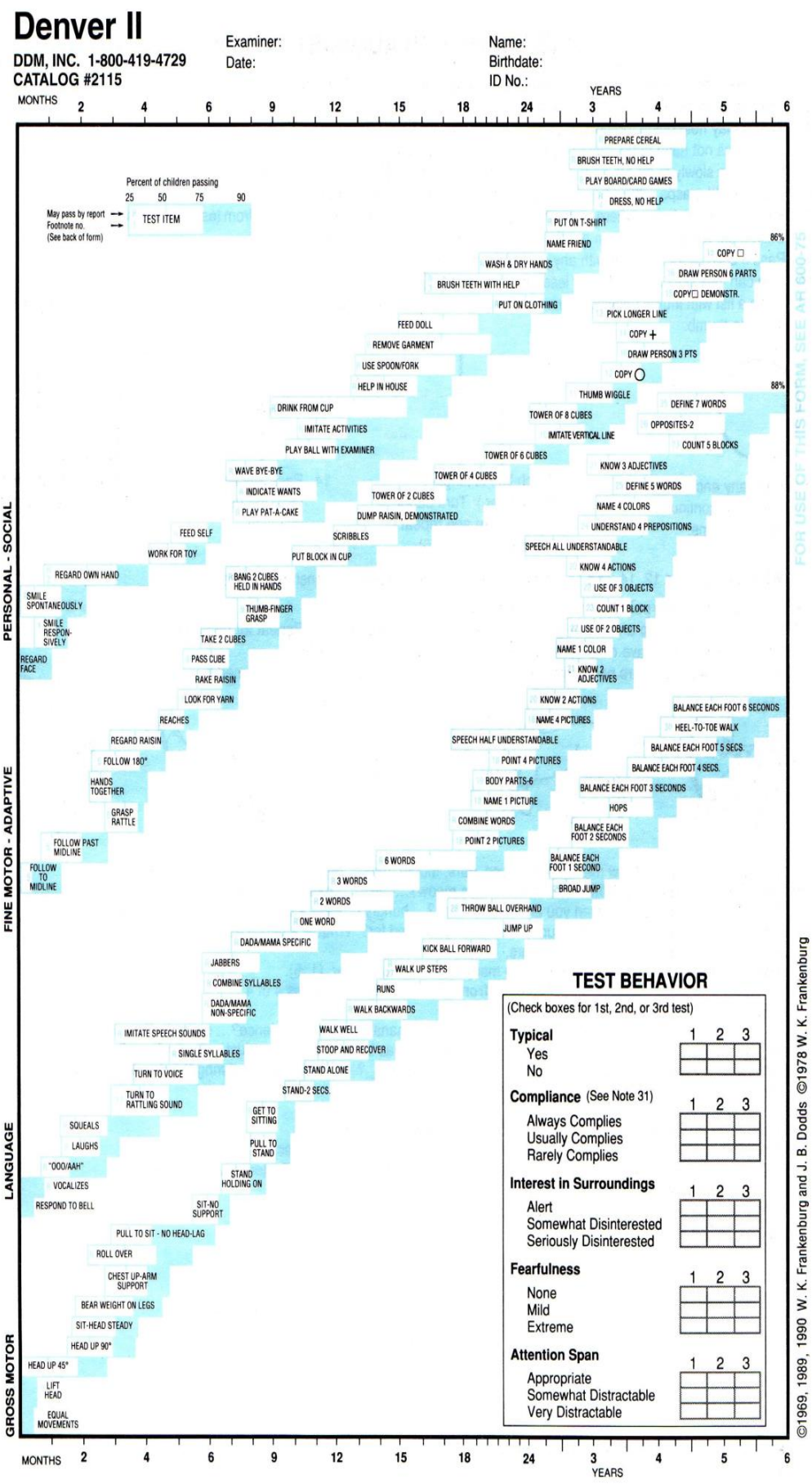
Gyanendriya :	Karmendriya:
Shrotrendriya:	Pani :
Sparshendriya :	Pada:
Rupendriya :	Payu :
Rasnendriya:	Upastha :
Ghranendriya :	Vani :

Investigation:

Srotas Parikshan:

Vyadhi- Vinischay:

PhD Scholar **PhD Superviso**


Denver II
DDM, INC. 1-800-419-4729
CATALOG #2115
Examiner:
Date:
Name:
Birthdate:
ID No.:
MONTHS
YEARS
Percent of children passing
25 50 75 90
May pass by report →
Footnote no. →
(See back of form)
TEST ITEM
PERSONAL - SOCIAL
FINE MOTOR - ADAPTIVE
LANGUAGE
GROSS MOTOR
PREPARE CEREAL
BRUSH TEETH, NO HELP
PLAY BOARD/CARD GAMES
DRESS, NO HELP
PUT ON T-SHIRT
NAME FRIEND
WASH & DRY HANDS
BRUSH TEETH WITH HELP
PUT ON CLOTHING
FEED DOLL
REMOVE GARMENT
USE SPOON/FORK
HELP IN HOUSE
DRINK FROM CUP
IMITATE ACTIVITIES
PLAY BALL WITH EXAMINER
WAVE BYE-BYE
INDICATE WANTS
PLAY PAT-A-CAKE
FEED SELF
WORK FOR TOY
REGARD OWN HAND
SMILE SPONTANEOUSLY
SMILE RESPON-SIVELY
REGARD FACE
BANG 2 CUBES HELD IN HANDS
THUMB-FINGER GRASP
TAKE 2 CUBES
PASS CUBE
RAKE RAISIN
LOOK FOR YARN
REACHES
REGARD RAISIN
FOLLOW 180°
HANDS TOGETHER
GRASP RATTLE
FOLLOW PAST MIDLINE
FOLLOW TO MIDLINE
PUT BLOCK IN CUP
TOWER OF 2 CUBES
DUMP RAISIN, DEMONSTRATED
SCRIBBLES
TOWER OF 4 CUBES
TOWER OF 6 CUBES
IMITATE VERTICAL LINE
TOWER OF 8 CUBES
THUMB WIGGLE
COPY ○
DRAW PERSON 3 PTS
COPY +
PICK LONGER LINE
COPY□ DEMONSTR.
DRAW PERSON 6 PARTS
COPY □
86%
DEFINE 7 WORDS
OPPOSITES-2
COUNT 5 BLOCKS
KNOW 3 ADJECTIVES
DEFINE 5 WORDS
NAME 4 COLORS
UNDERSTAND 4 PREPOSITIONS
SPEECH ALL UNDERSTANDABLE
KNOW 4 ACTIONS
USE OF 3 OBJECTS
COUNT 1 BLOCK
USE OF 2 OBJECTS
NAME 1 COLOR
KNOW 2 ADJECTIVES
KNOW 2 ACTIONS
NAME 4 PICTURES
SPEECH HALF UNDERSTANDABLE
POINT 4 PICTURES
BODY PARTS-6
NAME 1 PICTURE
COMBINE WORDS
POINT 2 PICTURES
6 WORDS
3 WORDS
2 WORDS
ONE WORD
DADA/MAMA SPECIFIC
JABBERS
COMBINE SYLLABLES
DADA/MAMA NON-SPECIFIC
IMITATE SPEECH SOUNDS
SINGLE SYLLABLES
TURN TO VOICE
TURN TO RATTLING SOUND
SQUEALS
LAUGHS
"OOO/AAH"
VOCALIZES
RESPOND TO BELL
HEAD UP 45°
LIFT HEAD
EQUAL MOVEMENTS
HEAD UP 90°
SIT-HEAD STEADY
BEAR WEIGHT ON LEGS
CHEST UP-ARM SUPPORT
ROLL OVER
PULL TO SIT - NO HEAD-LAG
SIT-NO SUPPORT
STAND HOLDING ON
PULL TO STAND
GET TO SITTING
STAND-2 SECS.
STAND ALONE
STOOP AND RECOVER
WALK WELL
WALK BACKWARDS
RUNS
WALK UP STEPS
KICK BALL FORWARD
JUMP UP
THROW BALL OVERHAND
BROAD JUMP
BALANCE EACH FOOT 1 SECOND
BALANCE EACH FOOT 2 SECONDS
HOPS
BALANCE EACH FOOT 3 SECONDS
BALANCE EACH FOOT 4 SECS.
BALANCE EACH FOOT 5 SECS.
HEEL-TO-TOE WALK
BALANCE EACH FOOT 6 SECONDS
88%
TEST BEHAVIOR
(Check boxes for 1st, 2nd, or 3rd test)
Typical
Yes
No
Compliance (See Note 31)
Always Complies
Usually Complies
Rarely Complies
Interest in Surroundings
Alert
Somewhat Disinterested
Seriously Disinterested
Fearfulness
None
Mild
Extreme
Attention Span
Appropriate
Somewhat Distractable
Very Distractable
1 2 3
FOR USE OF THIS FORM, SEE AR 600-75
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