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Development of physiological characteristics based questionnaires for assessment of prakriti (physical constitution) in children

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Abstract

The purpose of Ayurveda has been described as to protect the health of a healthy person and to eliminate the ailments of a diseased man. According to this system an individual's basic constitution or *Prakriti* determines predisposition and prognosis to diseases as well as therapy and life-style regime. *Prakriti* is organized in accordance to attributes of predominant *dosha* at the time of sperm and ovum union. Ayurveda describes seven broad constitution types. Determination of *Prakriti* in childhood period (*Balyavastha*) can help the Ayurvedic pediatrician to evaluate metabolic imprinting, individual physiology and susceptibility to specific disease, its diagnosis, prevention, treatment as well as the prognosis after illness. After *Prakriti* determination in children, Ayurvedic pediatrician can provide guideline for *Dincharya* (Daily regimen), *Ritucharya* (seasonal routine), *Ahara* (diet) and *Sadvritta* (rules of behavior).

There are many measures to determine the *Prakriti* in adults, but as far as infants and children are concerned, no detail description is available in Ayurvedic classics. *Prakriti* of children can be assessed as per the characteristics specified for adult in *Brihatrayi* and *Laghutrayi grantha* of Ayurveda. All features described in Ayurveda can be classified in the Physical, Physiological and Psychological characteristics. In practice it is seen that physical characteristic changes in respect to season, age food and environment. Development of questionnaires from each characteristic is important tool for *Prakriti* determination in children. This article explores the questionnaire preparation by physiological characteristic for *Prakriti* determination in children and development of tool for assessment.

Keywords: Prakriti, questionnaire, children, physiological characteristic

Introduction

Prakriti is one's own constitution which is individual specific means it is controlled by its own physiology. *Prakriti* is enumeration of body features internal as well as external. *Prakriti* is a consequence of the relative proportion of three *dosha*, *Vata*, *Pitta* and *Kapha*, which is influenced by genetic factor (*Shukra* and *Shonita*), environment factors (*Mahabhuta Vikara*), maternal diet and lifestyle (*Matur Ahara Vihara*), and age of the transmitting parents (*Kala-Garbhashaya*) [1]. Kashyap Samhita, the only available source book on Kaumarbhritya classified *Prakriti* on different ground. He expressed effect of time or *Kala* on *Prakriti*. Kashyapa has explained that the fetus is nourished by the mother so identical type of *Prakriti* of human being is formed from embryonic life. These *Prakriti* are of three types having *Vata*, *Pitta* and *Kapha* as pillars [2]. Charaka Samhita also referred to extra-uterine factors influencing *Prakriti* such as *Jati prasakta*, *Kula prasakta*, *Deshanupatini*, *Kalanupatini*, *Vayanupatini* and *Pratyatmaniyata* [3].

Prakriti is an important tool that explains individuality and has important role in prevention, diagnosis [4], treatment of diseases [5] and forecast of future disorders [6]. The description of *Prakriti* in Charaka is more systematic than the other Samhitas. Charaka has explained assessment of *Prakriti* on the basis of *Guna* and described manifestation of each *Guna* separately. For example, *Vata Prakriti* is illustrated on the basis of *Ruksha*, *Laghu*, *Chala*, *Shighra*, *Shita*, *Parusha*, *Vishada*, *Alpa Guna* [7]. Each *Guna* is responsible for specific characteristics. Sushruta, Vagbhata, Harita, Bhavmishra and Sharangdhara have described *Prakriti* based on anatomical, physiological and psychological characters.

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Sushruta and *Vagbhata* have added numerous objective parameters as cracked legs and feet and having emaciated tall body, eyes round shaped slightly remain open during sleep for *Vata Prakriti*, coppery hair and laxity of joints for *Pitta Prakriti*, long arm, broad chest and muscular body for *Kapha Prakriti*. Dreams, liking and disliking of different *Prakriti* have elucidated by other Samhita [8, 9] and Sharangdhara [10] has listed few parameters for quick assessment of *Prakriti*. According to Ayurveda, the individual constitution or *Prakriti* classification is based on physical, physiological and psychological characteristics and is independent of racial, ethnic or geographical considerations [11]. In this article mainly focus on development of physiological characteristics based *Prakriti* questionnaires and its assessment methodology in children.

Physiological characteristics for Prakriti Assessment

Sushruta [12], *Vagbhata* [13], *Harita* [14], *Bhavmishra* [15] and *Sharangdhara* [16] have described *Prakriti* based on anatomical, physiological and psychological characters. The *Prakriti* of an individual is fixed at conception and can be assessed by using a validated questionnaire based on physical, physiological and psychological characteristics but psychological features are not considered in children for *Prakriti* assessment. This article focus on mainly physiological characteristics such as feeding habits, stool habits, urine habits, thirst, sweating or body smell, voice, activities, sleep, weather tolerance, like –dislike and disease proneness.

Physiological characteristics based Questionnaires for Prakriti assessment in Children

Textual References	Questionnaire	Methodology for Assessment / Comments
Feeding- Vata - लघुचपलआहार. [17] (Light and unsteady diet). Pitta - बहुभुज. [12] (Gluttons / Overeaters) Pitta - प्रभूताशनपाना. [17] (Frequent eating) Pitta - बहुभुग. [12] (Eat great amount of food) Pitta - तीक्ष्णाननय. [17] (Take plenty of food and drink). Pitta - क्षुत्पिपासावन्त. [17] (Excessive hunger) Pitta - तीक्ष्णतृष्णाबुभुक्ष. [13] (Very keen hunger) Kapha - अल्प...क्षुत्. [17] (Small quantity/ little hunger) Kapha - मन्द...आहार [17] (Poor appetite)	Q. No - 1 Baby likes? a) Warm milk/food b) Cold milk/ food Q. No – 2 Condition of baby prior to feed is – a) Sometimes cry sometimes no cry b) Excessive cry Q. No- 3 Feeding per day – a) Increase frequency with variable amount b) Increase frequency and amount c) Less than optimum. Q. No -4 Quantity of intake per day – a) Irregular b) Fairly good c) Low intake	Prashna Pariksha (Interrogation) ❖ Answer of these questions is based on the information given by the mother/ caretaker. ❖ This question may be asked after 6 months of the age of baby when he/she starts taking food other than the mother milk or with mother milk. ❖ If baby takes warm / cold milk (formula milk/cow milk/ buffalo milk and goat milk) or food, relatively more in quantity with comfort, it was considered that baby likes warm or cold milk/food. ❖ Normal feeding pattern in infants, taking breast milk/cow's milk and/or formula milk etc., is 8-12 feeds in 24 hours in less than 6-month age; and 6-8 in more than 6-month of age of baby [18] ❖ When baby showed signs of well-fed along with feeding frequency > 10 feeds/day (< 6 month of age) and more than 7 feed (>6 month of age) was considered increased frequency. ❖ Most of healthy infants take 60–90 ml/feeding and require 8 -12 feedings/24 hours. Mostly children fed as often as every 2–3 hours. ❖ Good intake can consider when baby takes an average 75 ml or more per feeding consistently, while low intake was considered when baby takes an average < 60 ml consistently. ❖ Quick intake and variable amount means when baby takes sometime <60 ml and sometime 75 ml, 90 ml or more feed.
Stool habits – Pitta - प्रभूत...पुरीषा [17] (Excess excretion of faeces)	Q. No - 5 Frequency of stool per day is - a) Excess secretion of stool (frequency and amount) b) Less secretion of stool ((frequency and amount)	Prashna Pariksha (Interrogation) ❖ Answer of these questions is based on the information given by the mother/ caretaker ❖ Normal frequencies of stool in infants are depend on type of feeding who are more on exclusive breast feeding and possible explanation given for this is that gastric emptying time of breast milk is faster than that of formula milk [19]. ❖ Range of stool in mixed diet (Breast feed + formula diet) are 0-12 per day. After 6 months of age of baby who are on solid feed along with breast feed, frequency of stool is 0-4/day.
Urine habits- Pitta - प्रभूत...मूत्र. [17] (Excess excretion of urine)	Q. No – 6 Frequency of urine (Per day) a) Excess urination (volume and frequency) b) No excess urination.	Prashna Pariksha (Interrogation) ❖ Normal urine frequency in neonate = At least 6 nappies per day but it may vary according to season. ❖ After achieve complete maturity at the age of 3 month monitoring of urine frequency and volume can start. ❖ Urine volume varies between 1-3 ml/kg/hours in infants. ❖ Normal urine frequency in infants = 6-8 /24 hours (in accordance to season)
Thirst - Pitta - तीक्ष्ण तृष्णा. [13] (Very keen thirst) Kapha - अल्प...तृष्णा. [17] (Little thirst)	Q. No – 7 Frequency of thirst (Per day) – a) More in frequency and intake b) Less and well tolerable.	Prashna Pariksha (Interrogation) ❖ Thirst frequency can be assess by getting history from the mother. ❖ Normal thirst for water in infant is 4 to 6 times/24 hours and it vary according to season. ❖ If frequency was more than 6 times/24 hours. Then it was considered as more frequency and if frequency was less than 4 times/24 hours, then it was considered as less frequency.
Sweating & Body smell Pitta - प्रभूतण स्वेद. [17] (Excess excretion of sweat) Pitta - स्वेदनो. [13]	Q. No – 8 Frequency and volume of sweating a) More in volume and	Prashna Pariksha (Interrogation) ❖ Frequency was assessed by getting history from mother. ❖ The frequency of sweating varies according to season so not get history

(Sweat greatly) Pitta विस्त्रत्वात्प्रभूतपूतिकक्षास्थिरःशरीर [12] (Excessive foetid smell in axilla, mouth, head and body) Pitta - स्वेदनो दुर्गन्धः[12] (Fouly smell perspiration) Kapha - अल्प स्वेददोषाः[17] (Little perspiration)	frequency b) Less in volume and frequency Q. No – 9 Smell of sweating – a) Foul smell b) No foul smell.	during summer season. ❖ Foul smell of sweating was assessed by smell and its history was given from mother.
Voice:- Vata - बहुत्वाद्बहुप्रलापः[17] (Abundance talkative) Vata - प्रलापी[12] (Very talkative) Vata - रूक्ष.....स्वरः[13] (Dry voice) Vata -प्रततरूक्षक्षामसन्नसक्तजर्जरस्वरा [17] (Rough, weak, low adhered and horse voice) Kapha - अल्प प्रलापी[17] (Dull in speech) Kapha - प्रसन्नस्निग्धस्वराश्च [17] (Affectionate voice)	Q. No – 10 Tendency to talk (As informed by mother) a) Over talkative b) Less talkative	Prashna Pariksha (Interrogation) ❖ After 6 month of age tendency of talk should be assess. ❖ Monosyllables sound (ba-, da-, ma-) develop at 6 months and Bisyllables (mama, baba, dada) at 9 months. ❖ If baby talks more than 5 minutes without any significant stimulus then considered as over talkative. ❖ If baby talks less than 3 minutes after initiation then considered as less talkative.
Activities:- Vata - शीघ्रत्वाच्छीघ्रसमारम्भ [17] (Hasty Initiation) Vata - लघुचपलचेष्टा [17] (Light & unsteady movement) Vata - द्रुतगतिरटनो. [12] (Quick in walk) Kapha - मन्द.....चेष्टा [17] (Dull in activities)	Q. No – 11 Activity level of baby is – a) Sometime very active some time dull b) Dull in activities	Prashna Pariksha (Interrogation) ❖ After 6 month of age activity level should be assess. ❖ The most common activity is early leg behaviors are spontaneous kicking, where infants kick without significant external stimuli or feedback. ❖ If movement is more than 2 times / minutes then it was considered as very active. ❖ If movement is less than 2 times / minutes then it was considered as dull in activities or less active condition.
Sleep - Vata - जागरूकाश्च भवन्ति. [17] (Vigils) Vata - उन्मीलितानीव भवन्ति सुप्ते. [17] (Eyelids open whole sleeping) Vata - प्रजागरूकः [17] (Eyelids open whole sleeping) Kapha - निद्रालु [17] (More sleep)	Q. No – 12 Duration of sleep (in hours) is – a) Less sleep b) Abundance or more sleep	Prashna Pariksha (Interrogation) ❖ Frequency was assessed by getting history from mother. ❖ Sleeping time as per age of infants [20]: ▪ 0 to 3 months- Normal range is 16-20 hours. ▪ 3 to 6 months- Normal range is 14-16 hrs. ▪ 6 months to 12 months- Normal range is 12 to 14 hrs. ❖ Bottle fed babies generally sleep for longer period (2-5 hours bouts) than breast fed babies (1-2 hours).
Weather and Pain Tolerance– Vata - शीतद्वेषी. [17] (Hate cold) Vata - शीतासहिष्णुः [17] Pitta - क्लेशासहिष्णुवो. [17] (Lack of endurance) Pitta - भवन्त्युष्णासाहा. [17] (Intolerant to heat)	Q. No –13 Weather Tolerance Ability is a) Intolerance to cold b) Intolerance to heat Q. No –14 Tolerance to painful stimuli – a) Low tolerance b) No tolerance c) High tolerance	Prashna Pariksha (Interrogation) and Self-examination - ❖ After 6 month of age tolerance ability should be assess. ❖ Intolerance ability should assess by history from mother. ❖ When baby cried more after getting exposure to lower normal range then it was considered as intolerance to cold. ❖ When baby had shown un-comfort/ cry after exposure to higher normal range of thermo neutral ambient temperature. ❖ The Face, Legs, Activity, Cry and Consolability scale or FLACC scale [21] is use to assess pain in 2 months to 7 years old children or in individuals those are unable to communicate their pain. ❖ The scale is scored in a range of 0–10 with 0 representing no pain. ▪ 1-3= Mild discomfort ▪ 4-6= Moderate pain ▪ 7-10= Severe discomfort/pain.
Like/dislike – Vata - मधुराम्लकटूष्णसात्यकाङ्क्षा: [17] (Desirous of sweet, sour, salty and hot food.) Vata - गन्धर्वचित्तः [12] (Aptitude in music and such other arts) Pitta - उष्णद्वेषी. [12] (Hates hot things) Pitta - मधुरकषायतिक्तशीतम सात्यकाङ्क्षा [17] (Desirous of sweet, bitter, astringent, cold food) Kapha - तिक्तकषायकटुकोष्ण रूक्षमल्पं सात्यकाङ्क्षा [17] (Desirous of pungent, bitter, astringent, hot and non-oily)	Q. No –15 Which taste like in feed – a) Like Sweet, sour, salty and hot food b) Like sweet, bitter, astringent, cold food/ drinks c) Like pungent, bitter, astringent, hot and non-oily.	Prashna Pariksha (Interrogation) ❖ During first 6 months, baby receives breast milk, formula or animal milk and no water is advised. Thereafter, different types of recipes are introduced after 6 month. ❖ When baby likes warm milk) and feels comfort with oleation therapy then considered this as a feature of <i>Vata Prakriti</i> . ❖ When baby likes cold milk and have intolerance to heat/ not comfortable in hot weather then considered as a features of <i>Pitta Prakriti</i> . ❖ If baby likes hot milk and associated with no cry/less cry in childhood period then this was considered as features of <i>Kapha Prakriti</i> .
Diseases proneness Vata - शीघ्रत्वाच्छीघ्रविकारः. [17]	Q. No –16 Incidence of	Prashna Pariksha (Interrogation) and History

(Quick affected from disorder) Kapha- अदशीघ्नारम्भाक्षोभविकाराः ^[17] (Delay initiation of disorder)	disease is – a) High incidence b) Less incidence	❖ Disease incidence should assess after 3 months of age. ❖ If total number of diseases is 3 or more in 3 months time duration then consider high incidence. ❖ If total number of diseases is less than three in 3 months' time duration then consider is less incidence.
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Discussion & Conclusion

Primary objective of *Prakriti* assessment is to estimate *Bala Pramana* and *Dosha Pramana* of an individual^[22]. *Bala Pramana* refers to judgment of physical and psychological potential that illustrates status of *Dosha*, *Dhatu* and *Mala*. Assessment of *Dosha Pramana* is associated with nature and extent of *Dosha*. Thus concept of *Prakriti* is important in preventive and curative aspects. Therefore, the determination of *Prakriti* of a subject is very important in the practice of Ayurveda. Now days many parameters are used as assessment of *Prakriti* of children as textual description (Questionnaire method), biochemical marker, body mass index or anthropometrics marker and genetic marker. Out of this only textual description based questionnaire is main marker and other is supportive marker. For example, if we know children have *Kapha Prakriti* then right from the beginning the child can be encouraged to participate in sports and physical activity. Because *Kapha Prakriti* persons have a natural tendency for reduced movement and if participate in sports from childhood will lead to a healthier life and will prevent most of the chronic diseases related to obesity etc. Similarly, if we know that a child has *Pitta Prakriti*, and then try such a child inculcates habits that make him more capable of preserving and not loose one's anger. In addition, spicy or acidic food may not be served to such a child since *Pitta Prakriti* individuals have more propensities to develop gastric ulcers and related disorders^[23]. Usually one like eating opposite to their *Prakriti*. Due to variability in eating habit *Vata* children are very choosy regarding their diet contents, *Pitta* children can eat anything but prefer to take cold food stuff to subside *Ushana* and *Tikshana guna* of their body. *Kapha* children are stable and satisfied. They are not too much demand due to high energy level of their food and eat less mostly given forcefully^[24].

In *Trividha Pareeksha* (3 fold examination), Acharya Sushruta described examination of a patient in three steps; *Darshana* (examination by inspection), *Sparshana* (examination by touch) and *Prashna* (examination by interrogation). Questionnaires assessment mainly done by *Prashna pareeksha*. Number of tools, exist mainly in forms of questionnaires for ascertaining the *Prakriti* of an individual and there have been ongoing attempts of validating such a tool since the 1980s such as investigation into such tools done by *Joshi*^[25] and *Rastogi*^[26]. Development of Physiological characteristics based questionnaires in children is important milestone for *Prakriti* determination. All pathological conditions related to increase and decrease physiological characteristics should be excluded before *Prashna pareeksha* (Interrogation by mother or caretakers).

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