

CHAPTER 2

2.0 ANCIENT LITERARY RESEARCH ON AUTISM SPECTRUM DISORDER (ASD)

2.1 BACKGROUND AND SCOPE

The literary research for this study is based on our understanding of 'Autism Spectrum Disorder (ASD)' from the perspective of our ancient classical texts that are the rich treasury of guidance in healing sciences, spiritual concepts, and holistic well-being. ASD is a heterogeneous entity that cannot be defined within specific constructs. The understanding of autism can have several perspectives reflected within various ancient scriptures and texts. Indian views of autism showed various glimpses in our different texts of *Upanishads*, *Yoga*, *Bhagavat Gita*, and *Ayurveda*, apart from others. Akin to several western concepts and perspectives emerging on an understanding of ASD, Indian views also attempt to increase our awareness of understanding its heterogeneous entity. Since Kanner described autism, several western perspectives have also formed various concepts and theories that try to understand the many meanings of ASD. These include the Theory of mind (ToM), Bayesian theory to the latest polysemous concept of autism. The current literary survey aids our understanding of ASD from several indigenous perspectives based on Indian texts, fostering holistic approaches to addressing the disorder.

2.2 SUMMARY OF EARLIER WORKS ON ASD

The many meanings of ASD are mentioned in various texts and scriptures. There is no direct mention of ASD in any of the texts; however, many conditions with symptoms related to autism have been given a detailed description. Many papers are emerging on ayurvedic perspectives and management of ASD and various ways of treating multiple autism-related symptoms (Sagar & Uppinkakudru, 2019; Sharma & Chouhan, 2016). There is no direct mention of ASD in any of the texts; however, many conditions with symptoms related to autism have been given a detailed description as classified in *Āyurveda* under '*Unmāda*'. '*Siddha*', an ancient traditional system of healing medicine, recognizes ASD condition as '*Mantha sannī*' whose symptoms correlated as mentioned in the *Siddha* pediatric texts (Priya et al., 2019). *Yoga* is recognized as a holistic healing system that can support children with ASD. The *Hatha Yoga Pradipika* expounds that *yoga* is for all and can be practiced by everyone irrespective of age, gender, and disabilities bestowing health and

success.

युवा वृद्धोऽतिवृद्धो वा व्याधितो दुर्बललोऽपि वा ।

अभ्यासात्सिद्धिमाप्नोति सर्वयोगेष्वतंद्रितः ॥ ६४ ॥

Yuvā vṛddho 'tivrddho vā vyādhito durbalalo'pi vā ।

Abhyāsātsiddhimāpnoti sarvayogeṣvātandritaḥ ॥ 64 ॥

(Haṭhayoga pradīpikā: 1-64)

An anecdotal incident, as described in the text of *Madhaviya Shankara Digvijayam*, is correlated with the typical qualities and attributes that are commonly observed in children with ASD. One of the disciples of *Sri Ādi Śankaracharya* named *Hastamalakacharya* was a young child. *Ādi Shankaracharya's* visited a village called *Sri Bali*, where he met a man named *Prabhakara*, who was accompanied by his seven-year-old young son. He lamented about his son behaving in strange ways with an undeveloped mind. He is described as a child who refuses to participate in play activities and socially interact with other children. Other children often beat him with no retaliation, and sometimes the young boy even skipped food. His face lacked expression, and he seemed to lack emotions, avoided eye contact, and often preferred to remain idle. He had not even completed his essential learning of the alphabets. On the *Acharya* questioning the boy, the young boy expounded the gist of *Advaita* philosophy in twelve verses famously known as *Hastamalakiyam*. He ended his recitation with '*nityopalabdhisvaru-pohamamtma* (I am the *Ātman*, the eternal consciousness, and knowledge). *Sri Ādi Śankaracharya* was very impressed and accepted him as his third disciple.

In the evolution of consciousness, consciousness in the human form or *divyadeha* is considered rare. Obtaining a birth with the perfection of limbs using all the senses is a rarer occurrence as *divyavahana*; rarer still is attaining knowledge and wisdom as *divyashakti*. The tendency to serve or *divyaarpana* is the rarest of all towards a life of spiritual enlightenment or *divyajyoti*. The sublime state of *divyavahana* and *divyadeha* are called *divyanga*. *Divyanga* existing in *divyadeha* is the state of attainment of *divyajyoti*. *Divyanga* disabilities are also known as special needs. Children having *bahikarna* impairments show developmental issues in their five senses or five motor organs, leading to visual, auditory, or motor impairments. Children with *antahkarana* impairments show developmental delays affecting their cognition, emotions, and psychological and physiological functioning exhibiting dyslexia, sensory processing disorders, and intellectual disabilities. Children

with ASD often show both *bahikarna* and *antahkarna* impairments having a vast range of symptoms (Bhavanani & Artchoudane, 2019).

2.3 ĀYURVEDA AND ASD

Āyurveda is heralded as one of the world's most ancient indigenous natural healing science that comprised India's original medical system. It includes a holistic treatment that encompasses both physical and mental disorders. It is a comprehensive healing process with different methods that address an individual's physical, physiological, psychological, and spiritual aspects. *Āyurveda* is known as the science of healing, where the *Charaka Samhita* defines it as '*shashvāta*' (eternal) (Bagde et al., 2013). The *Charaka Samhita*, one of the significant āyurveda texts, explicitly expresses the aim of *āyurveda* as protection and maintaining the health of the healthy and freeing the sick from all illnesses. *Āyurveda* incorporates a holistic treatment that encompasses physical and mental disorders under a comprehensive healing process using different methods that address an individual's physical, physiological, psychological, and spiritual aspects. In *āyurveda*, autism can be associated with *Balagraha/Jada* or *Unmāda*. There is no specific mention of 'Autism' in *āyurveda* or its major detailed texts, including the *Charaka Samhita* and *Kashyap Samhita*, which deal primarily with pediatrics. The *Charaka Samhita* classifies all mental disorders as '*Unmāda*' under a single category. *Unmāda* is defined in āyurveda as 'excessive wandering of the mind, intellect, and memory as a consequence of intake of impure food, blasphemy and mental shock' (Nitya & Chowta, 2021; Ramachandran, 2016). The root cause of *unmāda* is believed to begin in the *hrdaya* (heart), which is perceived as the emotional heart and considered the seat of intellect. The vitiated *doshas* travel into mental channels, leading to an imbalance in the mind (Frawley, 2013). *Unmāda* is thus viewed as a disbalance of energies on an inner level.

The *Charaka Samhita*, explains *unmāda* as

षमुद्भ्रमं बुद्धिमनः स्मृतीनामुन्मादमागन्तुनिजोत्थामाहुः । (९/८)

Ṣamudbhramam buddhimanah smṛtīnām unmadamāgantunijotthāmāhuḥ /

(*Charaka Samhita* 9 / 8)

A person with an indecisive mind renders incapable of experiencing emotions and conducts himself inappropriately where his memory (स्मृति), intellect (बुद्धि), and cognition (संज्ञा) get altered.

According to the ancient texts in '*unmāda*,' all three primary cognitive functions, including *buddhi* (discriminatory knowledge), *manas* (the perceptual ability of the mind), and *smṛiti* (memory of the knowledge about the objects and experiences of the past), re all in a state of disturbance.

In *Charaka Nidana*, the '*unmāda*' is explained as

उन्माद पुनर्मनो बुद्धि संज्ञा ज्ञानस्मृति ।

भक्तिशील चेष्टाचार विभ्रमं विद्यात् ॥ (६/५)

Unmāda punarmano buddhi sañjñā jñānasmr̥ti ।

Bhaktiśīla ceṣṭācāra vibhramam̐ vighāṭ ॥

(*Charaka Nidana* 6/5)

Unmāda is described as an altered function of *manas* (mind), *buddhi* (discriminatory power), *samgna* (sense organ perception), *gyana* (knowledge), *smṛti* (memory), *bhaktiśheela* (devotion) or any form of emotional expression, and *cheṣṭa* (physical activity or hyperactivity).

Acarya Caraka has categorized three leading causes of the rise of diseases concisely under three heads: *Prajnaparadha* (intellectual error), *AsatmyendriyarthasamYoga* (unwholesome contact with the object of senses), and *parinama* (consequences associated with time and past deeds). The maximum significance is given to *prajnaparadha*. *Prajnaparadha* (intellectual error) is considered to arise due to impairment in *dhi-dhṛiti-smṛiti* (intellect, patience, and memory). *Prajnaparadha* is the primary cause of a range of mental and physical diseases. In an individual whose intellect, patience, and memory are afflicted, his *sharira* (physical) and *manas* (mental) *doshas* are aggravated (Agnihotri & Deva, 2020). *Prajnaparadha* is also considered to be the primary causal factor for *unmāda*. Autism can be deemed to arise from such imbalances in *bhrmsa* of *dhi-dhṛiti-smṛiti*.

According to the āyurvedic texts, we receive *jnana* (knowledge) through a series of processes that happens in order with the synchrony between *indriya* (senses), *indriyārtha* (object perceived), *manas* (sensory perception), *atma* (soul). The *atma* aids in cognition, and *manas* serves as the

substratum of *indriyas* that perceive the *indriyārtha*. The *indriya* receives its *ārtha* when stimulated by the *manas*; this stimulus is further screened by *manas*(determination) at the level of mental faculty. Here *smṛti* is developed that is refined to the *buddhi* (intellect) and thereby stored as the end process in *atma* as the abode of knowledge. *Smṛti* is the product of high coordination sequential cognitive process with any dysfunction that manifests as various social skill deficits. The method of gaining knowledge consists of many steps (*jñānotpatti krama*), which are not adequately developed in children with ASD, thereby creating various forms of behavioral and communication disorders as observed in children with ASD. Such symptoms are explained in the pathophysiology of *unmāda*.

Āyurveda also mentions various types of *buddhidusti*, the psychological types identified as *unmāda*, *mada*, *apasmara*, and *murcha*. The *buddhi* (intellect) is affected and becomes impaired in perception, retention, and recollection of information or knowledge. Children may have a defect in the *buddhi* right from birth extending to the end of life in varying degrees. *Jadata* and *buddhimandya* are the conditions characterized by impairments in mental development. The children's ability to understand or comprehend can be compromised with no sharpness in intelligence. *Nirbuddhi* is a condition where *dhi*, *dhṛti*, and *smṛti* are absent. However, such children may possess and recognize the pain and desire or satisfaction of natural urges. *Jada* is seen as a condition of the *buddhi* wherein impairments in perception, retention, and recollection of knowledge are observed. *AtiYoga* (unnecessary or excessive use), *hinaYoga* (insufficient or underused), and *mithyaYoga* (wrong or improper use) of *manas* with *buddhi* can become causal factors for diseases. In *jada*, less functioning of the genesis of knowledge due to *hinayoga* or hypo functioning of *manas* and *buddhi* along with its subcomponents *dhi-dhṛti-smṛti*. The senses or *indriyadhīsthanas* are also involved, which do not function appropriately, resulting in the dysfunction of *indriyas*, *manas*, and *buddhi*(Radhakrishna, 2010).

The various *lakshanas* (features) exhibited by children with ASD are similar to *unmāda*. The synchrony between the *atma* (self) and *manas* (mind) is impeded due to various etiological factors in ASD. This condition is generally viewed as a consequence of *khavaigunya* (disarrangements) of *srotas* (channels) which are known to nurture the *manas* (mind). The disorder stems from various *agantuja* (epigenetic toxins and other environmental factors) and *sahaja* (genetic factors) that influence and may be considered possible causes of ASD (Deemala, et al., 2013; Sharma & Chouhan, 2016). The *lakshanas* mentioned as *unmāda* are a collection of vitiation of *tridoshas*, *vāta*, *pitta*, and *kapha* (bodily humors). This can further disturb the *khavaigunya* manifesting as core

symptoms of ASD (Sharma & Chouhan, 2016). The *manovaha sroto-dushti and tridosha dusti* can be considered the fundamental cause of autism in children (Nitya & Chowta, 2021).

2.3.1 UNMĀDA, ETIOPATHOLOGY, AND ASD

The etiopathology of ASD has a striking resemblance to *unmāda*, as mentioned in ancient ayurvedic literature. The symptoms and signs exhibited in the autism population are mentioned under *unmāda* (उन्माद), which can be described as a disease of the mind arising due to a state of disturbed mental function or mental confusion (Prasad, 2019). ASD exhibits abnormal mental faculties functioning explained under *unmāda* as *vāta, vāta pitta*, and *vāta kapha* subtypes. *Unmāda* in āyurveda includes a broad range of various psychological disturbances, which can be called *Unmadām Spectrum Disorders (USD)* (Ramachandran, 2016). *Unmāda* or *unmādam* consists of a range of inappropriate actions manifested by the affected children that arise due to the distorted state of *manas* (mind) ranging across all faculties with *buddhi* (intellect) from mentally challenged to having exceptional savant abilities, *samjna jnana* (conscious presence) seemingly immersed in their own world or resistance to certain sensory stimuli, *bhakti* (longing) impaired inherent communication with others, *shila* (manners) exhibiting inappropriate emotional outbursts, insistence on sameness and restrictive repetitive movements, *cheshta* (activities) as motor stereotypies, and *achara* (impaired learned skills, poor response to instructions, language deficits) as various social skills impairments (Ramachandran, 2016). Childhood autism is thus generally regarded as *unmāda* involving both the body and mind (Prasad, 2019).

Under the broad description of *unmāda*, many deficits in various faculties are seen across the autism population (Ramachandran, 2016). The classic features of *unmāda* include: a) *Mano vibhrama* (mental confusion or perversion of mind), b) *Buddhi vibhrama* (impairment of intelligence or perversion of intellect), c) *Samjñājnāna vibhrama* (impairment of consciousness causing loss of sensory perception and state of being in one's own world) d) *Smruti vibhrama* (impairment of memory) e) *Bhakti vibhrama* (desires that are not normal) f) *Śīla vibhrama* (inappropriate problem behaviors and manners, restrictive and repetitive behaviors, rigid routines) g) *Cesta vibhrama* (activities that are not normal, poor motor skills, motor stereotypy) h) *Achara vibhrama* (loss of learned skills, poor response to instructions, social skills deficits) (Prasad, 2019; Ramachandran,

2016).

Āyurveda classifies seven categories for the origin of diseases. Autism can be viewed as *sahaja vyadhi* (genetic disease) inherited at the fetal stage from vitiated genetic material passed by the parents. The origin of the disorder can be *pitruja* (father) with abnormal *sukra* (male genetic material) or *matruja* (mother) with abnormal *sonita* (female genetic material), resulting in *beeja dusthi* (genetic deficiencies). As such, disorders can be transmitted to the next generation; thus, ASD is considered a multifactorial genetic disorder (Ramachandran, 2016). As such, ASD is generally seen as a consequence of the number of *agantuja* (epigenetic toxins and post-natal environmental causes) and *sahaja* (genetics) factors that create *khavaigunya* (disarrangements) of *srotas* (channels) that nurture the *manas* resulting in vitiated *doshas* manifesting as core features of autism (Sharma & Chouhan, 2016). The *āyurvedic* concept of *sahaja unmāda* or such types of diseases are considered to arise from three causes: a) Inappropriate contact of senses with their objects b) performing inappropriate actions due to incorrect functioning of mental faculties c) Time. The genetic coding is transmitted from one generation to another, where it undergoes modifications due to a range of influences in food, activities, and the environment. Such modified genetic material can sometimes become pathological across generations, causing the *bīja* (gamete) to become deranged. This *bīja* can show all the characteristics of *unmāda* (Ramachandra, 2016).

Āyurveda stresses the importance of *garbhopaghatakara bhavas* (prenatal factors that can serve as causal factors for harming the *bija*) and is considered one of the significant etiopathogenic contributors. The factors that are critical for the mental constitution of the developing fetus include the *satwa* (mind) of both the parents, objects of hearing, actions of the mother during pregnancy, and past *karmas* (Prasad, 2019). Certain dietary regimes, habits, and thinking of the mother can affect the fetus, leading to psychological disorders such as *mudha* (dull), *nidralu* (sleepy), and *ummāda*. During the fourth month, the fetus's heart is seen as the seat of consciousness, gets active, and is known to express its desires through its mother. This stage is called as *dauhrda* or bi-cardiac phase. If the desires are not fulfilled, it can create various physical, congenital, psychological, and mental disorders. Care should be taken at the delivery and neonatal stages to avoid complications such as prolonged delivery, hypoxia, and asphyxia that can cause vitiation of *vāta dosha* (Sharma & Chouhan, 2016). Other causes include *ahara dosha* (food-related causes), *virudh ahara* (consumption of incompatible foods), *asuchi ahara* (contaminated food), *dushta ahara vihara*

(vitiating diets), digestive tract issues, and malabsorption of vitamins and minerals. Others are *mano abhighata* (brain injury), *vaikarika bhava* like *bhaya* (fear), *kopa* (anger), *soka* (sadness) *harsha* (pleasure), and *dushi visha* (latent poison).

The closest similarity to ASD in āyurveda is *unmāda*, which carries a mix of features singularly or collectively of *vāta* (wind), *pitta* (bile), and *kapha* (phlegm) *dosha* (Nitya & Chowta, 2021). *Tridosha dusti* or vitiation of the three doshas are seen here. Many symptoms exhibited across ASD are considered to be very similar to *sannipāta unmāda*, which arises due to vitiation of all three *doshas*. The *Tridosha Siddhanta* taken from *Pancamahabhuta Siddhanta* forms the crux of *āyurveda*, where any disbalance in the three doshas creates disease. ASD exhibits abnormal involvement of all mental faculties giving rise to *unmāda* of *vāta*, *pitta*, and *vāta kapha* subtypes (Ramachandran, 2016). Most of the ASD symptoms appear like features of *vātika* and *kaphaja* dominant *unmāda*, and some individuals also show *pitta* dominant *unmāda* or *bhūta unmāda*. *Vātaja unmāda* that is considered as *vāta* dominant neuropsychiatric disorder, and shows symptoms such as excessive laughing, singing, repetitive stereotypy hand and eye movements, drooling, crying, red face and impaired thoughts, and irrelevant talking. *Pittaja unmāda* is seen as *pitta* dominant neuropsychiatric disorders like intolerance, anger, aggression, self-injury or injury to others, fondness for cold food and drinks, and excessive heat or distress. The *kaphaja unmāda* are *kapha* dominant neuropsychiatric disorders showing characteristics such as solitary play, reduced speech or silence, less movement, aversion towards food, less attention, drooling, and running nose. The clinical features of ASD are correlated with doshas as social skill deficits such as lack of eye contact (*kapha*), lack of peer- interaction (*kapha*), delay in speech (*kapha -vāta*), and echolalia (*vāta-kapha*). Conditions like seizures (*vāta*), stereotypical movements (*vāta -pitta*), sensory issues (*vāta*), hyperactivity (*vāta-pitta*), injurious behaviors(*vāta-pitta*), savant abilities (*vāta -kapha*), mentally challenged (*vāta*), sleep disorders (*vāta*), and gastrointestinal issues (*vāta-pitta*) (Nitya & Chowta,2021;Ramachandran,2016).

2.3.2 TREATMENT IN ĀYURVEDA

Treatment of *unmāda* as applicable in *āyurveda*, different conditions are treated under three categories:

Yuktivyapāśraya with rational treatment addressed through internal medicines, therapies, food, and

regimen. Medications include *agni deepaaka dravyas*, *snehapanam*, *ghritam*, and *medhya* drugs. As the digestive fire, Agni is compromised in most children with ASD. Agni is considered crucial for managing internal and external toxins and the detoxification process in the body, dysfunctions of which can damage the system. Such toxins can affect the *srotas* (channels) that carry *ahara* resulting in toxin accumulation and obstruction of *srotas* called *srotoavrodha*. This leads to poor immunity, recurrent infections, and various problem behaviors such as *manovaha srotas dushti*. Mana connects to *jnanendriyas* (sensory system), *karmaindriyas* (action motor system), and *buddhi*. Such a condition can cause sensory issues and motor skills deficits. Hence, *agni* is addressed through treatments such as *deepana* and *pachana* medicines. External applications such as *nasya*, *shiropichu tailam*, *dhupanas*, *dhoompanas*, and *shiro abhyanga* are conducted to reduce symptoms.

Daivayapashraya chikitsa, or confidence-boosting treatment, involves different psychological methods for mind management and is used for conditions that do not respond to treatment. They include chanting hymns, offerings, rites, and rituals. *Satvāvajaya* is a mind and self-control method that include cognitive, behavioral, and spiritual therapies aiding the control of senses and mental faculties and restraining temper tantrums and injury. *Medhya* and *vātahara* drugs help alleviate problem behaviors (Nitya & Chowta, 2021; Ramachandra, 2016; Sharma & Chouhan, 2016).

2.4 BHAGAVAD GITA

The ancient text of the *Bhagavad Gita* is considered the foundation of *Yoga*. The *Bhagavad Gita* explicitly defines *Yoga* as a state of equanimity at all levels. *Yoga* is a state of '*samatvam*' or a state of serenity and tranquility; the mind is at peace and free from all attachments. This state can be perceived as a perfect state of health with stability at the mental level and homeostasis at the physical level for a well-balanced harmony.

योगस्थः कुरु कर्माणि सङ्गं त्यक्त्वा धनञ्जय ।

सिद्धयसिद्धयोः समो भूत्वा समत्वं योग उच्यते ॥

Yogastah kuru karmāṇi saṅgaṁ tyaktvā dhanañjaya ।
Siddhyasiddhyoḥ samo bhūtvā samatvaṁ yoga ucyate ॥
(Bhagavad Gītā 2.48)

Excessive dwelling on sense objects breeds strong attachments, which can create desires. Such

desires can further produce anger and stress. The mind keeps on thinking repetitively about a thought or event. Children with ASD frequently exhibit such behaviors due to their the propensity for repetitive thinking creating strong attachments that lead to many obsessions.

ध्यायतो विषयान्पुंसः सङ्गस्तेषूपजायते ।
सङ्गात्संजायते कामः कामात्क्रोधोऽभिजायते ॥

*Dhyāyato viṣayānpuṁsaḥ saṅgastesūpjāyate ।
Saṅgātsañjāyate kāmāḥ kāmātkrodho'bhijāyate ॥
(Bhagavad Gītā 2.62)*

Lord Krishna propounds to Arjuna the importance of the cognizance of stimulus and response reactions that our body, mind, and senses have with the environment around us. As our body senses contact with external objects, sensations such as heat, cold, pleasure, and pain arise that are impermanent in nature (Eshwaran, 2021). Children with ASD are often either hyposensitive or hypersensitive to information received by their senses. Understanding and developing an awareness and regulation of senses through effective sensory integration is thus crucial for children with ASD.

मात्रास्पर्शास्तु कौन्तेय शीतोष्णसुखदुःखदाः ।
आगमापायिनो ऽनित्यास्तांस्तितिक्षस्व भारत ॥

*Mātrāsparsāstu kaunteya śītoṣṇasukhduḥkhadāḥ ।
Āgamāpāyino 'nityāstāṁstitikṣasva bhārata ॥
(Bhagavad Gītā 2.14)*

As a tortoise withdraws its limbs, so the senses should be withdrawn. The body has five senses: vision, smell, hearing, taste, and touch. These senses are in contact with objects in the environment that bring in various sensations (Eshwaran, 2021). The *Bhagavad Gita* extols the importance of sensory awareness and the ability to withdraw from unwanted sensory stimuli to maintain an equilibrium of body and mind. Children with ASD, many a time, face challenging sensory dysfunctions that lead them to chronic stress mode and exhibition of various problem behaviors. The importance of effective sensory withdrawal is emphasized here, an equanimity that can be achieved through *yoga*.

यदा संहरते चायं कूर्मो ऽङ्गानीव सर्वशः ।
इन्द्रियाणीन्द्रियार्थेभ्यस्तस्य प्रज्ञा प्रतिष्ठिता ॥

*Yadā sanharate cāyaṁ kūrmo 'ṅgānīva sarvaśaḥ ।
Indrayāṇīndrayārthebhyastasya pragyā pratiṣṭhitā ॥
(Bhagavad Gītā 2.58)*

The *Bhagavad Gita* commends *yoga* as the path on which no effort is wasted, and there is no failure. Even a small effort can go a long way towards achievement in our lives, which is the truth based on every aspect of human life (Eshwaran,2021). Likewise, *yoga* for children with special needs is based on the belief that no effort is wasted (Goldberg, 2013).

नेहाभिक्रमनाशो ऽस्ति प्रत्यवायो न विद्यते ।
स्वल्पमप्यस्य धर्मस्य त्रायते महतो भयात् ॥

*Nehābhikramāśo 'sti pratyavāyo na vidyate ।
Svalpamapyasya dharmasya trāyate mahato bhayāt ॥
(Bhagavad Gītā 2.40)*

2.5 PANCHAKOŚĀ

The *Taittiriya Upanishad* elucidates the concept of human existence based on the theory of *panchakośa viveka*. The traditional approach of *yoga* hails from the theory of *pancha-kośa*, which delineates the five-layered existence of a man called the five koshas or sheaths. The *kośa* are five different energy sheaths. Our human nature, or *prakriti*, comprises five different dimensions. The *annamaya kośa* (physical sheath or physical body), *pranamaya kośa* (vital body or energy sheath), *manomaya kośa* (mental sheath or emotional body), *vijnanamaya kośa* (wisdom sheath or intellect body), and *anandamaya kośa* (bliss sheath or bliss body). The *annamaya kośa* is the grossest layer and is known as '*sthula shareera*,' made of five *panchabhutās* or five elements of earth (*prithvi*), water (*jala*), wind (*vayu*), fire (*agni*) and space (*ākashā*). It is made of different cells, bones,

muscles, and organs and has its body chemistry. The '*sukshma shareera*' or the subtle body is made of the *pranamaya kośa*, *manomaya kośa*, and *vijnanamaya kośa*. The *ananadamaya kośa* comprises the '*kārana shareera*' or causal body and is a harmonious sheath. It is a state that can be entered through meditation. The *vijnanamaya kośa* houses our higher intelligence or buddhi, giving us the discriminatory capacity received through the senses and mind. The *manomaya kośa* is connected to the mind harboring our thoughts, feelings, and emotions. Imbalances tend to start in the mental sheath, wherein the mind maintains its various functions of perception (*manah*), memory (*citta*), and ego (*ahankāra*). The mind sends its input to the senses creating desires that can stir momentum in this sheath, causing emotional disturbances. Imbalances originate from *ādhi* or stress. These percolate to the *pranamaya kośa* and *annamaya kośa* resulting in *vyadhis* (disorders) on mental and physical levels. Children with ASD show disconnection between *manomaya kośa* to *annamaya kośa* resulting in various physical, physiological, and psychological impairments and deficits. Problems at the *pranamaya kośa* levels manifest as various sensory dysfunctions in children with ASD. Often children have issues at the *annamaya kośa* creating disconnection with their bodies and finding its sensations discomfiting, causing undue stress and confusion.

2.6 YOGA

Yoga for children with ASD can be understood through various aspects of '*yoga*' described in various yogic texts and other scriptures. *Yoga* is expressed in *Kathopanishad* as a state of control over our senses and mind.

तां योगमिति मन्यन्ते स्थिरामिन्द्रियधारणाम् ।
अप्रमत्तस्तदा भवति योगो हि प्रभवाप्ययौ ॥

Tām yogmīti manyante sthīrāmīndriyadhāraṇām ।
Apramattastada bhavati yogo hi prabhavāpyayau ॥
(*Kathopanishad* 2.5.4)

Yoga is a state where all the *indriyas* are under control.

Children with ASD face difficulties processing information from their senses leading to sensory dysfunctions, triggering sympathetic responses, and cascading into various problem behaviors and feelings of fear, anxiety, and aggression. *Yoga* aids in connecting mind, body, and breath, enabling self-regulation, empowering better control over the senses fostering a well-balanced and harmonious state.

The ancient yogic text, Maharishi *Patanjali Yoga Sutras* heralds *yoga* as a process of gaining control over the mind. This is considered one of the principles and the most succinct definition of *yoga*.

योगश्चित्तवृत्तिनिरोधः ॥ १.२ ॥

Yogaścittavṛttinirodhah ||
(*Patanjali Yoga Sutras* 1.2)

Vrittis are the modifications or fluctuations of the mind. The cessation of such *vrittis* is *yoga*. The mind's innate tendency is to seek and go outwards, which causes many mental and emotional disturbances and turbulence. *Yoga* offers a conscious process of allowing the mind to turn inwards and stop such fluctuations of mind to a state of stillness and peace. *Maharishi Patanjali* describes states of mind as *mudha* (dull), *kshipta* (distracted), *vikshipta* (partially distracted), *ekagrata* (one-pointedness), and *niruddha* (controlled).

The functions of the body, mind, and environment are also associated with the interaction of three *gunas*. The *guna* is an attribute or quality of everything in *prakriti* (nature), where all matter and mind are composed of various combinations of the three *gunas*. The three *gunas* are *sattva*, *rajas*, and *tamas*. *Tamas* is considered the grossest of all the *gunas*, which is passive, creating lethargy, sleepiness, and inactivity, producing an innate resistance to any form of activity. It also maintains previous activity. *On* the other hand, *Rajas* is the active, stimulating energy that brings forth creation and changes the old equilibrium. *Satva* is a balancing and harmonious healing energy associated with positive and mental-emotional states. The three *gunas* are in a constant state of dynamic interaction with each other.

The *gunas* greatly influence the mind. *Gunas* are often passed on to the next generation as

hereditary traits. Children with ASD often exhibit hereditary traits. When *tamas guna* predominates, the mind becomes inactive, leading to slow thinking and a dull state of mind called *mudha chitta*. In the predominance of *rajas guna*, the mind is scattered and dissipated, leading state of mind as *kshipta chitta*. The oscillating state of mind is *vikshipta*, which swings between steadiness and distractions. Children with ASD often show a predominance of either *tamas* or *rajas guna* leading to different states of mind. The minds of children with disabilities are categorized under *mudha*, *kshipta*, and *vikshipta*. This can be seen in the modern Diagnostic and Statistical Manual of mental Disorders (DSM), categorizing children with various neurodevelopmental disorders (Artchoudane et al., 2019 b). It has been observed that children with ASD tend to have multiple obsessions. The *koshas* are affected in such children where the connection between *annamaya kosha* and *manomaya kosha* seems to be impaired, resulting in various autistic symptoms.

Yoga is a systematic conscious process of enhancing man's growth from instinctive animal levels to normal human levels onto higher realms of divinity. It entails a structured approach for overall personality development at man's physical, mental, intellectual, emotional, and spiritual levels. It offers various techniques and tools for fostering holistic health and well-being. *Yoga* offers four streams catering to the diverse needs of the individuals: a) *Karma Yoga*, which adopts doing action with a detached attitude to the fruits of our action. It teaches us to disengage ourselves from strong attachments fostering a steadiness of mind b) *Bhakti Yoga* creates control over emotions in the path of worship by judiciously utilizing our energy c) *Jnāna Yoga* as the path of philosophy that offers a deep inquiry into the nature of ourself with analysis as the essential tool requiring strong will and intellect d) *Rāja Yoga* that brought about mind culture to reach higher states of consciousness. The four streams of *Yoga* aided in developing personality at the physical, mental, intellectual, and emotional levels nurturing further spiritual progress. *Yoga* is a very indispensable tool for the improvement and betterment of man. It can thus create solutions for various highly prevalent emotional issues such as anger, restlessness, aggression, and hyperactivity. *Yoga* offers holistic personality development by providing deep relaxation at the muscular level, regulation of breath and balancing at the pranic level, improving creativity and willpower at the mental level, calming the mind at an intellectual level, and increasing happiness in life, and achieving stability at an emotional level. All these contribute to improvement in various aspects of life and bring forth the discovery of latent potentialities in man (Nagarathna & Nagendra, 2011). *Yoga* thus brings about mastery over body, mind, intellect, and emotional faculties allowing oneself to maintain more

control and equipoise. *Yoga*, as a way of life, aids in circumventing various innate and hereditary challenges ushering in holistic well-being (Radhakrishna, 2010).

Yoga is perceived as a systematic process that proffers enhancement of oneself through calming of the mind. It can bring in mental equanimity and focus for children with ASD. The understanding of *yoga* in hereditary disorders describes it as a manifestation of personality traits of *sattva*, *rajas*, and *tamas* at the *manomaya kosha* level. There is constant interaction between all *koshas*, and they tend to overlap. Such traits then percolate to the *pranamaya kosha* as *doshas*, manifesting as various disorders or *vyadhis* at the *annamaya kosha* level. *Yoga* for children with ASD can address disturbances in the *koshas* and effectively integrate them through simple IAYT practices such as asanas, pranayama, and relaxation.

Maharishi Patanjali further describes '*pratyahara*' in his *yoga sutras* as a state of withdrawal of the mind from objects of sense experiences.

स्वविषयासंप्रयोगे चित्तस्वरूपानुकार इवेन्द्रियाणां प्रत्याहारः ॥

स्वविषय-असम्प्रयोगे चित्तस्य-स्वरूपानुकार-इव-इन्द्रियाणाम प्रत्याहारः ॥

Svaviṣayāsamprayoge cittasvarūpānukāra ivendriyāṇām pratyāhārah ॥

Svaviṣaya-asamprayoge cittasya-svarūpānukāra-iva-indriyāṇāma-pratyāhārah ॥

(*Patanjali Yoga Sutras -54*)

The importance of the state of *pratyahara* has also been mentioned in the *Bhagavad Gita* as the withdrawal of limbs of a tortoise into its shell. This stage is the withdrawal of senses from external stimulation, which can be very helpful for most children with ASD who tend to remain in chronic stress and flight or fight mode. *Yoga* can lead to a peaceful state alleviating impulsive behaviors and reactions while fostering experiences that can aid the children in reaching a stage of calmness and peace.