

## REVIEW ARTICLE

# Role of *Acharya Rasayana* in Personality Development – A Review

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### ABSTRACT

**Introduction:** Personality reflects an individual's distinctive patterns of thoughts, emotions, and behavior. Ayurveda interprets personality as *Mano-Daihika Prakriti*, shaped by *Ahara*, *Vihara*, *Manosthiti*, and ethical practices. The concept of *Acharya Rasayana*, wholesome behavioral conduct, offers a framework for balanced physical, mental, and spiritual development.

**Objective:** To elucidate the role of *Acharya Rasayana* in personality development through Ayurvedic and modern psychological perspectives.

**Methodology:** Classical Ayurvedic texts (*Charaka Samhita* and *Ashtanga Hridayam*) and contemporary references from psychiatry (Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> Edition) and scientific databases (PubMed, Scopus, and Google Scholar) were reviewed using relevant search terms pertaining to Ayurveda and personality.

**Results:** *Acharya Rasayana* encompasses 23 ethical principles, including truthfulness (*Satyavadinam*), calmness (*Prashantam*), non-violence (*Ahimsa*), compassion (*Karuna*), and self-discipline (*Nivritta Madya-Maithuna*). These virtues enhance cognitive, emotional, social, and spiritual well-being, fostering resilience, empathy, and moral integrity. Its integration with psychosocial therapies can aid in managing maladaptive behavior and personality disorders described in Ayurveda as *Ashta-Vibhrama*.

**Discussion:** Introducing *Acharya Rasayana* early enhances *Dhi*, *Dhriti*, and *Smriti*, which help avoid *Prajnaparadha* while promoting comprehensive personality development. It improves attention, memory, self-regulation, social skills, and emotional stability, thereby reducing the risk of disorders associated with *Ashta-vibhrama*, such as schizophrenia and bipolar disorder.

**Conclusion:** *Acharya Rasayana* offers a timeless, value-based approach to personality development that harmonises mind, body, and conduct, promoting individual excellence and societal well-being.

## 1. INTRODUCTION

“Success is a journey, and it is not the destination. Disappointments, Rejections, Unsuccessful attempts, and Criticisms are not failures to the Successful people. Failures are the Winners who use failures as

stepping stones to success. This is the only difference between people who win and people who don't!”

This quote defines an individual's perception toward varied circumstances of life events. This consistent pattern of thoughts, feelings, and behaviors that make an individual unique is called personality.<sup>[1]</sup> Personality reflects both biological factors and learned behaviors that shape responses to the environment. The Five Factor Personality Model defines five dimensions: Openness, conscientiousness, extraversion, agreeableness, and neuroticism.

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Openness reflects curiosity and creativity, whereas low openness shows pragmatism and routine. Conscientiousness denotes discipline and organization; high levels may appear rigid, low levels unreliable. Extraversion indicates sociability and energy, with extremes from domineering to aloofness. Agreeableness reflects compassion and cooperation, whereas low levels show competitiveness. Neuroticism contrasts emotional stability with vulnerability. Personality development enhances awareness, talents, identity, employability, and quality of life, enabling individuals to reach their potential.<sup>[1]</sup>

*Ayurveda* views life as four-dimensional: Physical, mental, emotional, and sensorial, emphasizing holistic human development. The concept of *Trividha Eshana* aligns with this, where *Prana* and *Dhana Eshana* govern bodily needs, while *Paraloka Eshana* addresses mental, sensorial, and personality aspects. Each *deha-paramanu* (cell) is *chaitanya* (conscious), making humans distinct and shaping *prakriti* (constitution). Beyond the *panchabhautika shareera* lies *Chetana*, influenced by *manas*, *buddhi*, *chitta*, and *ahamkara*, forming *mano-daihika prakriti* or personality. This is shaped by *janma prakriti* (birth constitution), *ahara* (nutrition), *vihara* (lifestyle), and *manosthiti* (mental state). Dynamic factors – *manas*, *buddhi*, *smriti*, *bhakti*, *sheela*, *cheshta*, and *achara* – exist in the psychosomatic domain, guiding thought and action. Their interplay drives decision-making, communication, and behavior, while disturbances in these dynamics often manifest as personality disorders.<sup>[2]</sup>

While describing *prakriti*, *Ayurveda* texts demarcate the somatic signs such as *alpa kasha*, *krisha*, *sthoola*, *swedi*, whereas personality domains of *vachala*, *chala manas*, *gambheera buddhi*, *swapnachari*, etc., are also included. These personality domains are part of a term called *Acharya*. The Sanskrit word *Acharya* translates to “behavior” or “practice.” Meanwhile, *Rasayana*, which means “that which promotes longevity by preventing aging and rejuvenating the body,” is the therapeutic modality to restore the optimal status of the body in both the physical and mental domains. Thus, *Acharya Rasayana* may be understood as restorative behavioral practices.<sup>[3]</sup>

### 1.1. Aims and Objectives

The aims and objectives of this paper are to understand the personality development in terms of *Ayurveda* and the role of *Acharya Rasayana* in personality development, which can foster personality development, hence reducing the risk of disorders associated with *Ashta-vibhrama*.

## 2. METHODOLOGY

The data for this paper have been gathered from the classical *Ayurveda* texts of *Charaka Samhita* and *Ashtanga Hridayam*. The contemporary review has been drawn from textbooks of biomedical medicine and psychiatry (Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> Edition [DSM-5]), and peer-reviewed scientific research journals available on Google Scholar, PubMed, Elsevier, Scopus, and alike relevant databases using keywords such as *Ayurveda* AND Personality, *Rasayana* AND Personality, and Personality Development AND *Ayurveda*. Further, *Rasayana*-based and modern-day medical practices have been studied for possible outcomes for expanding the frontiers and scope of personality development in the present era.

## 3. REVIEW RESULTS

### 3.1. Personality Development

Personality development is the process of enhancing one's personality. It involves activities that increase self-awareness, identity, and

talents, while preparing individuals for better job prospects and a higher quality of life. Developing your personality boosts confidence, credibility, and communication skills, and encourages interaction and leadership. Many people mistakenly believe that a pleasing personality is solely about looks, but that is not the case. Personality development encompasses crucial skills such as dressing well, social etiquette, grooming, and effective communication. No matter your career, these skills are essential for achieving your goals. Sigmund Freud, an Austrian neurologist, proposed that personality consists of three structures: the id, ego, and superego. He likened the mind to an iceberg, with the unconscious comprising 90% and the conscious only 10%. According to psychoanalytic theory, our behaviors, thoughts, and feelings are largely driven by unconscious processes. The id, ego, and superego shape personality development; when functioning correctly, they promote healthy development, whereas dysfunction can lead to personality disorders. These disorders are characterized by persistent maladaptive behaviors and thoughts that deviate from cultural norms. Psychiatry focuses on personality development by managing mental health symptoms and personality disorders through medication and psychotherapy. This approach helps individuals develop skills such as emotional regulation and self-understanding, allowing positive traits to emerge. Poor mental health, especially during adolescence, can harm personality traits, whereas good mental health fosters them. Psychiatric treatment aims to reduce distress and unhealthy patterns for better personality development. According to the DSM-5, personality disorders involve enduring patterns of behavior and experience that significantly differ from cultural norms.<sup>[1,4]</sup>

### 3.2. Personality Disorders

The following are the personality disorders as per DSM-5, namely, paranoid, schizoid, schizotypal, antisocial, borderline, histrionic, narcissistic, avoidant, dependent, obsessive-compulsive, personality change due to another medical condition, other specified, and unspecified personality disorder.<sup>[4]</sup>

### 3.3. Need for Personality Development

Targeted personality development is crucial for transforming technical knowledge into effective and humane outcomes, as it strengthens cognitive, emotional, and interpersonal skills essential for problem-solving, decision-making, and mental health. It improves problem-solving by enabling better analysis and resource use, strengthens decision-making through systematic approaches that minimize risks, and enhances emotional regulation to maintain decision quality under stress. It also fosters collaboration by refining interpersonal skills, promotes adaptability for timely adjustments and recovery, and prevents maladaptive patterns by nurturing positive traits early. Furthermore, personality development enhances ethical and social behavior by fostering responsibility and respect, thereby building organizational trust, while overall well-being is improved through greater productivity and balanced living.<sup>[4,5]</sup>

### 3.4. *Acharya Rasayana*<sup>[3]</sup>

*Acharya Rasayana* plays a vital role in shaping an individual's character. As India faces challenges to its identity, it is crucial to develop capable youth who embody virtues and values. This will not only strengthen our cultural foundation but also positively influence the world, which is increasingly interested in our ways. The key components of *Acharya Rasayana* that contribute to personality development include *Satyavadinam* (truthfulness), which nurtures inner peace and trust; *Akrodham* (freedom from anger), ensuring tranquillity and

wise decisions; *Nivritta Madya* (abstinence from alcohol), which preserves self-identity; and *Nivritta Maithuna* (celibacy), supporting concentration and well-being. Principles such as *Ahimsa* (non-violence) safeguard health, whereas *Anayasam* and *Prashantam* (relaxation and calmness) promote strength and self-assessment. *Priya Vadinam* (pleasant speech) cultivates knowledge and character, and *Japa Nityam* (daily prayers) anchors cultural identity and self-reflection. *Shoucha Nityam* (hygiene) fosters purity, *Dheeram* (courage) strengthens the mind, and *Tapasvinam* (meditation) enhances self-awareness and healing. Practices such as *Deva-Go-Brahmana-Acharya-Guru-Vriddha Archaneratam* (worship of divinity, teachers, and elders) instill reverence, whereas *Anrishamsya Param Nityam* and *Nityam Karuna Vedinam* (compassion and kindness) cultivate warmth in personality. Balanced living is reinforced by *Sama Jagarana Swapnam* (regulated sleep), *Nityam Ksheera Ghrita Ashanam* (use of milk and ghee for vitality), and *Desha Kala Pramananjam* (awareness of time and place). Further, *Yuktiknjam* (logical creativity) ensures efficiency, *Anahankritam* (ego-free conduct) balances confidence with humility, and *Shasta Acharam Asankeernam* (simplicity) promotes strength through moderation. Finally, *Adhyatma Pravanendriyam* (mindful use of senses), *Upasana* for elders (seeking guidance from the wise), and *Dharma Sastra Param* (devotion to scriptures) together anchor ethical living, moral strength, and holistic growth. *Acharya Rasayana* consists of 23 components that promote an ethical lifestyle, improving health and vitality. It fosters personality development by nurturing cognitive, emotional, social, and spiritual aspects. Values such as truthfulness and non-violence enhance integrity and empathy, while practices such as meditation improve self-awareness. Overall, these principles harmonize mind, body, and behavior, shaping a compassionate and impactful personality.

## 4. DISCUSSION

### 4.1. *Acharya Rasayana* for Childhood Personality Development

*Acharya Rasayana* provides a holistic framework for early learning and child development, covering domains such as attention, memory, reasoning, self-regulation, curiosity, motivation, health, nutrition, fitness, sensory-motor growth, cognition, social skills, empathy, communication, and emotional regulation. Its virtues-personal, nutritional, psychological, spiritual, social, and behavioral-shape character from childhood. Truth and trust build relationships and societal quality, whereas anger control (*akrodha*) prevents antisocial tendencies (*prashantam*). Avoiding alcohol (*madya nivritta*) and inappropriate sexual behavior (*maithuna nivritta*) protects academic and emotional stability. Non-violence (*ahimsa*), discipline, and morality guide spiritual growth. Early adoption nurtures resilience, empathy (*Karunavedi*), and responsibility, preventing maladaptive behavior. Hence, *Acharya Rasayana* is vital in education for cultivating healthy, capable, and ethical individuals.<sup>[6]</sup>

### 4.2. *Acharya Rasayana* for Body and Mind

*Acharya Rasayana* enhances spiritual well-being by boosting *Sattva Guna* and preventing issues such as *Prajnyaparadha*. Meditation and ethical living increase melatonin, which helps reduce oxidative stress. This practice strengthens *Dhi*, *Dhriti*, and *Smriti*, enabling children to realise their potential. Consuming milk and ghee supports intellect and courage, while academic success fosters character building and overall well-being. Structured early education alongside parents, teachers, and peers nurtures individualized growth, making *Acharya Rasayana* vital for lifelong personal development and health. *Acharya Rasayana*, from the *Charaka Samhita*, emphasizes moral

conduct, including truthfulness, non-violence, and cleanliness. These principles enhance well-being and strengthen children's behavioral health by fostering trust, empathy, and responsibility. Combined with modern methods, it supports the development of resilient, value-driven individuals.<sup>[4,6]</sup>

### 4.3. *Acharya Rasayana* for Personality Disorders

Various personality, behavioral, and mental disorders fall under the realm of *Sattvavajaya Chikitsa*, or Psychotherapy. This approach not only aims to identify the underlying causes but also seeks to address and correct them. While the concepts of id, ego, and superego establish the foundation, the treatment focuses on a holistic approach that incorporates the principles of *Acharya Rasayana* alongside traditional psychotherapy techniques. This method is effective in combating the eight types of mental disturbances known as *Ashta-Vibhrama*, including *Mano-Vibhrama*, *Buddhi-Vibhrama*, *Sanjna-Vibhrama*, *Smriti-Vibhrama*, *Bhakti-Vibhrama*, *Sheela-Vibhrama*, *Chesta-Vibhrama*, and *Acharya-Vibhrama*. The principles of *satyam* (truth), *akrodham* (non-anger), *ahimsakam* (non-violence), *prashantam* (calmness), *priyavadinam* (pleasant speech), *dheeram* (steadfastness), *karunavedinam* (compassionate understanding), *pramanagyam* (knowledge of the truth), *yuktigya* (intelligent reasoning), and *jitatmana* (self-controlled) are not only meant to be adhered to but also applied in the treatment of personality-related disorders such as schizophrenia, bipolar disorder, multiple personality disorder, euphoria, and dysphoria. These factors assist in restoring the mind to a state of normalcy, ultimately enhancing the optimal functioning of *buddhi* (intellect) and *chetana* (consciousness) and helping individuals regain their authentic personality. Since *Prajnaparadha* is the root cause of various issues affecting the body and mind, *Acharya Rasayana* significantly enhances problem-solving, decision-making, emotional regulation, collaboration, and adaptability. It prevents maladaptive patterns, fosters ethical behavior, and improves overall well-being. Its benefits align closely with the goals of personality development, making it an essential tool for personal growth.<sup>[3,6,7]</sup>

Personality development is a multifaceted process influenced by cognitive, emotional, and behavioral domains, with deficits leading to disorders such as attention-deficit/hyperactivity disorder, autism spectrum disorder (ASD), and externalizing behaviors. Sustained attention enables children to filter distractions, supporting academic achievement and social competence; meta-analyses show that attention delays predict neurodevelopmental issues, impairing executive functions essential for self-regulation.<sup>[8,9]</sup> Reasoning skills, including deductive logic, foster problem-solving from age 4-8 years, correlating with mathematical prowess and adaptive behaviors, whereas deficiencies contribute to cognitive rigidity in ASD.<sup>[10,11]</sup> Communication and empathy are pivotal for social integration. Effective communication, bolstered by parental empathy modeling, enhances peer interactions and reduces emotional/behavioral problems; studies reveal that low parental cognitive empathy indirectly heightens child maladjustment through poor social competence.<sup>[12,13]</sup> Empathy development relies on emotion regulation dynamics, where attentional deployment to others' expressions predicts prosocial responses and mitigates behavioral issues such as hostility bias.<sup>[14,15]</sup> Emotional regulation underpins resilience against psychological ailments. Toddlers with robust regulation exhibit higher empathy and fewer externalising disorders, as positive strategies link to social competence and reduced variability in attention.<sup>[16,17]</sup> Deficits manifest in childhood anxiety, depression, and conduct disorders, exacerbating intrapersonal variability in empathic processing.

Spiritual well-being and nature cultivate meaning-making, correlating with resilience and ethical decision-making. Spiritual intelligence positively associates with emotional regulation, stress coping, and mental health in youth, buffering against burnout and fostering adaptive social behaviors.<sup>[18]</sup> In Ayurveda contexts, it aligns with *sattva guna* enhancement via *Acharya Rasayana*, promoting ethical virtues for holistic growth.<sup>[18]</sup> Ayurvedic *prakriti* assessments link *sattvika* traits to higher IQ/SQ, predicting social maturity over maladaptive behaviors.<sup>[19,20]</sup> These enhance memory, steadfastness, and problem-solving, preventing *prajnyaparadha*-related disorders. Adaptability in decision-making integrates executive functions such as flexibility, crucial for navigating uncertainties. In ASD preschoolers, working memory and inhibition predict adaptive domains (communication and socialization), with executive deficits widening cognitive-adaptive gaps. Poor adaptability fuels rigidity, impulsivity, and personality disorders. Collectively, these domains synergise for resilient personality formation. Attention and reasoning build cognitive scaffolding; communication, empathy, and regulation forge emotional bonds; spiritual elements provide purpose; intellect/courage ensure perseverance; adaptability enables flexibility. Deficiencies cascade into behavioral disorders, underscoring early interventions such as *Sattvavajaya Chikitsa* for prevention.<sup>[21]</sup> Integrating modern (e.g., Cognitive Behavioural Therapy [CBT]) and Ayurveda-based approaches such as *Acharya Rasayana* optimizes trajectories toward ethical and capable adulthood, aiding in personality development.<sup>[22]</sup>

## 5. CONCLUSION

*Acharya Rasayana* provides a holistic approach to personality development by aligning physical, mental, emotional, social, and spiritual aspects. It includes 23 principles that foster virtues such as truthfulness, non-violence, compassion, discipline, and self-awareness. These principles improve character and reduce maladaptive behaviors. By enhancing *Dhi*, *Dhriti*, and *Smriti*, it builds resilience, ethical behavior, and a balanced life. Implementing *Acharya Rasayana* in education and family life from an early age helps shape capable, value-driven individuals, promoting personal excellence and societal harmony for future generations.

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All the authors have read and approved the final version of the manuscript.

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## 9. ETHICAL STATEMENT

Ethical approval was not required for this study as it was a review article with data obtained through a literature search.

## 10. CONFLICT OF INTERESTS

The authors declare no conflicts of interest regarding the publication of this paper.

## 11. DATA AVAILABILITY STATEMENT

The data analyzed in this review were obtained from publicly available sources, including peer-reviewed articles, observational studies, and surveys accessible via databases.

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## REFERENCES

1. McAdams DP, Olson BD. Personality development: Continuity and change over the life course. *Annu Rev Psychol.* 2010;61:517-42. doi: 10.1146/annurev.psych.093008.100507
2. Dhaneshwari HA, Shetty SK. An Ayurveda conceptual study on eight domains in the assessment of mind. *Int Ayurvedic Med J.* 2021;9:3049-54.
3. Trikamaji Y, editor. *Charaka samhita of charaka, chikitsasthana.* 3<sup>rd</sup> ed., Ch. 1/4., Ver. 30-35. Bombay: Nirnaya Sagar Press; 1941. p. 388-9.
4. Kadam SS, Ramchaware AM. Ayurveda concepts of Sadvritta and Acharya Rasayana, their role in diseases. *Control Himalayan J Health Sci.* 2023;8(3):7-9.
5. Gusain T, Chauhan N, Maithani V. A critical review on correlation between aacharya rasayana and ashtanga yoga W.S.R. Mental health. *J Ayurveda Hol Med (JAHM).* 2024;12(6):43-50.
6. Shriwas HK, Harzpal LC, Chandrakar R. Acharya rasayana and its clinical importance in the present scenario. *D Y Patil J Health Sci.* 2021;9(1):27-32.
7. Ganga N, Baburaj A, Abhishek SL. Acharya Rasayana: A substantial reference that can determine character formation in children. *J Ayu Int Med Sci.* 2023;8(3):73-80.
8. Sreelakshmi K, Arun M. Acharya Rasayana: A substantial reference that can determine character formation in children. *J Ayurveda Integr Med Sci.* 2023;11(2):1-8.
9. Babu G. Role of acharya rasayana in chittodvega. *Ayu.* 2007; 28(4):12-5.
10. Desai PD. Assessment of aacharya rasayana in domain of mental health. *Ayu.* 2012;33(Suppl):S45.
11. Israeli-Ran L, Laor TK, Uzevovsky F. Emotion regulation dynamics in empathy in young children. *Sci Rep.* 2025;15:41883.
12. Taneja V, Rishi SV. Spiritual intelligence and resilience among adolescents: Nurturing strength for holistic well-being. *Int J Indian Psychol.* 2025;13(3):2704-2714.
13. Eisenberg N, Spinrad TL, Eggum ND. Emotion-related self-regulation and its relation to Children's maladjustment. *Annu Rev Clin Psychol.* 2010;6:495-525.
14. Lee D, Boulton KA, Sun C, Phillips NL, Munro M, Kumfor F, et al. Attention and executive delays in early childhood: a meta-analysis of neurodevelopmental conditions. *Mol Psychiatry.* 2025;30(5):1906-1914.
15. Gallen CL, Schaerlaeken S, Younger JW, Project iLEAD Consortium, Anguera JA, Gazzaley A. Contribution of sustained attention abilities to real-world academic skills in children. *Sci Rep.* 2023;13:2673.
16. Hankey A. Development and initial standardization of Ayurveda child personality inventory. *J Ayurveda Integr Med.* 2005;6(4):217-21.
17. Józsa K, Oo TZ, Borbélyová D, Podráczky J. Deductive reasoning skills in children aged 4-8 years old. *J Intell.* 2024;12(3):33.
18. Meng K, Yuan Y, Wang Y, Liang J, Wang L, Shen J, Wang Y. Effects of parental empathy and emotion regulation on social competence and emotional/behavioral problems of school-age children. *Pediatr*

- Investig. 2020;4(2):91-8.
19. Rašková B, Hapčová M, Celušáková H, Franková D, Kopčíková M, Demkaninová D, *et al.* Cognitive abilities and executive functions as predictors of adaptive behavior in preschoolers with autism spectrum disorder and typically developing children: A comparative study. *Res Child Adolesc Psychopathol.* 2025;53:1525-38.
  20. Hankey A. A pilot study of correlation between intelligence quotient, social quotient, and prakriti. *Ann Neurosci.* 2018; 25(1):18-22.
  21. Ornaghi V, Conte E, Grazzani I. Empathy in toddlers: The role of emotion regulation, language ability, and maternal emotion socialization style. *Front Psychol.* 2020;11:586862.
  22. Pinto CT. Spiritual intelligence: A scoping review on the gateway to mental health. *J Relig Health.* 2024;63(6):4567-89.

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