

Impact of AI Tool Exposure on Students and its Prevention through Swasthavritta Principles: A Review Article

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Abstract - Artificial Intelligence (AI) tools such as ChatGPT, Gemini, Copilot, and AI-based educational platforms are increasingly integrated into academic environments. These technologies provide rapid access to information, personalized learning, automated content generation, and improved educational efficiency. However, excessive exposure and dependency on AI tools among students have raised concerns regarding cognitive decline, reduced critical thinking, academic dishonesty, emotional disturbances, social isolation, sleep disorders, and digital addiction. Contemporary evidence indicates that prolonged digital engagement adversely affects concentration, memory retention, creativity, and psychological well-being. Ayurveda, particularly the branch of Swasthavritta, offers preventive and promotive principles that can help mitigate these harmful effects through balanced lifestyle regulation, sensory discipline, mental hygiene, Dinacharya, Nidra management, Sadvritta, Yoga, and meditation. Classical Ayurvedic concepts such as Prajnaparadha, AsatmyaIndriyarthasamyoga, and ManovahaSrotodushti provide a conceptual framework for understanding AI-related behavioral disturbances. This review explores the impact of AI tool exposure on students and discusses preventive strategies based on Swasthavritta principles for maintaining physical, mental, and intellectual health in the digital era.

Keywords: Artificial Intelligence; AI Tool Exposure; Students; Swasthavritta; Digital Addiction; Ayurveda; Prajnaparadha; Asatmya Indriyarthasamyoga; Mental Health; Digital Wellness.

I. INTRODUCTION

Artificial Intelligence has revolutionized the educational sector by transforming traditional learning methods into digitally assisted and adaptive systems. AI-based educational technologies provide instant solutions, automated writing assistance, smart tutoring, predictive learning analytics, and personalized educational experiences. Students extensively utilize AI tools for assignments, presentations, coding, examinations, and academic research.¹

Despite these advantages, excessive exposure to AI technologies may result in dependency and reduced independent cognitive functioning. Overreliance on AI tools can impair analytical reasoning, memory processing, creativity, and problem-solving abilities. Additionally, continuous screen exposure contributes to stress, sleep disturbances, anxiety, behavioral addiction, and reduced interpersonal interaction among students.²

Ayurveda emphasizes prevention as the primary objective of healthcare through Swasthavritta, which includes principles for maintaining physical, mental, social, and spiritual well-being. Swasthavritta provides comprehensive guidelines regarding daily regimen, ethical conduct, sensory control, diet, sleep, and mental discipline. These principles are highly relevant in addressing emerging digital lifestyle disorders associated with AI overexposure.³

Aim

To review the impact of AI tool exposure on students and explore preventive strategies through Swasthavritta principles.

Objectives

1. To analyze the educational and psychological effects of AI tool exposure among students.
2. To understand AI dependency through Ayurvedic concepts.
3. To evaluate the role of Swasthavritta in preventing digital addiction and cognitive impairment.
4. To propose practical Ayurvedic lifestyle recommendations for healthy AI usage.

II. MATERIALS AND METHODS

This review article is based on classical Ayurvedic literature and contemporary scientific publications. Data were collected from Ayurvedic texts, peer-reviewed journals, PubMed-indexed articles, educational research papers, WHO-related reports, and recent studies on AI exposure and digital addiction. Relevant Ayurvedic concepts from Swasthavritta and Manasika Bhava were analyzed and correlated with modern behavioral findings.

Concept of AI Tool Exposure 4

AI tool exposure refers to repeated interaction with AI-driven systems including:

- AI chatbots
- Automated writing assistants
- AI tutoring systems
- Smart educational applications
- AI-generated content platforms
- Recommendation algorithms
- Predictive learning systems

Commonly used AI educational tools include:

- OpenAIChatGPT
- Google Gemini
- MicrosoftCopilot
- GrammarlyGrammarly AI

These tools improve productivity but may reduce active intellectual engagement when excessively relied upon.

Positive Impact of AI Tools on Students5

Area	Benefits
Academic Assistance	Quick access to information
Personalized Learning	Adaptive educational support
Language Improvement	Grammar and writing enhancement

Research Efficiency	Faster literature search
Accessibility	Learning support for differently abled students
Skill Development	Coding and technical guidance
Time Management	Automated summarization and planning

AI has improved educational accessibility and promoted self-directed learning in many academic settings.

Negative Impact of Excessive AI Tool Exposure 6,7

1. Cognitive Decline

Excessive dependency on AI may reduce:

- Critical thinking
- Analytical reasoning
- Memory retention
- Problem-solving capacity
- Creativity

Students relying excessively on AI tend to bypass independent cognitive effort.

2. Digital Addiction

Frequent engagement with AI tools and digital platforms can produce compulsive usage behavior similar to smartphone addiction. Symptoms include:

- Excessive screen time
- Anxiety without device access
- Reduced concentration
- Social withdrawal
- Emotional irritability

3. Sleep Disturbances

Night-time AI and screen usage suppress melatonin secretion due to blue-light exposure, leading to:

- Delayed sleep onset
- Poor sleep quality
- Fatigue
- Reduced academic performance

4. Academic Misconduct

AI-generated assignments and automated writing may promote:

- Plagiarism
- Reduced originality
- Ethical compromise
- Superficial learning

5. Psychological Effects

AI overexposure may contribute to:

- Anxiety
- Stress
- Reduced attention span

- Emotional instability
- Social isolation

Ayurvedic Interpretation of AI Tool Overexposure 8,9

Prajnaparadha

Prajnaparadha refers to intellectual blasphemy or misuse of intellect. Excessive and inappropriate AI usage despite awareness of its harmful effects can be considered a form of Prajnaparadha.

AsatmyaIndriyathaSamyoga

Continuous exposure to screens and digital stimuli represents improper conjunction of sensory organs with their objects, particularly:

- Chakshu (eyes)
- Shrotrendriya (hearing)
- Manas (mind)

This causes sensory fatigue and mental imbalance.

ManavahaSrotodushti

Excessive digital stimulation aggravates:

- Rajas
- Tamas
- Vata-Pitta Dosha

Resulting manifestations include:

- Chittodvega (anxiety)
- Nidranasha (insomnia)
- Smritibhramsha (memory impairment)
- Aswasthata (mental unrest)

Role of Swasthavritta in Prevention 10,11,12

Dinacharya (Daily Regimen)

Proper daily routine helps regulate biological rhythm and reduce digital dependency.

Recommended Practices

- Early waking (Brahma Muhurta)
- Regular exercise
- Timely meals
- Limited screen exposure
- Scheduled study periods
- Digital detox intervals

Nidra (Sleep Hygiene)

Ayurveda emphasizes proper sleep for cognitive rejuvenation.

Preventive Measures

- Avoid screens before bedtime
- Maintain regular sleep timing
- Evening meditation
- Oil massage (Padabhyanga)
- Warm milk at night

Sadvritta (Ethical Conduct)

Sadvritta promotes disciplined behavior and mental restraint.

Application in Digital Era

- Ethical AI usage
- Avoidance of plagiarism
- Balanced digital engagement
- Respectful online communication
- Controlled sensory indulgence

Yoga and Meditation

Yoga improves concentration, emotional stability, and cognitive functioning.

Useful Practices

Yoga Practice	Benefits
Pranayama	Mental calmness
Bhramari	Reduces anxiety
NadiShodhana	Improves focus
Yoga Nidra	Better sleep
Meditation	Enhances attention span
Surya Namaskar	Physical activation

Ahara (Dietary Regulation) 13

SatvikaAhara supports mental clarity and cognitive health.

Recommended Foods

- Fruits
- Milk
- Ghee
- Green vegetables
- Nuts
- Whole grains

Foods to Avoid

- Excess caffeine
- Junk food
- Energy drinks
- Processed foods

Preventive Strategies for Students

Preventive Measure	Swasthavritta Principle
Screen time limitation	IndriyaNigraha
Digital detox	NidanaParivarjana
Regular exercise	Vyayama
Sleep regulation	Nidra
Ethical AI use	Sadvritta
Meditation	Satvavajaya
Balanced diet	PathyaAhara

Time management	Dinacharya
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Table 1. Positive Educational Applications of AI Tools Among Students

Sl. No.	AI Application	Educational Benefit
1	AI Chatbots	Instant academic assistance and doubt clarification
2	Automated Writing Tools	Grammar correction and language improvement
3	Personalized Learning Platforms	Adaptive learning according to student performance
4	AI-Based Research Assistance	Faster literature search and summarization
5	Coding Assistants	Programming support and debugging
6	Translation Tools	Multilingual learning support
7	AI Presentation Generators	Improved content organization
8	Smart Assessment Systems	Quick feedback and evaluation
9	Speech-to-Text Applications	Accessibility support for differently abled students
10	Virtual Tutors	Self-paced learning assistance

Table 2. Negative Effects of Excessive AI Tool Exposure

Sl. No.	Area Affected	Adverse Effects
1	Cognitive Function	Reduced critical thinking and memory
2	Academic Performance	Superficial learning and dependency
3	Mental Health	Anxiety, stress, emotional instability
4	Sleep Pattern	Insomnia and poor sleep quality
5	Physical Health	Eye strain, headache, neck pain
6	Social Interaction	Social withdrawal and isolation
7	Ethics	Plagiarism and academic dishonesty
8	Attention Span	Reduced concentration
9	Creativity	Decline in originality and innovation
10	Behavior	Digital addiction and compulsive usage

Table 3. Ayurvedic Interpretation of AI Tool Overexposure

Ayurvedic Concept	Meaning	Correlation with AI Overexposure
Prajnaparadha	Intellectual blasphemy	Excessive and irrational AI dependency
AsatmyaIndriyarthasamyoga	Improper sensory engagement	Continuous screen exposure
ManovahaSrotodushti	Disturbance of mental channels	Anxiety, distraction, mental fatigue
VataPrakopa	Aggravation of VataDosha	Restlessness and sleep disturbances
Pitta Prakopa	Aggravation of Pitta Dosha	Irritability and mental stress
Raja GunaVridhhi	Increased mental agitation	Hyperactivity and compulsive behavior
Tama GunaVridhhi	Mental dullness	Reduced motivation and laziness
Nidranasha	Sleep disturbance	Excessive nighttime digital use

III. DISCUSSION

The rapid advancement of Artificial Intelligence has fundamentally transformed the educational ecosystem. AI-powered platforms are now integrated into almost every aspect of student

learning, including academic writing, language correction, coding assistance, data analysis, content summarization, and examination preparation. The increasing accessibility of AI tools has undoubtedly improved efficiency and educational convenience. Students are able to obtain instant academic support,

personalized learning experiences, and enhanced accessibility for complex subjects. These advantages have contributed significantly to modern educational development.¹⁴

However, despite these educational benefits, the uncontrolled and excessive exposure to AI technologies has generated serious concerns regarding cognitive, psychological, ethical, and behavioral health among students. One of the major emerging issues is intellectual dependency. Continuous reliance on AI-generated answers reduces active participation of higher cognitive functions such as critical analysis, memory retrieval, problem-solving, and logical reasoning. Students may gradually become passive recipients of information rather than active learners. This phenomenon weakens independent intellectual capacity and reduces creativity, originality, and reflective thinking.¹⁵

Another major concern is the development of digital addiction and compulsive AI usage behavior. Modern AI systems are designed to provide immediate gratification through rapid responses and interactive engagement. Excessive dependence on such instant solutions can impair patience, sustained concentration, and deep learning ability. Students increasingly prefer quick AI-generated outputs instead of engaging in comprehensive reading, analytical discussion, and self-directed exploration. This behavioral pattern resembles the mechanism observed in internet addiction and excessive smartphone usage.¹⁶

Continuous exposure to digital screens also contributes to multiple physical and mental health disturbances. Prolonged screen time causes digital eye strain, headache, sleep disturbances, neck pain, fatigue, and reduced physical activity. Blue-light exposure during nighttime suppresses melatonin secretion and disrupts circadian rhythm, resulting in insomnia, poor sleep quality, daytime lethargy, and impaired academic performance. Sleep deprivation further affects emotional stability, memory consolidation, and learning efficiency.¹⁷

Psychological consequences associated with excessive AI exposure are equally important. Overuse of digital platforms has been associated with anxiety, emotional irritability, social withdrawal, loneliness, reduced interpersonal communication, and attention deficits. Students may gradually lose interest in real-life social interactions and become psychologically dependent on virtual environments. Excessive AI dependency may also

reduce self-confidence and self-efficacy, as students increasingly rely on machine-generated outputs instead of trusting their own intellectual abilities.¹⁸

Academic integrity represents another major area of concern. AI-generated assignments and automated content production may encourage plagiarism, superficial learning, and unethical academic practices. Students may submit AI-produced work without genuine understanding of the subject matter. Such practices compromise the true purpose of education, which is intellectual development, analytical thinking, and character building.¹⁹

Ayurveda provides a highly relevant and holistic framework for understanding these modern digital health challenges. The concept of Prajnaparadha (intellectual blasphemy) is particularly applicable in the context of excessive AI dependence. When individuals knowingly engage in behaviors harmful to physical or mental well-being despite awareness of their consequences, it is considered Prajnaparadha. Unregulated AI usage, excessive screen exposure, disturbed sleep patterns, and intellectual laziness may all be interpreted through this Ayurvedic concept.²⁰

Similarly, AsatmyaIndriyarthasamyoga, which refers to improper utilization of sensory organs, closely correlates with continuous exposure to digital screens, auditory stimuli, and excessive information overload. Constant stimulation of the eyes and mind through AI interfaces produces sensory fatigue and mental exhaustion. Ayurveda recognizes that excessive, deficient, or improper sensory engagement disturbs physiological and psychological balance.²¹

The involvement of ManovahaSrotas is also significant. Excessive digital stimulation aggravates Raja and Tama Guna, resulting in reduced mental clarity, emotional instability, anxiety, distraction, and disturbed concentration. Vata and Pitta aggravation due to irregular routines, excessive mental activity, and sleep deprivation further contribute to psychological imbalance. Thus, AI-related behavioral disorders can be interpreted as multidimensional disturbances involving both Sharirika and Manasika factors.²²

Swasthavritta offers a comprehensive preventive strategy for managing these challenges. The principles of Dinacharya establish structured daily routines that improve discipline, biological rhythm, and mental stability. Scheduled study habits, restricted screen time, regular physical activity, and proper sleep timing help restore physiological

balance. Yoga, meditation, and Pranayama improve concentration, emotional regulation, cognitive flexibility, and stress tolerance. Practices such as NadiShodhana, Bhramari, and Yoga Nidra reduce mental fatigue and improve sleep quality.²³

The principle of Sadvritta is especially relevant in the digital era. Ethical conduct, self-control, responsible technology usage, truthfulness, discipline, and moderation are essential for preventing misuse of AI technologies. Swasthavritta also emphasizes SatvikaAhara and mental hygiene, which support cognitive clarity, emotional balance, and healthy behavioral patterns.²⁴

The integration of Ayurvedic preventive principles with digital education may provide a sustainable approach for promoting healthy AI engagement among students. Educational institutions should encourage balanced AI usage policies, digital wellness programs, mindfulness practices, and ethical academic behavior. Awareness regarding healthy technology habits should be incorporated into student health education programs.²⁵

Thus, Swasthavritta serves not only as a preventive healthcare system but also as a valuable framework for addressing emerging lifestyle disorders associated with modern technological advancements. Its holistic approach can help students maintain physical health, mental stability, ethical conduct, and intellectual independence in the age of Artificial Intelligence.

IV. CONCLUSION

Artificial Intelligence has become an integral component of modern education and has significantly enhanced academic accessibility, efficiency, and personalized learning opportunities. AI tools assist students in obtaining rapid information, improving language skills, simplifying complex concepts, and increasing academic productivity. These advancements have transformed traditional learning methodologies and created new possibilities in educational technology. However, excessive and unregulated exposure to AI tools has also emerged as a growing public health and educational concern. Overdependence on AI technologies may negatively influence students' cognitive abilities, creativity, analytical reasoning, emotional stability, and ethical behavior. Prolonged digital engagement contributes to sleep disturbances, reduced physical activity, mental stress, social isolation, and behavioral addiction.

Continuous reliance on machine-generated outputs may weaken independent thinking and compromise the true objective of education. Ayurveda, through the principles of Swasthavritta, provides a holistic preventive framework for maintaining balance between technological advancement and human well-being. Concepts such as Prajnaparadha, AsatmyaIndriyarthasamyoga, and ManovahaSrotodushti help explain the pathogenesis of digital lifestyle disorders from an Ayurvedic perspective. Swasthavritta emphasizes disciplined lifestyle practices, sensory regulation, ethical conduct, proper sleep, balanced diet, Yoga, meditation, and mental hygiene as essential measures for preserving health.

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