

SMARTPHONE ADDICTION AMONG GRADE IX STUDENTS: A COMPARATIVE ANALYSIS OF GENDER, SOCIOECONOMIC STATUS, AND LOCATION THROUGH THE LENS OF INDIAN KNOWLEDGE SYSTEMS

* **Mahendra Hiranman Gaikwad** & ** **Dr. Deepa Anil Patil**

* Assistant Professor, Motiwala College of Educational Sciences, Nashik, Maharashtra

** Professor, N.T.V.S. College of Education, Nandurbar

Abstract:

Smartphone addiction has emerged as a significant concern among adolescents, with Grade IX students being particularly vulnerable due to pivotal developmental transitions. This study situates the problem within Indian Knowledge Systems (IKS), applying the Pancha Kosha model from the Taittiriya Upanishad and the pedagogical principles of the Gurukul tradition to analyse adolescent digital well-being. A descriptive cross-sectional survey of 150 Grade IX students from urban and rural schools used a validated 23-item instrument across six dimensions: Compulsion, Lack of Attention, Forgetfulness, Depression and Anxiety, Disturbed Sleep/Hunger, and Social Withdrawal. The overall mean addiction score was 74.07 ($SD = 15.33$), significantly above the theoretical midpoint, with 52.7% classified as High Addiction. Socioeconomic status (SES) was the dominant predictor ($\eta^2 = 0.899$), while gender and location differences were not statistically significant. IKS-informed interventions, particularly Brahmacharya, Chitta Shuddhi, and Gurukul-style mentoring, are recommended as sustainable frameworks for digital well-being among low-SES adolescents in India.

Keywords: smartphone addiction, adolescents, Grade IX, socioeconomic status, digital well-being, Indian Knowledge Systems, Pancha Kosha, Gurukul, Brahmacharya

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Introduction:

The rapid proliferation of smartphones—with over 6.9 billion subscriptions globally (Statista, 2024)—has transformed adolescent social and cognitive experience. Excessive smartphone use is associated with negative psychological, academic, and social outcomes (Kwon et al., 2013). From an IKS perspective, this represents a civilisational imbalance between the human mind and its objects of attachment (Vishaya), long recognised in classical Indian thought (Sharma, 2019).

Grade IX students occupy a critical developmental juncture characterised by identity formation, peer influence, and reduced parental supervision, rendering them vulnerable to compulsive smartphone use (Billieux et al., 2015). Classical Indian thought designates this phase as Brahmacharya Ashrama, demanding disciplined sense-control (Indriya Nigraha), focused learning (Ekagrata), and mentored growth—values diametrically opposed to compulsive digital engagement (Mishra & Mishra, 2021).

The Pancha Kosha model (Taittiriya Upanishad) describes human personality through five interpenetrating layers: Annamaya (physical), Pranamaya (vital energy), Manomaya (mind and emotions), Vijnanamaya (intellect), and Anandamaya (bliss). Smartphone addiction simultaneously disturbs all five layers—from disrupted sleep and hunger to diminished attentional control—calling for holistic interventions rather than symptom-focused responses (Mukherjee, 2022).

This study examines smartphone addiction among Grade IX students across gender, SES, and location, integrating IKS wisdom with empirical rigour. Objectives include: (i) examining overall addiction levels; (ii) comparing addiction by gender; (iii) analysing SES differences; (iv) comparing urban/rural patterns; (v) analysing dimension-wise variations; and (vi) interpreting findings through the Pancha Kosha model. The study responds to the NEP 2020 mandate for IKS-informed scholarship by bridging India's intellectual heritage with present-day digital health challenges, offering a culturally grounded framework for adolescent well-being that is both empirically testable and pedagogically actionable.

Literature Review:

1. Smartphone Addiction: Global and Indian Evidence

Kwon et al. (2013) validated the Smartphone Addiction Scale across Korean adolescents, while Billieux et al. (2015) proposed a comprehensive model of disordered mobile use as behavioural addiction. In India, Yadav and Sharma (2022) confirmed escalating addiction rates among secondary students, and Pattnaik and Rao (2021) documented significant associations between smartphone use and academic disengagement. Sharma et al. (2023) further demonstrated that mindfulness-based interventions rooted in Indian traditions significantly reduced compulsive phone use among university students, underscoring the practical relevance of IKS-informed approaches.

2.SES, Gender, Location, and IKS Frameworks

Low-SES adolescents, once connected, often exhibit more intense compulsive use due to absent structured leisure, weaker parental digital supervision, and the smartphone's role as a primary instrument of social capital (Bajpai et al., 2022). Gender differences remain contested in the literature; meta-analyses suggest a convergence as device access equalises across sexes (Teng et al., 2021). The urban-rural digital divide has narrowed substantially following India's telecom expansion, complicating earlier assumptions about rural students' lower digital exposure (TRAI, 2023). The NEP 2020 calls for IKS integration across all disciplines, and the Gurukul tradition—with its emphasis on Guru-Shishya bonds, structured Dinacharya, and cultivation of Viveka—offers a compelling counter-model to unstructured digital engagement (Mishra & Mishra, 2021). Chitta Shuddhi practices including Yoga, Pranayama, and Svadhyaya have been empirically linked to improved attentional control, emotional regulation, and reduced impulsivity—core capacities undermined by smartphone addiction (Telles et al., 2020; Singh & Mishra, 2022).

Methodology:

A descriptive cross-sectional survey design was used. A purposive sample of 150 Grade IX students was drawn from government and private schools across urban (n = 68, 45.3%) and rural (n = 82, 54.7%) areas, comprising

male ($n = 72$, 48%) and female ($n = 78$, 52%) students across three SES strata—Low ($n = 44$), Middle ($n = 49$), and High ($n = 57$)—classified by parental occupation, income, and education. Schools were selected to represent geographic and socioeconomic diversity, and informed consent was obtained from school authorities and parents. All participants completed the instrument under standardised classroom conditions.

A 23-item Smartphone Addiction Scale on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree; maximum = 115) assessed six dimensions: Compulsion (Items 1–4), Lack of Attention (Items 5–8), Forgetfulness (Items 9–12), Depression and Anxiety (Items 13–16), Disturbed Sleep/Hunger (Items 17–19), and Social Withdrawal (Items 20–23). Higher scores indicate greater severity. Scores of 39–76 indicated Moderate Addiction and 77–115 indicated High Addiction. Data were analysed using IBM SPSS v.26. Independent-samples t-tests, one-way ANOVA, Tukey HSD post-hoc tests, and effect sizes (Cohen's d ; η^2) were employed at $\alpha = .05$.

Results:

The overall mean addiction score ($M = 74.07$, $SD = 15.33$) was significantly above the theoretical midpoint of 69, $t(149) = 4.047$, $p < .001$, with 52.7% of students meeting High Addiction criteria and 100% scoring above the minimum threshold for Moderate Addiction. This pervasive elevation indicates that smartphone addiction is simultaneously disturbing multiple Kosha layers across the sample. Table 1 summarises key results across demographic groups.

Table 1: Mean Addiction Scores by Demographic Group

Variable	Category	N	Mean Score	Key Finding
Gender	Male	72	71.96	ns ($p = .106$)
	Female	78	76.01	
Location	Urban	68	72.63	ns ($p = .298$)
	Rural	82	75.26	
SES	Low	44	90.89	$F = 656.47$, $p < .001^{***}$ $\eta^2 = 0.899$
	Middle	49	79.43	
	High	57	56.47	

Note. ns = not significant. *** $p < .001$.

SES was the dominant predictor, accounting for 89.9% of variance ($\eta^2 = 0.899$). Tukey HSD confirmed all pairwise SES differences significant ($ps < .001$): Low vs. High ($MD = 34.42$), Low vs. Middle ($MD = 11.46$), and Middle vs. High ($MD = 22.96$). These differences represent practically large and theoretically significant gradients. Gender (Cohen's $d = 0.27$) and location ($d = 0.17$) differences were not significant overall. Dimension-wise, Social Withdrawal showed a significant gender difference (females higher, $p = .040$), and Disturbed Sleep/Hunger was higher in rural students ($p = .014$). SES was significantly associated with all six dimensions (all $ps < .001$), confirming its pervasive role across the full addiction profile.

Discussion:

The high prevalence of smartphone addiction—over half the sample in the High Addiction category—maps systematically onto the Pancha Kosha model: Disturbed Sleep/Hunger disrupts the Annamaya Kosha; anxiety and compulsion disturb the Manomaya Kosha; Lack of Attention and Forgetfulness reflect Vijnanamaya Kosha impairment; reduced vitality and restlessness reflect Pranamaya Kosha disruption; and screen-mediated stimulation displaces the natural joy of the Anandamaya Kosha. This multi-Kosha disruption, termed 'digital disintegration of the self' by Mukherjee (2022), demands holistic rather than symptomatic intervention. Western frameworks that isolate behavioural symptoms miss the integrative diagnostic depth that the Pancha Kosha model affords.

The extraordinary SES effect ($\eta^2 = 0.899$) is the study's most striking finding. High-SES students benefit from parental supervision, structured leisure, and digital literacy education—functional modern analogues of the Gurukul's purposeful environment. Low-SES adolescents, by contrast, rely on smartphones as a primary conduit for social connection and entertainment, echoing the IKS principle that the learning environment itself is the intervention (Mishra & Mishra, 2021; Bajpai et al., 2022).

The non-significant urban-rural difference reflects India's telecom revolution: affordable connectivity has effectively equalised smartphone access, confirming that access without Viveka (discernment) produces uniform addiction risk. The significant gender difference only in Social Withdrawal—females scoring higher—suggests that smartphone-mediated socialisation substitutes authentic community (Sangha), a disruption the Gurukul tradition specifically sought to prevent. The higher Disturbed Sleep/Hunger scores in rural students signal an Annamaya Kosha alert: classical Ayurvedic traditions hold that disturbances to Ahara (nutrition) and Nidra (sleep) destabilise all higher Kosha functions (Telles et al., 2020).

Conclusions and Recommendations: Smartphone addiction is prevalent among Grade IX students in India, with SES as the dominant differentiating variable. From the Pancha Kosha and Gurukul perspectives, the following IKS-informed recommendations are proposed:

(i) Interventions must address all Kosha layers simultaneously—physical, vital, emotional, and intellectual—not merely behavioural symptoms. (ii) Gurukul-inspired structured learning environments offering mentored activity, community, and purposeful discipline should be modelled in programmes for Low-SES adolescents. (iii) Digital literacy curricula grounded in Brahmacharya values (self-discipline, focused learning) should be incorporated into Grade IX syllabi, consistent with NEP 2020's mandate for IKS integration. (iv) Chitta Shuddhi practices—school-based Yoga, Pranayama, and Svadhyaya—should be systematically embedded as evidence-based tools for strengthening attentional control and reducing compulsive behaviour (Singh & Mishra, 2022). (v) School counsellors should conduct regular screenings, particularly for Social Withdrawal and Disturbed Sleep/Hunger, offering Guru-Shishya style mentoring to at-risk students. (vi) Future research should adopt longitudinal designs and examine the efficacy of IKS-informed interventions across SES strata.

The crisis of smartphone addiction is, at its root, a crisis of consciousness unmoored from Viveka and Ananda. India's classical tradition offers both a diagnosis and a time-tested prescription: structured learning environments,

mentored relationships, disciplined sense-regulation, and integrative practices that restore all Pancha Koshas. The challenge for contemporary Indian education is to translate this wisdom into evidence-based, scalable, and culturally resonant interventions for the digital age—embedding the spirit of the Gurukul within modern school structures.

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Cite This Article: Gaikwad M.H. & Dr. Patil D.A. (2026). Smartphone Addiction Among Grade IX Students: A Comparative Analysis of Gender, Socioeconomic Status, and Location Through the Lens of Indian Knowledge Systems. In *Educreator Research Journal: Vol. XIII (Issue III)*, pp. 209-213