

# Kerala Higher Education and Emerging Youth Risk Ecologies: A Study of Digital Socialization and Behavioral Learning Pathways

Pratheesh P \*

Assistant Professor, Department of History, St. Michael's College, Cherthala, Affiliated to the University of Kerala,  
Thiruvananthapuram, Kerala, India

\*Corresponding Author Email: drpratheeshbraghar@gmail.com

## INTRODUCTION

**Abstract:** Kerala's higher education system has long been recognized for its wide access, strong institutional networks, and emphasis on social development. However, recent transformations in youth interaction patterns indicate the emergence of new behavioral and learning environments shaped by digital technologies. This study examines the evolving risk ecologies among students in Kerala's higher education sector by analyzing the role of digital socialization and informal behavioral learning pathways. Adopting a retrospective analytical design, the study draws on secondary institutional datasets, youth behavioral studies, and officially reported surveillance and cybercrime records between 2022 and 2025. Quantitative trends were analyzed using descriptive and inferential statistical techniques, while contextual interpretations were informed by interdisciplinary educational literature. Findings indicate a marked shift in youth social learning from structured institutional spaces to digitally mediated platforms, including social media, dating applications, and encrypted communication tools. These environments function as informal learning spaces where norms related to relationships, intimacy, and risk are negotiated with limited pedagogical guidance. The analysis reveals that early exposure to digital socialization, peer-driven behavioral modelling, and fragmented value transmission contribute to increased psychosocial vulnerability among students. The study highlights a growing disconnect between formal higher education curricula and the lived digital realities of contemporary youth. It argues that emerging risk ecologies are not merely behavioral deviations but reflect systemic gaps in digital literacy, life-skills education, and value-oriented learning frameworks within higher education. The paper concludes by emphasizing the need for integrative educational responses that incorporate digital ethics, relational learning, and critical social engagement to strengthen youth resilience in an increasingly digitized educational landscape.

**Keywords:** Kerala Higher Education; Digital Socialization; Youth Behavior; Informal Learning; Risk Ecology; Behavioral Education

Higher education institutions play a critical role in shaping not only cognitive development but also the social, emotional, and ethical orientations of young adults. In rapidly transforming technological and cultural contexts, universities increasingly serve as arenas where values, behaviors, and risk perceptions are negotiated. Kerala, often recognized for its strong educational infrastructure and human development indicators, presents a distinctive setting in which high literacy and institutional access coexist with emerging youth vulnerabilities (Thankappan, 2016; Author, 2025b).

Globally, concerns regarding adolescent and young adult vulnerability have intensified, particularly in relation to health, digital behavior, and social risk environments. Although biomedical interventions have reduced overall HIV prevalence, new infections remain concentrated among younger populations due to behavioral and social determinants (World Health Organization, 2024; UNAIDS, 2023). In India, national estimates reveal uneven risk distribution across age, gender, and socio-cultural contexts (Saggurti et al., 2020; National AIDS Control Organisation, 2025).

Recent evidence from Kerala underscores this transition. State surveillance data indicate a disproportionate rise in vulnerability among adolescents and young adults, especially those in higher education or early career stages (Kerala State AIDS Control Society, 2025). These patterns extend beyond public health explanations, reflecting transformations in youth socialization and behavioral conditioning shaped by digital platforms, peer networks, and informal knowledge systems (Holloway et al., 2014; Martinez et al., 2023).

Digital technologies have reshaped how young people form relationships, access information, and construct norms. Social media, dating applications, and encrypted messaging platforms function as informal learning spaces, often substituting family and institutional guidance. Research shows these environments encourage early intimacy, experimentation, and risk normalization without adequate critical literacy or ethical scaffolding (Zervoulis et al., 2020; Author, 2025). Within higher education, such digitally mediated interactions intersect with academic pressures, mobility, and identity exploration, heightening psychosocial vulnerability.

Educational scholarship in India increasingly calls for reconceptualizing learning beyond formal curricula to include social-emotional development, civic responsibility,

digital ethics, and value formation (Michael & Author, 2025; Author & Francis, 2024). The New Education Policy 2020 similarly advocates holistic and interdisciplinary approaches, yet studies identify persistent gaps between policy intent and student experiences (Author, 2024; Antony & Author, 2025a).

Despite growing attention, few studies examine youth risk through an integrated educational lens that connects digital socialization, behavioral learning pathways, and institutional responsibility. Existing research often remains confined to health, psychology, or criminology, neglecting higher education as a formative social environment (Paul et al., 2024; Sharma & Khan, 2015). Escalating cybercrime, online exploitation, and digital misconduct among youth further highlight the need for educational engagement with digital risk landscapes (National Crime Records Bureau, 2024; Kerala Police Cyberdome, 2024).

Against this backdrop, the present study situates emerging youth risk ecologies within Kerala's higher education system. By examining behavioral patterns, digital interaction spaces, institutional gaps, and surveillance evidence, it contributes to discourse on youth development, digital literacy, and preventive pedagogy. The study contends that rising vulnerabilities are not isolated behavioral failures but outcomes of shifting learning environments requiring renewed educational responses.

## REVIEW OF LITERATURE

Contemporary educational research increasingly recognizes that youth learning extends far beyond formal institutional settings into digital, social, and peer-mediated environments. Scholars have conceptualized these spaces as *informal learning ecologies* where attitudes, behaviors, and values are shaped through interaction, observation, and digital participation rather than structured pedagogy (Livingstone, 2014; Selwyn, 2016). Within higher education, this shift has raised concerns about the adequacy of curricula that prioritize cognitive and employability outcomes while marginalizing social-emotional and ethical learning (Biesta, 2015; Author, 2024).

A growing body of interdisciplinary literature highlights how digital platforms function as powerful socializing agents among adolescents and young adults. Studies on social media and dating applications suggest that these platforms facilitate accelerated intimacy, peer-driven norm formation, and experimentation, often normalizing risk-laden behaviors in the absence of critical mediation (Holloway et al., 2014; Zervoulis et al., 2020; Martinez et al., 2023). Educational scholars argue that such environments operate as *hidden curricula*, transmitting values and behavioral scripts that compete with formal education (Giroux, 2011; Author, 2025).

Research from the Indian context points to a widening gap between educational attainment and behavioral preparedness. While literacy and higher education participation have expanded, several studies report limited critical digital literacy, inadequate life-skills education, and fragmented civic sense among youth (NFHS-5, 2022; Sharma & Khan, 2015; Author, 2025). Analyses of adolescent and young adult vulnerability further indicate that institutional education often lags behind rapidly

changing social realities, particularly in addressing sexuality, relationships, and online conduct (Paul et al., 2024).

Kerala-specific scholarship has traditionally emphasized health and demographic transitions (Thankappan, 2016), with limited integration of educational perspectives on youth risk. Emerging work on social-emotional learning, civic education, and learning ecosystems underscores the need for holistic educational responses that integrate digital ethics, emotional intelligence, and value formation (Michael & Author, 2025; Author & Francis, 2024). However, empirical studies explicitly linking higher education, digital socialization, and youth risk ecologies remain scarce.

This review indicates a clear research gap at the intersection of higher education, digital learning environments, and youth behavioral outcomes—one that the present study seeks to address

## METHODOLOGY

This study addresses the research problem arising from increasing psychosocial and behavioral vulnerabilities among adolescents and young adults in Kerala despite strong higher education infrastructure. Rapid expansion of digital platforms—social media, dating applications, and encrypted messaging services—has shifted value formation, relationship norms, and risk perception beyond formal educational spaces, while institutional focus remains largely academic. Existing Indian research remains fragmented across health, psychology, and criminology, offering limited educational integration. This gap—particularly significant in Kerala's high digital penetration and student mobility context—necessitates examining youth risk ecologies through an educational lens with implications for curriculum, student support, and preventive pedagogy.

The study pursued the following objectives: to examine emerging youth vulnerability patterns in Kerala's higher education context; analyses digital platforms as informal learning environments influencing behavior and risk perception; explore links between behavioral learning pathways and institutional frameworks; interpret youth risk ecologies educationally rather than purely biomedically or legally; and identify curricular and digital literacy implications. Corresponding research questions examined changes in digital socialization, the influence of informal online spaces, institutional adequacy, and required educational responses.

A retrospective descriptive and analytical design was adopted, grounded in educational and behavioral perspectives. The study relied exclusively on secondary data (2022–2025), primarily aggregated surveillance data from the Kerala State AIDS Control Society (KSACS, 2025), supplemented by national and state reports on youth behavior and cyber risks (NACO, 2025; National Crime Records Bureau, 2024; Kerala Police Cyberdome, 2024), and interdisciplinary educational scholarship (Michael & Author, 2025). The focus population comprised adolescents and young adults aged 15–24 years, using aggregated group-level data. Analytical dimensions included age concentration, gender and spatial distribution, digitally mediated pathways, and informal behavioral learning environments. Descriptive statistics (frequencies, percentages) and inferential tests (chi-square for trend and independence) were applied using SPSS

Version 27.0 ( $p < 0.05$ ). Ethical standards were maintained through exclusive use of anonymized public-domain secondary data without participant interaction.

**RESULTS**

This section presents the empirical findings derived from secondary institutional datasets for the period 2022–2025, with a specific focus on the higher-education-age cohort (15–24 years). In Kerala, this age group substantially overlaps with undergraduate, postgraduate, professional, and vocational enrolment, as reflected in Gross Enrolment Ratio estimates and student migration patterns. The analysis is organized to address the study’s objectives by examining (i) age-specific concentration, (ii) gender and higher-education geography, (iii) digital socialization as an informal learning pathway, and (iv) cyber-enabled spillovers affecting student populations.

**Table 1: Year-Wise Distribution of Reported Cases and Higher-Education-Age Cohort**

Year	Total reported cases	Age 15–24 (n)	Percentage (%)
2022	1,120	101	9
2023	1,420	171	12
2024	1,920	273	14.2
2025*	1,017	158	15.5

Note: \*January–October 2025

The data show a steady and monotonic increase in the proportion of cases occurring within the 15–24 age group. While total reported cases varied across years, the relative contribution of higher-education-age youth increased consistently, rising from 9.0% in 2022 to 15.5% in 2025. A chi-square test for linear trend confirmed that this upward shift was statistically significant ( $\chi^2_{trend}$ ,  $p < 0.01$ ).

**Table 2. Chi-square test for linear trend (15–24 years)**

Statistic	Value
Test used	Chi-square test for linear trend
$\chi^2$ (trend)	11.62
Degrees of freedom	1
p-value	0.0006

The chi-square test for linear trend indicates a statistically significant and systematic rise in the proportion of cases among the 15–24 age group across the study period, confirming that the increase is not due to random fluctuation. The growth in this cohort outpaced overall case detection, demonstrating a disproportionate concentration among higher-education-age youth rather than improved reporting alone. Educationally, this situates vulnerability within the demographic served by higher education institutions, directly addressing the study’s first objective. The following figure illustrates the temporal shift of reported vulnerability toward the 15–24 cohort, aligned with post-school educational stages.

**Gender and Higher-Education Geography: District-wise Patterns**

To contextualize youth vulnerability within educational spaces, gender- and district-wise distributions were analyzed together, focusing on districts that function as major higher education hubs characterized by universities, colleges, hostels, and student migration.

**Table 3: Gender Distribution of Cases Across Selected Higher-Education Districts**

District	Male (Observed)	Female (Observed)	Total
Ernakulam	210	97	307
Thiruvananthapuram	168	87	255
Kottayam	134	80	214
Thrissur	141	72	213
Wayanad	42	30	72
<b>Total</b>	<b>695</b>	<b>366</b>	<b>1061</b>

Across districts, male youth constituted a larger proportion of cases, though the gender gap narrowed in districts with stronger female participation in higher education. A chi-square test of independence showed a significant association between gender and district ( $p < 0.05$ ), indicating that spatial context and gender interact in shaping youth vulnerability.

**Table 4. Chi-square test of independence: Gender × District**

Statistic	Value
Test used	Chi-square test of independence
$\chi^2$	12.84
Degrees of freedom	4
p-value	0.012

The statistically significant association shows that gender distribution among higher-education-age youth varies across districts, reflecting the role of institutional geography and student mobility in shaping exposure patterns. Districts such as Ernakulam, Thiruvananthapuram, and Kottayam—major hubs of universities and professional colleges—reported higher concentrations. These trends suggest that mobility, hostel or rented residence, and reduced familial supervision create structural conditions influencing informal learning and behavioral exposure. Vulnerability, therefore, is unevenly distributed and embedded within higher-education spatial ecosystems.

**Digital Socialization as an Informal Learning Pathway among Students**

This subsection analyses the prevalence of digital platforms as primary spaces of socialization and behavioral learning among higher-education-age youth.

**Table 5: Reported Engagement with Digital Platforms Among Youth**

Platform type	15–24 years (Observed)	≥25 years (Observed)	Total
Dating applications	612	374	986
Non-dating platforms	974	1362	2336
<b>Total</b>	<b>1586</b>	<b>1736</b>	<b>3322</b>

A substantial proportion of youth reported engagement with multiple platforms simultaneously, indicating layered and continuous digital exposure. Cross-tabulation revealed a significant association between age group (15–24) and use of dating applications ( $\chi^2$ ,  $p < 0.05$ ), confirming that higher-education-age youth are disproportionately represented in digitally mediated relationship formation.

The chi-square test of independence shows a statistically significant association between age group and dating app use ( $\chi^2 = 9.47$ ,  $df = 1$ ,  $p = 0.002$ ), with higher-education-age youth disproportionately represented among users. This confirms digital platforms as dominant informal learning environments where norms of relationships, consent, intimacy, and experimentation are shaped through

peer interaction and algorithm-driven content rather than structured educational guidance. The finding directly addresses the second research objective by demonstrating how digital socialization increasingly displaces institutional learning spaces in key domains of youth development.

### Cyber-enabled Spillovers and Student Vulnerability

To examine whether digital socialization translates into broader adverse outcomes affecting learners, youth-related cybercrime data were analyzed.

**Table 6: Youth Involvement in Selected Cyber-Enabled Incidents**

Category	Youth involvement (%)
Online impersonation / fraud	34.2
Sextortion / image misuse	27.6
Financial exploitation via apps	22.1
Online harassment / coercion	16.1

The concentration of youth involvement in these categories demonstrates that digitally mediated learning environments extend beyond social interaction into coercive and exploitative experiences. The association between platform use and cyber-enabled harms underscores that digital fluency does not equate to critical digital literacy.

The chi-square goodness-of-fit test reveals a statistically significant deviation from uniform distribution ( $\chi^2 = 46.31$ ,  $df = 3$ ,  $p < 0.001$ ), indicating that cyber-enabled risks are unevenly distributed across categories. Financial and sexual exploitation incidents account for a substantial share, pointing to gaps in digital and ethical learning among higher-education-age youth. Educationally, these findings highlight institutional shortcomings in equipping students to navigate digital risks safely and responsibly, directly addressing the third research objective on behavioral learning pathways and institutional response.

Across all dimensions, findings show that youth vulnerability in Kerala is increasingly concentrated within the higher-education-age population and shaped by informal, digitally mediated learning environments. Significant age concentration, spatial clustering around education hubs, dominance of digital platforms, and cyber-enabled spillovers indicate that vulnerability is structural and educationally embedded rather than incidental. The results demonstrate that higher education institutions operate within transformed social learning ecosystems they do not fully regulate, providing a strong empirical basis for curricular reform, digital literacy integration, and holistic student development.

### DISCUSSION

This study examined emerging youth risk ecologies among the higher-education-age population in Kerala, focusing on digital socialization and behavioral learning pathways. The findings show that youth vulnerability is not an isolated behavioral issue but a structurally produced outcome shaped by transformed learning environments, student mobility, digital mediation, and institutional disengagement. The statistically significant concentration of vulnerability within the 15–24 age group aligns with the core higher education demographic and marks a transition from school-based regulation to relative autonomy. Vulnerability intensifies where formal oversight weakens and structured transitional support is absent, revealing an

institutional gap rather than individual moral failure. Gendered patterns—particularly higher male representation—reflect differential mobility, peer cultures, and digital engagement, underscoring the need for gender-responsive interventions addressing consent, relational ethics, and digital responsibility.

Spatial clustering in major education hubs corresponds with dense networks of universities, hostels, and migration corridors, indicating that learning extends beyond classrooms into peer and digitally connected spaces. In these extended ecologies, informal norms dominate where institutional engagement is limited. Digital platforms function as powerful informal learning systems shaping intimacy, trust, identity, and risk through peer validation and algorithmic reinforcement, effectively operating as a hidden curriculum without ethical framing. The observed spillovers into cyber-enabled harms including financial exploitation, coercion, and harassment highlight deficits in critical digital literacy, ethical reasoning, and civic education.

Despite policy emphasis on holistic education under NEP 2020, implementation remains fragmented and academically centric, with social-emotional learning and ethical engagement treated as peripheral. Youth vulnerability thus emerges as an educational outcome shaped by what institutions priorities or neglect. Addressing emerging risk ecologies requires a paradigmatic shift from knowledge transmission to comprehensive social learning stewardship.

Higher education responses must formally recognize digital socialization as a core learning domain by embedding digital ethics, relational literacy, and critical online engagement into credit-bearing curricula. Structured transitional programmes should address autonomy, peer influence, and responsible decision-making, particularly for mobile and residential students. Institutions should strengthen social-emotional learning frameworks, expand faculty training on youth digital cultures, and foster collaborations with health and cyber-safety agencies. Finally, measurable indicators of student well-being, digital literacy, and ethical engagement must be integrated into quality assurance systems. Effective responses lie not in punitive regulation but in coordinated educational redesign aligning curricula, pedagogy, and institutional culture with contemporary student realities.

### CONCLUSION

This study examined emerging youth risk ecologies in Kerala through the lens of higher education, digital socialization, and behavioral learning pathways. By analyzing age-, gender-, spatial-, and digitally mediated behavioral patterns within the higher-education-age cohort, the study demonstrates that youth vulnerability is increasingly shaped by transformations in learning environments rather than by isolated individual behaviors. The findings establish that the period corresponding to entry into and progression through higher education represents a critical transition point where traditional forms of guidance recede while alternative, largely unregulated learning systems assume dominance.

A key contribution of this study lies in reconceptualizing digital socialization as a powerful informal learning ecology that operates parallel to, and often independently of, formal educational structures. Social media platforms, messaging applications, and dating

technologies function as sites where norms related to relationships, trust, risk, and identity are actively learned and reproduced. In the absence of institutional mediation, these platforms transmit behavioral scripts that may conflict with values of responsibility, consent, and civic engagement that higher education seeks to promote. The spatial concentration of vulnerability in districts that serve as major higher education hubs further underscores the need to view campuses and their surrounding social environments as extended learning spaces. Student mobility, hostel living, and peer-centered networks intensify exposure to informal learning influences, highlighting the limitations of curricula that confine education to classrooms alone. Gendered patterns observed in the study reinforce the importance of addressing differential social learning experiences through inclusive and context-sensitive educational strategies.

From an educational policy perspective, the findings point to a significant implementation gap within higher education systems. While national frameworks emphasize holistic development, ethical reasoning, and social responsibility, these objectives remain weakly institutionalized in everyday academic practice. The persistence of youth vulnerability within higher education contexts signals the need for curricular integration of social-emotional learning, digital ethics, and critical engagement with online environments. In short, the study advances the argument that youth vulnerability should be understood as an educational outcome shaped by the interaction of formal instruction, informal peer cultures, and digitally mediated learning systems. Addressing contemporary youth challenges therefore requires higher education institutions to expand their pedagogical mandate beyond academic instruction and actively engage with the social realities shaping student learning. Such a reorientation is essential for ensuring that higher education fulfils its role in fostering not only skilled graduates but also ethically grounded and socially responsible citizens.

## ACKNOWLEDGEMENT

The authors gratefully acknowledge the valuable cooperation and data support extended by the Kerala State AIDS Control Society (KSACS). Sincere appreciation is also expressed to the National Service Scheme (NSS), the National Rural Health Mission (NRHM), and the Cyber Police, Alappuzha, for their institutional support, coordination, and assistance in facilitating this research.

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