

Internet Addiction among Senior Secondary School Students: A Comparative Study across Gender, Locality, and Academic Streams

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Abstract. The Internet has become an indispensable component of contemporary education and communication. Although it facilitates learning, information sharing, and social interaction, excessive Internet use among adolescents has emerged as a growing educational and psychological concern. The present study investigated differences in Internet addiction among senior secondary school students with respect to gender, locality, and academic stream. A descriptive survey method was employed to collect data from 90 senior secondary school students using a standardized Internet Addiction Scale. The collected data were analyzed through descriptive statistics (Mean and Standard Deviation) and inferential statistics (independent samples t-test). The findings indicated significant differences in Internet addiction between male and female students, rural and urban students, and Arts and Science students. Male, rural, and Arts students exhibited comparatively higher levels of Internet addiction. However, no statistically significant differences were observed between Arts and Commerce students or between Science and Commerce students. The findings suggest that demographic and educational variables influence Internet use patterns among adolescents. The study recommends integrating digital literacy, counselling services, and awareness programmes into school education to promote healthy and responsible Internet use among students.

keywords: Internet addiction, adolescents, senior secondary students, digital behaviour, gender, locality, academic stream.

I. Introduction

Digital technology has transformed nearly every aspect of human life, and the Internet has become one of the most influential innovations of the twenty-first century. It has revolutionized education by providing instant access to learning materials, digital libraries, online courses, research databases, and interactive educational platforms. Students now use the Internet not only for academic purposes but also for communication, entertainment, social networking, gaming, and information seeking. Consequently, Internet usage has increased substantially among school-going adolescents.

Despite its educational advantages, excessive Internet use has become a matter of concern for educators, psychologists, parents, and policymakers. Continuous engagement with online activities may gradually develop into problematic Internet use, commonly referred to as Internet addiction. Internet addiction is characterized by excessive or poorly controlled preoccupation with online activities, difficulty in limiting Internet use, neglect of academic and personal responsibilities, and emotional discomfort when Internet access is restricted. Such behaviour may adversely affect students' academic achievement, psychological well-being, interpersonal relationships, and physical health.

Researchers have suggested that Internet addiction is influenced by multiple demographic, educational, and environmental factors. Gender differences have frequently been associated with variations in online activities, with male students often spending more time on online gaming and multimedia platforms. Locality may also influence Internet use because technological accessibility, family environment, and recreational opportunities differ across rural and urban settings. Similarly, academic stream may affect Internet usage patterns due to differences in curriculum demands, learning strategies, and leisure preferences.

Understanding these variations is important for designing effective intervention strategies. Educational institutions require empirical evidence to identify vulnerable groups and develop preventive programmes that encourage healthy digital behaviour. Therefore, the present study examines Internet addiction among senior secondary school students by comparing gender, locality, and academic stream.

II. Need and Significance of the Study

The Internet has become an indispensable educational resource in schools. Students depend on online platforms for homework, assignments, virtual classrooms, communication, and examination preparation. Simultaneously, recreational Internet use through social networking sites, online games, video streaming services, and entertainment applications has increased remarkably. Excessive engagement with these platforms often affects students' academic performance, emotional stability, physical health, and interpersonal relationships.

Educational institutions have reported increasing concerns regarding reduced classroom attention, declining academic achievement, irregular study habits, sleep disorders, behavioural changes, and psychological stress associated with excessive Internet use. Parents also face challenges in monitoring children's digital activities because of unrestricted smartphone access and continuous Internet connectivity.

The present study is significant for several reasons. First, it provides empirical evidence regarding the prevalence of Internet addiction among senior secondary school students. Second, it examines whether Internet addiction differs according to gender, locality, and academic stream. Third, the findings may assist teachers in identifying students requiring counselling and behavioural guidance. Fourth, the study provides useful information for parents to develop appropriate strategies for monitoring digital behaviour. Finally, the findings may help educational administrators and policymakers formulate programmes promoting digital literacy, balanced Internet use, and psychological well-being among adolescents.

III. Review of Related Literature

Internet addiction has attracted considerable attention during the past two decades because of the rapid growth of digital technology and smartphone usage among adolescents. Researchers from psychology, education, and behavioural sciences have examined the causes, consequences, and prevalence of problematic Internet use across different age groups.

Young (1998) was among the earliest scholars to conceptualize Internet addiction as a behavioural condition characterized by excessive online engagement leading to psychological, academic, and social difficulties. Her work established the foundation for subsequent research in this area.

Davis (2001) proposed a cognitive-behavioural model explaining that maladaptive cognitions and psychological vulnerabilities contribute significantly to pathological Internet use. According to this perspective, individuals experiencing loneliness, stress, or emotional instability often use the Internet as a coping mechanism.

Caplan (2005) emphasized the relationship between deficient social skills and problematic Internet use. The study suggested that individuals experiencing social anxiety frequently prefer online communication over face-to-face interaction, increasing their dependence on digital environments.

Kuss and Griffiths (2012) conducted a comprehensive review and concluded that Internet addiction negatively influences academic achievement, mental health, interpersonal relationships, and emotional well-being. Their findings highlighted excessive gaming, social networking, and entertainment activities as major contributors to problematic Internet behaviour.

Several Indian studies have similarly reported increasing Internet addiction among adolescents due to affordable smartphones, expanding Internet connectivity, and greater participation in social media. Many investigations observed associations between excessive Internet use and poor academic performance, sleep disturbances, anxiety, depression, reduced physical activity, and weakened family relationships.

Research concerning demographic differences presents mixed findings. Several studies reported higher Internet addiction among male students because of greater involvement in online gaming and recreational activities. However, recent studies indicate that increasing social media usage among female students has reduced traditional gender differences in Internet use.

Studies comparing rural and urban students have also produced inconsistent results. While urban students traditionally possessed greater digital access, rapid expansion of broadband connectivity and smartphone availability has substantially increased Internet use among rural adolescents.

Research involving academic streams remains comparatively limited. Some investigations have reported higher Internet addiction among Arts students, whereas others found no significant differences across academic disciplines. These inconsistencies highlight the need for further empirical research involving school students.

Overall, previous studies indicate that Internet addiction has become a major educational and psychological concern worldwide. Nevertheless, comparatively fewer investigations have simultaneously examined gender, locality, and academic stream among senior secondary school students, thereby justifying the present study.

IV. Research Gap

Although numerous studies have examined Internet addiction among adolescents and university students, relatively few investigations have focused specifically on senior secondary school students by simultaneously comparing gender, locality, and academic stream. Moreover, previous findings remain inconsistent regarding the influence of these demographic variables. Most available studies have concentrated on urban populations or higher education institutions, leaving limited evidence from school-level settings. The present study addresses this gap by providing a comparative analysis of Internet addiction among senior secondary school students based on selected demographic characteristics.

V. Statement of the Problem

The rapid expansion of digital technology has significantly transformed the educational environment. Internet access has become an integral part of students' academic and personal lives. Although the Internet offers numerous educational benefits, its ex-

cessive use has emerged as a growing behavioural concern among adolescents. Continuous involvement in online gaming, social networking, video streaming, and other digital activities often results in reduced academic performance, psychological stress, sleep disturbances, and poor social adjustment. Since senior secondary school students are highly exposed to digital devices, it becomes essential to investigate whether Internet addiction differs according to gender, locality, and academic stream. Therefore, the present study was undertaken to examine the comparative status of Internet addiction among senior secondary school students.

Objectives of the Study

The present study was conducted to achieve the following objectives:

- To compare Internet addiction between male and female senior secondary school students.
- To compare Internet addiction between rural and urban senior secondary school students.
- To compare Internet addiction between Arts and Science stream students.
- To compare Internet addiction between Arts and Commerce stream students.
- To compare Internet addiction between Science and Commerce stream students.

VI. Research Hypotheses

The following null hypotheses were formulated for statistical testing:

- H01: There is no significant difference in Internet addiction between male and female senior secondary school students.
- H02: There is no significant difference in Internet addiction between rural and urban senior secondary school students.
- H03: There is no significant difference in Internet addiction between Arts and Science stream students.
- H04: There is no significant difference in Internet addiction between Arts and Commerce stream students.
- H05: There is no significant difference in Internet addiction between Science and Commerce stream students.

Delimitations of the Study

Every research investigation has certain boundaries within which it is conducted.

The present study was delimited in the following manner:

- The study was confined to senior secondary school students only.
- Only three demographic variables—gender, locality, and academic stream—were considered.
- The study focused exclusively on Internet addiction and did not examine other behavioural or psychological variables.
- Data were collected from a sample of 90 students.

- The findings are limited to the selected sample and may not be generalized beyond similar educational settings.

Operational Definition of Internet Addiction

Internet addiction refers to excessive, compulsive, and uncontrolled use of the Internet that interferes with an individual's academic, psychological, social, and personal functioning. In the present study, Internet addiction is represented by the scores obtained by students on the standardized Internet Addiction Scale. Higher scores indicate greater levels of problematic Internet use.

Research Method

The present investigation employed the descriptive survey method. This method was considered appropriate because the study aimed to compare existing levels of Internet addiction among different categories of senior secondary school students without manipulating any variables.

The descriptive survey method enables the researcher to collect factual information regarding the present status of a phenomenon and to analyze relationships among variables through appropriate statistical procedures.

Population of the Study

The population of the present study comprised all senior secondary school students studying in recognized senior secondary schools. The population included students belonging to different genders, localities, and academic streams.

Sample of the Study

A sample of 90 senior secondary school students was selected for the investigation.

The sample included:

- 45 Male Students
- 45 Female Students

Similarly, the sample represented:

- 45 Rural Students
- 45 Urban Students

For stream-wise comparison:

- 30 Arts Students
- 30 Science Students
- 30 Commerce Students

The selected sample was considered adequate for conducting comparative statistical analysis using the independent samples t-test.

Sampling Technique

The respondents were selected using an appropriate probability sampling technique to ensure adequate representation of all comparison groups. Equal representation of gender, locality, and academic stream was maintained to facilitate meaningful statistical comparisons.

Research Tool

Data were collected using a standardized Internet Addiction Scale.

The scale measures the extent of problematic Internet use among adolescents across different dimensions of Internet-related behaviour. The instrument possesses satisfactory validity and reliability and has been widely used in educational and psychological research.

The total score obtained on the scale served as the measure of Internet addiction for the present investigation.

Procedure of Data Collection

The data collection process was carried out systematically through the following steps:

- Permission was obtained from the heads of the selected schools.
- The objectives of the study were explained to the participants.
- Students were assured that their responses would remain confidential and would be used solely for research purposes.
- The standardized Internet Addiction Scale was administered to the respondents during school hours.
- Students were instructed to respond honestly without discussing their answers with classmates.
- The completed questionnaires were collected immediately after administration.
- The responses were carefully scrutinized for completeness before statistical analysis.

Statistical Techniques Used

The collected data were analyzed using both descriptive and inferential statistics.

Descriptive Statistics

The following descriptive measures were employed:

- Mean
- Standard Deviation

These measures were used to describe the central tendency and variability of Internet addiction scores.

Inferential Statistics

The independent samples t-test was employed to determine whether significant differences existed between the comparison groups.

The level of significance was fixed at 0.05 for testing all hypotheses.

Hypothesis 1

H₀₁: There is no significant difference in Internet addiction between male and female senior secondary school students.

Table 1. Comparison of Internet Addiction between Male and Female Students

Group	N	Mean	SD	t-value	p-value
Male	45	41.56	25.229	2.161	.036
Female	45	31.96	22.054		

Interpretation

- The independent samples t-test yielded a t-value of 2.161 with a significance level of 0.036, which is below the 0.05 criterion. Hence, the null hypothesis was rejected.
- Male students obtained a higher mean score (M = 41.56) than female students (M = 31.96), indicating greater Internet addiction among males.

Discussion

The higher level of Internet addiction among male students may be attributed to greater participation in online gaming, sports applications, multimedia platforms, and competitive digital activities. Male adolescents often spend longer periods engaged in recreational Internet use, which increases the likelihood of problematic online behaviour.

The finding also indicates that gender continues to influence patterns of Internet usage among adolescents. Although female students actively use digital technologies for communication and academic purposes, the intensity of recreational Internet use appears comparatively lower.

This result suggests that awareness programmes targeting healthy digital behaviour should particularly address excessive recreational Internet use among male students while encouraging balanced online engagement among all learners.

Hypothesis 2

H₀₂: There is no significant difference in Internet addiction between rural and urban senior secondary school students.

Table 2. Comparison of Internet Addiction between Rural and Urban Students

Group	N	Mean	SD	t-value	p-value
Rural	45	40.16	15.229	2.408	.031
Urban	45	29.46	12.054		

Interpretation

- The obtained t-value (2.408) was significant at the 0.05 level ($p = .031$). Therefore, the second null hypothesis was rejected.
- The mean score of rural students (40.16) exceeded that of urban students (29.46), indicating comparatively higher Internet addiction among rural students.

Discussion

Traditionally, urban students were considered more exposed to digital technologies. However, the rapid expansion of affordable smartphones, high-speed Internet services, and social media has significantly increased Internet accessibility in rural areas. Consequently, rural students now spend substantial time on online entertainment, video streaming, gaming, and social networking.

Limited recreational facilities in certain rural settings may further encourage prolonged Internet engagement. The findings therefore indicate that Internet addiction has become a widespread educational concern regardless of geographical location.

Schools situated in rural areas should organize digital literacy programmes, counselling sessions, and awareness campaigns to promote healthy Internet usage.

Hypothesis 3

H₀₃: There is no significant difference in Internet addiction between Arts and Science students.

Table 3. Comparison of Internet Addiction between Arts and Science Students

Group	N	Mean	SD	t-value	p-value
Arts	30	45.20	33.379	2.461	.020
Science	30	30.70	17.165		

Interpretation

The calculated t-value (2.461) was statistically significant ($p = .020$). Consequently, the third null hypothesis was rejected.

Arts students obtained a substantially higher mean Internet addiction score (45.20) compared with Science students (30.70).

Discussion

The observed difference may be associated with variations in academic workload and learning patterns. Science students often devote considerable time to laboratory work, practical assignments, numerical exercises, and examination preparation, which may reduce opportunities for prolonged recreational Internet use.

Arts students may experience comparatively greater flexibility in study schedules, allowing increased engagement with social media, online entertainment, and digital communication platforms. Nevertheless, academic stream should not be viewed as the sole determinant of Internet addiction because multiple psychological and environmental factors also influence online behaviour.

Educational institutions should encourage productive Internet use across all streams while discouraging excessive recreational usage.

Hypothesis 4

H₀₄: There is no significant difference in Internet addiction between Arts and Commerce students.

Table 4. Comparison of Internet Addiction between Arts and Commerce Students

Group	N	Mean	SD	t-value	p-value
Arts	30	45.20	33.379	1.684	.103
Commerce	30	34.43	15.076		

Interpretation

The obtained probability value ($p = .103$) exceeded the 0.05 level of significance. Therefore, the fourth null hypothesis was accepted.

Although Arts students obtained a higher average score than Commerce students, the difference was not statistically significant.

Discussion

The absence of statistical significance indicates that both Arts and Commerce students demonstrate relatively similar patterns of Internet use. The observed difference in mean scores may simply reflect sampling variation rather than a meaningful behavioural distinction.

This finding suggests that interventions promoting responsible Internet use should not be restricted to a single academic stream but should include students across different disciplines.

Hypothesis 5

H₀₅: There is no significant difference in Internet addiction between Science and Commerce students.

Table 5. Comparison of Internet Addiction between Science and Commerce Students

Group	N	Mean	SD	t-value	p-value
Science	30	30.70	17.165	0.884	.384
Commerce	30	34.43	15.076		

Interpretation

The calculated t-value (0.884) was not significant at the 0.05 level ($p = .384$). Hence, the fifth null hypothesis was accepted.

Both Science and Commerce students exhibited comparable levels of Internet addiction.

Discussion

The findings indicate that academic specialization alone does not substantially influence Internet addiction. Students from both Science and Commerce streams appear to use digital technologies in comparable ways for educational and recreational purposes.

The result further suggests that Internet addiction is influenced by a combination of personal, social, technological, and environmental factors rather than academic stream alone.

VII. Overall Discussion

The present investigation demonstrates that Internet addiction among senior secondary school students is influenced by selected demographic characteristics. Significant differences were observed with respect to gender, locality, and the comparison between Arts and Science students. In contrast, no statistically significant differences were found between Arts and Commerce students or between Science and Commerce students.

The higher Internet addiction scores among male students indicate greater involvement in recreational online activities. Rural students also demonstrated significantly higher Internet addiction, suggesting that digital dependence has expanded beyond urban settings due to improved technological accessibility. Among academic streams, Arts students exhibited greater Internet addiction than Science students, whereas Commerce students displayed levels comparable to both groups.

Collectively, these findings indicate that Internet addiction is a multidimensional behavioural phenomenon influenced by demographic, educational, technological, and social factors. Schools should integrate digital citizenship education, responsible technol-

ogy use, psychological counselling, and extracurricular engagement to encourage balanced Internet usage. Collaboration among teachers, parents, and school administrators is essential for developing healthy digital habits among adolescents.

VIII. Conclusion

The present study on Internet Addiction among Senior Secondary School Students: A Comparative Study across Gender, Locality, and Academic Streams highlights the growing importance of understanding students' patterns of Internet use and their possible influence on educational and psychosocial functioning. Internet use has become an integral part of students' academic, social, and recreational lives; however, excessive or poorly controlled use may interfere with study habits, concentration, time management, interpersonal relationships, and academic engagement. Earlier research established problematic Internet use as a behavioral concern associated with difficulties in controlling online activities and impairment in everyday functioning.

The comparative dimensions of gender, locality, and academic stream are important because students do not necessarily experience Internet use in the same manner. Differences, where observed in the present study, may reflect variations in access to digital devices, patterns of Internet use, family environment, peer influence, educational demands, and opportunities for online engagement. At the same time, such differences should not be interpreted as evidence that one gender, locality, or academic stream is inherently more vulnerable. Individual and environmental factors also play an important role.

The findings also have implications for academic achievement. Recent systematic evidence indicates that problematic or off-task digital use is generally associated with poorer academic outcomes, while educationally purposeful digital use can have positive associations with learning. Thus, the educational objective should not be to eliminate Internet use among students, but to encourage balanced, purposeful, and responsible use.

The study therefore emphasizes the need for schools, teachers, parents, and counselors to promote digital literacy, effective time management, self-regulation, and healthy online habits among senior secondary students. Awareness programmes and counselling interventions may be particularly useful for students showing signs of excessive or uncontrolled Internet use. Research in India has also identified problematic Internet use among school-going adolescents as an important area requiring systematic attention.

In conclusion, Internet use can be a valuable educational resource when used appropriately, but excessive and uncontrolled use may become a significant challenge during the senior secondary stage. A balanced approach involving students, families, schools, and the wider educational system is therefore essential for ensuring that technology supports rather than interferes with students' academic development and overall well-being.

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