

Navigating Digital Horizons: A Comprehensive Study on Internet, Social Media Use, and Gaming Patterns among Medical Students in Gujarat, India

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Abstract:

Introduction: The ever-growing impact of the digital landscape on medical students necessitates a nuanced examination of internet, social media use, and gaming patterns. This study explores these digital habits among medical students in Gujarat, India.

Objective: To discern the multifaceted aspects of internet and social media engagement, gaming preferences, and their potential impact on the well-being of medical students.

Methods: A cross-sectional research design was employed, encompassing medical students from a tertiary care teaching hospital in Gujarat. Ethical clearance was secured for voluntary and informed participation. A meticulously designed questionnaire facilitated comprehensive data collection. Demographic details, internet and social media usage patterns, gaming habits, and their implications were explored.

Results: Demographic analysis revealed diverse academic year distribution, age categories, and gender representation. Sleep-related behaviors exposed intriguing patterns, with 27.4% preferring to sleep before 10:00 PM, 41.2% opting for bedtime between 10:00 PM and 12:00 AM, and 20.7% being night owls. Notably, 58.8% admitted to nocturnal social media engagement, with 58.1% reporting a sleep duration of 6-8 hours. Study provided a holistic view of participants' health, academic performance, and gaming habits. Noteworthy findings included diverse physical activity levels (34.5% in moderate activity, 47.9% in high activity), prevalent information-seeking motives for social media use (81.0%), and varied gaming preferences.

Conclusions: This study underscores the need for tailored interventions addressing the digital habits of medical students, considering their diverse engagement patterns and potential implications. Future initiatives should incorporate these insights to promote a balanced digital lifestyle among medical students.

Keywords: Medical students, Internet use, Social media engagement, Gaming patterns.

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Introduction

The digital revolution has reshaped education globally, and medical students, at the forefront of this paradigm shift, grapple with the intricate dynamics of internet and social media use. In the context of a tertiary care teaching hospital in India, where the amalgamation of traditional medical education and modern technology is particularly poignant, this research seeks to investigate the multifaceted effects of online engagement on academic performance, professional development, and mental well-being among medical students.

[1,2] As the Indian healthcare landscape evolves, studies examining the impact of online learning platforms on medical education underscore the imperative to understand the unique challenges and opportunities presented by internet-based learning modalities within the Indian medical education system. Similarly, investigations into the influence of social media on academic performance provide a valuable lens through which to explore the diverse sociocultural factors that may shape the Indian medical student experience. [3,4] In the Indian

context, where the use of social media is deeply ingrained in societal interactions, understanding its influence on medical students' professional development is crucial. [4] Moreover, exploring the psychological implications of internet and social media use in the Indian medical student population can shed light on the intersectionality of cultural and technological factors. [5-7] This research aims to contribute to the global discourse on the subject while providing specific insights into the Indian context, thereby facilitating the development of targeted interventions and policies that align with the unique needs and challenges faced by medical students in India.

Methods:

This study employed a cross-sectional research design to investigate the complex dynamics of internet, social media use, and gaming habits among medical students enrolled in a tertiary care teaching hospital in Gujarat, India. Ethical approval was diligently obtained from the Institutional Ethical Committee, and a paramount consideration throughout the study was the voluntary and informed participation of the respondents, ensuring the confidentiality and anonymity of their contributions.

A carefully crafted self-administered questionnaire, featuring a combination of open-ended and closed-ended questions, was the primary data collection tool. This comprehensive questionnaire covered a spectrum of aspects, including demographic information (such as age and gender) and detailed inquiries into the nuances of internet and social media usage patterns and gaming habits.

Specifically, it probed the duration, frequency, and nature of online engagements, encompassing exposure to explicit content and gaming preferences. To maximize participant engagement and ensure a diverse representation, a multifaceted approach to data collection was implemented. The responses were meticulously collected and recorded using a secure online platform to maintain data integrity. The collected data underwent rigorous analysis using descriptive statistical methods, including measures such as mean, standard deviation, percentages, and proportions.

By exploring the multifaceted aspects of their online experiences, including gaming, this study aims to contribute valuable insights that extend beyond traditional academic assessments, shedding light on the potential implications for the overall well-being of medical students.

Results

Table 1 delineates the demographic composition of 420 participants. The distribution across academic years discloses that 121 students (28.8%) are in First MBBS, 96 (22.9%) in Second MBBS, 102 (24.3%) in Third MBBS, and 101 (24.0%) in Fourth MBBS. The mean age of participants was 20.1 ± 2 years and 29.33% students were overweight with a BMI >24.9 . Age categorization illustrates that 211 participants (50.2%) are below 20 years, 195 (46.4%) are aged 21-24, and 14 (3.3%) are above 24 years. Gender distribution indicates 219 (52.1%) male and 201 (47.9%) female participants, providing a detailed snapshot of the participant demographics. (Table 1)

Table 1: Demographic Information of the study participant. (n=420)

Variables	No. of responses	Percentage (%)
Class		
First MBBS	121	28.8
Second MBBS	96	22.9
Third MBBS	102	24.3
Fourth MBBS	101	24.0
Age group (Years)		
<20	211	50.2
21-24	195	46.4
>24	14	3.3
Gender		
Male	219	52.1
Female	201	47.9

The breakdown of sleep-related behaviors in Table 2 reveals insightful patterns among the participants. Notably, 115 students (27.4%) prefer to go to bed before 10:00 PM, while a significant majority of 173 students (41.2%) opt for a bedtime between 10:00 PM and 12:00 AM.

Moreover, 87 students (20.7%) are night owls, going to bed after midnight. A notable 45 students

(10.7%) follow a variable or irregular sleep schedule. In terms of nocturnal social media engagement, 247 students (58.8%) admit to staying alive late frequently for this purpose, whereas 107 students (25.5%) do so occasionally. Conversely, 66 students (15.7%) do not engage in late-night social media activities.

Considering the average sleep duration, 60 students (14.3%) report sleeping less than 6 hours, while a majority of 244 students (58.1%) enjoy a sleep duration of 6-8 hours. Additionally, 116 students (27.6%) get more than 8 hours of sleep. Morning rituals involve checking social media for 189 students (45.0%) regularly, 55 students (13.1%)

occasionally, and 176 students (41.9%) not at all immediately after waking up. When it comes to the types of apps used, 326 students (77.6%) engage with Social Media Apps, 269 students (64.0%) with Educational/Medical Apps, and 187 students (44.5%) with Entertainment/Gaming Apps.

Table 2: Sleep and Social Media Usage Patterns of the study participant. (n=420)

Variables	No. of responses	Percentage (%)
Go to bed at which time?		
Before 10:00 PM	115	27.4
Between 10:00 PM and 12:00 AM	173	41.2
After 12:00 AM	87	20.7
Varies/Irregular Sleep Schedule	45	10.7
Stay alive late night to access social media?		
Yes, Frequently	247	58.8
Occasionally	107	25.5
No	66	15.7
Your average sleep at night		
<6 Hours	60	14.3
6-8 Hours	244	58.1
>8 Hours	116	27.6
Do you check social media immediately after waking up?		
Yes, Regularly	189	45.0
Occasionally	55	13.1
No	176	41.9
Types of apps used		
Social Media Apps	326	77.6
Educational/Medical Apps	269	64.0
Entertainment/Gaming Apps	187	44.5
Daily frequency of visiting social media sites per day?		
Multiple Times a Day	309	73.6
Once a Day	96	22.9
Few Times a Week or Less	15	3.6
Do you use social media sites / internet while meals?		
Yes, Regularly	168	40
Occasionally	90	21.4
No	162	38.6
Do you use social media sites / internet while walking?		
Yes, Regularly	176	41.9
Occasionally	74	17.6
No	170	40.5
On average, how many hours do you spend on the internet each day?		
Low Usage (<2 Hours)	60	14.3
Moderate Usage (2-4 Hours)	244	58.1
High Usage (>4 Hours)	116	27.6

The frequency of daily social media visits indicates that 309 students (73.6%) access these sites multiple times a day, 96 students (22.9%) once a day, and 15 students (3.6%) a few times a week or less. Furthermore, 168 students (40.0%) use social media or the internet regularly during meals, 90 students (21.4%) occasionally, and 162 students (38.6%) refrain from doing so. While walking, 176 students (41.9%) regularly use social media or the internet, 74 students (17.6%) do so occasionally, and 170 students (40.5%) avoid it. The breakdown

of daily internet usage indicates that 60 students (14.3%) fall within the low usage category (<2 hours), 244 students (58.1%) within moderate usage (2-4 hours), and 116 students (27.6%) within high usage (>4 hours). (Table 2) Table 3 provides a comprehensive overview of the health, academic performance, and gaming habits of the study participants. The physical activity levels indicate that 145 students (34.5%) engage in moderate activity, 201 students (47.9%) in high activity, and 49 students (11.7%) in varied activity, while 25

students (6.0%) report low activity. Regarding reasons for using social media, 340 students (81.0%) are driven by information-seeking, 178 students (42.4%) for maintaining relationships, 298 students (71.0%) for entertainment, and 133 students (31.7%) to escape daily problems. Creating and managing identity (23.1%) and seeking peer attention (15.2%) are additional motivators. Concerning digital habits, 52 students (12.4%) experience ringxiety frequently, 15 students (3.6%) occasionally. Physical problems are reported by 139 students (33.1%), experiencing musculoskeletal strain, 45 students (10.7%) have digital eye strain, and 26 students (6.2%) lead a sedentary lifestyle. Sleep disturbances are noted by 148 students (35.2%), and 30 students (7.1%) report psychological stress. The impact of internet and social media on academic performance varies, with 248 students (59.0%) believing it significantly improves, 33 students (7.9%) somewhat, and 139 students (33.1%) indicating no improvement. In terms of gaming preferences, 179 students (42.6%)

do not play games, 127 students (30.2%) prefer online games, and 58 students (13.8%) choose offline games, while 56 students (13.3%) enjoy both. Among gamers, 219 students (52.1%) predominantly use mobile devices, 29 students (6.9%) opt for PC/Laptop, and 10 students (2.4%) use gaming consoles. Daily gaming durations vary, with 139 students (33.1%) playing for less than 1 hour, 72 students (17.1%) for 1-3 hours, and 30 students (7.1%) for more than 3 hours. Playing games before sleep is a routine for 145 students (34.5%), occasionally for 29 students (6.9%), while 67 students (16.0%) refrain. Emotional responses to restricted gaming include 117 students (27.9%) never feeling restless, irritable, anxious, or sad, 38 students (9.0%) feeling so often, and 86 students (20.5%) experiencing these emotions sometimes. Academic performance jeopardy due to gaming is reported by 23 students (5.5%) often, 61 students (14.5%) sometimes, and 157 students (37.4%) never.

Table 3: Health, Academic Performance, and Gaming Habits of study participant.

Variables	No. of responses	Percentage (%)
How much physical activity you do per day?		
Low Activity	25	6.0
Moderate Activity	145	34.5
High Activity	201	47.9
Varied Activity	49	11.7
Reasons for using social media		
Information seeking	340	81.0
Maintaining relationships	178	42.4
Entertainment	298	71.0
Escape daily problems	133	31.7
Create and manage identity	97	23.1
Peer attention	64	15.2
Do you have ringxiety?		
Yes, Frequently	52	12.4
Occasionally	15	3.6
No	353	84.0
Any physical problems do you have?		
Musculoskeletal Strain (Neck pain, Back pain, Fatigue of fingers etc.)	139	33.1
Digital Eye Strain	45	10.7
Sedentary Lifestyle	26	6.2
Sleep Disturbances	148	35.2
Psychological Stress	30	7.1
Do you think internet and social media has improved your academic performance?		
Yes, Significantly	248	59.0
Somewhat	33	7.9
No	139	33.1
Do you check for social media site notifications while studying or important work?		
Yes, Frequently	184	43.8
Occasionally	35	8.3
No	201	47.9
What kind of video games do you prefer?		
Do not play games	179	42.6

Online games	127	30.2
Offline games	58	13.8
Both	56	13.3
On which gaming system does you spend your maximum time?		
Do not play games	179	42.6
Mobile	219	52.1
PC/Laptop	29	6.9
Gaming console	10	2.4
How many hours do you spend daily gaming?		
<1 h	139	33.1
1-3 h	72	17.1
>3 h	30	7.1
Do you play games before going to sleep?		
Yes, Regularly	145	34.5
Occasionally	29	6.9
No	67	16.0
How often have you felt restless, irritable, anxious and/or sad when you were unable to play or played less than usual?		
Never	117	27.9
often	38	9.0
Sometimes	86	20.5
Have you ever in the past 12 months jeopardized your College or work performance because of gaming?		
Never	157	37.4
often	23	5.5
Sometimes	61	14.5

Discussion

In this study, the investigation into sleep-related behaviors exposes intriguing patterns among medical students. Notably, 27.4% of participants prefer to retire before 10:00 PM, while a substantial 41.2% opt for a bedtime between 10:00 PM and 12:00 AM. Furthermore, 20.7% identify as night owls, going to bed after midnight. A noteworthy 10.7% follow a variable or irregular sleep schedule, underscoring the challenges of maintaining a consistent sleep pattern in the digital age. The nocturnal engagement with social media emerges as a significant facet of the digital lifestyle, with 58.8% admitting to frequent late-night social media activities. This aligns with the findings of Masthi et al. (2015), who observed Facebook addiction among health university students. [8] The breakdown of average sleep duration indicates that 14.3% sleep less than 6 hours, 58.1% enjoy 6-8 hours, and 27.6% get more than 8 hours of sleep. These percentages offer a nuanced understanding of the sleep landscape, with potential implications for overall well-being and academic performance. For 45.0%, checking social media is a regular morning ritual, emphasizing the integral role of digital connectivity in shaping the initial moments of the day. The types of apps used demonstrate the dual nature of digital engagement, with 77.6% engaging with Social Media Apps, 64.0% with Educational/Medical Apps, and 44.5% with Entertainment/Gaming Apps.

The frequency of daily social media visits provides further insights, with 73.6% accessing these sites multiple times a day, 22.9% once a day, and 3.6% a few times a week or less. Notably, 40.0% use social media or the internet regularly during meals, while 38.6% refrain from doing so. The nuanced percentages associated with these daily rituals offer a rich tapestry of digital connectivity, revealing the pervasiveness of social media in students' lives and its integration into various aspects of daily routines.

The health dimension, as explored in Table 3, provides a comprehensive overview of physical activity levels, reasons for using social media, and the impact of digital habits on health. Of concern is the finding that 33.1% of participants report physical problems, including musculoskeletal strain, digital eye strain, and a sedentary lifestyle. These health implications resonate with the broader discourse on the consequences of excessive digital engagement, as evidenced by previous studies (Buman et al., 2015; Wuertz et al., 2012). [9,10]

The reasons for using social media highlight the multifaceted nature of digital engagement. Information-seeking drives 81.0%, maintaining relationships motivates 42.4%, entertainment engages 71.0%, and 31.7% use social media to escape daily problems. Creating and managing identity (23.1%) and seeking peer attention (15.2%) emerge as additional motivators. These percentages underscore the diverse motivations underpinning

social media use, emphasizing the need for nuanced interventions that address the multifaceted nature of digital habits. The study delves into the perceptible nexus between internet use, social media engagement, and academic performance. A significant percentage of participants (59.0%) believe that internet and social media significantly improve academic performance, while 7.9% observe some improvement, and 33.1% indicate no improvement. These findings resonate with Masthi et al. (2019), who highlighted the complexity of the impact of digital habits on academic outcomes.[8] The percentages provide a nuanced understanding of students' perceptions, indicating a spectrum of beliefs regarding the educational utility of digital technologies.

Gaming patterns emerge as a significant facet of our study, uncovering prevalent preferences among medical students. The finding that 42.6% do not play games, while 30.2% prefer online games, aligns with the broader spectrum of gaming habits identified by Rehbein et al. [11] The predominance of mobile devices as the primary gaming platform (52.1%) resonates with the portability and accessibility offered by smartphones, a trend corroborated by Demirci et al. [12] Daily gaming durations vary, with 33.1% playing for less than 1 hour, 17.1% for 1-3 hours, and 7.1% for more than 3 hours. These percentages offer insights into the temporal commitment to gaming activities, signaling potential areas for intervention to strike a balance between leisure activities and academic responsibilities. Playing games before sleep is a routine for 34.5%, occasionally for 6.9%, while 16.0% refrain, shedding light on the potential impact of gaming on sleep hygiene.

Emotional responses to restricted gaming include 27.9% never feeling restless, irritable, anxious, or sad, 9.0% feeling so often, and 20.5% experiencing these emotions sometimes. Academic performance jeopardy due to gaming is reported by 5.5% often, 14.5% sometimes, and 37.4% never. These percentages unravel the emotional and academic repercussions of gaming, informing strategies to mitigate potential challenges.

Our findings harmonize with and diverge from previous studies, enriching the tapestry of insights into the digital landscape of medical students. Deshpande et al. identified effects of internet and social media use among medical students, echoing the need for tailored interventions.[13] Masthi et al. (2015) explored Facebook addiction among health university students, aligning with our observations regarding the pervasive role of social media.[8] Hargittai and Hsieh (2010) and Buman et al. (2015) emphasized predictors and consequences of differentiated practices on social network sites and the impact of sitting and television viewing on sleep disturbance, respectively, aligning with our

exploration of sleep-related behaviors and health implications. [9,14] Wuertz et al. (2012) delved into the relationship between body mass index, activity level, and sleep quality among college women, providing a backdrop for our investigation into the health dimension.[10] Demirci et al. (2015) explored the relationship between smartphone use severity and sleep quality, depression, and anxiety in university students, resonating with our examination of sleep-related behaviors and the impact of digital habits on health. [12] Rehbein et al. (2015) investigated the prevalence of Internet gaming disorder in German adolescents, offering a comparative lens for our exploration of gaming patterns among medical students. [11]

Conclusion

"Navigating Digital Horizons" contributes substantively to the evolving understanding of internet use, social media engagement, and gaming patterns among medical students in Gujarat, India. The rich tapestry of demographic insights, percentages associated with various dimensions, and the comparative analysis with existing literature collectively provide a comprehensive foundation for evidence-based interventions.

As medical education continues to traverse the digital frontier, our study serves as a guiding compass, urging stakeholders to navigate the digital landscape with a keen awareness of its impact on the holistic development and well-being of medical students.

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