



Screens and Self: Association Between Physical Activity, Problematic Internet Use, and Body Consciousness in Adolescents

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Abstract: In an era of digital connectivity, social media has proven to be beneficial yet detrimental to adolescents, while it fosters creativity and connections, it can also cause anxiety and emotional distress. As social media is highly integrated into daily life, worries about their psychological effects have grown, particularly for school-age populations as psychological underpinnings of problematic internet use specifically among adolescents. The goal of this study is to gain a better understanding of how physical activity, body image, and media overuse affect teens' cognitive and body image perceptions. A total of 95 high school students completed the standardized self-report scales to gather quantitative data based on their digital use and psychological responses using correlations and t-tests. The findings suggest educators, parents, and mental health professionals with important insights for developing school-based mental health interventions, encouraging healthy digital behaviours, and preventive frameworks tailored to the evolving digital environments of adolescents.

Keywords: *Social Media, Adolescents, Physical Activity, Digital Behavior, Body Image.*

1. Introduction

Social media continues to have an enormous effect on how people define themselves and how they perceive themselves, especially since more and more people are using digital

technology. Social media has been one of the primary reasons why people have changed the way they talk to each other and how they see themselves. A review of an umbrella study by Hjetland et al. (2024) indicates that social media usage correlates with modest increases in mental health concerns and certain social progressions. Recent findings indicate that 80% of Indian youth engage with social media, with approximately 31% of all Indian social media users falling within the 13–19 age demographic (Institute of Governance, Policies & Politics, 2020; Statista, 2021). Particularly during a developmental stage marked by increased self-awareness and perceived uniqueness—phenomena explained by the imagined audience and personal story concepts—social media has a significant impact on adolescents' self-concept. Teenagers' self-image and psychological development are shaped by these digital platforms, which increase possibilities for social comparison and social feedback.

According to Smith et al. (2008), the personal fable implies to an unmatched sense of superiority and uniqueness that is frequently associated with risky behaviors and an exaggerated sense of oneself, while the imaginary audience phenomenon in adolescence represents the conviction that one is constantly being watched and assessed by others. These conceptions and the common desire for peer recognition are highlighted in online interactions (Laursen & Veenstra, 2021) (Fox & Vendemia, 2016; Manago et al., 2008). In practically every aspect of our life, screens play a significant role. Spending too much time in front of screens can contribute to physical and mental health issues, loneliness, have irrational expectations, and even poor academic performance. (Goswami & Parekh, 2023). Teenagers often suffer with physical problems like headaches and pain in their muscles and joints, who spend a lot of time on screens (Kim et al., 2005). These symptoms are primarily caused by a lack of muscle contractions, physical activity, and training. Reduced sleep duration due to late-night or occasionally overnight internet use is another issue mentioned by internet users (Chou, 2001; Hakala et al., 2006). Furthermore, Berkey, Rockett, and Colditz (2008) found that teens who spend a lot of time online have higher body Body Mass Index. Teenagers who engage in physical activity have a positive relationship with their bodies, which improves their sense of self-worth, self-esteem, physical competence, and general emotional health (Gualdi-Russo, Rinaldo, & Zaccagni, 2022).

Adolescent eating disorders are largely caused by poor body image (BI), which is linked to obesity and physical inactivity (Gualdi-Russo et al., 2022). Conversely, physical activity can enhance psychological well-being in adolescents and also promote a positive self-concept by improving body image and satisfaction (Fernández-Bustos, Infantes-Paniagua, Cuevas, and Contreras, 2019). The noted prevalence of problematic internet usage (PIU) differs by region

during the COVID-19 pandemic (Masaeli & Farhadi, 2021), ranging from 20.0% to 44.6% (Chia et al., 2020; Endomba et al., 2022).

These results discuss the heightened concerns regarding the adverse effects of problematic internet use on mental health problems including anxiety, depression, loneliness, and subjective well-being (Cai et al., 2023). Convenience, entertainment, and anonymity are some features of the internet that can impact students cognitive and affective needs, reduce feelings of loneliness and increase life satisfaction (Cai et al., 2023). Adolescent's negative body image problems are primarily caused by digital media platforms (Wollast et al., 2025; Schaefer et al., 2024). The first step in self-objectification is becoming uncomfortable with one's body. This is linked to eating disorders as well. Because they spend more time on the internet searching for information about their appearance, problematic internet users are the most susceptible to this detrimental problem. Furthermore, issues with body image that come from social media are linked to the internet's addictive nature, which leads to a cycle of checking your body all the time for approval. This shows that a personalized intervention that focuses on both exercise and safe internet use is needed to improve mental health and body image (Suhag & Rauniyar, 2024).

Social and developmental psychology have long provided an understanding of these processes. According to Choukas-Bradley, Nesi, Widman, & Galla (2020), anticipating praise "fills followers with the motivation to edit, pose, and engage in extensive scrutiny of their images. According to Kleemans et al. (2018), these behaviours make people feel worse about their bodies because they compare themselves to others and set standards that are impossible to meet. Because of the many problems and diseases that can come from using social media, it's safe to say that the effects of social media on teens' health are not all good or bad. It depends more on the person, their habits, and their surroundings.

2. Methodology

2.1 Study Design

This research utilized a quantitative, cross-sectional survey model to assess the psychological and behavioural patterns of adolescents in the context of their physical activity, social media usage and body image. The sample was made up of 95 adolescents from school, aged between 14 to 18 years old, from Chandigarh, Punjab, and Himachal Pradesh, India. The survey contained standardized questionnaires that aimed to measure the physical activeness of adolescents alongside high screen time, as well as concerns about body image. Participants filled out the tasks using an online survey platform that was easy for them to use and find. The

respondents participated entirely voluntarily and were assured anonymity and confidentiality of their responses. All ethical guidelines, such as informed consent, the right to withdraw, and privacy of information, were complied with. Information on age, gender, physical activity, and school subject/stream, was also gathered to enrich the analysis. Descriptive statistics were applied to the obtained data in order to summarize demographic information alongside technological engagement, while inferential statistics correlation analyses and independent samples t-tests were used.

2.2 Measures

2.2.1 Physical Activity

To examine the impact on adolescents' physical health, we used the Physical Activity Questionnaire for Adolescents (PAQ-A), a 9-item standardized scale which is a 7-day recall instrument was used to understand the level of physical activity of students aged 14-19 years of age, providing a summary of physical activity score derived from eight items (Khera et al., 2017), each scored on a 5-point scale, with good internal consistency ($\alpha = .70-.83$) and test-retest reliability, with established construct validity for assessing general physical activity levels in adolescents (Kowalski et al., 2004)

2.2.2 Body Image

To assess how social media affects appearance and body consciousness, the 13-item Appearance-Related Social Media Consciousness Scale (ASMC) was used. This scale measures how much individuals are aware of their attractiveness to a social media audience, with established validity among adolescents (Choukas-Bradley et al., 2020). The response scores range from 1 (Never) to 7 (Always), and the mean score gives the total score. A total score averaged from all items reflects the height of social-media consciousness. The ASMC reflects robust internal reliability ($\alpha \approx .80-.90$) and outstanding convergent validity with body image and self-esteem (Cash, Morrow, Hrabosky, & Perry, 2004).

2.2.3 Heavy Media Usage

To identify adolescents with heavy media use, the PRIUSS-3 (Problematic and Risky Internet Use Screening Scale) was employed as a brief screening tool for problematic internet use (Moreno et al., 2016). It consists of three items; each rated on a 5-point Likert scale from Never (0) to Very often (4). The sum is calculated by three item scores, and a total score of 3 or higher indicates a positive screen, suggesting the need for further assessment with the full PRIUSS-18. The PRIUSS-3 exhibits acceptable internal consistency ($\alpha \approx .80$) and good criterion validity compared to the full PRIUSS, effectively screening for problematic Internet use among adolescents (Wilson et al., 2014) (Hwang & Toma, 2021).

3. Results

Participants had a mean age of 16.7 years ($SD = 1.6$). Females accounted for 52.1% of the sample, while males accounted for 46.9%. There was a large variety of academic screen time reported by students, with 2–4 hours reported the most, while screen time for parents was reported as moderate. Recreational screen time was reported as 2–4 hours the most, as shown in Table 1. Physical activity was moderate and most recorded it for 30 minutes to 1 hour, as shown in Table 1.

Table 1. *Demographics of the Sample ($N = 100$)*

Variable	Category	(%) or M (SD)
Age (years)	Mean age	16.7 (1.6)
Gender	Female	52.1 %
	Male	46.9 %
Parents' screen time (per day)	1–3 hours (moderate)	54.2%
	3–5 hours (high)	22.9 %
	Very minimal	14.6 %
	> 5 hours (very high)	8.3%
Students' academic screen time (per day)	2–4 hours	34.4%
	1–2 hours	22.9%
	4–6 hours	17.7 %
	> 6 hours	14.6 %
	< 1 hour	10.4%
Students' recreational screen time (per day)	2–4 hours	38.5%
	1–2 hours	29.2%
	> 4 hours	19.8%
	< 1 hour	12.5%
Physical activity engagement	30 minutes–1 hour	39.6%

Note. Percentage = (%). *M* = mean; *SD* = standard deviation.

Table 2. *Correlation between Problematic Internet Use, Physical Activity, and Body Consciousness ($N = 95$)*

	Body Consciousness	Problematic Internet Use	Physical Activity
Body Consciousness	—		

Problematic Internet Use	0.70***	—	
Physical Activity	0.17	0.14	—

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Problematic Internet Use and Body consciousness are strongly and significantly correlated.

Table 2 shows that there is only one strong and significant correlation between Problematic Internet Use and Appearance & Body Consciousness: $r = 0.70$, $p < .001$. In turn, physical activity was weakly and insignificantly correlated with Body Consciousness, with $r = .18$, $p > .05$. Moreover, Problematic Internet Use and Physical Activity demonstrated a weak, non-significant correlation ($r = .15$, $p > .05$).

Table 3. *Gender Differences in Problematic Internet Use, Physical Activity, and Body Consciousness (N = 95)*

Variable	Gender	N	M	SD	t	df	p	d
Body Consciousness	Female	50	3.9	1.5	0.98	93	.32	0.20
	Male	45	3.2	1.6				
Physical Activity	Female	50	1.7	0.3	0.18	88	.85	0.03
	Male	45	1.7	0.3				
Problematic Internet Use	Female	50	6.4	2.4	0.97	81	.33	0.20
	Male	45	5.8	3.1				

Note - M = mean; SD = standard deviation. t = independent samples t-test; df = degrees of freedom. Effect size as Cohen's d

As it can be seen from Table 3, the independent t-test revealed no statistically significant gender differences in problematic Internet use, physical activity, and appearance and body-consciousness. However, descriptive statistics showed some variations based on gender. Compared to male participants, female participants reported a higher mean score on appearance and body consciousness, (M = 3.6, SD = 1.6), female participants reported higher mean scores

on appearance and body consciousness ($M = 3.9$, $SD = 1.5$). Males ($M = 1.7$, $SD = 0.3$) and females ($M = 1.7$, $SD = 0.3$) had similar mean levels of physical activity and the mean scores for problematic internet use were marginally higher for females ($M = 6.4$, $SD = 2.4$) than for males ($M = 5.8$, $SD = 3.1$) as shown in Table 3.

Table 4. Differences in ASMC and PIU Scores Based on Physical Activity Level

	t	df	p	d
ASMC SCORE	1.18	93	0.23	0.24
PIU SCORE	1.16	93	0.24	0.23

Note - t = independent samples t -test; df = degrees of freedom. Effect size reported as Cohen's d .

Similarly, the difference in PIU scores between individuals with high and low physical activity levels was not statistically significant, $t(93) = 1.16$, $p = .24$. The effect size for this comparison was also small (Cohen's $d = 0.24$). An independent-samples t -test was conducted to determine if ASMC and PIU scores differed by high versus low physical activity levels. The difference in ASMC scores between the groups was not significant, $t(93) = 1.18$, $p = .23$, with a small effect size (Cohen's $d = 0.24$), as shown in Table 4.

Table 5. Parents' Mobile & Children's Mobile Phone Usage

Variable	r	p
Parental vs. Child Usage	.17	.86

Note. No significant relationship was found between the mobile phone usage of parents and children. r = Pearson correlation coefficient.

In Table 5, Parental mobile phone usage did not significantly affect students' mobile phone usage, as indicated by a weak correlation ($r = .17$) and a non-significant t -test ($p = .86$).

Table 6. Gender Difference T-Test for Recreational Mobile Use

Gender	Mean (SD)	t	p
Male	2.6 (1.3)	0.62	.54
Female	2.6 (1.2)		

Note. No significant gender difference was found in recreational mobile usage.

In Table 6, no significant gender difference was found in recreational mobile phone use ($p = .54$).

4. Discussion

The current study investigated the relation of problematic Internet use with appearance and body consciousness and with physical activity in adolescents. It turned out that the moderate category was leading in screen time, where 2–4 hours had the highest frequency for both education and recreation purposes. This is also in line with past studies that found teenagers use digital gadgets for hours every day in order to balance their requirements for entertainment and education (Twenge & Campbell, 2018). There was also a moderate amount of physical activity, as most people reported being active for 30 minutes to an hour each day. This is in line with earlier research that showed that teens don't always follow the WHO's recommended activity levels (Guthold, Stevens, Riley, & Bull, 2020). These analyses revealed a strong, significant correlation between problematic Internet use and appearance and body consciousness ($r = .70$, $p < .001$). This result is in line with previous studies showing that the persistent monitoring of one's appearance and negative self-appraisal are linked to anxiety, depression symptoms, emotional dysregulation, and maladaptive beliefs about the relationship between physical attractiveness and self-esteem (Fardouly et al., 2015). On the other hand, there was no significant relationship between problematic Internet use and the level of physical activity ($r = .15$, $p > .05$). This non-significant result implies that problematic Internet use does not automatically substitute the time spent on physical activity. Adolescents and young adults may separate their online and offline activities, and they may continue their physical activity routine despite their heavy online engagement. (López-Fernández et al., 2020). While gender differences in Problematic internet use, physical activity, and body consciousness were not significant, females tended to slightly report higher body consciousness scores, which is in tune with findings of Meier and Gray (2014), who found that adolescent girls tend to have greater appearance-focused self-perceptions.

These findings further suggest that parents' mobile phone usage has no association with students' phone usage, as depicted by the weak correlation at $r = 0.17$ and the non-significant t-test at $p = 0.86$, therefore, children's technology habits may not necessarily be driven by parental behavior and such findings point to the need for further investigation of those factors that influence students' mobile usage patterns beyond parental habits. The recreational use of phones did not differ significantly by gender, either ($p = 0.54$). Therefore, male and female students utilize their devices for leisure in the same way and to the same extent (Tondeur, Van De Velde, Vermeersch, & Van Houtte, 2016). This indicates that mobile phone behavior among students is becoming more consistent across genders, possibly as a result of shifting sociocultural views regarding technology. It suggests that the two genders may progressively

embrace a shared framework concerning preferences and habits associated with mobile usage, indicating that the determinants affecting these behaviors are predominantly non-gendered.

4.1 Implications

These results are very significant for teachers, parents, and school stakeholders as there is strong evidence that problematic Internet use is associated with body image concerns. This means that the digital world, particularly self-related content, may influence how young people view their bodies. The emphasis is laid on the importance of educational initiatives and parental support to promote healthy Internet use and digital literacy.

Notably, physical activity does not have a strong correlation with problematic Internet use or body consciousness. This means that increasing physical activity may need additional psychological and behavioral strategies, aside from simply reducing screen time. The weak role of parental guidance indicates that adolescents' Internet use is primarily influenced by peers and media. This implies that intervention strategies should not only focus on family but also on school and community-based initiatives. The study did not find any significant difference between boys and girls, indicating a need for further research on non-gendered motivations for mobile phone use. These findings shed light on the intricate motivations underlying why people use their phones and demand further investigation into these phenomena.

4.2 Limitations and Further Research

There are some limitations to the study that need to be taken into account. This research is cross-sectional, so it does not look at how mobile phone use and mental health affect each other over time. Again, self-reported data may be biased as people tend to exaggerate or downplay their habits, which reduces the validity of the results. Another limitation of the study is that the research does not explain the content of mobile phone activities.

5. Conclusion

The current study contributes to the growing body of evidence on the complex interrelationships between adolescents' digital behaviours, self-concept, and physical activity. In general, excessive Internet use is linked to heightened body consciousness and lowered well-being, suggesting a balanced use of the Internet coupled with health education. While in this research adolescents reported average screen time and average levels of activity, there was a good correlation between problematic use of the Internet and body consciousness, whereas no strong association was found with physical activity or gender differences. Finally, parental influence on digital behavior was small, which may indicate that peer and media environments

play an important role. Teaching adolescents how to use technology effectively, boosting their self-esteem, and encouraging them to participate actively may help them develop better mental health and adopt healthier technology use.

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