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Association Between Cyberchondria And Academic Smartphone Use With Perceived Academic Functioning Among Medical Students

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Abstract

Background: Smartphones are part of medical education; there is concern about the use of smartphones and the resulting cyberchondria, especially amongst medical students who are regularly exposed to medical information. There has been very little research that has looked at the relationship between these behaviors and students perceived academic functioning. **Objective:** To assess the relationship between cyberchondria, academic smartphone uses and perceived academic functioning among medical students. **Methods:** A cross-sectional study conducted among 218 under graduate medical students recruited through non-probability sampling, convenience sampling. Data collected through an online Google Form, which was filled out with the Cyberchondria Severity Scale-12 (CSS-12), an adapted version of the Academic Smartphone Use scale and Perceived Academic Functioning (PAF) scale. Data were analyzed by descriptive statistics, Pearson correlation and multiple linear regression in SPSS 25. **Result:** Results indicated that there was a strong positive correlation between Cyberchondria and perceived academic functioning ($r = 0.717$, $p < .001$) and academic smartphone use with perceived academic functioning ($r = 0.623$, $p < .001$). There was a weak positive correlation between cyberchondria and academic smartphone use ($r = 0.291$, $p < .001$). Cyberchondria ($B = 0.290$) and academic smartphone use ($B = 0.344$) were significant predictors of perceived academic

functioning (both $p < .001$) in regression analyses. **Conclusion:** Cyberchondria was positively and significantly related to perceived academic functioning among medical students, as were academic smartphone use. The results emphasize the importance of increasing the awareness about digital health literacy and wise smartphone usage within the medical education and indicate that perceived functioning may not be an indicator of actual academic achievement.

Keywords: Cyberchondria, Academic Smartphone Use, Perceived Academic Functioning, Medical Students, And Digital Health Literacy

Introduction

Background

The technology used in smartphones has ensured that they are now an essential part of medical education, enabling a convenient means of gaining access to education, communication in academia, and medical information. It has, however, brought along some behavioral concerns related to the use of smartphones, which have emerged in the form of cyberchondria. Another behavioral concern that has emerged because of the extensive use of smartphones has been related to the usage patterns of those smartphones. A significant group that has become increasingly at risk because of the constant medical material being accessed has been the medical students (El-Zoghby et al., 2024).

Recent studies undertaken indicate that digital addiction could occur gradually with the strong belief among individuals that they are academically engaged. Besides undesirably impacting perceived academic functioning, the employment of smartphones could instantaneously facilitate surface learning and impede deep learning. The inferences of such dynamics are vital in informing learning policies (Agrawal et al., 2024).

Problem Statement

Although there is an increasing amount of literature pointing towards the efficacy of cyber interaction with these individuals, there appears to be limited empirical evidence regarding whether cyberchondria or academic use of smartphones relates to academic functioning as it pertains to the present study. The overwhelming majority of past research efforts that examined various issues either focused on psychological issues or on behavioral aspects of addiction, with relatively less emphasis on academic outcomes of digital dependency as self-assessed by these students. This research aims to fill this gap in knowledge.

Significance of the Study

This research is informative to those who are concerned about its implications for cyberchondriacs and smartphone users among medical students. This research can also help inform digital wellness programs, curriculum development, and counseling strategies. Finally, it adds to existing research literature by specifying that perceived functioning, and not actual, functioning is what is being measured.

Null Hypothesis (H_0)

There is no significant association between cyberchondria, academic smartphone use, and perceived academic functioning.

Alternative Hypothesis (H_1)

There is a significant association between cyberchondria, academic smartphone use, and perceived academic functioning.

Objective

To examine the association between cyberchondria, academic smartphone use and perceived academic functioning among medical students.

Material and Methods

The association between cyberchondria, academic smartphone use and self-reported perceived academic functioning was assessed using a cross-sectional study design in medical students. Academic smartphone use and cyberchondria were independent variables and perceived academic functioning was a dependent variable. Academic smartphone usage was defined operationally as the smartphone's use for academic activities such as “knowledge resources”, which refer to the usage of a smartphone for learning, as well as for improving the effectiveness of the learning process, improving the productivity of the learning process, and managing the load of the learning process. Cyberchondria was characterized as a repetitive behavior of health-related information searching from the internet that leads to growing anxiety instead of reassurance. Academic functioning was considered as students' subjective judgment about their own academic productivity and functioning, rather than their actual academic performance (GPA).

The research was carried out amongst undergraduate medical students of different professional academic years enrolled in Medical College, Lahore. A non-probability sampling technique, namely convenience sampling was employed in recruitment of the population that was available and willing to participate during the data collection process. The sample size was determined by an OpenEpi software computer calculation with 95% confidence and a 5% margin of error. This yielded an infinite-population estimate of 385 ($n_0 = (Z^2 \times p \times (1 - p)) / d^2$, where $Z = 1.96$, $p = 0.5$, and $d = 0.05$). A finite population correction factor was applied for an estimated population of 500, to arrive at a final sample size of 218, the number of participants who eventually were recruited. The data collection period lasted roughly 3-4 months, including the approval of the proposal, data collection, data entry, data analysis and write up. Students in any professional academic year enrolled and who consented to the study were included, whereas the students who refused to participate, those enrolled in non-professional degree programs, house officers/interns and post-graduate students were excluded.

A four-section, self-administered web-based questionnaire was used to gather data. Demographic data included age, gender, place of residence, academic year, and marital status, all of which were obtained from an open access tool created by El-Zoghby et al. (2024), for Section A. The Cyberchondria Severity Scale-12 (CSS-12), adapted from El-Zoghby et al. (2024), was used in Section B to assess four domains (excessiveness, distress, reassurance seeking, compulsion) with three items each, on a five point Likert scale from never (1) to always (5). The perceived academic functioning in Section C was assessed by a five item scale adapted with permission from Viola (2021) which was rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), and this measures students' subjective self-assessment of academic functioning rather than their objective academic functioning. Academic smartphone use was evaluated with five items adapted from Rathakrishnan et al. (2021) which focused on the use of the smartphone for academic purposes and rated on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The CSS-12 had an internal consistency of 0.89 (CRONBACH alpha) and the items for academic smartphone use and perceived academic functioning scale had an internal consistency of 0.83 and 0.85, respectively, also suggesting good reliability among the three instruments.

All the participants were briefly informed about the study and informed consent was obtained using an online Google Form before taking part. Questionnaires were also sent out through the same site and the responses were initially kept in Google Forms and afterwards exported to Excel for analysis. Data were analyzed using SPSS version

25. Demographic variables and the three scales of the study (the four items from the CSS-12, the perceived academic functioning items, and the academic smartphone use items) were analyzed using descriptive statistics (frequencies, percentages, means, and standard deviations).
All participants have signed an informed consent form via the online Google Form, and confidentiality has been respected during the entire study: the participants remain anonymous, and no identifying information was provided in any publications resulting from this study. The participants were told that there were no known risks involved with the study and they could withdraw whenever they wanted.

Result

This chapter includes the responses of participants about the association of cyberchondria and academic smartphone use on the perceived academic functioning among medical students. The responses of participants were determined by mean, standard deviation, frequency and percentages. Data were collected by the 218 medical students. data were collected regarding hyper searching of medical related problems for academic purposes like searching perceived symptoms, lose track of time while searching, anxious when cannot get proper information, effect of researching on daily routine and overall impact on perceived academic functioning. Data were organized according to study question, displaying responses, frequencies and percentages. The analysis was carried out using SPSS version 25. Descriptive statistics were run on all the variables used in the research. Correlation analysis was employed on the variables aimed at establishing any relationship between the variables. The results for normality and multicollinearity showed that the data was normal and that there was a lack of multicollinearity as indicated by (VIF< 5).
The result showed that cyberchondria had a strong positive relationship with the perceived academic functioning of the individual ($r = .72$, $p < .001$). The use of smartphones for academic purposes showed a positive relationship with the perceived academic functioning of the individual ($r = .62$, $p < .001$). There is a weak positive relationship between cyberchondria and the use of smartphones for academic purposes ($r = .29$, $p < .001$).

Table 1: Demographic Data of Medical Students

Variable	**Category**	**Frequency**	**Percentage**
Age	21-25 25-30	196 22	90 10
Gender	Male Female	196 22	90 10
Resident	Urban	218	100
Academic year	1st year 2nd year 3rd year 4th year 5th year	22 22 21 44 109	10 10 9.6 20.4 50.0
Marital status	Single	218	100

The above table 1 shows the demographics of the 218 medical students who participated in the study. Most of the students were between the ages of 21-25, which

accounted for 90%, while the other 10% were between ages 25-30. Looking into the demographics of male and female students, males dominated since they were 90%, while females were 10%. All of the students were from urban areas, with a total of 100%. Breaking down into year levels, students who were in year 1 accounted for 10%, year 2 students were also 10%, while students in year 3 were 9.6%. Those in year 4 accounted for 20.4%, while most were in year 5 since they accounted for 50%. All students were single, contributing entirely to the total of 100%.

Table 2: Cyberchondria Severity Scale (CSS-12)

S/N	Statement	Response	Frequency	Percentage
1	I engage in excessive online health-related searching.	Never Rarely Sometimes Often Always	0 0 88 87 43	0 0 40.4 39.9 19.7
2	Researching symptoms or perceived medical conditions online is the main thing I do in my free time.	Never Rarely Sometimes Often Always	0 0 0 147 71	0 0 0 67.4 32.6
3	I lose track of time when researching symptoms or perceived medical conditions online.	Never Rarely Sometimes Often Always	0 0 0 202 16	0 0 0 92.7 7.3
4	Researching symptoms or perceived medical conditions online makes me feel distressed.	Never Rarely Sometimes Often Always	0 0 0 196 22	0 0 0 89.9 10.1
5	I find it difficult to stop worrying after researching symptoms or perceived medical conditions online.	Never Rarely Sometimes Often Always	0 22 0 196 0	0 10.1 0 89.9 0
6	I become anxious when I cannot find the health information I am looking for online.	Never Rarely Sometimes Often Always	0 88 65 0 65	0 40.4 29.8 0 29.8
7	My online health-related search results lead me to seek medical advice.	Never Rarely Sometimes Often Always	0 22 0 153 43	0 10.1 40.4 70.2 19.7
8	I have to seek reassurance from a medical professional following online health-related searching.	Never Rarely Sometimes Often Always	0 22 44 88 64	0 10.1 20.2 40.4 29.4
9	I need to check my symptoms with a doctor after researching them online.	Never Rarely Sometimes	0 88 0	0 40.4 0

		Often Always	66 64	30.3 29.4
10	Researching symptoms or perceived medical conditions online significantly interferes with my daily routine.	Never Rarely Sometimes Often Always	0 66 0 131 21	0 30.3 0 60.1 9.6
11	It is difficult for me to resist researching symptoms or perceived medical conditions online.	Never Rarely Sometimes Often Always	0 44 0 130 44	0 20.2 0 59.6 20.2
12	Researching symptoms or perceived medical conditions online interrupts my time spent with family/friends.	Never Rarely Sometimes Often Always	65 22 22 87 22	29.8 10.1 10.1 39.9 10.1

The above table 2 of CSS-12 consists of four domains and each domain is based on 3 items. The domain excessiveness reflects the degree of repetitive and time-consuming search activities among medical students online for health information. Concerning Item 1, a remarkably high number of students admitted to their excessiveness in online searches for health information, with 88 students (40.4%) responding "sometimes," 87 students (39.9%) responding "often," and 43 students (19.7%) responding "always." Online symptom search activities were found to predominantly constitute the students' free time by Item 2, with 147 students (67.4%) responding "often" and 71 students (32.6%) responding "always." Similarly, analysis of excessiveness for online search activities by Item 3 revealed a significant loss of time spent online, with 202 students (92.7%) responding "often" and 16 students (7.3%) responding "always."

The distress domain is concerned with measuring the emotional discomfort linked with online health information searching. When it came to Item 4, a lot of students suffered from distress, with 196 students (89.9 percent) indicating that they often feel distressed, while 22 students (10.1 percent) indicated that they always feel distressed after conducting a search for their symptoms online. When it came to Item 5, the worry of being worried about online results was evident, with 196 students (89.9 percent) indicating that they often had difficulty stopping their worrying, while 22 students (10.1 percent) revealed that they do so rarely. When it came to Item 6, anxiety about the inability to access the desired information for health was significant, with 88 students (40.4 percent) indicating that they rarely feel anxious, while 65 students (29.8 percent) revealed that they feel anxious sometimes.

The reassurance-seeking domain points to the tendency to seek confirmation from a professional after an online search. Item 7 received responses from 153 students (70.2%) often, while 43 (19.7%) always did so after conducting an online search. Similarly, Item 8 stated that reassurance by a medical professional was needed often and always, with 88 students (40.4%) responding often and 64 (29.4%) always, while 44 students (20.2%) responded sometimes. Item 9 stated that the checking of symptoms with a doctor was often practiced, with 66 students (30.3%) responding often and 64 students (29.4%) always reflecting in a very strong reassurance-seeking behavior.

The compulsion domain evaluated the wild and turbulent nature of online health searching. Item 10, regarding interference with daily routine, showed that 131 students (60.1%) responded it as often and 21 students (9.6%) as always. Item 11

reflected difficulties in resisting online searches: 130 students reported that this was often (59.6%), while 44 students did it always. Item 12 disclosed social disruption 87 students reported that online health searching often disrupted their time with family or friends, while 22 students did this always, underlining the compulsive effects of cyberchondria on daily routine of social life.

Figure 1: Cyberchondria Severity Scale (CSS-12)

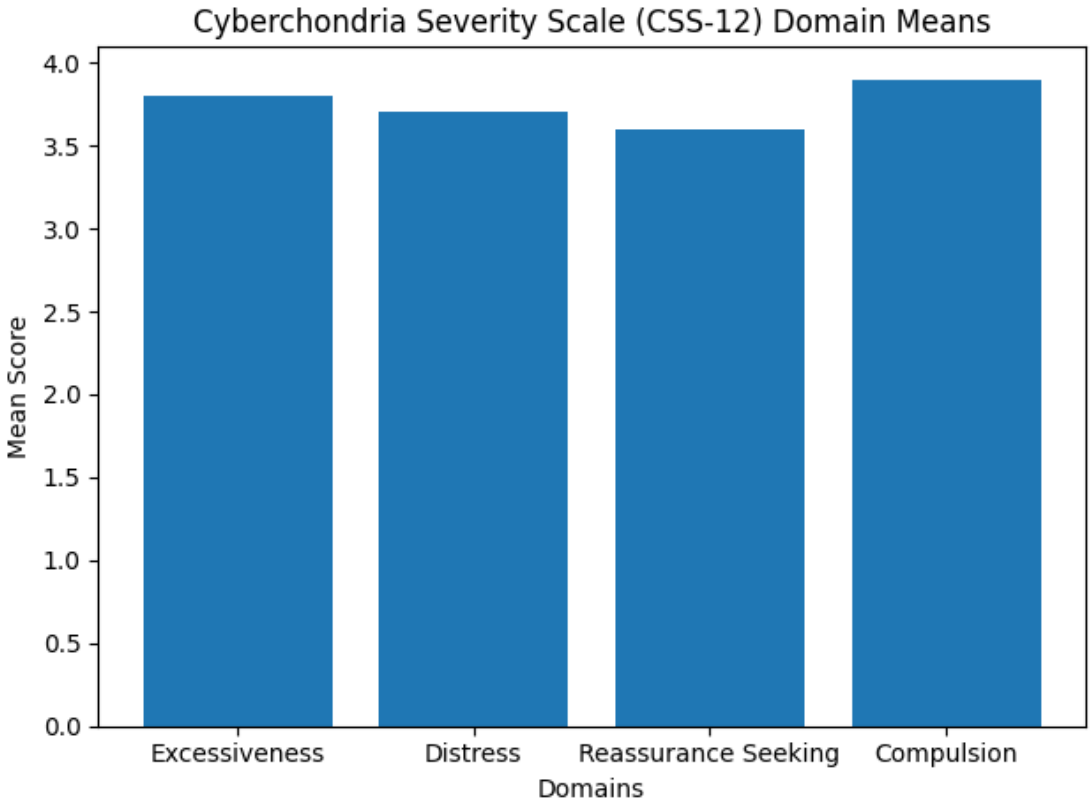

Table: 3 Academic Smartphone Use

S/N	Statement	Response	Frequency	Percentage
1	Using a smartphone helps me to study more efficiently.	Strongly disagree Disagree Neutral Agree Strongly agree	0 0 87 44 87	0 0 39.9 20.2 39.9
2	Using a smartphone improves my performance in studying.	Strongly disagree Disagree Neutral Agree Strongly agree	0 0 22 131 65	0 0 10.1 60.1 29.8
3	Using a smartphone increases my coursework productivity.	Strongly disagree Disagree Neutral Agree Strongly agree	0 0 22 131 65	0 0 10.1 60.1 29.8
4	Using a smartphone enhances my study effectiveness.	Strongly disagree Disagree Neutral Agree Strongly agree	0 0 22 153 43	0 0 10.1 70.2 19.7
5	Overall, I find a smartphone	Strongly disagree	0	0

	useful in my studies.	Disagree Neutral Agree Strongly agree	0 44 109 65	0 20.2 50 29.8

Distribution of responses regarding students' perceptions about smartphone use in relation to their academic activities. For the statement Using a smartphone helps me to study more efficiently, 39.9% of students reported that they are neutral, while equal shares (20.2% and 39.9%) agreed and strongly agreed to this statement. The item studying performance improvement, the more than half of the participants agreed (60.1%) and strongly agreed (29.8%), while the remaining 10.1% had neutral response. Similar results were found for being more productive in coursework, as 60.1% agreed and 29.8% strongly agreed, while 10.1% were neutral. For study effectiveness, 70.2% agreed and 19.7% strongly agreed, while 10.1% were neutral. Overall, half of the participants (50%) agreed that smartphones are useful in their studies, 29.8% strongly agreed, and 20.2% reported neutrality. It is important to notice that for all five statements, no participants selected "strongly disagree" and "disagree," which is indicative that in the sample, the perception of using smartphones for studying was positive (table 3).

Table 4: Perceived Academic Functioning

S/N	Statement	Responses	Frequency	Percentage
1	I miss work that I planned, due to smart phone use.	Strongly disagree Disagree Neutral Agree Strongly agree	0 0 66 108 44	0 0 30.3 49.5 20.2
2	I have a hard time concentrating in class, while doing assignments, or while working, due to smart phone use.	Strongly disagree Disagree Neutral Agree Strongly agree	21 43 44 88 22	9.6 19.7 20.2 40.4 10.1
3	I feel pain in my wrist or at the back of my neck while using a smartphone.	Strongly disagree Disagree Neutral Agree Strongly agree	0 21 66 109 22	0 9.6 30.3 50 10.1
4	I wouldn’t be able to stand not having a smartphone.	Strongly disagree Disagree Neutral Agree Strongly agree	0 87 44 65 22	0 39.9 20.2 29.8 10.1
5	I feel impatience and fretful when I am not holding my smartphone.	Strongly disagree Disagree Neutral Agree Strongly agree	0 43 66 65 44	0 19.7 30.3 29.8 20.2

The above table 4 shows the perceived academic functioning on the educational outcomes of medical students. Almost half of the students (49.5%) agreed, 20.2% strongly agreed that they often miss their planned work through smartphone use, while 30.3% were uncertain, and no students disagreed. Difficulty in concentrating was also observed among students. Almost 41 percent of students agreed, 10.1

percent strongly agreed that their concentration is being hampered by smartphone use, whereas 20.2 percent were uncertain, 19.7 percent disagreed, and 9.6 percent strongly disagreed. Physical discomfort caused by smartphone use was fairly common among students. Almost 50 percent of students agreed, 10.1 percent strongly agreed that they experience neck or wrist pain through smartphone use, whereas 30.3 percent were uncertain, and 9.6 percent disagreed. Almost 30 percent of students agreed that they couldn't bear to live without a smartphone, while 10.1 percent strongly agreed, whereas 39.9 percent disagreed, and 20.2 percent were uncertain about their smartphone dependence. Feeling impatient or irritable without a smartphone was observed among students. Almost 30 percent of students agreed, 20.2 percent strongly agreed about their feelings of impatience or fretfulness without smartphone use, whereas 30.3 percent were uncertain, and 19.7 percent disagreed on the issue of impatience or fretfulness without smartphone use. Perceived academic functioning is not the original performance or objective performance.

Table 5: Descriptive Statistics of Study Variables (N=218)

Variable	**Mean**	**Standard deviation**
Cyberchondria Severity	3.74	0.47
Perceived Academic Functioning	4.12	0.55
Academic Smartphone use	3.47	0.73

Table 5 shows the descriptive statistics of key study variables for 218 medical students. A mean of 3.74 with a standard deviation of 0.47 for cyberchondria severity reflected a high yet moderately consistent presence of cyberchondria among the study group. A mean of 4.12 with a standard deviation of 0.55 for perceived academic functioning revealed that students were registering a high average or good perceived academic functioning with moderate consistency. A mean of 3.47 with a standard deviation of 0.73 for Academic Smartphone use revealed that students were registering moderate smartphone use yet with a higher consistency of responses. These revealed that students self-report good perceived academic functioning, besides the presence of significant levels of cyberchondria and Academic Smartphone use among the study group.

Table: 6 Pearson Correlation Matrix of Study Variables

Variables	Cyberchondria	Perceived Academic Functioning	Academic Smartphone use
Cyberchondria	1.000	0.717	0.291
Perceived Academic Functioning	0.717	1.000	0.623
Academic Smartphone use	0.291	0.623	1.000

Table 6 presents the Pearson correlation coefficients among cyberchondria, perceived academic functioning, and academic smartphone use. There is a strong positive association between cyberchondria and perceived academic functioning as evidenced by the value of $r = 0.717$, meaning that higher magnitudes of cyberchondria translate to increased perceived academic functioning in this sample. On the other hand, there exists a strong positive relationship between perceived academic functioning and Academic smartphone use, with a correlation coefficient of $r = 0.623$, showing a high level of increased phone use associated with perceived academic functioning.

However, in comparison, the cyberchondria and academic smartphone use relationship turned out to be relatively weak and positive, with a value of r = 0.291. Overall, significant positive interrelationships were established among the variables studied, with the most significant relationship being between cyberchondria and perceived academic functioning.

Figure 2: Mean Scores of Study Variables

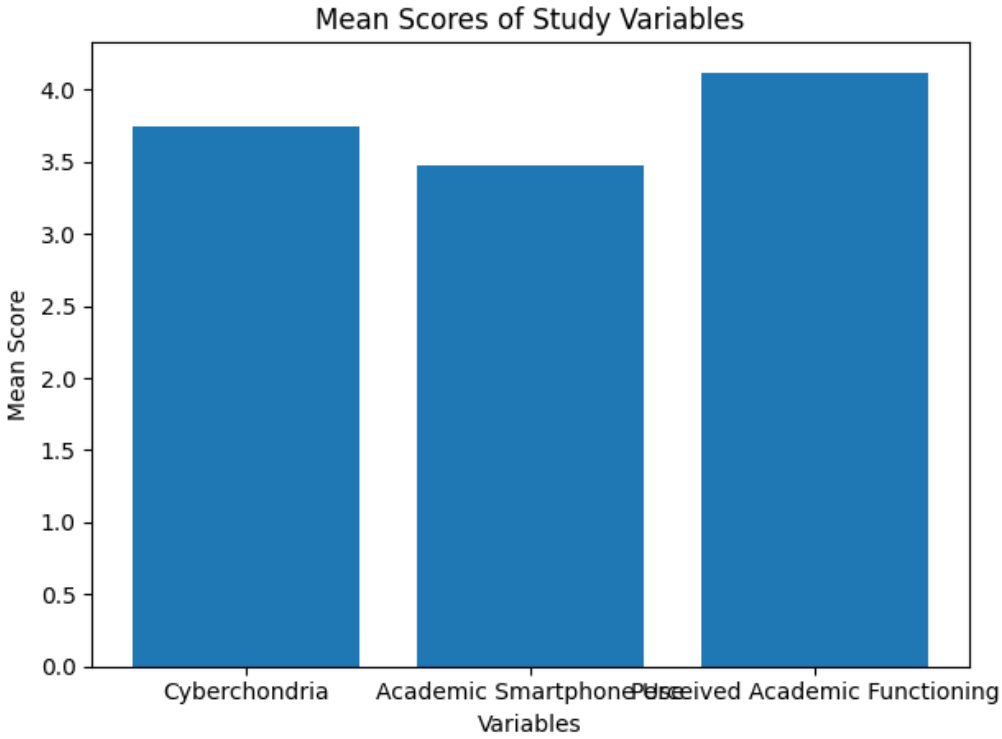

Table 7: Multiple Linear Regression Predicting Perceived Academic Functioning

Predictor	**Coefficient (B)**	**Interpretation**
Intercept	1.636	Baseline academic score when predictors = 0
Cyberchondria Score	0.290	1-point ↑ in cyberchondria increases academic score by 0.29
academic smartphone use Score	0.344	1-point ↑ in academic smartphone use increases academic score by 0.34

Table 7 shows that both cyberchondria and academic smartphone use demonstrated positive influences on perceived academic functioning among medical students. Initially, for each one-point increase in cyberchondria, there was a one-point increase in. However, for each one-point increase in academic smartphone use, there was a one-point increase in perceived academic functioning, with academic smartphone use being more influential. It is illustrated by the positive regression coefficients for both cyberchondria (B = 0.290) and academic smartphone use (B = 0.344). Additionally, the intercept points of 1.636 translates to the point at which both cyberchondria and academic smartphone use were at zero. This implies that their combined influence on perceived academic functioning was positive since the intercept point is positive. Moreover, it can also be observed that the p-values for both cyberchondria (P > k = 0.000) and academic smartphone use (P > k = 0.000) were both less than 0.05,

implying that both factors were significant in predicting perceived academic functioning among medical students.

Discussion and Findings

This section includes in-depth detail of research findings including pros and cons of the study. The result of this study compares with the literature of past five years studies. It also includes the strength and weaknesses of the study. It tells us how searching of medical diseases and symptoms affect the perceived academic functioning and also smart phone addiction effect on perceived academic functioning of health sciences students. It provides the significance for researchers, for people, for university, and stake holders. This study suggests future researchers to explore such kind of topic and take part in such activities to enhance the knowledge of one self and others also.

Comparison with Existing Literature

The findings of the present study partially agree and disagree with the findings of the previous study. The previous study reported a high prevalence of academic smartphone use-57.6% and a moderate level of cyberchondria-85.8%-with the positive significant correlation between academic smartphone use and cyberchondria, identifying social media use and increased internet time as key predictors. However, in contrast, the present study has reported only a weak positive relation between cyberchondria and academic smartphone use, with the Pearson correlation value of r = 0.291. Whereas a strong positive association was observed between cyberchondria and perceived academic functioning (r = 0.717), which was not studied in the previous dimension. In addition, a strong positive correlation between perceived academic functioning and academic smartphone use was also identified (r = 0.623), indicating possible academic use of smartphones. Thus, while both studies confirm that there is interrelatedness between academic smartphone use and cyberchondria, the present study underlines strong academic implications of these behaviors (El-Zoghby et al., 2024).

There appear to be some significant differences between the findings of this study and that of the comparison study. In the current study, positive correlations were found between cyberchondria, perceived academic functioning (r = 0.717), and academic smartphone use (r = 0.623), but the correlation between cyberchondria and academic smartphone use is more fragile (r = 0.291). This indicates that in the current study, cyberchondria and smartphone use tend to be more strongly related to academic engagement, rather than to addictive use. In comparison study, among younger individuals with average age 14.68 ± 1.05 years, in which the mostly participants were female students, found that regular and over use of smartphone is largely to access for online classes, research, and communication purposes, with significant daily internet exposure. Though overall perceived academic functioning is viewed to be good, the previous study viewed smartphone usage more in terms of their patterns of access. In this study, emphasis is given more to the associations related to perceived academic functioning, whereas in the previous study, smartphone use is viewed in terms of behavior patterns or demographics (Köse & Murat, 2021).

On the other hand, the current study yields various differences in significant findings with respect to the comparative study. Firstly, the current study reveals that there is a strong positive correlation between cyberchondria, perceived academic functioning (r = 0.717), and academic smartphone use (r = 0.623), but only a weak positive correlation between cyberchondria and academic smartphone use (r = 0.291). Conversely, the comparative study revealed a higher prevalence of academic smartphone use with a significance of 66.6% and a moderate level of cyberchondria with a significance of 83.4%, which is consistently moderate and significantly correlated with cyberchondria (r = 0.395). Moreover, the comparative study found a

significant positive correlation between cyberchondria and high eHealth literacy levels (r = 0.265), a factor that is not taken into consideration by the current study. Hence, the current study focuses more on the strongly correlated academic aspects for both cyberchondria and academic smartphone use, but the latter study focuses more on eHealth literacy levels for both cyberchondria and academic smartphone use (El-Zayat et al., 2023).

Results of the two studies indicate both similarities and notable differences. The present study found strong positive correlations between cyberchondria and perceived academic functioning (r = 0.717) and between perceived academic functioning and academic smartphone use (r = 0.623), while there was a weak but positive association between cyberchondria and academic smartphone use, with r = 0.291. In the comparative study, cyberchondria was mainly brought about by psychological and behavioral issues; excessiveness had the highest subscale with a high proportion of participants (62%) using online health information to self-diagnose. Regression analysis in the comparative study also determined health anxiety and academic smartphone use as significant predictors of cyberchondria, $P < 0.001$. Generally, both studies confirm that there is a positive correlation between academic smartphone use and cyberchondria, although the present study has identified the perceived academic functioning of students as the most important correlate, whereas the comparative study identifies health anxiety and problematic behavior associated with searching for health information online as the main contributors to cyberchondria (Neeraj et al., 2024).

Conclusion

The paper concludes that there is a significant association between cyberchondria and academic smartphone use and the perception of academic functioning in medical students. These findings represent the subjective perception of the students' academic productivity. The findings emphasize the role of increasing awareness about the use of smartphones and digital health literacy in medical education.

Strengths of the Study

The study had enough sample size, N = 218, therefore increasing statistical finding reliability.

Assessment was done for both cyberchondria and academic smartphone use by using standardized and validated instruments, CSS-12 and SAS-SV.

Applied both sets of correlation and regression analyses, thus allowing the assessment of relationships and predictive effects.

It examined the combined effects of cyberchondria and academic smartphone use on perceived academic functioning.

It addressed a current and timely issue in medical education pertaining to the use of digital technologies.

Study Limitations

This reduces the possibility of drawing causal inferences from the findings because of its cross-sectional design.

There is a possibility of response or recall bias because data relies on self-reporting.

Participants were drawn from urban settings only, thus limiting generalizability.

Gender imbalance in the sample may affect applicability across sex.

Perceived academic functioning was measured subjectively without the use of any objective indicators, for instance, GPA.

Sometimes self-reported academic functioning may not be accurate enough.

Recommendations

Medical students should be supported to practice smartphone usage in a controlled and mindful style.

Awareness programs should be set up against cyberchondria and excessive online health searching.

The training in digital health literacy should be incorporated into the curriculum in the medical institutions.

Technology-related stress and anxiety need to be addressed through counseling as well as student support services.

Longitudinal designs and objective academic measures would provide stronger evidence in future research.

The future researcher should include the results of their academic GPA.

References

Agrawal, V., Khulbe, Y., Singh, A., & Kar, S. K. (2024). The digital health dilemma: Exploring cyberchondria, well-being, and academic smartphone usein medical and non-medical undergraduates. *Indian Journal of Psychiatry*, *66*(3), 256-262.

Arnáez, S., Garcia-Soriano, G., Castro, J., Berle, D., & Starcevic, V. (2023). The Spanish version of the short form of the Cyberchondria Severity Scale (CSS-12): Testing the factor structure and measurement invariance across genders. *Current Psychology*, *42*(24), 20686-20695.

El-Zayat, A., Namnkani, S. A., Alshareef, N. A., Mustfa, M. M., Eminaga, N. S., & Algarni, G. A. (2023). Cyberchondria and its association with academic smartphone useand electronic health literacy among a Saudi population. *Saudi Journal of Medicine & Medical Sciences*, *11*(2), 162-168.

El-Zoghby, S. M., Zaghloul, N. M., Tawfik, A. M., Elsherbiny, N. M., Shehata, S. A., & Soltan, E. M. (2024). Cyberchondria and academic smartphone use: A correlation survey among undergraduate medical students in Egypt. *Journal of the Egyptian Public Health Association*, *99*(1), 7.

James, R. J., Dixon, G., Dragomir, M. G., Thirlwell, E., & Hitcham, L. (2023). Understanding the construction of 'behavior'in academic smartphone use: A scoping review. *Addictive Behaviors*, *137*, 107503.

Köse, S., & Murat, M. (2021). Examination of the relationship between academic smartphone useand cyberchondria in adolescents. *Archives of Psychiatric Nursing*, *35*(6), 563-570.

McElroy, E., & Shevlin, M. (2014). The development and initial validation of the cyberchondria severity scale (CSS). *Journal of Anxiety Disorders*, *28*(2), 259-265.

Neeraj, M. S., Nirmala, B. P., & Sharma, M. K. (2024). Association between health anxiety, academic smartphone use, and cyberchondria. *Indian Journal of Social Psychiatry*, *40*(2), 126-131.

Nehra, N., & Mehrotra, R. (2022). Impact of academic smartphone useon perceived academic functioning of adolescents in Rajasthan. *Journal of Positive School Psychology*, *6*(5), 9139-9149.

Punir, S. (2021). Impact of the use of smartphones on perceived academic functioning of Students: A Cross-Sectional Study. *Ilkogretim Online-Elementary Education Online*, *20*(6), 5024-5030.

Rathakrishnan, B., Bikar Singh, S. S., Kamaluddin, M. R., Yahaya, A., Mohd Nasir, M. A., Ibrahim, F., & Ab Rahman, Z. (2021). Academic smartphone useand sleep quality on perceived academic functioning of university students: An exploratory research. *International Journal of Environmental Research and Public Health*, *18*(16), 8291.

Raza, S. A., Yousufi, S. Q., Rafi, S. T., & Javaid, S. T. (2020). Impact of academic smartphone useon students' academic achievement in higher education institute of Pakistan. *Journal of Education & Social Sciences*, *8*(1), 1-14.

Robles-Mariños, R., Alvarado, G. F., Maguiña, J. L., & Bazo-Alvarez, J. C. (2023). The short-form of the Cyberchondria Severity Scale (CSS-12): Adaptation and validation of the Spanish version in young Peruvian students. *Plos One*, *18*(10), e0292459.

Sert, K., Altındağ, E., & Öngel, G. (2025). Between knowledge and anxiety:'Unveiling the impact of cyberchondria and health literacy on academics' quality of life in foundation universities.

Tian, J., Zhao, J. Y., Xu, J. M., Li, Q. L., Sun, T., Zhao, C. X., ... & Zhang, S. E. (2021). Mobile phone addiction and academic procrastination negatively impact academic achievement among Chinese medical students. *Frontiers in Psychology*, *12*, 758303.

Viola, D. M. (2021). Negative health review of cell phones and social media. *Journal of Mental Health and Clinical Psychology*, *5*(1), 7-18.