

Social Media Usage by Teenager and Adult Students and Its Impact on Their Academic Performance and Mental Health: A Post COVID19 Comparative Analysis

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ABSTRACT

Based on parents' and psychologists' concerns over the young generation's excessive use of social media, this research examines its effect on teenagers' and adult students' academic performance and mental health after the outbreak of the COVID19 pandemic. The researchers collected data from students studying at public and private educational institutions through convenience sampling techniques. Structural analyses indicated significant adverse effects of social media usage on students' mental health. In specific ways, it has been found to increase students' academic productivity, both teenagers and adults, allowing them to expand their scope of learning. This study has explored the societal impact of excessive reliance on unregulated social media platforms, leading to notable shifts in behavior including increased social isolation, diminished empathy, and various physical health complications. Recognizing and addressing the detrimental effects of the aforementioned factors will prove advantageous for both parents and teachers, as it will help to curtail excessive reliance on social media.

Keywords: Social media usage, Students, Academic performance, Mental health, COVID19, Higher education

1. INTRODUCTION:

The global spread of coronavirus illness (COVID-19) has seriously affected all sectors, including the economy, social welfare, medical, etc. (Kumar & Ayedee, 2021). Especially since the second week of March 2020 saw the World Health Organization (WHO) announce a global pandemic (Arif et al., 2021). In response, numerous nations have instituted anti-epidemic measures, including limiting the movement of non-citizens, blocking public areas, and even canceling public transportation (Jiakui et al., 2023). Because of the widespread recognition that the status quo in education is failing (Abbas, 2020a), universities and colleges worldwide are exploring online learning opportunities (Abbas & Sagsan, 2019). The

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simple reason that lockdowns have forced the closure of all schools worldwide, rendering it impossible for pupils to interact with their instructors in person (Tang et al., 2021). Lockdowns in other institutions, such as businesses and society, are nothing new (Deng et al., 2022).

The COVID19 pandemic is one of the greatest dangers to humankind. It has wreaked havoc on people's everyday routines (Chai et al., 2022) and has a chilling effect on their ability to engage in psychological and physical pursuits (Algamdi et al., 2021). Neither the prevalence of such instances nor their impact on students' mental health are well-studied, and data on this topic in Pakistan is lacking. A study focusing on the United States, Nepal, Spain, Iran, Turkey reported that the pandemic has varied effects on young and old persons (Algamdi et al., 2021; Hwang et al., 2022). Social media was a major pastime for the public and students alike during the quarantine that followed the outbreak of the epidemic (Lahath et al., 2021).

According to scholarly sources, the term "social media" typically encompasses online platforms and tools that facilitate the rapid and effective dissemination of information (Sayaf et al., 2021). This is considered a remarkable advancement in the realm of information technology. It started with computers and advanced to cellphones, tablets, and other similar devices (Kumari et al., 2022; Sherman et al., 2021). Social media channels, such as LinkedIn, Twitter, Facebook, etc., assist their users in information sharing and provide an opportunity for people to become acquainted with one another (Kim et al., 2023; Kumar & Ayedee, 2021). It also serves as an excellent source of entertainment (such as YouTube) and helps people of all ages and walks of life (Abbas & Khan, 2022).

Social media usage has increased significantly in society over the last few years (Kazmi & Abbas, 2021), and several researchers have studied this phenomenon in various contexts (Fatima et al., 2021). Nesi (2020) examined the link between social media usage and users' psychological health and concluded that it significantly affects users' mental health, including depression, inferiority complexes, and eating disorders. According to Elmore (2019), social media has significantly altered communication and lifestyle. Holsten (2018) and Watt (2016) compared young, and older adults' perceptions of social media and concluded that older people negatively perceive social networking sites. Because of this, the media is so appealing to young people. They become vulnerable to both advantages and disadvantages due to their use. In a study conducted by Abbas et al. (2021), the emphasis was placed on the educational approach of students. The findings revealed that the usage of social media has a considerably greater influence on students' thinking and decision-making compared to other forms of community engagement. It has been determined that students in both developing and developed nations are increasingly developing a dependency on social networking platforms.

This study examines the impact of students' social media usage on their academic performance and cognitive processes. In this analysis, we delve into the comparison of variables among teenagers and adult students, specifically in the context of the ongoing COVID-19 pandemic. From a student's perspective, academic performance encompasses the extent to which a student has achieved their educational objectives, whether they are immediate or long-term in nature. Academic achievement is attained when individuals successfully complete educational milestones such as secondary school diplomas and bachelor's degrees. While several researchers, such as Shakoor et al. (2021), have delved into the effects of social media on students' academic performance in the context of Pakistan and China, no study has been found that specifically investigates the correlation between social media usage and students' physical activities and stress levels. In addition, there have been limited studies that have directly compared the social media usage behavior of teenagers and adult students. This study is a ground-breaking exploration into the addictive tendencies of social media use among teenage and adult students amidst the COVID-19 pandemic. It delves into the profound effects on their academic performance, encompassing both learning outcomes and mental well-being. The results of this study will assist academic and other stakeholders in expanding their understanding of the products and detrimental impact of social media on students' academic life. In the subsequent sections, we delve into the examined concepts through a comprehensive literature review and a meticulous methodology for data collection and analysis. At long last, the findings are elucidated, accompanied by their theoretical and practical ramifications.

2. REVIEW OF RELATED LITERATURE

The Internet has significantly reshaped the world and communication patterns (Aldieri et al., 2021; Najam et al., 2022). The Internet has also connected individuals, organizations, and nations; as a result, the world has shrunk to the size of a village (Diwan, 2021). It is thought to be a massive source of information and has become an integral part of one's life (Ahsan et al., 2020) by providing novelty in communication methods, activities, and performances (Wang et al., 2022). Because of its widespread use in society, many businesses use it to expand their market by making themselves available on the Internet (Abbas, 2024a; Tong et al., 2023). Social media is regarded as an admirable advancement in the internet field because it allows people to interact with one another by creating, sharing, and exchanging ideas (Elmore, 2019). It also enables individuals to share information in the form of an image, videos, reviews, discussions, blogs, and so on (Jiakui et al., 2023; Sundaram & Varghese, 2021).

Social media is widely used in developing and developed countries (Zhao et al., 2022). It is more common among the younger generation (Nair, 2019) because they

want to express themselves and socialize more effectively (Abbas, 2024b; Yu et al., 2022). Young people, particularly students, are becoming more aware of who they are and what they want to do with their lives (Singhal & Chawla, 2019). At times, they also want to stay in touch with their peers and stay up to date on global events (Pan et al., 2022). Social media is highly beneficial to young people in this regard (Rosenfield, 2019), and its use is increasing daily. According to Kemp (2019), there are more than 3.4 billion active social media users worldwide (45 percent of the total world population), who spend an average of 1.72 hours per day on social media (Habib et al., 2019; Tjepkema, 2019). The percentage for young people is even higher, at 27 hours per week (Xie et al., 2022). Furthermore, 91% of social media users access it through mobile devices, and 81% of social media time is spent on mobile platforms (UNESCO, 2019).

2.1 Social Media and Students' Academic Performance

The younger generation devotes a significant portion of their waking hours to using social networking websites and applications. Such applications and websites engage users in an addictive manner (Shakoor et al., 2021), and their notifications distract them from their regular activities (SUDHIR, 2019). As a result, most of today's youth find it difficult to focus on a single task (Abbas, Kumari, et al., 2021; Imran & Abbas, 2020). The literature indicates that social networking websites and applications positively and negatively affect users' personalities and behavior. In this regard, Talaue et al. (2018) emphasized the importance of parental and elder supervision in mitigating the adverse effects.

Students are currently among the most active social media users (Abbas, Kumari, et al., 2021). Social media is becoming an integral part of their lives due to its many benefits, from sharing academic information to creating interactive groups that can expand adolescent cognitive development in their educational ventures (Song & Liao, 2019). Social media is becoming equally popular among people of all ages, including teenagers and adults (Bhasin, 2019). The young generation, particularly those in school or college, are early adopters of such services (Ahmed et al., 2020). Likewise, educational institutions actively use such channels to promote and advertise their businesses and provide educational services. During the COVID-19 period, when almost the entire world was under lockdown, educational institutions also shifted their activities to the virtual realm. Students receive lectures via social media platforms such as WhatsApp (Hooks et al., 2022).

Despite these benefits, social media contains elements that can degrade academic prospects and steer students toward bootless errands (Shakoor et al., 2021). One such example was highlighted by Owusu-Acheaw and Larson (2015) on Ghanaian students. Their study aimed primarily to examine the effects of social media on teenagers. They discovered that students who spent three hours or more per day on

such networking sites paid less attention to their academic activities. Nesi (2020) investigated social media usage from the perspective of students' class attendance and discovered that students who are active on social media miss more classes than others. Furthermore, 60% of students' ability to read books and engage in physical activities was hampered by their excessive use of social media.

There is a lack of consensus in the research on how social media use affects kids' grades. In addition, whether or not young people or adults are more negatively affected by social media use is rarely studied. It is crucial to grasp this issue in a nation where the youth population is rather large (64 percent of the total population). In addition, there is a shortage of studies comparing the impact of social media use on the academic performance of adolescents and adults, especially those that employ multivariate statistical analysis and structural equation modeling. As a result, the hypotheses listed below are proposed (see Figure 1).

H_{1a}: Teenage students' use of social media has a significant positive effect on their academic performance

H_{1b}: Adult students' use of social media has a significant positive effect on their academic performance

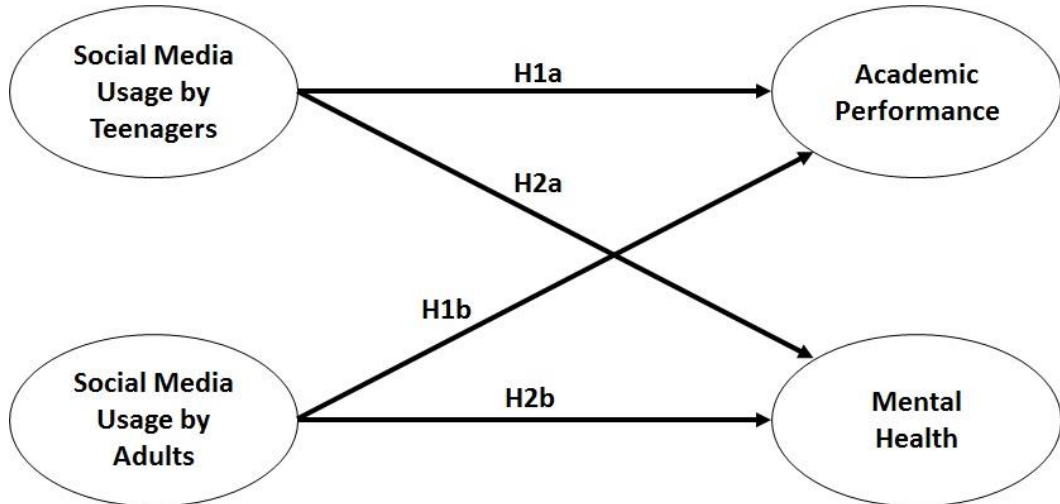


Figure 1: Conceptual Model

2.2 Social Media Usage and Students' Physical Activities

Over the last few decades, social media has steadily improved in quality, quantity, and utility (Abbas, 2020b). As the consumption of necessary minerals nourishes the human body, the human mind requires nourishment in the form of the availability and presence of nutrition for thoughts (Safdar et al., 2020). Because of the advent of

social networking websites and applications and the Internet, the world is now more social virtually than practically. This virtual life impacts their mental, physical, and overall well-being. The younger generation is more active on social media in today's world, impacting their mental health. They go through the embryonic stage of life and are more likely to have serious health problems. Excessive social media use can cause depression, stress, online harassment, loneliness, fatigue, cyberbullying, lack of concentration, emotion suppression, and a decline in intellectual abilities. All of these factors directly or indirectly impact the mental health of today's youth (Ahsan et al., 2020).

According to Soul (2016), the more time you spend on social media, the more depressed you become. According to reports, students who use Twitter and Facebook are less likely to stay focused and less stressed (Mahmood et al., 2020). The prevalence of social media affects the mental well-being of today's adolescents in positive and negative ways. While the internet has many positive effects—improved communication, sociability, access to healthcare information, and opportunities—it also has many negative ones, including cyberbullying, melancholy, stress, texting, and the suppression of emotions and intellectual capacity. These negative things can significantly impact the mental health of the young generation if they are affected at a young age. It has the effect of an epidemic on a person throughout their life (Kaur & Bashir, 2016, 2015). According to Park et al. (2014), social media platforms such as Facebook positively relate to college students' stress. Similarly, Kaur and Bashir (2016) investigated the impact of stress on students' mental health and concluded that it negatively impacts them.

It is now common knowledge that people suffer from psychological issues due to their use of social media. Adolescents report that they use social networking sites frequently daily (Abbas & Sagsan, 2019). Youths suffer from anxiety disorders because they don't want to miss anything posted or updated by their friends. They are constantly checking their peers' posts and messages. This can harm their sleep patterns, self-esteem, depression, and anxiety (Filucci, 2016; Kumari et al., 2021). Youth also face isolation when they begin to make comparisons, which are harmful to their mental health and cause agony and anxiety. Isolation and depression may result from the comparison. As a social animal, man requires physical and social interaction with those around him. People, however, do not communicate with one another because of the devices in their hands and the availability of social media (Hwang et al., 2022). Young people may experience fear of missing out. It is a form of social anxiety that causes stress and the inability to concentrate on tasks (Fu et al., 2022; SUDHIR, 2019).

Digital eyestrain can occur due to excessive tablets, smartphones, and computers, resulting in blurred vision, dried eyes, headache, neck ache, shoulder ache, and other symptoms. If a person looks at the screen from too far away or too close and sits in

an improper posture, it can lead to physical health problems (Deng et al., 2022; Khan & Abbas, 2022). The American Optometric Association established the 20-20 rule, which states that every 20 minutes of screen time, a 20-second break is required. During that time, the person should be able to see any object that is 20 feet away. This will aid in reducing eye strain. Musculoskeletal problems are another type of physical health problem that can occur. This happens when people use their gadgets in the wrong position for an extended period (Fatima et al., 2021). The user's posture is essentially a "down and forward" position, which causes significant compression and stress on the neck and spine. Five years of research reported in the Applied Ergonomics journal show that teen texting causes pain in the neck and back. The findings revealed that these pains were typically short-lived, but long-term symptoms were also discovered (Waqas et al., 2016). The literature on the relationship between students' social media use and mental health produces contradictory results. Furthermore, it is rarely investigated whether teenagers or adults are more affected by social media use. As a result, the following hypotheses are proposed.

H_{2a}: Teenage students' use of social media has a significant positive effect on their mental health

H_{2b}: Teenage students' use of social media has a significant positive effect on their mental health

3. METHODOLOGY AND DATA ANALYSIS

Primary data was collected directly from potential respondents from the locale of students enrolled in different public and private higher education institutions. This study aimed to explore the impact of social media on students' academic performance and mental health. Mainly, the participants from graduates and undergraduate domains were targeted. The total number of students enrolled in HEIs under HEC in 2020-21 was 3,295,178 in Pakistan. Approximately 200k-250k students are enrolled in universities and colleges in the public and private sectors in the capital territory of Islamabad. These were the main target population for our current study. A sample of students was selected for our research out of these students. The researchers engaged non-probability convenience sampling techniques to collect data for the research. The sample size was decided based on assuming a proportion of social media users, the students, and a questionnaire was shared with them to collect their opinion. It was estimated that 250 to 300 students would respond with an error margin of 3%-5%. A questionnaire was devised in English for manual and online data collection. It contained demographic information such as gender, age, the field of study, personal interest in social media and time spent to entertain this interest. Each item contained aspects that would allow collecting data to

understand the impact of social media. The students were given hard copies of these questionnaires as they were requested to fill them up with the best knowledge and understanding. Online forms (Google Form with acceptance of opinion) were sent directly to E-Mail contacts, Facebook links, WhatsApp groups, etc. The time that was given for people to respond was 15 days.

As stated above, collecting data was done through a comprehensively designed questionnaire. The authors used the “Five-Point Likert Scale” to study these items, where the first one started with a “Strongly Disagree” and the last one indicated a “Strongly Agree.” A total of 701 forms were circulated among university students in Islamabad. A Google form was also floated online, inviting opinions from students using the internet / social media through E-Mails, Facebook links, WhatsApp groups, etc.; 358 (217 hard copies and 141 online responses) responses were received in 15 days. Responses that were sent after the given time were not entertained. Collected data was then organized with utmost care so that it may depict an accurate picture. Among the 358 collected responses, 66.5% were generated from male students, whereas female respondents represented 29.1% of the total sample. There were 4.4% of people who preferred not to disclose their gender. Similarly, respondents from Management Sciences were the most, with 56.3% of the total. Inferential statistics of Chi-square (χ^2) were used to test hypotheses at the 0.05 level of significance value.

4. TESTING OF HYPOTHESES AND DISCUSSION

Using the SEM method, researchers studied the link between social media use and students' academic performance and physical health. Prajogo and Cooper (2010) claim that SEM can eliminate measurement errors and construct a latent construct hierarchy, thereby removing biases resulting from measurement errors. Teenagers' academic performance improves significantly when they use social media, with a beta value of 0.211 and a p-value of 0.15. This led to the acceptance of H1a, which states that social media significantly enhances adolescent students' academic performance. In the structural analysis, adult students also achieved p-values of 0.006 and a beta of 0.289. Because social media use significantly impacts adult students' academic performance, the H1b visa is also accepted.

This result is supported by Boateng and Amankwaa (2016) and Blaylock's (2018) studies. It was also accessed that social media has become a pragmatic tool for academic work. A platform that assists in expressing and sharing views and experiences. A vast array of video lectures creatively giving details about every subject has become a great source of understanding coursework and acquiring new skills. WhatsApp and Facebook have connected people from different walks of life who can share their learning with others. Views are shared, and people with that interest can learn a lot. They have been developed in a highly user-friendly fashion.

Their value can be further attributed because they act as a conjoiner among mentors and pupils.

However, the analysis of the relationship between social media usage and students' mental health presented negative results for both groups. For instance, the same analysis for teenage students presented a negative beta value of 0.291 with 0.004 p-values. Thus, H2a social media usage significantly impacts teenage students' mental health stands rejected. Similarly, a negative beta value of 0.339 with 0.001 p-values was identified for the adult students. Thus, the second hypothesis, i.e., H2b, that social media usage significantly impacts adult students' mental health is rejected.

This follows the findings of Goodie (2017). Addiction to social media is common among youth. With the cheap availability of the Internet, people spend the entire day on these platforms disregarding other aspects of life that need their attention. This results in poor health with little to no physical activity. Cellular Service Companies and Internet Service Providers (ISPs) have created packages that are cheap at night and extremely popular among youth. This causes irregular sleeping habits among their users, leading to strain. This stress creates physical fatigue, negatively affecting other aspects of life, including academics. This fact is supported by a study conducted in Canada (Brian & Primack, 2016). Depression is another byproduct of excess usage of social media among young students. The same has been proven by a large-scale study in America in 2016 (Brian & Primack, 2016).

Above mentioned findings of this study are based on the student's responses from graduate and undergraduate universities. The sample of students had diversity in terms of the discipline of their education, gender, backgrounds, cultures, and age. The research reveals that social media usage holds no severe implications for students' academic lives. The research, however, revealed that other variables were being affected by social media usage. Even though these variables hold considerable significance in life but the effect of social media on academic performance was little. Every aspect of human life is intertwined like a cobweb, with the others influencing the others. In this regard, it may be concluded that the effect on other aspects of life can indirectly impact academics.

The scope of this research was limited to studying the relation of social media usage impacts on the academic, family bonds, social life, and physical health of students only. This study holds little influence in evaluating the effects of social media usage on the academic outcomes of the respondents. Also, this study is silent on the direct impact of family bonds and social and health / physical activities on students' grades and academic gains. This study conducted primary research on the subject and provided the initial milestone for those who may wish to explore this

domain in the future. Further studies on the same subjects with different variables, interdependency, and interlinkages are also invited. No efforts were spared to explore the domain of this study. Even with limited time, meager resources, and a selective study scope, the results showed an authentic subject analysis. Future studies can further explore this subject keeping the following recommendations in mind.

- i. Researchers can alter the scope of their work and incorporate the effects of social media on students' grades / and academic outcomes.
- ii. The impact of other variables can also be studied (affected by social media usage), like family bindings, physical health, and social life, on students' academic grades/outcomes.
- iii. The targeted audience of the research can also be changed to calculate the impact on school-goers who are much younger and more intellectually open to learning and picking up things from their surroundings. They can be indulged in research, usage of social media on academic outcomes of primary and high school students,

5. CONCLUSION

Despite the study's narrow focus, it became evident that social media does not have a direct impact on students' academic life. Contrary to expectations, it was discovered that this tool could be utilized to support educational endeavors. By utilizing social media, individuals now have a means to openly exchange their personal encounters. This platform enables individuals to effectively communicate their academic challenges with others and discover viable solutions. Social media, in every facet, is an ever-expanding realm of knowledge that continues to flourish with the passage of time. It encompasses a vast array of knowledge across multiple disciplines, and by utilizing cutting-edge methods, lectures have been disseminated through various platforms to facilitate easy comprehension. Nevertheless, the overindulgence in social media has a detrimental effect on the mental well-being of students. The scope of this study is restricted to the selected student population, specifically those enrolled in higher education institutions in Pakistan. It is worth noting that when researchers attempt to replicate the same study in various regions, they may encounter divergent outcomes. In a similar vein, this study focuses solely on two variables: academic performance and mental health. Further investigations may encompass additional elements, such as physical exertion, familial connections, and so forth.

REFERENCES

- Abbas, J. (2020a). HEISQUAL: A modern approach to measure service quality in higher education institutions. *Studies in Educational Evaluation*, 67, 100933. <https://doi.org/10.1016/j.stueduc.2020.100933>

- Abbas, J. (2020b). Impact of total quality management on corporate sustainability through the mediating effect of knowledge management. *Journal of Cleaner Production*, 244, 118806. <https://doi.org/10.1016/j.jclepro.2019.118806>
- Abbas, J. (2024a). Does the nexus of corporate social responsibility and green dynamic capabilities drive firms toward green technological innovation? The moderating role of green transformational leadership. *Technological Forecasting and Social Change*, 208, 123698. <https://doi.org/10.1016/j.techfore.2024.123698>
- Abbas, J. (2024b). Green supply chain management and firm sustainable performance: Unlocking the role of transactional and transformational leadership in firm sustainable operations. *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-024-05035-0>
- Abbas, J., Alturki, U., Habib, M., Aldraiweesh, A., & Al-Rahmi, W. M. (2021). Factors Affecting Students in the Selection of Country for Higher Education: A Comparative Analysis of International Students in Germany and the UK. *Sustainability*, 131(65), 1–17. <https://doi.org/10.3390/su131810065>
- Abbas, J., & Khan, S. M. (2022). Green knowledge management and organizational green culture: An interaction for organizational green innovation and green performance. *Journal of Knowledge Management*. <https://doi.org/10.1108/JKM-03-2022-0156>
- Abbas, J., Kumari, K., & Al-Rahmi, W. M. (2021). Quality management system in higher education institutions and its impact on students' employability with the mediating effect of industry–academia collaboration. *Journal of Economic and Administrative Sciences*, ahead-of-print. <https://doi.org/10.1108/JEAS-07-2021-0135>
- Abbas, J., & Sagsan, M. (2019). Identification of key employability attributes and evaluation of university graduates' performance: Instrument development and validation. *Higher Education, Skills and Work-Based Learning*, 10(3), 449–466. <https://doi.org/10.1108/HESWBL-06-2019-0075>
- Ahmed, R. R., Salman, F., Malik, S. A., Streimikiene, D., Soomro, R. H., & Pahi, M. H. (2020). Smartphone Use and Academic Performance of University Students: A Mediation and Moderation Analysis. *Sustainability*, 12(1), 439. <https://doi.org/10.3390/su12010439>
- Ahsan, M. U., Nasir, M., & Abbas, J. (2020). Examining the Causes of Plastic Bags Usages and Public Perception about its Effects on the Natural Environment.

- International Journal of Academic Research in Business and Social Sciences, 10(10), 80–96. <http://dx.doi.org/10.6007/IJARBS/v10-i10/7919>
- Aldieri, L., Bruno, B., & Vinci, C. P. (2021). A multi-dimensional approach to happiness and innovation. *Applied Economics*, 53(11), Article 11.
- Algamdi, A., Brika, S. K. M., Musa, A., & Chergui, K. (2021). COVID-19 Deaths Cases Impact on Oil Prices: Probable Scenarios on Saudi Arabia Economy. *Frontiers in Public Health*, 9. <https://doi.org/10.3389/fpubh.2021.620875>
- Arif, M., Naeem, M. A., Hasan, M., M Alawi, S., & Taghizadeh-Hesary, F. (2021). Pandemic crisis versus global financial crisis: Are Islamic stocks a safe-haven for G7 markets? *Economic Research-Ekonomska Istrazivanja*. <https://doi.org/10.1080/1331677X.2021.1910532>
- Bhasin, H. (2019). Impact of Social Media on Youth: Positive & Negative Effects of Social Media [Social]. *Marketing91*. <https://www.marketing91.com/impact-of-social-media-on-youth/>
- Blaylock, J. (2018). The Positive Impact of Social Media on Education. *Social Media Impact*. <http://www.socialmediaimpact.com/the-positive-impact-of-social-media-on-education/#>
- Boateng, R. O., & Amankwaa, A. (2016). The Impact of Social Media on Student Academic Life in Higher Education The Impact of Social Media on Student Academic Life in Higher Education. *Global Journal of HUMAN-SOCIAL SCIENCE: G Linguistics & Education*, 16(4), 01–07.
- Brian, A., & Primack, M. D. (2016). Social media use associated with depression among US young adults. *Eurekalert*. https://www.eurekalert.org/pub_releases/2016-03/uops-smu032116.php
- Chai, S., Chu, W., Zhang, Z., Li, Z., & Abedin, M. Z. (2022). Dynamic nonlinear connectedness between the green bonds, clean energy, and stock price: The impact of the COVID-19 pandemic. *Annals of Operations Research*. <https://doi.org/10.1007/s10479-021-04452-y>
- Deng, Y., Cherian, J., Kumari, K., Samad, S., Abbas, J., Sial, M. S., Popp, J., & Oláh, J. (2022). Impact of Sleep Deprivation on Job Performance of Working Mothers: Mediating Effect of Workplace Deviance. *International Journal of Environmental Research and Public Health*, 19(7), 1–17. <https://doi.org/10.3390/ijerph19073799>
- Diwan, T. D. (2021). An EXPERIMENTAL ANALYSIS OF SECURITY VULNERABILITIES IN INDUSTRIAL INTERNET OF THINGS SERVICES. *INFORMATION TECHNOLOGY IN INDUSTRY*, 9(3), Article 3.

- Elmore, T. (2019). Morality and Social Media: Have You Considered the Impact? [Social Study]. Growing Leaders. <http://growingleaders.com/blog/morality-social-media-considered-impact/>
- Fatima, S., Kumari, K., Sandhu, Y. A., & Abbas, J. (2021). Validation of the Students' Cognitive Engagement Measure: Evidence from University Students of Karachi. *Pakistan Business Review*, 23(3), 1–19.
- Filucci, S. (2016). Parenting, Media, and Everything In Between [Health Related]. <https://www.commonsemmedia.org/blog/practical-tips-for-easing-kids-social-media-anxiety>.
<https://www.commonsemmedia.org/blog/practical-tips-for-easing-kids-social-media-anxiety>
- Fu, Q., Abdul Rahman, A. A., Jiang, H., Abbas, J., & Comite, U. (2022). Sustainable Supply Chain and Business Performance: The Impact of Strategy, Network Design, Information Systems, and Organizational Structure. *Sustainability*, 14(3), 1080. <https://doi.org/10.3390/su14031080>
- Goodie, R. (2017). ST. Hope Foundation [Health]. How Does Social Media Affect Our Mental and Physical Health?
- Habib, M., Abbas, J., & Noman, R. (2019). Are human capital, intellectual property rights, and research and development expenditures really important for total factor productivity? An empirical analysis. *International Journal of Social Economics*, 46(6), 756–774. <https://doi.org/10.1108/IJSE-09-2018-0472>
- Holsten, H. H. (2018). How does social media affect your well-being? [Social Site]. ScienceNorWay. <https://partner.sciencenorway.no/forskningno-norway-partner/how-does-social-media-affect-your-well-being/1454613>
- Hooks, D., Davis, Z., Agrawal, V., & Li, Z. (2022). Exploring factors influencing technology adoption rate at the macro level: A predictive model. *Technology in Society*, 68, 101826. <https://doi.org/10.1016/j.techsoc.2021.101826>
- Hwang, J., Abbas, J., Joo, K., Choo, S.-W., & Hyun, S. S. (2022). The Effects of Types of Service Providers on Experience Economy, Brand Attitude, and Brand Loyalty in the Restaurant Industry. *Int. J. Environ. Res. Public Health*, 19, 15. <https://doi.org/10.3390/ijerph19063430>
- Imran, M., & Abbas, J. (2020). The Role Of Strategic Orientation In Export Performance Of China Automobile Industry. In *Handbook of Research on Managerial Practices and Disruptive Innovation in Asia* (pp. 249–263). IGI Global.

- Jiakui, C., Abbas, J., Najam, H., Liu, J., & Abbas, J. (2023). Green technological innovation, green finance, and financial development and their role in green total factor productivity: Empirical insights from China. *Journal of Cleaner Production*, 382(1), 135131. <https://doi.org/10.1016/j.jclepro.2022.135131>
- Kaur, R., & Bashir, H. (2016). Impact of stress on mental health of students: Reasons and Interventions. *International Journal of Education*, 5, 30–35.
- Kaur, R., & Bashir, L. (2015). Impact of Social Media on Mental Health of Adolescents. *International Journal of Education*, 5, 22–29.
- Kazmi, S. J. A., & Abbas, J. (2021). Examining the Impact of Industry 4.0 on Labor Market in Pakistan. In *Handbook of Smart Materials, Technologies, and Devices* (pp. 1–11). Springer.
- Kemp, S. (2019). Digital 2019: Global Internet Use Accelerates [Global Digital Insights]. *Digital 2019: Global Internet Use Accelerates*. <https://wearesocial.com/blog/2019/01/digital-2019-global-internet-use-accelerates>
- Khan, S. M., & Abbas, J. (2022). Mindfulness and Happiness and their Impact on Employee Creative Performance: Mediating Role of Creative Process Engagement. *Thinking Skills and Creativity*, 44(1), 101027. <https://doi.org/10.1016/j.tsc.2022.101027>
- Kim, H., Abbas, J., Haq, M. Z. U., Lee, J. H., & Hwang, J. (2023). Differences between robot servers and human servers in brand modernity, brand love, and behavioral intentions in the restaurant industry. *Asia Pacific Journal of Marketing and Logistics*. <https://doi.org/10.1108/APJML-03-2022-0214>
- Kumar, A., & Ayedee, D. (2021). Technology adoption: A solution for SMEs to overcome problems during COVID-19. Forthcoming, *Academy of Marketing Studies Journal*, 25(1), Article 1.
- Kumari, K., Abbas, J., Rashid, S., & Haq, M. A. U. (2021). Role of Corporate Social Responsibility in Corporate Reputation via Organizational Trust and Commitment. *Reviews of Management Sciences*, 3(2), 42–63.
- Kumari, K., Ali, S. B., Abbas, J., & Batool, M. (2022). The Interplay Between Leaders' Personality Traits and Mentoring Quality and their Impact on Mentees' Job Satisfaction and Job Performance. *Frontiers in Psychology*, 13, 1–14.
- Lahath, A., Omar, N. A., Ali, M. H., Tseng, M.-L., & Yazid, Z. (2021). Exploring food waste during the COVID-19 pandemic among Malaysian consumers: The effect of social media, neuroticism, and impulse buying on food waste.

- Sustainable Production and Consumption, 28, 519–531.
<https://doi.org/10.1016/j.spc.2021.06.008>
- Mahmood, H. K., Hussain, F., Mahmood, M., Kumail, R., & Abbas, J. (2020). Impact of E-Assessment at Middle School Students' Learning – An Empirical study at USA Middle School Students. *International Journal of Scientific & Engineering Research*, 11(4), 1722–1736.
- Nair, A. (2019). The Effects of Social Media on Family and Marriage. *Parenting First Cry*. <https://parenting.firstcry.com/articles/magazine-effects-of-social-media-on-family-and-marriage/>
- Najam, H., Abbas, J., Álvarez-Otero, S., Dogan, E., & Sial, M. S. (2022). Towards green recovery: Can banks achieve financial sustainability through income diversification in ASEAN countries? *Economic Analysis and Policy*, 76, 522–533. <https://doi.org/10.1016/j.eap.2022.09.004>
- Nesi, J. (2020). The Impact of Social Media on Youth Mental Health: Challenges and Opportunities. *North Carolina Medical Journal*, 81(2), 116–121. <https://doi.org/10.18043/nmc.81.2.116>
- Owusu-Acheaw, M., & Larson, A. G. (2015). Use of Social Media and its Impact on Academic Performance of Tertiary Institution Students: A Study of Students of Koforidua Polytechnic, Ghana. *Journal of Education and Practice*, 6(6), 94–102.
- Pan, C., Abbas, J., Álvarez-Otero, S., Khan, H., & Cai, C. (2022). Interplay between corporate social responsibility and organizational green culture and their role in employees' responsible behavior towards the environment and society. *Journal of Cleaner Production*, 366, 132878. <https://doi.org/10.1016/j.jclepro.2022.132878>
- Park, N., Song, H., & Lee, K. M. (2014). Social networking sites and other media use, acculturation stress, and psychological well-being among East Asian college students in the United States. *Computers in Human Behavior*, 36, 138–146.
- Rosenfield, M. (2019). Blue Light Exposures. *Blue Light Review of Optometry Paper*, 1(1), 56–60.
- Safdar, B., Habib, A., Amjad, A., & Abbas, J. (2020). Treating Students as Customers in Higher Education Institutions and its Impact on their Academic Performance. *International Journal of Academic Research in Progressive Education and Development*, 9(4), 176–191.

- Shakoor, F., Fakhar, A., & Abbas, J. (2021). Impact of Smartphones Usage on the Learning Behaviour and Academic Performance of Students: Empirical Evidence from Pakistan. *International Journal of Academic Research in Business and Social Sciences*, 11(2), 862–881.
- Sherman, A., Shavit, T., Barokas, G., & Kushnirovich, N. (2021). On the Role of Personal Values and Philosophy of Life in Happiness Technology. *Journal of Happiness Studies*, 22(3), Article 3. <https://doi.org/10.1007/s10902-020-00263-3>
- Singhal, S., & Chawla, S. (2019). Effects of Whatsapp and Facebook on academic, professional and social lives of medical students and resident doctors of North India. *International Journal of Community Medicine and Public Health*, 6(8), 3570–3577.
- Song, M. X., & Liao, Y. H. (2019). Information sharing, operations capabilities, market intelligence responsiveness and firm performance: A moderated mediation model. *Baltic Journal of Management*, 14(1), 58–78.
- SUDHIR, A. (2019). 6 Negative Effects of Social Media On Your Health [Mental health]. https://www.finerminds.com/6-negative-effects-of-social-media-on-your-health/?utm_source=finerminds
- Sundaram, A., & Varghese, I. K. (2021). The mediating role of Emotional Intelligence between Transformational Leadership and Organizational Citizenship Behavior. *Solid State Technology*, 64(2), Article 2.
- Talaue, G. M., AlSaad, A., Al Rushaidan, N., Al Hugail, A., & Al Fahhad, S. (2018). The Impact of Social Media on Academic Performance of Selected College Students. *International Journal of Advanced Information Technology (IJAIT)*, 8(4/5).
- Tang, Y. M., Chen, P. C., & Law, M. Y. (2021). Comparative analysis of Student's live online learning readiness during the coronavirus (COVID-19) pandemic in the higher education sector. *Computers & Education*, 168, 104211. <https://doi.org/10.1016/j.compedu.2021.104211>
- The Hearty Soul. (2016). Using Social Media is Causing Anxiety, Stress and Depression. <http://theheartysoul.com/mental-health-risks-of-social-media/>
- Tjepkema, L. (2019). Top 5 Social Media Predictions for 2019 | Emarsys. <https://emarsys.com/learn/blog/top-5-social-media-predictions-2019/> [Social Site]. Emarsys. <https://emarsys.com/learn/blog/top-5-social-media-predictions-2019/>
- Tong, L., Chiappetta Jabbour, C. J., belgacem, S. ben, Najam, H., & Abbas, J. (2023). Role of environmental regulations, green finance, and investment in green

- technologies in green total factor productivity: Empirical evidence from Asian region. *Journal of Cleaner Production*, 380, 134930. <https://doi.org/10.1016/j.jclepro.2022.134930>
- UNESCO. (2019). Education: Outbound internationally mobile students by host region [UNESCO Institute for Stat]. UNESCO Sustainable Development Goals. <http://data.uis.unesco.org/Index.aspx?queryid=172>
- Wang, S., Abbas, J., Sial, M. S., Álvarez-Otero, S., & Cioca, L.-I. (2022). Achieving Green Innovation and Sustainable Development Goals through Green Knowledge Management: Moderating Role of Organizational Green Culture. *Journal of Innovation & Knowledge*, 7(4), 100272. <https://doi.org/10.1016/j.jik.2022.100272>
- Waqas, A., Afzal, M., Zaman, F., & Sabir, M. (2016). The Impact of Social Networking Sites usage on the Academic Performance of University Students of Lahore, Pakistan. *International Journal of Social Sciences and Management*, 3(4), 267–276.
- Watt, J. B. (2016). For the degree of Master of Social Work. 23.
- Xie, Z., Liu, X., Najam, H., Fu, Q., Abbas, J., Comite, U., Cismas, L. M., & Miculescu, A. (2022). Achieving Financial Sustainability through Revenue Diversification: A Green Pathway for Financial Institutions in Asia. *Sustainability*, 14(6), 1–16. <https://doi.org/10.3390/su14063512>
- Yu, S., Abbas, J., Álvarez-Otero, S., & Cherian, J. (2022). Green knowledge management: Scale development and validation. *Journal of Innovation & Knowledge*, 7(4), 100244. <https://doi.org/10.1016/j.jik.2022.100244>
- Zhao, L., Gu, J., Abbas, J., Kirikkaleli, D., & Yue, X.-G. (2022). Does quality management system help organizations in achieving environmental innovation and sustainability goals? A structural analysis. *Economic Research-Ekonomiska Istraživanja*, 0(0), 1–24. <https://doi.org/10.1080/1331677X.2022.2100436>