The Positive and Negative Impact of Social Media During the COVID-19 Pandemic: A Brief Review

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ABSTRACT

Background: During the last decade, social media have affected people's lives in an unprecedented way, today, different parts of people's lives, from shopping to education, business, and electronic messages, are influenced by these media. In fact, social media have become an integral part of human life today, and in recent years this dependence has become even greater than before. Because following the spread of the COVID-19, people used social media more to work and study, to keep in touch with their loved ones, and to get information about Covid-19. The present study aimed to determine the positive and negative impact of social media in the Covid-19 pandemic.

Methods: The present study was a brief review designed. From 01 to 10 January 2022, the researchers of this study examined 6 international databases: Medline/PubMed, ProQuest, Scopus, EMBASE, Google Scholar, and ISI Web of Science. After reviewing the titles and abstracts of the articles, 46 articles entered the next stage, in which the full text of the articles was reviewed.

Results: Social media provides a space where health information is easily accessible to everyone. This capability is very efficient in global emergencies such as the outbreak of the Covid-19 pandemic so the use of social networks during the Covid-19 pandemic has increased significantly compared to previous data. In today's world, social media has become a new field in business and marketing. With the involvement of social media in many aspects of life, we see its significant impact on various aspects of business, from brand development to guaranteeing buyer's trust.

Conclusion: Today, the role of social media in social communication, health, economy and other cultural fields is undeniable. However, it is important to consider the negative effects of these media. It seems that it is necessary that social media users be given the principal training before and during their use so that they do not become victims of its undesirable and unconscious effects.

Keywords: Distance, Social media, Social networking, Internet, User-computer interface

Introduction

In today's society, information and communication technology is constantly developing and improving (1). Social media is a wide range of Internet and mobile services (2) that allow users to publish content they have created, share photos and videos (3) and in this way use common interests and activities to communicate with others (4). Social media comes in many forms including blogs, wikis, social networking sites, media sharing sites, virtual world content, etc (2). The use of social media, especially for the young generation, has become a daily thing (5), so teenagers who grow up in this society are part of a unique generation (6). During the last decade, social media have affected people's lives in an unprecedented way (7), today, different parts of people's lives, from shopping to education, business, and electronic messages, are influenced by these media (8). Social media have become an integral part of human life today (9), and in recent years this dependence has become even greater than before. Following the spread of COVID-19, people used social media more to work and study (10), to keep in touch with their loved ones (11), and to get information about COVID-19 (12) and this issue has caused a significant increase in the use of platforms such as Zoom and Team Link at this point (10).

SixDegrees.com was the first social networking site launched in 1997 and received a lot of attention from the media it was said that all the people in the world can communicate with each other only through 6 people (13). Email is a written medium of asynchronous communication (14) that has been widely used since the early 1990s (15) and today occupies a significant part of the working time of users worldwide (16). Facebook, which currently has more than 2.9 billion monthly active users (17), has the largest number of users among social networking sites (18), and was developed in 2004 by a former student of Harvard University (19). YouTube is one of the most popular and widely used platforms that was created in 2005 (20), and video content is shared on it, which today is accessed by more than two billion people monthly (21). WhatsApp, created in 2009 (22) is an instant messenger that has about 2 billion users worldwide, so it is a popular application (23). People with smartphone operating systems such as iPhone, Android and Windows Phone can use WhatsApp (24). In addition to text messages, WhatsApp users can share videos, images, and voice messages with other users (25). It is interesting that today doctors use WhatsApp to provide remote medical and dental services (26).

Instagram, which was created in 2010 (27), is the most attractive platform on this list (28). Instagram users share their daily life activities, interests and habits (29) with their friends in the form of photos and videos (manipulated with filters) (30) along with text descriptions (18) and this visual content has made this program popular (31). Research Gate and Academia are among the most popular academic social network sites (32), which are specially designed for scientific and research activities (33). Research Gate, which emerged in 2008, allows researchers to demonstrate their academic experience and expertise, engage in Q&A (34), and at the same time gain scientific reputation (35). LinkedIn is a well-known social media site that is used exclusively for creating professional and business connections (36) and users can communicate with colleagues and well-known people in their profession and work field in addition to obtaining useful information (37). By knowing the advantages and disadvantages of social networks and becoming more familiar with them, medical staff and the scientific community can provide medical information to users in the shortest possible time and minimize the negative effects of social networks (38). The present study was designed with the aim of determining the positive and negative impact of social media in the Covid-19 pandemic.

Methods
Study Type

The present study was a comprehensive

review designed in 2022.

Search Strategy

From 01 to 10 January 2022, the researchers of this study examined 6 international databases: Medline/PubMed, ProQuest, Scopus, EMBASE, Google Scholar, and ISI Web of Science. The selected keywords for searching in international databases included: "Social Media", "Social Network", "Internet" and "Virtual Learning".

Data Collection

The collected information was entered into EndNote, X8 software, and duplicate articles were automatically removed. Two researchers examined the articles separately. Articles in Latin that mentioned the role of social media were included in the study. On the other hand, articles published in conferences, posters and congresses were excluded from the study. Also, articles whose full text was not available were excluded from the study. The initial search of studies was done by two people (ZSh and ZM). Screening of studies, extraction of results and quality control assessment of articles were done separately by two people (ZZ and SD). If there was no consensus between two people, the team leader (HD) would announce the final opinion about that article. After searching all international and domestic databases, 181 articles were found, and after removing duplicate articles, 236 articles entered the review stage in terms of title and abstract. After reviewing the titles and abstracts of the articles, the number of 46 articles entered the next stage, in which the full text of the articles was reviewed. It should be explained that the references of the entered articles were also checked to add related studies (Figure 1).

Ethical Consideration

In all stages of the study, ethical considerations related to research were implemented and maintained.

Results

Today, social media is considered as a key to establish communication and maintain social relations with many people (39). The emergence and expansion of the Internet
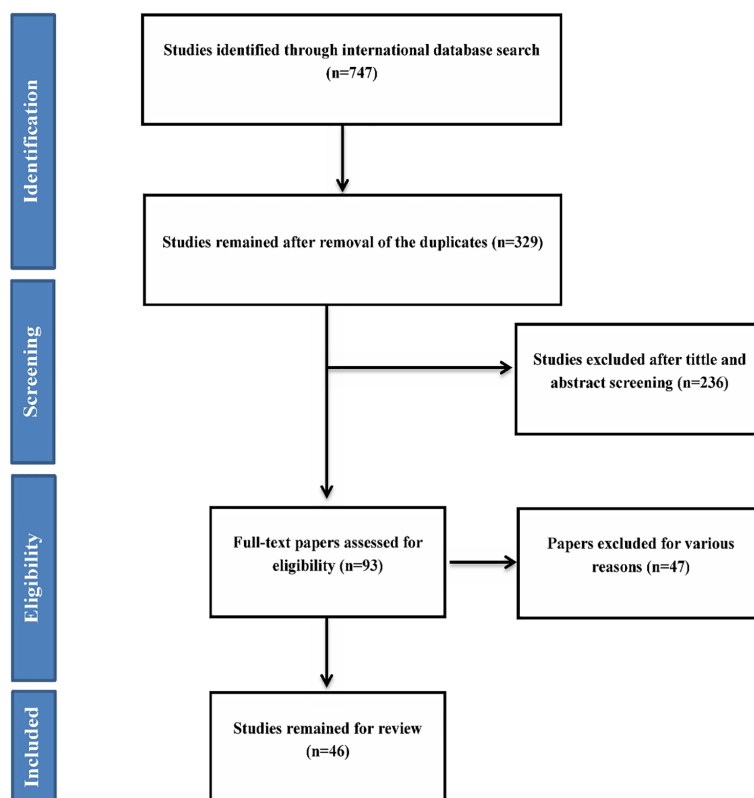

Figure 1: The study protocol

has increased the promotion of human communication and the development of personal information, so that today the use of social media is an integral part of the daily life of the majority of the American society. However, physical, sexual and mental health overshadows many people (40). Social media is expanding at an uncontrollable speed (41) so that in today's world it has become part of the culture of the new generation (40); This is despite the fact that the way the Internet affects people's relationships is one of the most important issues raised in the 21st century (42).

Although social media has had undeniable effects on the social, communication, educational and commercial aspects of people's lives, it has had a negative effect in some dimensions (8, 43, 44). The various results found from studies on social media use are varied and often conflicting (42).

The Impact of Social Media on Medicine and Health

In recent years, the use of social media is not only limited to socializing with friends and family, but it has become a tool for expanding and transmitting information, conducting research, and establishing communication between health care workers and patients (45). Social networks do not include physical and geographical limitations, so it can have effective interventions in the field of public health. However, some studies have considered the health interventions of social networks without results or with negative results (46).

Social media provides a space where health information is easily accessible to everyone (45). This capability is very efficient in global emergencies such as the outbreak of the Covid-19 pandemic, so that the use of social networks during the Covid-19 pandemic has increased significantly compared to previous data (11, 24, 47).

Positive Effects
Awareness and Health Promotion

Social media (including social networking sites and mobile technologies) are widely used to increase awareness, prevent and treat many diseases (48). On the other hand, doctors use social media to perform actions such as joining various websites to review articles, listen to experts, talk with their colleagues about patients, and talk directly with patients (4). It is very important for people to be aware of the cause of the disease, the symptoms of covid-19, the ways to fight and prevent it during this epidemic; In this way, through social media, the most important confirmed disease information can be shared in less time (38). In 2012, more than 70% of Canadian users searched for health-medical issues on the Internet and social networks. In America, 72% of adult users reported using internet search to get information about medical issues, diseases and their treatment (49). In developed countries, 39% of cancer patients and 2.3 million people in the whole world use the Internet. According to the results of Farpour et al.'s study, using the Internet in patients has a positive effect on mental health and depression in addition to raising awareness (50).

Sharing Experiences

Social media is widely used as an important channel for discussion, exchange of opinions and other health issues (48).

Providing Social Support

In 2016, a systematic review and meta-analysis review aimed at the effectiveness of social media interventions for people with schizophrenia was conducted by Valimaki et al. In this study, social media was used as part of web-based psychological training or as online support. Study measures included perceived stress, social support, and illness-related distress. During 3 months, participants with schizophrenia in the intervention group reported a lower level of perceived stress and showed an increasing trend for the level of perceived support (51).

Promote Adherence to the Principles of Treatment and Prevention

Bonnevie et al.'s study showed that

influential people in social networks can increase awareness and encourage high-risk target groups (52).

Negative Effects
Defamation

A set of behaviors that can harm the reputation of a person or an organization; So that sometimes these measures can cause the loss of job and profession as well as deprivation of people's trust towards a person or profession (53).

Privacy

Despite the fact that social media have provided innovative roles and new perspectives on health during the Covid-19 pandemic, however, one should be equally careful about abuse, trickery and false demands that are made by these media during this time (7). One of the most important challenges and risks of using social media in the field of medicine and health is protecting the patient's privacy. This means that the patient's information should never be shared beyond the scope of care and treatment without his consent. Sometimes doctors unintentionally post information on social media (54); In this case, the doctor will lose his job due to the violation of the patient's privacy, and the higher authorities will probably consider criminal charges against him (55).

False Information

Recently, the problem of receiving false information on social media has become a problem. A lot of medical and care content is produced daily on social networking sites, and there is a possibility that incorrect information will be found among this mass of information (53). The role of social media in the spread of fake news and the ease of sharing them is very important in the spread of this epidemic; For example, there are messages containing the use of traditional methods to heal the disease, religious and spiritual ways to prevent, and uncertainty about getting tested and vaccinated from the consequences of sharing false content on social media (56, 57).

In general, receiving false health information on social media can be divided into 6 categories (58): Vaccine, Diet and eating disorders, Medicines, Epidemics and infectious diseases, Non-communicable diseases, Classified medical treatments and health interventions.

The Impact of Social Media on Education

In the last decade, social networks have completely taken root in modern culture (53) so that they have changed the way of life of young people and have become one of the most important means of communication and entertainment (59). In the outbreak of covid-19, smartphones were no longer just a tool for games and entertainment; rather, it became an essential tool for online communication and training (60). In addition to the economic, psychological and social problems that arose after the spread of Covid-19, this epidemic has probably been accompanied by many crises in the field of education. The suspension of face-to-face activities affected educational institutions and students and made the educational crisis more pronounced and required institutions and students to quickly adapt to the conditions and use useful solutions (61).

Social media has the ability to send messages quickly and also to provide the required data in the least possible time, which makes it possible to connect between students and teachers and helps the education process (53, 62). Due to the availability of the Internet and smart phones for the public (63), social media has made learning easier, more accessible and frequent for interested people (62). However, the use of social networks in educational processes leads to several negative results, including: The existence of technical problems regarding the Internet, disorganization and inconsistency in the teaching and learning process, addiction to smart networks and wasting too much time in excessive use of online tools (64).

Positive Effects (43, 62)
- Active participation in the field of

learning leads to deeper understanding and improvement of knowledge.

• Students can study well in online environments and share their teachings with others and help spread knowledge.

• The use of social media and technologies of the digital age helps students to communicate effectively with each other, and they can use it to communicate with their classmates and professors and ask questions.

Negative Effects (65)

• Distraction can be considered one of the most terrible effects of students' use of social media, which leads to a decrease in their concentration and attention on doing their work.

• The general acceptability of social media and the speed of information dissemination in it has reduced students' attention and attention to correct spelling and grammar.

• Easy and convenient access of students to online sites to get answers reduces their concentration to learn and retain information.

Publishing private and non-public records of people in social media can be considered one of the most important failures of social media.

• With the spread of social media, students spend more time on social media, as a result, they have less time to socialize with others and gradually lose their ability to engage in face-to-face communication.

• Virtual learning cannot easily find its place without the presence of a teacher (66).

The Impact of Social Media on Business

In today's world, social media has become a new field in business and marketing (8). During the covid-19 pandemic, it is important to use social media for business due to the limitation of physical and social activities (67). With the involvement of social media in many aspects of life, we see its significant impact on various aspects of business, from brand development to guaranteeing buyer's trust.(68, 69). Social media is used in the field of marketing for various reasons, from relationships between people and organizations to increasing the

flow of business information (70). Whether you like it or not, social media has influenced the ways and methods of business. The available findings show that the Covid-19 epidemic has caused the growth of social media marketing and has caused people to limit their in-person shopping time and turn to online shopping; in this way, the impact of advertising, gathering information about shopping products, smartphone apps, etc. shows the growing importance of media marketing during the Covid-19 epidemic (71). Producers and brand owners use facilities such as LinkedIn, Facebook, Twitter, etc. to strengthen their relationships with customers and other businesses and gain more trust and credit (72). For example, the main marketing strategy of Bazary Company is social media. Because the managers of this group are fully aware of the important role of mass media in determining the success of businesses (41). Research shows that the lack of sufficient knowledge regarding how to effectively include social media in the field of marketing is considered one of the most important challenges of trade and business organizations in connection with online networks (73).

Since today social media has become an important channel for marketing activities, the spread of fake news in this area can expose companies and brands to negative consequences, from financial threats to damaging brand reputation (74). Social media, in addition to being a platform for conveying brand news and information to buyers, is also effective in expanding a business through internet marketing (41). Studies have shown that the presence of brands in the social media space is effective on the relationships between buyers and producers, buyers and brands, buyers and companies, and buyers with each other (75). Today, creating communication for marketing has become a determining factor for brand success. Customers can destroy or succeed a business based on this (41).

Positive Effects (75)

(a) Strengthening the customer's

relationship with the product, brand, company, and other customers

    (b) Gaining customer trust
    (c) Increasing brand credibility
    (d) Increase sales
    (e) Increasing brand loyalty

Negative Effects (4)

    (a) Due to the availability of social media for everyone, people easily share their negative opinions and feelings, which can have adverse effects on business and marketing organizations.

    (b) It is very time consuming.

    (c) If mistakes happen intentionally or unintentionally, it is very difficult to compensate and correct the mistake.

    (d) Online networks are full of different content so that many marketing organizations have surrendered to these networks.

    (e) The Covid-19 pandemic was a global challenge; and the impact of this epidemic was mostly directed at companies, especially small and medium-sized companies, so that the businesses were faced with a decrease in demand, cash flow problems, lack of raw materials and funds and after that, they reduced their activity and production, and using the platform of social media, they designed different solutions to maintain their business through the Internet (76).

The Impact of Social Media on Society

    Today, it is clear that social media influence social communication (77). Social networks can affect various aspects of relationships between family members, from social and emotional aspects to behavioural and psychological aspects (78). In other words, social media has changed the lifestyle of society. Social networks provide the opportunity to communicate with companions and friends by facilitating the creation of personal connections. In addition, it causes people to influence each other, sharing content, images and recorded sounds (79).

    In the modern world, social media has become a tool for communication, entertainment, etc., but at the same time, it can leave harmful effects (80). Following extensive changes in family relationships due to improper and excessive use of social networks, the increase in divorce rates is also one of the problems of misuse of online technology (81).

Positive Effects (4)

    1. Facilitating comprehensive communication
    2. The possibility of connecting scholars and teachers and facilitating access to better education
    3. Facilitating the possibility of applying for help (financial, spiritual, etc.)
    4. Making people aware of the latest topics and news of the day
    5. The possibility of creating different categories and groups

Negative Effects (82-87)

    1. Exposure to negative content
    2. Social comparison
    3. Distraction from real life
    4. Negative impact on relationships
    5. Lowering your value
    6. Judgment
    7. Increasing the desire for violence in society, especially among young people; so that social media has become a tool for self-harm (especially suicide).
    8. Continuous use of social media also affects physical health in such a way that a person faces constant headaches, eye pressure, high blood pressure, and digestive problems due to lack of body movement and lack of sleep.
    9. Addiction: Addiction can be defined as a person's inability to avoid being online, so that continuous and excessive use affects various aspects of tomorrow's life, from social life to relationships and emotions. Making friends, accessing pornography, playing games, shopping online, etc. are examples of social media addiction.
    10. Privacy: Providing identity is one of the main aspects in social media. People share their objective and non-objective personal information in social media to express themselves and introduce themselves to

others. With the passage of time, users no longer have control over their identity and face risks such as safety and privacy.

11. Trolling: Trolling targets users by sharing inappropriate content or sending provocative lines and waits to find a suitable opportunity to provoke users and disrupt discussions, relationships, reputation, etc.

12. Fake news: Contrary to the certainty of traditional media, online media present fake news as facts and attract millions of readers with this trick. The nature of such news is mainly the result of the publication of fabricated information (intentionally) or the publication of false information (accidentally). Of course, you can never know the accuracy of the news on social media.

13. Unfortunately, with the spread of this epidemic, the correct and incorrect information about Covid-19 is more widely available to the public, which can leave harmful effects. Cyberbullying, arrogance, threats and moral failure can be considered the most destructive effect of this access (7).

14. Cyber victimization: It means harming others using electronic communication and in 7 important categories including:

a. Hostile online communication

b. Harassment (repeated and insulting messages sent to the victim)

c. Deception (that is, requesting private information from a person and then sharing that information with others without the person's consent)

d. Exclusion (eg blocking a person)

e. Impersonation (i.e. pretending to be a victim and communicating negative or inappropriate information electronically with others as if it is from the victim)

f. Cyber stalking (i.e. using electronic communications to stalk another person by sending repeated threatening communications)

g. Sending SMS (i.e. distributing another person's nude image without that person's consent)

The Impact of Social Media on Children and Teenagers

The development of social media has provided advantages and disadvantages, including the possibility of contact between people, access to information, as well as a platform for threats, sexual abuse and discrimination. In this regard, young people show the greatest vulnerability to this development (88). Research evidence shows that the onset of Covid-19 puts the health of people, especially children and adolescents, at risk due to their limited understanding of this event. In such a way that they were not only aware of the epidemiological risks, but also faced risks such as increased stress and anxiety, violence, addiction at home, etc. (89). Adolescents may not escape from the adverse effects of social media due to their lack of power to make correct decisions and high vulnerability at this stage of life (90). As a result, social media can play a role in increasing the burden of mental distress among young people (91). In the comparison between men and women, it was also found that women are more addicted to social media than men, so that by viewing other people's photos, they gradually develop worse feelings about their appearance (92).

Positive Effects (4, 93)

1. Increasing awareness.

2. Help to strengthen reading and writing skills.

3. It can give them motivation and ideas.

4. Help to strengthen communication skills.

5. The epidemic of Covid-19 had highlighted the problem of whether social media is useful or harmful for young people. During this epidemic, many teenagers made effective use of social networks to access resources, understand how to deal with the disease, and socialize (94).

Discussion

Today, with the significant development of technology, social networks have become an integral part of people's daily lives. This entanglement can be seen in all aspects of personal and social life. The current study sought to create a new opportunity to take a

closer look at the effects of virtual networks on people's lives during Covid-19. The results of our study showed that the spread of fake news and rumors was one of the disadvantages of social networks in the era of Covid-19. These rumors may disrupt the treatment process in the community. According to Garett et al.'s study (95), skepticism about vaccination is one of the effects of fake news in cyberspace. On the other hand, when there is doubt about something, a suitable platform is provided for more false information to be accepted (96). From the point of view of Ozturk et al. (97), the most effective way to reduce the spread of fake news is to repeat and spread mutual information, and along with that, giving a warning that "this news may contain false information" can also be effective. Encouraging users to think critically about different topics can also reduce the spread of rumors (96). On the other hand, online education of students by schools and universities was one of the most important positive effects of social networks during the Covid-19 era. Because teaching and learning is a necessary process that must be followed continuously. The results of Sobaih et al. (98) also showed that students felt that social networks had a positive effect on their education and were satisfied with virtual education.

During the Covid-19 pandemic, the use of social networks was not limited to communicating with friends and colleagues. Raising awareness and promoting health, promoting the vaccination of Covid-19, growing marketing and online businesses, increasing communication skills, the possibility of sharing news regardless of social, cultural and geographical boundaries, etc. are some of the few benefits of social networks during Covid-19. In this regard, a study by Al-Dmoar stated that social networks during the Covid-19 era have greatly helped to increase medical awareness and positive behavioral changes in order to prevent the spread of the disease (99). Also, the study conducted by Muhammad Saud in Indonesia shows that most people use social networks

to get medical information (100). However, according to a study by Heena Sahni, a lot of information that is exchanged can be false and misleading information that only causes fear and spread of false beliefs about the corona disease (101). This is while the spread of false news was well controlled in Peru, because in this country, the punishment of prison is considered for spreading false news (102). Further, according to the results of Syaifullah's research, during the Covid era, many small and large businesses in Indonesia were forced to abandon physical trade and turned to online business and marketing in social networks (67). In this regard, Andrew N Mason's study showed that in countries that had growing online businesses before the epidemic of Covid-19, such as the United States, during the Corona disease, they grew faster by increasing online marketing and attracting potential buyers (71). However, in countries like China, where most of their financial receipts and savings have been through the tourism industry, due to the restrictions imposed during the Covid-19 era, they faced a decrease in income from this way (103).

One of the major limitations of the present study was the unavailability of the full text of some of the retrieved articles. Despite the correspondence with the author, we were unable to obtain the full text of the article.

Limitation and Suggestion

One of the major limitations of the study was the lack of access to the full text of some articles, which may affect the results of those studies on the overall conclusion of this issue.

Conclusion

Today, the role of social media in social communication, health, economy and other cultural fields is undeniable. However, it is important to consider the negative effects of these media. It seems that it is necessary that social media users be given the principal training before and during their use so that they do not become victims of its undesirable and unconscious effects.

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Authors' Contribution

Study design, supervisor, methodology and manuscript writing. ZM, SZZ and Zsh: Data collection and manuscript writing. HS: Basic revision and writing of the manuscript.

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References

1   O'Hara KP, Massimi M, Harper R, Rubens S, Morris J, editors. Everyday dwelling with WhatsApp. Proceedings of the 17th ACM conference on Computer supported cooperative work & social computing; 2014.

2   Dewing M. Social media: An introduction: Library of Parliament Ottawa; 2010.

3   Szeto MD, Mamo A, Afrin A, Militello M, Barber C. Social Media in Dermatology and an Overview of Popular Social Media Platforms. Current dermatology reports. 2021:1-8.

4   Akram W, Kumar R. A study on positive and negative effects of social media on society. International Journal of Computer Sciences and Engineering. 2017;5(10):351-4.

5   Hallikainen P. Why people use social media platforms: Exploring the motivations and consequences of use. From information to smart society: Springer; 2015. p. 9-17.

6   Orben A. Teenagers, screens and social media: a narrative review of reviews and key studies. Social psychiatry and psychiatric epidemiology. 2020;55(4):407-14.

7   Goel A, Gupta L. Social media in the times of COVID-19. Journal of clinical rheumatology. 2020.

8   Siddiqui S, Singh T. Social media its impact with positive and negative aspects. International journal of computer applications technology and research. 2016;5(2):71-5.

9   Glaser P, Liu JH, Hakim MA, Vilar R, Zhang R. Is social media use for networking positive or negative? Offline social capital and internet addiction as mediators for the relationship between social media use and mental health. New Zealand Journal of Psychology (Online). 2018;47(3):12-8.

10 Wong A, Ho S, Olusanya O, Antonini MV, Lyness D. The use of social media and online communications in times of pandemic COVID-19. Journal of the Intensive Care Society. 2021;22(3):255-60.

11 Yas H, Jusoha A, Streimikieneb D, Mardania A, Nora K, Alatawic A, et al. The negative role of social media during the COVID-19 outbreak. International Journal of Sustainable Development and Planning. 2021;16(2):219-28.

12 Abd-Alrazaq A, Alhuwail D, Househ M, Hamdi M, Shah Z. Top concerns of tweeters during the COVID-19 pandemic: infoveillance study. Journal of medical Internet research. 2020;22(4):e19016.

13 McIntyre KE. The evolution of social media from 1969 to 2013: A change in competition and a trend toward complementary, niche sites. The Journal of Social Media in Society. 2014;3(2).

14 Rambow OC, Shrestha L, Chen J, Lauridsen C. Summarizing email threads. 2004.

15 Car J, Sheikh A. Email consultations in health care: 1—scope and effectiveness. Bmj. 2004;329(7463):435-8.

16 Whittaker S, Sidner C, editors. Email overload: exploring personal information management of email. Proceedings of the SIGCHI conference on Human factors in computing systems; 1996.

17 Kraus S, Kanbach DK, Krysta PM, Steinhoff MM, Tomini N. Facebook and the creation of the metaverse: radical business model innovation or incremental transformation? International Journal of Entrepreneurial Behavior & Research. 2022.

18 Faelens L, Hoorelbeke K, Cambier R, van

Put J, Van de Putte E, De Raedt R, et al. The relationship between Instagram use and indicators of mental health: A systematic review. Computers in Human Behavior Reports. 2021;4:100121.

19 Quan-Haase A, Young AL. Uses and gratifications of social media: A comparison of Facebook and instant messaging. Bulletin of science, technology & society. 2010;30(5):350-61.

20 Drozd B, Couvillon E, Suarez A. Medical YouTube videos and methods of evaluation: literature review. JMIR medical education. 2018;4(1):e8527.

21 Andika R, Kao CT, Williams C, Lee YJ, Al-Battah H, Alweis R. YouTube as a source of information on the COVID-19 pandemic. Journal of Community Hospital Internal Medicine Perspectives. 2021;11(1):39-41.

22 Masoni M, Guelfi MR. WhatsApp and other messaging apps in medicine: opportunities and risks. Internal and emergency medicine. 2020;15(2):171-3.

23 Walwema J. The WHO health alert: Communicating a global pandemic with WhatsApp. Journal of Business and Technical Communication. 2021;35(1):35-40.

24 Delam H, Eidi A. WhatsApp messenger role in coronavirus disease 2019 (COVID 19) pandemic. Journal of Health Sciences & Surveillance System. 2020;8(4):183-4.

25 Boulos MK, Giustini D, Wheeler S. Instagram and WhatsApp in Health and Healthcare. An Overview Future Internet. 2016;8:37.

26 Yale SS, Kumar S, Sharma V. Current and Potential Use of WhatsApp in Oral Health Care-A Narrative Review. International Journal of Health Sciences and Research. 2018;8(6):278-84.

27 Carpenter JP, Morrison SA, Craft M, Lee M. How and why are educators using Instagram? Teaching and teacher education. 2020;96:103149.

28 Staniewski M, Awruk K. The influence of Instagram on mental well-being and purchasing decisions in a pandemic. Technological Forecasting and Social Change. 2022;174:121287.

29 Al-Kandari AJ, Al-Hunaiyyan AA, Al-Hajri R. The influence of culture on instagram use. Journal of Advances in Information Technology, 7 (1), 54. 2016;57.

30 Hu Y, Manikonda L, Kambhampati S, editors. What we instagram: A first analysis of instagram photo content and user types. Eighth International AAAI conference on weblogs and social media; 2014.

31 Russmann U, Svensson J. Studying organizations on Instagram. Information. 2016;7(4):58.

32 Ovadia S. ResearchGate and Academia.edu: Academic social networks. Behavioral & social sciences librarian. 2014;33(3):165-9.

33 Manca S. ResearchGate and Academia.edu as networked socio-technical systems for scholarly communication: A literature review. Research in Learning Technology. 2018;26.

34 Lex E. A critical look at the ResearchGate score as a measure of scientific reputation. 2015.

35 Muscanell N, Utz S. Social networking for scientists: an analysis on how and why academics use ResearchGate. Online information review. 2017.

36 Zide J, Elman B, Shahani-Denning C. LinkedIn and recruitment: How profiles differ across occupations. Employee relations. 2014.

37 Utz S. Is LinkedIn making you more successful? The informational benefits derived from public social media. New media & society. 2016;18(11):2685-702.

38 Venegas-Vera AV, Colbert GB, Lerma EV. Positive and negative impact of social media in the COVID-19 era. Reviews in cardiovascular medicine. 2020;21(4):561-4.

39 Rasmussen J, Ihlen Ø. Risk, crisis, and social media: A systematic review of seven years' research. Nordicom Review. 2017;38(2):1-17.

40 Cookingham LM, Ryan GL. The impact of social media on the sexual and social

wellness of adolescents. Journal of pediatric and adolescent gynecology. 2015;28(1):2-5.

41 Khorsheed RK, Othman B, Sadq Z. The Impacts of Using Social Media Websites for Efficient Marketing. Journal of Xi'an University of Architecture & Technology. 2020;12(3):2221-35.

42 Ryan T, Allen KA, Gray DL, McInerney DM. How social are social media? A review of online social behaviour and connectedness. Journal of Relationships Research. 2017;8.

43 Cromity J. The impact of social media in review. New Review of Information Networking. 2012;17(1):22-33.

44 Vaingankar JA, van Dam RM, Samari E, Chang S, Seow E, Chua YC, et al. Social Media–Driven Routes to Positive Mental Health Among Youth: Qualitative Enquiry and Concept Mapping Study. JMIR Pediatrics and Parenting. 2022;5(1):e32758.

45 Siegmund LA. Social Media in Occupational Health Nursing: Helpful or Harmful? Workplace Health & Safety. 2020;68(9):408-14.

46 Welch V, Petkovic J, Pardo JP, Rader T, Tugwell P. Interactive social media interventions to promote health equity: an overview of reviews. Health promotion and chronic disease prevention in Canada: research, policy and practice. 2016;36(4):63.

47 Eidi A, Delam H. Internet addiction is likely to increase in home quarantine caused by coronavirus disease 2019 (COVID 19). Journal of Health Sciences & Surveillance System. 2020;8(3):142-3.

48 Taggart T, Grewe ME, Conserve DF, Gliwa C, Isler MR. Social media and HIV: a systematic review of uses of social media in HIV communication. Journal of medical Internet research. 2015;17(11):e4387.

49 Welch V, Petkovic J, Simeon R, Presseau J, Gagnon D, Hossain A, et al. Interactive social media interventions for health behaviour change, health outcomes, and health equity in the adult population. The

Cochrane database of systematic reviews. 2018;2018(2).

50 Farpour HR, Habibi L, Owji SH. Positive impact of social media use on depression in cancer patients. Asian Pacific journal of cancer prevention: APJCP. 2017;18(11):2985.

51 Välimäki M, Athanasopoulou C, Lahti M, Adams CE. Effectiveness of social media interventions for people with schizophrenia: a systematic review and meta-analysis. Journal of medical Internet research. 2016;18(4):e5385.

52 Bonnevie E, Smith SM, Kummeth C, Goldbarg J, Smyser J. Social media influencers can be used to deliver positive information about the flu vaccine: findings from a multi-year study. Health education research. 2021;36(3):286-94.

53 Lim WM. Social media in medical and health care: opportunities and challenges. Marketing intelligence & planning. 2016.

54 Pho K. Doctor reprimanded after patient privacy breached on Facebook, my take. Kevin, MD-Medical Weblog Blogs-Health2011. 2011.

55 Hader AL, Brown ED. LEGAL BRIEFS. Patient Privacy and Social Media. AANA journal. 2010;78(4).

56 Theocharis Y, Cardenal A, Jin S, Aalberg T, Hopmann DN, Strömbäck J, et al. Does the platform matter? Social media and COVID-19 conspiracy theory beliefs in 17 countries. new media & society. 2021:14614448211045666.

57 Kadam AB, Atre SR. Negative impact of social media panic during the COVID-19 outbreak in India. Journal of travel medicine. 2020;27(3):taaa057.

58 Suarez-Lledo V, Alvarez-Galvez J. Prevalence of health misinformation on social media: systematic review. Journal of medical Internet research. 2021;23(1):e17187.

59 Zachos G, Paraskevopoulou-Kollia E-A, Anagnostopoulos I. Social media use in higher education: A review. Education Sciences. 2018;8(4):194.

60 Tkáčová H, Pavlíková M, Jenisová Z,

Maturkanič P, Králik R. Social media and students' wellbeing: An empirical analysis during the covid-19 pandemic. Sustainability. 2021;13(18):10442.

61 Karakose T. The impact of the COVID-19 epidemic on higher education: Opportunities and implications for policy and practice. Educational Process: International Journal. 2021;10(1):7-12.

62 Zu N, Chen Z, Duan Z, Li L, Meng Z. A review of social media in education: Effects and attitudes. International Journal of Social Media and Interactive Learning Environments. 2017;5(3):191-200.

63 Latif MZ, Hussain I, Saeed R, Qureshi MA, Maqsood U. Use of smart phones and social media in medical education: trends, advantages, challenges and barriers. Acta informatica medica. 2019;27(2):133.

64 Yilmazsoy B, Kahraman M, Utku K. Negative aspects of using social networks in education: A brief review on WhatsApp example. Journal of Educational Technology and Online Learning. 2020;3(1):69-90.

65 Zargar WA. Impact of social media on education with positive and negative aspects. Journal Homepage: http://www ijmra us. 2018;8(3).

66 Delam H, Kavi E, Eidi A, Sookhak F. Assessing Students' Satisfaction Regarding the Use of Virtual Learning at Larestan University of Medical Sciences. Interdisciplinary Journal of Virtual Learning in Medical Sciences. 2022.

67 SYAIFULLAH J, SYAIFUDIN M, SUKENDAR MU, JUNAEDI J. Social media marketing and business performance of MSMEs during the COVID-19 pandemic. The Journal of Asian Finance, Economics and Business. 2021;8(2):523-31.

68 Hudson S, Roth MS, Madden TJ, Hudson R. The effects of social media on emotions, brand relationship quality, and word of mouth: An empirical study of music festival attendees. Tourism management. 2015;47:68-76.

69 Wu J, Sun H, Tan Y. Social media research:

A review. Journal of Systems Science and Systems Engineering. 2013;22(3):257-82.

70 Prodanova J, Van Looy A, editors. A systematic literature review of the use of social media for business process management. International Conference on Business Process Management; 2017: Springer.

71 Mason AN, Narcum J, Mason K. Social media marketing gains importance after Covid-19. Cogent Business & Management. 2021;8(1):1870797.

72 Rapp A, Beitelspacher LS, Grewal D, Hughes DE. Understanding social media effects across seller, retailer, and consumer interactions. Journal of the Academy of Marketing Science. 2013;41(5):547-66.

73 Cartwright S, Liu H, Raddats C. Strategic use of social media within business-to-business (B2B) marketing: A systematic literature review. Industrial Marketing Management. 2021;97:35-58.

74 Di Domenico G, Sit J, Ishizaka A, Nunan D. Fake news, social media and marketing: A systematic review. Journal of Business Research. 2021;124:329-41.

75 Laroche M, Habibi MR, Richard M-O. To be or not to be in social media: How brand loyalty is affected by social media? International journal of information management. 2013;33(1):76-82.

76 PATMA TS, WARDANA LW, WIBOWO A, NARMADITYA BS. The shifting of business activities during the COVID-19 pandemic: does social media marketing matter? The Journal of Asian Finance, Economics and Business. 2020;7(12):283-92.

77 Thakur A, Joshi J. Role of Social Media as an Important Tool for Social Change. 2019.

78 Aydın B, Sarı SV, Sahin M. The effect of social networking on the divorce process. Universal Journal of psychology. 2018;6(1):1-8.

79 Nadkarni, Charkha, Jayant P, Charkha S. Positive and Negative Aspects of Social Media Impacting the Current Society2019.

80 Saleh M, Mukhtar J. Social media and

divorce case study of Dutse LGA Jigawa State. IOSR Journal Of Humanities And Social Science. 2015;20(5):54-9.

81 Nursyifa A. Shifting Causes of Divorce in Indonesia Due to Social Media In Sociological Perspective. Solid State Technology. 2020;63(2s).

82 Baccarella CV, Wagner TF, Kietzmann JH, McCarthy IP. Social media? It's serious! Understanding the dark side of social media. European Management Journal. 2018;36(4):431-8.

83 Damota MD, Uninversity M. The effect of social media on society. New Media and Mass Communication. 2019;78(9):1-9.

84 Massing-Schaffer M, Nesi J. Cybervictimization and suicide risk in adolescence: An integrative model of social media and suicide theories. Adolescent Research Review. 2020;5(1):49-65.

85 Patton DU, Hong JS, Ranney M, Patel S, Kelley C, Eschmann R, et al. Social media as a vector for youth violence: A review of the literature. Computers in Human Behavior. 2014;35:548-53.

86 Shensa A, Sidani JE, Hoffman BL, Escobar-Viera CG, Melcher EM, Primack BA, et al. Positive and negative social media experiences among young adults with and without depressive symptoms. Journal of technology in behavioral science. 2021;6(2):378-87.

87 Singh MM, Amiri M, Sabbarwal S. Social media usage positive and negative effects on the life style of Indian youth. Iranian Journal of Social Sciences and Humanities Research. 2017;5(3).

88 Wojdan W, Wdowiak K, Witas A, Drogoń J, Brakowiecki W. The impact of social media on the lifestyle of young people. Polish Journal of Public Health. 2021;130(1):8-13.

89 Cowie H, Myers CA. The impact of the COVID-19 pandemic on the mental health and well-being of children and young people. Children & Society. 2021;35(1):62-74.

90 Keles B, McCrae N, Grealish A. A systematic review: the influence of social media on depression, anxiety and psychological distress in adolescents. International Journal of Adolescence and Youth. 2020;25(1):79-93.

91 Abi-Jaoude E, Naylor KT, Pignatiello A. Smartphones, social media use and youth mental health. Cmaj. 2020;192(6):E136-E41.

92 Hogue JV, Mills JS. The effects of active social media engagement with peers on body image in young women. Body image. 2019;28:1-5.

93 Shahjahan AM, Chisty KU. Social Media research and its effect on our society. International Journal of Information and Communication Engineering. 2014;8(6):2009-13.

94 Hamilton JL, Nesi J, Choukas-Bradley S. Teens and social media during the COVID-19 pandemic: Staying socially connected while physically distant. 2020.

95 Garett R, Young SD. Online misinformation and vaccine hesitancy. Translational behavioral medicine. 2021;11(12):2194-9.

96 Wang Y, McKee M, Torbica A, Stuckler D. Systematic literature review on the spread of health-related misinformation on social media. Social science & medicine. 2019;240:112552.

97 Ozturk P, Li H, Sakamoto Y, editors. Combating rumor spread on social media: The effectiveness of refutation and warning. 2015 48th Hawaii international conference on system sciences; 2015: IEEE.

98 Sobaih AEE, Palla IA, Baquee A. Social media use in e-learning amid COVID 19 pandemic: Indian students' perspective. International journal of environmental research and public health. 2022;19(9):5380.

99 Al-Dmour H, Salman A, Abuhashesh M, Al-Dmour R. Influence of social media platforms on public health protection against the COVID-19 pandemic via the mediating effects of public health awareness and behavioral changes: integrated model. Journal of medical

Internet research. 2020;22(8):e19996.

100 Saud M, Mashud Mi, Ida R. Usage of social media during the pandemic: Seeking support and awareness about COVID-19 through social media platforms. Journal of Public Affairs. 2020;20(4):e2417.

101 Sahni H, Sharma H. Role of social media during the COVID-19 pandemic: Beneficial, destructive, or reconstructive? International Journal of Academic Medicine. 2020;6(2):70.

102 Quispe-Cañari JF, Fidel-Rosales E, Manrique D, Mascaró-Zan J, Huamán-Castillón KM, Chamorro–Espinoza SE, et al. Self-medication practices during the COVID-19 pandemic among the adult population in Peru: A cross-sectional survey. Saudi Pharmaceutical Journal. 2021;29(1):1-11.

103 Abiad A, Arao RM, Dagli S. The economic impact of the COVID-19 outbreak on developing Asia. 2020.