Investigating the role of social media on mental health

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Abstract

Purpose – *Today with the internet expansion, social media has also been identified as a factor in evolutions. Social media is the title used to refer to the set of sites and tools that have been born and developed in the space created by modern media such as communication networks, the internet and mobile phones. The effects of emerging phenomena, such as social media on human health, especially mental health, are important. As the effects of social media on users mental health is unclear, and the evidence in this field is contradictory, this study aims to determine the role of social media on mental health.*

Design/methodology/approach – *The current study was a review conducted in 2020. According to keywords, an extensive search was conducted on Web of Science, PubMed, Scopus, Google Scholar, Magiran and SID databases. In total, 501 articles were obtained. The articles were screened in three stages. Finally, out of 501 evaluated articles, 50 cases were carefully assessed and included in the study.*

Findings – *The findings showed that social media has negative and positive effects on mental health. Negative effects included anxiety, depression, loneliness, poor sleep quality, poor mental health indicators, thoughts of self-harm and suicide, increased levels of psychological distress, cyber bullying, body image dissatisfaction, fear of missing out and decreased life satisfaction. Positive effects included accessing other people's health experiences and expert health information, managing depression, emotional support and community building, expanding and strengthening offline networks and interactions, self-expression and self-identity, establish and maintain relationships.*

Originality/value – *The impact of social media on mental health can be considered as a double-edged sword. The important thing is to be able to reduce the negative effects of social media on mental health and turn it into an opportunity by implementing appropriate strategies and actions and to increase and strengthen the positive effects.*

Keywords *Social media, Health, Mental health, Mental well-being*

Paper type *General review*

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Introduction

Today's society is full of symbols, signs and media so that everyday life and communication are increasingly integrated with the media space. Before the advent of the internet, mass media such as television, radio and newspapers were the most effective media (Oftade, 2012), but with the advent of the internet, its use has grown increasingly and has become a powerful global communication method (Korp, 2006).

Research studies indicate that internet access and usage is increasing. Statistics state that in 2017, 3.6 billion people had internet (Dosemagen and Aase, 2017), and there are currently more than 4.5 billion internet users worldwide (Internet Live Stats, 2020). Pew Internet and American Life Project data shows that 85% of American adults use the internet (Center, 2012b). The use of the internet is 88% among teenagers (Center, 2012a).

Meanwhile, we are witnessing the emergence of tools such as smart-phones and tablets. The mobile and (internet-enabled) smart-phone market had reached 96.2% globally (internet IWSM, 2017). In total, 3.2 billion people have access to mobile phones

(Dosemagen and Aase, 2017). According to the latest Pew Research Center study in early 2018, approximately 91% of Americans years of age 18–29 have smart-phones (Hitlin, 2018). A cultural norm of young people being constantly connected to the internet has been established. It is estimated that people 18 to 24 years old, look at their phones more than 80 times per day (Bratu, 2018).

Today with the internet expansion, social media has also been identified as a factor in evolutions. Social media is the title used to refer to the set of sites and tools that have been born and developed in the space created by modern media such as communication networks, the internet and mobile phones. Social media can be classified into seven groups, namely, social networks, blogs, wikis, podcasts, forums, content communities and micro-blogs, among which social networks are the most important social media.

Social networks are databases that provide users with the opportunity to share their interests, thoughts and activities with others. In other words, a social network is a set of web-based services that allow individuals to create public or private descriptions for themselves, communicating with other members of the network, sharing their resources with them and using this platform to find new connections.

Social networks, especially social networking sites, have the largest audience among social media. In total, 67% of all internet users use at least one social networking site (Brenner, 2013). Facebook is the most common and recognizable form of social media. Other commonly used social media platforms include Instagram, Twitter and Snapchat (Ellison and Vitak, 2015).

A lot of people have accounts on several different social media platforms (Ellison and Vitak, 2015). There are currently more than 2.4 billion active Facebook users worldwide. Instagram and Twitter are next with 500 million users. Most social media users are young people. In total, 88%–90% of young people use social media (Perrin, 2015; Smith and Anderson, 2018). They spend 9 to 12 h daily on social media (Nielsen, 2018).

Actually, many people cannot imagine the world without access to the internet and social media

The integration of the internet, and especially social media, into today's life is such that the new generation is called "digital natives" (Slyke, 2013).

The effects of emerging phenomena, such as social media on human health, especially mental health, are important. Some people believe that social networks improve their health. From the number of researchers' and health professionals' point of view, these tools also have positive effects on health and can be used for changing behavior and strengthening positive health behaviors (Green et al., 2005). Some studies show that using social media causes less loneliness, more self-esteem, more life satisfaction (Lin et al., 2016), the spread of happiness and increases social capital and promotes mental health (Woods and Scott, 2016).

But recent studies have raised serious concerns about the devastating effects of using social media on health, especially mental health. The results of these studies show that using social media causes problems such as depression and anxiety (Green et al., 2005, Sampasa-Kanyinga and Lewis, 2015, Lin et al., 2016, Woods and Scott, 2016, Shensa et al., 2017), less positive mood (Wang and Saudino 2011), decreased feelings of happiness (Brooks, 2015), decreased life satisfaction (Kross et al., 2013), and propensity toward addictive and destructive behaviors of mental health (Roberts et al., 2014).

As social media is an emerging phenomenon and its exact impact on users' mental health is unclear and the evidence in this field is contradictory, this study was conducted to determine the role of social media on mental health.

Methods

The current study was a review was conducted in 2020 by reviewing the published and available internal and external sources related to the social media and mental health by

searching the Web of Science, PubMed, Scopus, Google Scholar, Magiran and SID databases with the keyword of social media, health, mental health, mental hygiene, in Persian and English language. In total, 501 articles were obtained. For purposive sampling, the articles and texts were screened in three stages:

■ Initial or title screening, based on the titles, which are relevant to the social media and mental health.

■ Secondary screening, based on the study of the abstract and introduction of the articles and tertiary screening, including a brief study, prioritization based on the conceptual richness and complete investigation of the articles.

The inclusion criteria were:

■ Articles only in Persian and English.

■ Publication date between 2000 and 2020 years.

■ Explicit focus on social media and mental health four access to the text of articles.

The exclusion criteria were:

1. Languages other than English or Persian.

2. Study or review protocols.

3. Studies focusing on the impact of social media on other aspects of health.

4. Insufficiency of the presented data or poor description of the applied methods.

After the identification of the relevant articles, their reference lists were also screened for finding further studies. Thereafter, the remaining articles were reviewed meticulously. Finally, out of 501 evaluated articles, 50 cases were carefully assessed and included in the study. The selection process of the articles is illustrated by a flowchart indicating the stages from unsorted search results to the total number of included articles (Figure 1).

Results

The negative effects of social media on mental health

The extensive use of social media has led to research into the relationship between social media use and mental health. There was considerable evidence that social media use is associated with negative effects on mental health. The findings suggested that using social media can be associated with problems such as anxiety, depression, loneliness, poor sleep quality, poor mental health indicators, thoughts of self-harm and suicide, increased levels of psychological distress, cyber bullying, body image dissatisfaction, fear of missing out (FoMO) and decreased life satisfaction (Table 1).
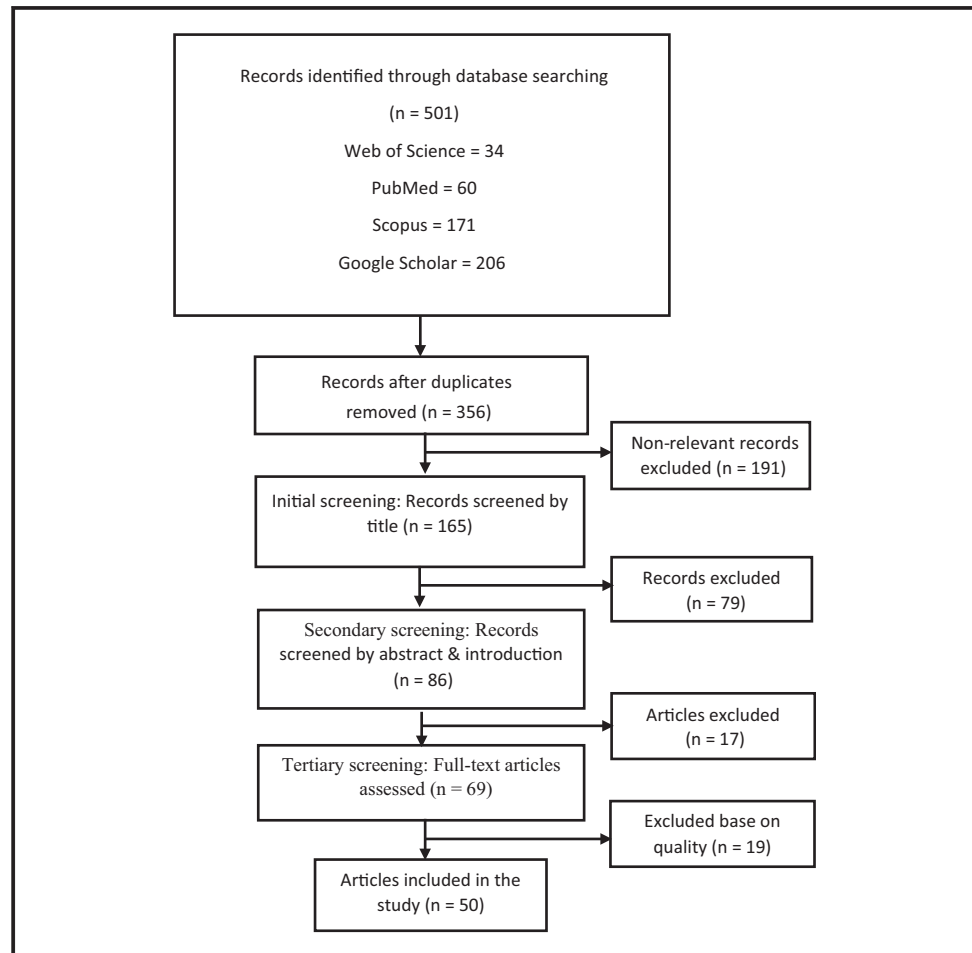
The positive effects of social media on mental health

The findings of some studies showed that social media have some positive effects on mental health. These effects include: accessing other people's health experiences and expert health information, managing depression, emotional support and community building, expanding and strengthening offline networks and interactions, self-expression and self-identity, establish and maintain relationships (Table 2).

Discussion

The findings of this review suggested that using social media can be associated with problems such as anxiety, depression, loneliness, poor sleep quality, poor mental health indicators, thoughts of self-harm and suicide, increased levels of psychological distress, cyberbullying, body image dissatisfaction, FoMO and decreased life satisfaction.

Figure 1 Flowchart of study selection process

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┌─────────────────────────────────────────────┐
│   Records identified through database         │
│   searching                                   │
│              (n = 501)                         │
│         Web of Science = 34                    │
│           PubMed = 60                          │
│           Scopus = 171                         │
│        Google Scholar = 206                    │
└─────────────────────────────────────────────┘
                    │
                    ▼
         ┌──────────────────────┐
         │ Records after         │        ┌──────────────────────┐
         │ duplicates removed    │───────▶│ Non-relevant records  │
         │      (n = 356)        │        │ excluded (n = 191)    │
         └──────────────────────┘        └──────────────────────┘
                    │
                    ▼
         ┌──────────────────────┐
         │ Initial screening:    │        ┌──────────────────────┐
         │ Records screened by   │───────▶│ Records excluded       │
         │ title (n = 165)       │        │      (n = 79)          │
         └──────────────────────┘        └──────────────────────┘
                    │
                    ▼
         ┌──────────────────────┐
         │ Secondary screening:  │        ┌──────────────────────┐
         │ Records screened by   │───────▶│ Articles excluded      │
         │ abstract & introduction│       │      (n = 17)          │
         │      (n = 86)         │        └──────────────────────┘
         └──────────────────────┘
                    │
                    ▼
         ┌──────────────────────┐
         │ Tertiary screening:   │        ┌──────────────────────┐
         │ Full-text articles    │───────▶│ Excluded base on       │
         │ assessed (n = 69)     │        │ quality (n = 19)       │
         └──────────────────────┘        └──────────────────────┘
                    │
                    ▼
         ┌──────────────────────┐
         │ Articles included in  │
         │ the study (n = 50)    │
         └──────────────────────┘
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It is important to note a few points about the consequences of anxiety and depression caused by the use of social media. First, the use of social media among young people is far greater than that of older generations.

This anxiety can have negative effects on young people's lives. Feelings of anxiety can lead to leaving the house, not attending school and college regularly, academic failure and job failure, which, in turn, can intensify depression. Second, it seems that what is important in the first place is the duration of use and the type of use and interaction in social networks, otherwise social media is not inherently destructive. As with nearly every behavior, moderation is key. It seems that active interaction in social media (engaging in exchanges with other users) is generally associated with positive outcomes effects, but passive use (viewing others' posts and profiles without engaging in exchanges) has detrimental effects on mental health (Frison and Eggermont, 2015).

Addictive and long-term use of social media can reduce real-life social interactions and reduce mental health functioning and well-being.

Depression is a major cause of disability around the world and imposes a huge economic burden on societies. Therefore, the relevant authorities must take the necessary actions in this regard.

Table 1	The negative effects of social media on mental health
Criteria	*Findings*
Loneliness	A positive association between social media use and depressive symptoms (Kelly *et al.*, 2018) Increased use of social media, depressive symptom, online harassment, poor sleep, low self-esteem and poor body image also increases (Song *et al.*, 2014) A positive association between use and loneliness (Chang *et al.*, 2017) Loneliness correlates with worse mental health outcomes, including depression, dementia and suicide (Health RSfP, 2017) loneliness has a significant predictor of both indices of suicidal risk (Power *et al.*, 2017) Social media use is linked with increased rates of anxiety, depression and poor sleep (O'Keeffe and Clarke-Pearson, 2011) One in five young people regularly wake up in the night to send or check messages on social media (Gámez-Guadix, 2014)
Suicide and self-harm	Time spent on-screen activities increased rates of depressive symptoms and risk for suicide-related outcomes (Twenge *et al.*, 2018) As the hours spent daily visiting social network sites increased, there was a 32% increase in the likelihood of self-harm (Hartas, 2019)
Poor sleep	Use of Twitter, Facebook, Snap Chat and Instagram reduce sleep (Health RSfP, 2017) The greater social media use causes online harassment, poor sleep, low self-esteem and, poor body image; in turn, these cause higher depressive symptom scores (Kelly *et al.*, 2018) Increased social media use is significantly associated with poor sleep quality. The use of social media on phones, laptops and tablets at night before bed is also associated with poor sleep quality (Scott *et al.*, 2016; Woods and Scott, 2016; Xanidis and Brignell, 2016) Young people tend to check their devices regularly, even at night, therefore, this can reduce sleep quality, low mood, anxiety, feelings of inadequacy and reduced life satisfaction (Health RSfP, 2017; Przybylski *et al.*, 2013)
Anxiety and depression	limiting social media usage does have a direct and positive impact on subjective well-being over time, especially for decreasing loneliness and depression (Twenge *et al.*, 2018; Hunt *et al.*, 2018) The use of social media by children, adolescents and adults causes depression (McCrae *et al.*, 2017; Shensa *et al.*,2017) The use of social media causes loneliness, anxiety and depression in young people and fear of parents (Barry *et al.*, 2017) The use of Facebook, Twitter or Instagram causes poorer mental health and manifesting symptoms of anxiety and depression (Health RSfP, 2017; Sampasa-Kanyinga and Lewis, 2015; Becker, 2013; Oliva *et al.*, 2018) Long-term use of social media poses a mental health threat to youth and can produce detrimental outcomes such as depression, anxiety, loneliness and substance abuse (O'Keeffe and Clarke-Pearson, 2011; Gámez-Guadix, 2014) Young people tend to check their devices regularly, even at night, therefore, this can reduce sleep quality, low mood, anxiety, feelings of inadequacy and reduced life satisfaction (Health RSfP, 2017; Przybylski *et al.*, 2013)
The quality of everyday tasks and lifesatisfaction	Young people tend to check their devices regularly, even at night, therefore, this can reduce sleep quality, low mood, anxiety, feelings of inadequacy and reduced life satisfaction (Health RSfP, 2017; Przybylski *et al.*, 2013) limiting Facebook usage significantly increases life satisfaction and decreases depressive symptoms (Brailovskaia *et al.*, 2020) One in five young people regularly wake up in the night to send or check messages on social media. This night-time activity is making teenagers three times more likely to feel tired at school than their peers who do not log on at night (Power *et al.*, 2017) limiting social media usage increased time spent engaged in seven activities, browsing the internet, working, childcare and cooking/cleaning (Hall *et al.*, 2019a)
Cyberbullying	Cyber bullying is a growing problem with 7 in 10 young people saying they have experienced it (Health RSfP, 2017) Long-term use of social media by young people can make them susceptible to cyberbullying and other forms of online harassment (O'Keeffe and Clarke-Pearson, 2011; Gámez-Guadix, 2014)
Dissatisfaction with body image	Every hour on Facebook alone, 10 million new photos are uploaded, which shows the importance of appearance and body for people (Mayer-Schönberger and Cukier, 2013) Seeking elective interventions by young people to improve their appearance in social media can have long term mental or physical health consequences (Rana and Kelleher, 2018) Young girls who use Facebook are more concerned about their body image compared to non-users (Tiggemann and Slater, 2014)

Table 2 The positive effects of social media on mental health	
Criteria	*Findings*
Getting health information	A tool for accessing other people's health experiences and expert health information (Korp, 2006; Tatari, 2018; Ziebland and Wyke, 2012) In total, 61% of adults use the internet for health care communications (Neuhauser and Kreps, 2003) Of the 17,000 American adults, 56% looked for health information from the internet and state that this information has affected their understanding of health (Fox and Duggan, 2011) In total, 63% of young people believed that social media is a good source of health information and nearly half of young people in the sample; (46%) reported changing their health-related behaviors as a direct result of accessing content from social media. A sizeable minority of young people; (43%) reported that health-related content on social media positively impacts their health (Goodyear *et al.*, 2018) In total, 59% of patients use twitter for health counseling and 52.3% use Facebook for social counseling (Antheunis *et al.*, 2013) In total, 33% of adults in American use Facebook and Twitter for health information and more than 80% of those aged 18–24 years old are sharing health information through social networks (PricewaterhouseCoopers, 2012)
Mental health resource	Social media use has positive effects on mental health (Verduyn *et al.*, 2015) A resource for managing depression (Park *et al.*, 2013) Social networks as a useful source of information for analyzing mental health problems (Stephen and Prabu, 2019) The appropriate tool to present the health information required by the community; Availability of physicians to provide information online for young people (Wong *et al.*, 2014)
The tool for emotional support	Approximately seven out of 10 teens use social media to control their emotions during difficult and challenging times (Health RSfP, 2017) Twitter with 300 million users has a major platform for expressing personal views that researchers use it as an excellent source of information to analyze mental health problems and emotions (Stephen and Prabu, 2019) Young people can feel vulnerable discussing sensitive issues in face-to-face encounters and digital communication allows for greater honesty and openness (Gibson and Trnka, 2020)
Maintaining relationships and reducing the risks of depression	Users can facilitate relationships with others through Facebook and strengthen them in an adaptive way (Simoncic *et al.*, 2014) The primary motivation of Facebook users is maintaining relationships and keeping in touch with friends (Smock *et al.*, 2011) Facebook help peoples form and maintain social capital (Ellison *et al.*, 2007) The proper use of social media can reduce the risks of developing depression (Fujiwara and Kawachi, 2008) Social media can provide a platform for people to overcome barriers of distance and time to connect and reconnect with others, thereby expanding and strengthening their offline networks and interactions despite geographical separation (Hall *et al.*, 2019b; Russell and Fish, 2016) Social media can help people with self-expression and self-identity (Ifinedo, 2016)
Active engagement with peers, friends and family	Social media are venues for personal disclosures, active interaction with peers and the spread of social relationships (Verduyn *et al.*, 2015) Online support has the potential to provide networks of support to young people that have implications for both their online and offline friendships (Hall *et al.*, 2019b; Antoci *et al.*,2015) Social media can provide online socializing with friends and family around the world (Sainsbury and Benton, 2017)
Entertainment	Youth pervasively use social media for a variety of reasons including identity formation, entertainment, social enhancement and maintaining interpersonal connections (Ifinedo, 2016)
Self-expression	People can also share their favorite topics and create content through social media. Getting likes or followers can create an identity list that helps shape young people's identities (Orehek and Human, 2017) Social media is also space where people can express their political identities (Stangor and Walinga, 2010)
Increasing self-esteem and life satisfaction	Social capital and social ties can increase psychological well-being indicators such as self-esteem and life satisfaction (Ellison *et al.*, 2007; Nabi *et al.*, 2013)

Sleep and mental health are closely related. Lack of proper sleep can damage mental health. This is even more important in adolescents and young people because brain development occurs during this time, and insufficient sleep can have negative effects. Additionally, adequate sleep is essential for an active and successful day.

Youth sleep problems are an important area of concern for parents, educators, practitioners and policymakers, as insufficient and poor-quality sleep has negative consequences across a range of dimensions, including mental health, academic achievement and interpersonal functioning. Inadequate sleep can also gradually cause physical and mental problems such as diabetes, high blood pressure, obesity and depression (Korp, 2006).

Body satisfaction is problematic, especially in adolescents and young adults. Statistics show that 9 in 10 girls say they are unhappy with their bodies and are worried about their body image (Dosemagen and Aase, 2017). We are also witnessing the growing number of unnecessary cosmetic surgeries in the younger generation, which can also have negative effects on physical health. The manipulations that users do in the photos uploaded on social media also show the importance of body image for young people. This concern can have side effects on people's mental health. Therefore, informing and educating the community, especially adolescents and youth, about the duration and how to use social media, as well as the supervision of parents, schools and universities are important.

About the positive effects of social media on mental health should also pay attention to a few points. Today, social media is widely available in every geographic point and because people use them daily, especially through cell phones, it makes them an interesting *locus* for public health interventions in the behavioral domain. Social media is an important and advanced source for providing information on health-related issues. In other words, the media are the greatest educators in our world. To identify the correct pattern of life, continuous education is important. Part of this education aimed at improving knowledge, learning and creating a desirable behavior and ultimately maintaining health is called health education.

All levels and social classes always need health education. Even if this education is limited to informing and raising the level of knowledge of individuals, having the right information can be the basis for learning and changing the attitude and practice (Kia and Hosseinpour, 2013).

Social media can make people aware of the mental health risks and solutions to these dangers by creating effective communication with the audience in the health area, create motivation, teach the skills needed to reduce the risks, increase the demand for desirable health services, reduce the demand for undesirable services and help audiences choose preventive strategies, programs and treatments (Kia and Hosseinpour, 2013).

However, it should be noted that just as reliable and accurate information in the field of health is useful and constructive, receiving incorrect or even incomplete information can pose a greater threat to people's health. The high volume of health information a person receives through social media and wrong interpretations about them makes it a more complicated issue. Therefore, the level of health literacy of individuals should be considered, which means that the individual can assess the validity of information and also understand the content of the information for its proper use. Information overload in this area can confuse people when interpreting information. This is even more important for the younger generation. Because this group has less experience, and on the other hand, is more dependent on social media and its information. Therefore, accurate and reliable information should be available from trusted ports, and users should have the necessary capabilities to evaluate the information or in other words, have a high level of health literacy.

Regarding the positive effect of social media on building relationships and social support, it should be noted that the use of social media has led to social displacement (Hall *et al.*, 2019a), but the quality of relationships and social support may be more important than quantity (Teo *et al.*, 2013). It seems that SNS can provide a platform for building and maintaining close and intimate relationships, but these relationships are less profound than

real-world relationships. Therefore, we should try to use more active interactions in social media and use these interactions to strengthen communication in the real world.

Conclusion

The findings of the present study on the role of social media on mental health, show that these media have positive and negative effects on mental health, each in its place is important. Therefore, the impact of social media on mental health can be considered as a double-edged sword.

The important thing is to be able to reduce the negative effects of social media on mental health and turn it into an opportunity by implementing appropriate strategies and actions and to increase and strengthen the positive effects. The following actions are recommended in this regard:

- Designing and using a warning system as a message to heavy users of social media while using it about the harms of social media addiction.

- Designing and implementing appropriate training for pupils and students about the safe use of social media, including, social media addiction, body image and social media, cyber bullying and other possible effects of social media on mental health.

- Training adequate skills for assessing and validating information on social media from adolescence, especially in schools.

- Developing standard principles for disseminating health-related information through social media by the national health system (NHS).

- Supervising the dissemination of health-related information by NHS.

Given the limitations of our study, which examined only the effects of social media on mental health, it is suggested that the effects of social media on other aspects of health be considered.

References

Antheunis, M., Tates, K. and Nieboer, T. (2013), "Patients' and health professionals' use of social media in health care: motives, barriers and expectations", *Patient Education and Counseling*, Vol. 92 No. 3, pp. 426-431.

Antoci, A., Sabatini, F. and Sodini, M. (2015), "Online and offline social participation and social poverty traps: can social networks save human relations?", *The Journal of Mathematical Sociology*, Vol. 39 No. 4, pp. 229-256.

Barry, C.T., Sidoti, C.L., Briggs, S.M., Reiter, S.R. and Lindsey, R.A. (2017), "Adolescent social media use and mental health from adolescent and parent perspectives", *Journal of Adolescence*, Vol. 61, pp. 1-11.

Becker, M. (2013), "Cyberpsychol", *Behavior, and Social Networking*, Vol. 16 No. 2, pp. 132-135.

Brailovskaia, J., Ströse, F., Schillack, H. and Margraf, J. (2020), "Less Facebook use – more well-being and a healthier lifestyle? An experimental intervention study", *Computers in Human Behavior*, Vol. 108.

Bratu, S. (2018), "Fear of missing out, improper behavior, and distressing patterns of use. an empirical investigation", *Linguistic and Philosophical Investigations*, No. 17, pp. 130-140.

Brenner, J. (2013), Pew internet: social networking.

Brooks, S. (2015), "Does personal social media usage affect efficiency and well-being?", *Computers in Human Behavior*, Vol. 46, pp. 26-37.

Center, P.R. (2012a), *Teen Internet Access Demographics*, Pew Internet & American Life Project, Washington, DC.

Center, P.R. (2012b), *Trend Data (Adults). Washington, DC: Pew Internet & American Life Project*, Pew Internet Center, Washington, DC.

Chang, E.C., Wan, L., Li, P., Guo, Y., He, J., Gu, Y., et al. (2017), "Loneliness and suicidal risk in young adults: does believing in a changeable future help minimize suicidal risk among the lonely?", *The Journal of Psychology*, Vol. 151 No. 5, pp. 453-463.

Dosemagen, S. and Aase, L. (2017), "How social media is shaking up public health and healthcare [internet]", available at: www.huffingtonpost.com/shannon-dosemagen-/how-social-media-is-shaki_b_9090102.html

Ellison, N.B., Steinfield, C. and Lampe, C. (2007), "The benefits of Facebook 'friends': social capital and college students' use of online social network sites", *Journal of Computer-Mediated Communication*, Vol. 12 No. 4, pp. 1143-1168.

Fox, S. and Duggan, M. (2011), *Health Topics*, Pew Internet & American Life Project, Washington, DC.

Frison, E. and Eggermont, S. (2015), "Toward an integrated and differential approach to the relationships between loneliness, different types of Facebook use, and adolescents' depressed mood", *Communication Research*, Vol. 47 No. 5, p. 0093650215617506.

Fujiwara, T. and Kawachi, I. (2008), "A prospective study of individual-level social capital and major depression in the United States", *Journal of Epidemiology & Community Health*, Vol. 62 No. 7, pp. 627-633.

Gámez-Guadix, M. (2014), "Depressive symptoms and problematic internet use among adolescents: analysis of the longitudinal relationships from the cognitive–behavioral model", *Cyberpsychology, Behavior, and Social Networking*, Vol. 17 No. 11, pp. 714-719.

Gibson, K. and Trnka, S. (2020), "Young people's priorities for support on social media: it takes trust to talk about these issues", *Computers in Human Behavior*, Vol. 102, pp. 238-247.

Goodyear, V. Armour, K. and Wood, H. (2018), "The impact of social media on young people's health and wellbeing: evidence, guidelines and actions".

Green, H., Meltzer, H., Ford, T. and Goodman, R. (2005), *Mental Health of Children and Young People in Great Britain, 2004*, Palgrave Macmillan Basingstoke.

Hall, J.A., Johnson, R.M. and Ross, E.M. (2019a), "Where does the time go? An experimental test of what social media displaces and displaced activities' associations with affective well-being and quality of day", *New Media & Society*, Vol. 21 No. 3, pp. 674-692.

Hall, J.A., Kearney, M.W. and Xing, C. (2019b), "Two tests of social displacement through social media use", *Information, Communication & Society*, Vol. 22 No. 10, pp. 1396-1413.

Hartas, D. (2019), "The social context of adolescent mental health and wellbeing: parents, friends and social media. Research papers in education".

Health RSfP (2017), "# StatusOfMind: social media and young people's mental health and wellbeing".

Hitlin, P. (2018), *Internet, Social Media Use and Device Ownership in US have Plateaued after Years of Growth USA*, Pew Res Cent, Washington, DC.

Hunt, M.G., Marx, R., Lipson, C. and Young, J. (2018), "No more FOMO: limiting social media decreases loneliness and depression", *Journal of Social and Clinical Psychology*, Vol. 37 No. 10, pp. 751-768.

Ifinedo, P. (2016), "Applying uses and gratifications theory and social influence processes to understand students' pervasive adoption of social networking sites: perspectives from the Americas", *International Journal of Information Management*, Vol. 36 No. 2, pp. 192-206.

internet IWSM (2017), "Mobile phones and smart mobile phones", available at: www.internetworldstats.com/mobile.htm

Internet Live Stats (2020), available at: www.internetlivestats.com/

Kelly, Y., Zilanawala, A., Booker, C. and Sacker, A. (2018), "Social media use and adolescent mental health: findings from the UK millennium cohort study", *EClinicalMedicine*, Vol. 6, pp. 59-68.

Kia, A.A. and Hosseinpour, J. (2013), "The role of the media in the development of health and social welfare", *Society, Culture and Media j*, Vol. 2, pp. 95-114.

Korp, P. (2006), "Health on the internet: implications for health promotion", *Health Education Research*, Vol. 21 No. 1, pp. 78-86.

Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D.S., Lin, N., Shablack, H., Jonides, J. and Ybarra, O. (2013), "Facebook use predicts declines in subjective well-being in young adults", *PLoS One*, Vol. 8 No. 8, p. e69841.

Lin, L.Y., Sidani, J.E., Shensa, A., Radovic, A., Miller, E., Colditz, J.B., Hoffman, B.L., Giles, L.M. and Primack, B.A. (2016), "Association between social media use and depression among US young adults", *Depression and Anxiety*, Vol. 33 No. 4, pp. 323-331.

McCrae, N., Gettings, S. and Purssell, E. (2017), "Social media and depressive symptoms in childhood and adolescence: a systematic review", *Adolescent Research Review*, Vol. 2 No. 4, pp. 315-330.

Mayer-Schönberger, V. and Cukier, K. (2013), *Big Data: A Revolution That Will Transform How we Live, Work, and Think*, Houghton Mifflin Harcourt.

Nabi, R.L., Prestin, A. and So, J. (2013), "Facebook friends with (health) benefits? Exploring social network site use and perceptions of social support, stress, and well-being", *Cyberpsychology, Behavior, and Social Networking*, Vol. 16 No. 10, pp. 721-727.

Neuhauser, L. and Kreps, G.L. (2003), "Rethinking communication in the E-health era", *Journal of Health Psychology*, Vol. 8 No. 1, pp. 7-23.

Nielsen, N. (2018), "The Nielsen total audience report: QI 2018", available at: www.nielsen.com/us/en/insights/reports/2018/q1-2018-total-audience-report.html

Oftade, J. (2012), "The difference between social media and mass media", *Social Sciences Journal*, Vol. 56.

O'Keeffe, G.S. and Clarke-Pearson, K. (2011), "The impact of social media on children, adolescents, and families", *PEDIATRICS*, Vol. 127 No. 4, pp. 800-804.

Oliva, E.I.P.N., Gherardi-Donato, E.C.S., Bermúdez, J.Á. and Facundo, F.R.G. (2018), "Use of Facebook, perceived stress and alcohol consumption among university students", *Ciência & Saúde Coletiva*, Vol. 23 No. 11, pp. 3675-3681.

Orehek, E. and Human, L.J. (2017), "Self-expression on social media: do tweets present accurate and positive portraits of impulsivity, self-esteem, and attachment style?", *Personality and Social Psychology Bulletin*, Vol. 43 No. 1, pp. 60-70.

Park, S., Lee, S.W., Kwak, J., Cha, M. and Jeong, B. (2013), "Activities on Facebook reveal the depressive state of users", *Journal of Medical Internet Research*, Vol. 15 No. 10, p. e217.

Perrin, A. (2015), "Social media usage: 2005-2015", available at: www.pewinternet.org/2015/10/08/social-networking-usage-2005-2015/

Power, S., Taylor, C. and Horton, K. (2017), "Sleepless in school? The social dimensions of young people's bedtime rest and routines", *Journal of Youth Studies*, Vol. 20 No. 8, pp. 945-958.

PricewaterhouseCoopers (2012), *Social Media 'Likes' Healthcare from Marketing to Social Business*, Health Research Institute.

Przybylski, A.K., Murayama, K., DeHaan, C.R. and Gladwell, V. (2013), "Motivational, emotional, and behavioral correlates of fear of missing out", *Computers in Human Behavior*, Vol. 29 No. 4, pp. 1841-1848.

Rana, S. and Kelleher, M. (2018), "The dangers of social media and young dental patients' body image", *Dental Update*, Vol. 45 No. 10, pp. 902-910.

Roberts, J., Yaya, L. and Manolis, C. (2014), "The invisible addiction: cell-phone activities and addiction among male and female college students", *Journal of Behavioral Addictions*, Vol. 3 No. 4, pp. 254-265.

Russell, S.T. and Fish, J.N. (2016), "Mental health in lesbian, gay, bisexual, and transgender (LGBT) youth", *Annual Review of Clinical Psychology*, Vol. 12 No. 1, pp. 465-487.

Sainsbury, M. and Benton, T. (2017), "Social networking: a way to re-engage young people with politics?", available at: www.nfer.ac.uk/research/projects/cels-cit/CIVTA3.pdf

Sampasa-Kanyinga, H. and Lewis, R.F. (2015), "Frequent use of social networking sites is associated with poor psychological functioning among children and adolescents", *Cyberpsychology, Behavior, and Social Networking*, Vol. 18 No. 7, pp. 380-385.

Scott, H., Gardani, M., Stephany, B. and Woods, H. (Eds) (2016), "Social media use, fear of missing out and sleep outcomes in adolescence", Conference paper 23rd Congress of the European Sleep Research Society.

Shensa, A., Escobar-Viera, C.G., Sidani, J.E., Bowman, N.D., Marshal, M.P. and Primack, B.A. (2017), "Problematic social media use and depressive symptoms among US young adults: a nationally-representative study", *Social Science & Medicine*, Vol. 182, pp. 150-157.

Simoncic, T.E., Kuhlman, K.R., Vargas, I., Houchins, S. and Lopez-Duran, N.L. (2014), "Facebook use and depressive symptomatology: investigating the role of neuroticism and extraversion in youth", *Computers in Human Behavior*, Vol. 40, pp. 1-5.

Slyke, T. (2013), "Digital natives, digital immigrants: some thoughts from the generation gap".

Smith, A. and Anderson, M. (2018). Social media use in 2018.

Smock, A.D., Ellison, N.B., Lampe, C. and Wohn, D.Y. (2011), "Facebook as a toolkit: a uses and gratification approach to unbundling feature use", *Computers in Human Behavior*, Vol. 27 No. 6, pp. 2322-2329.

Song, H., Zmyslinski-Seelig, A., Kim, J., Drent, A., Victor, A., Omori, K., et al (2014), "Does Facebook make you lonely?: A meta analysis", *Computers in Human Behavior*, Vol. 36, pp. 446-452.

Stangor, C. and Walinga, J. (2010), "7.3 Adolescence: developing independence and identity", *Introduction to Psychology*, 1st Canadian Edition.

Stephen, J.J. and Prabu, P. (2019), "Detecting the magnitude of depression in twitter users using sentiment analysis", *International Journal of Electrical and Computer Engineering (IJECE)*, Vol. 9 No. 4, pp. 3247-3255.

Tatari, F. (2018), "The role of mass and social media in health promotion", *First National Conference on Art and Health*, *Neishabour Neishabour University of Medical Sciences*.

Teo, A.R., Choi, H. and Valenstein, M. (2013), "Social relationships and depression: ten-year follow-up from a nationally representative study", *PloS One*, Vol. 8 No. 4.

Tiggemann, M. and Slater, A. (2014), "NetTweens: the internet and body image concerns in preteenage girls", *The Journal of Early Adolescence*, Vol. 34 No. 5, pp. 606-620.

Twenge, J.M., Joiner, T.E., Rogers, M.L. and Martin, G.N. (2018), "Increases in depressive symptoms, suicide-related outcomes, and suicide rates among US adolescents after 2010 and links to increased new media screen time", *Clinical Psychological Science*, Vol. 6 No. 1, pp. 3-17.

Verduyn, P., Lee, D.S., Park, J., Shablack, H., Orvell, A., Bayer, J., et al (2015), "Passive Facebook usage undermines affective well-being: experimental and longitudinal evidence", *Journal of Experimental Psychology: General*, Vol. 144 No. 2, p. 480.

Wong, C.A., Merchant, R.M. and Moreno, M.A. (Eds) (2014), "Using social media to engage adolescents and young adults with their health", *Healthcare*, Vol. 2 No. 4, Elsevier.

Woods, H.C. and Scott, H. (2016), "# sleepyteens: social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem", *Journal of Adolescence*, Vol. 51, pp. 41-49.

Xanidis, N. and Brignell, C.M. (2016), "The association between the use of social network sites, sleep quality and cognitive function during the day", *Computers in Human Behavior*, Vol. 55, pp. 121-126.

Ziebland, S. and Wyke, S. (2012), "Health and illness in a connected world: how might sharing experiences on the internet affect people's health?", *Milbank Quarterly*, Vol. 90 No. 2, pp. 219-249.

Further reading

Fowler, J.H. and Christakis, N.A. (2008), "Dynamic spread of happiness in a large social network: longitudinal analysis over 20 years in the Framingham heart study", *BMJ*, Vol. 337, p. a2338.

Lenhart, A. (2015), "Teens, social media & technology: overview", April 2015, available at: www.pewinternet.org/2015/04/09/teens-social-media-technology-2015/

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