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ORIGINAL ARTICLE

Impact of Social Media Use on the Development of Health Literacy

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A B S T R A C T

Background: Using social media to produce and present the content of the health literacy program can be effective in improving and promoting public health. This study was carried out to determine the impact of social media use on the development of health literacy.

Methods: This cross-sectional study was conducted in the winter of 2022. The statistical population included all visitors to the health care centers of Ahvaz metropolis in the southwest of Iran, in which a total of 250 people participated. The standard health literacy questionnaire and the standard social media questionnaire were used to collect data. $SPSS_{25}$ software was also used for data analysis.

Results: The total score for using social media was 55.14 ± 14.14, and for health literacy, it was 64.18 ± 15.80, which was in the average range (upward and close to good). There was a statistically significant relationship between age (*P-value* < 0.001) and education (*P-value* = 0.005) and using social media (*P-value* < 0.001). In addition, the results showed that using social media affected health literacy (*P-value*=0.034). This study also showed that an increase in the development of health literacy decreased the use of social media (and vice versa). In addition, people who used social media asked fewer questions (regarding their health or illness) of doctors and healthcare workers (*P-value* < 0.001).

Conclusion: The results showed that using social media affected people's health literacy, and people with low health literacy used social media more to promote and improve their health literacy. It is necessary to make the required plans for the optimal use of the potential capacities of these networks for the development of health literacy in society.

Keywords: Social media, Health literacy, Health care centers, Iran.

Introduction

The term "health literacy" was first introduced in the scientific papers of health education in 1974 as an evolving field of research in clinical medicine and public health. The World Health Organization has defined health literacy as " Cognitive and social skills that determine people's motivation and ability to acquire, understand, and use health information to promote and maintain good health " (1). In addition, health literacy is defined as the ability of people to obtain, process, and understand health information and essential services needed for appropriate decisions for health care (2).

Nowadays, social media and web-based social media are an integral part of people's lives. They are also among the most effective and popular tools through which various types of information can be obtained at the lowest cost and the shortest time. These technologies allow people to easily interact and communicate with each other through the Internet and learn about their favorite topics (3). Increasing access to the Internet and the innovation of communication technologies have facilitated communication and created new opportunities for using these tools to improve and

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promote health which have facilitated international interactions on an unprecedented scale (4). Social media or social networks are low-cost tools that can help develop public health literacy, especially in undeveloped countries where health education and health promotion infrastructures have economic limitations. This experience highlights the position and potential of social media for health promotion, even with limited resources (5).

Social media has created both new challenges and exciting opportunities (6). Nowadays, people spend much of their time on social media and generally ignore its positive or destructive consequences in their daily lives (7). Integrating social media into health literacy program by adopting an appropriate strategy and considering its technical considerations (such as using simple language techniques) can be effective in improving and promoting public health (8).

The result of a review research examined the studies conducted between 1991 and 2020 regarding the impact of social media on mental health, which noticed positive, negative, and neutral effects of social media on people's mental health (9). Another review article analyzed studies conducted between 2006 and 2020 and introduced ten studies on the use of social media for various health purposes by health institutions, health researchers and practitioners, and the public (10). Social media have been widely used for health-related purposes, especially during pandemics (11).

This technology has rapidly grown in recent years, and social media now play a central role in people's lives. The use of social media in the field of health can help to improve the health level of society, quality of treatment, people's knowledge and awareness about health issues, and ultimately, the quality of people's lives. This is the situation when the sources are reliable and the security and privacy issues of the users are also taken into account. Increasing attention to the impact of social media regarding collection, processing and decision making of health information may help strengthen the existing research weakness in the field of health literacy. Considering this potential with countless benefits to improve health, this research was carried out to determine the impact of social media use on the development of health literacy.

Materials and methods

This study was a cross-sectional study which was carried out in the winter of 2022. The statistical population included all the visitors to healthcare centers of Ahvaz metropolis in southwest of Iran. In this research, the convenience sampling method was used with a sample size of 250 people according to the following formula.

$$n = \frac{(z_{1-\frac{\alpha}{2}} + z_{1-\beta})^2 p(1-p)}{(d)^2}$$

In this study, the standard health literacy questionnaire of Tavousi et al (11) and the researcher-made questionnaire on social media were used to collect data. The validity and reliability of these questionnaires were confirmed in similar studies in Iran. Tavousi et al (11) designed HELIA health literacy questionnaire in Iran with 33 questions and 5 dimensions whose Cronbach's alpha coefficients for the questions raged from 0.72 to 0.89. Its dimensions include access (6 questions), reading skills (4 questions), understanding (7 questions), appraisal (4 questions), and decision-making and application of information (12 questions). The scales of measuring items were based on a 5-point Likert scale.

Jahanbani et al (12) designed social media and networks questionnaire in Iran with 19 questions and three dimensions. Its dimensions included the amount of use (5 questions), type of use (7 questions), and users' trust (7 questions). In this questionnaire, scores between 19 and 38 were considered poor, scores between 58 and 57 were considered average, and scores above 57 were considered very well. Researchers visited health care centers on certain days to conduct this research. After identifying the qualified people, they gave them the necessary explanations regarding the study's objectives, and the questionnaire was distributed among them after obtaining their agreement and completing the informed consent form. Paper questionnaires were randomly and individually distributed among the people, one hour was given to complete the

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questionnaires. The researchers gave the necessary explanations to the participants when they had doubts about the questionnaire. The inclusion criteria consisted of willingness of the participants to participate in the study regarding health and treatment centers of Ahvaz metropolis in 2022. Exclusion criteria included failure to fill out the questionnaire information and dissatisfaction with people participating in the study. Descriptive statistics (mean, percentage, standard deviation, and median) and inferential statistics (independent t-test (t-test), one-sample t-test, Pearson's correlation test, and regression model) were used for data analysis. $SPSS_{25}$ software was also used for data analysis.

Ethical considerations

This study was the result of a student thesis. (Ethics Code: IR.AJUMS.MEDICINE.REC.1401.041).

Results

The study's participants were 128 women (51.2%) and 122 men (48.8%). In addition, 119 people (47.6%) were employed, 131 (52.4%) were non-employed, and135 people (54.0%) had a bachelor's degree or a higher level of education. 238 people (84.5%) were following contents related to health and disease through the internet and social media. 94 people (38.2%) had a good skill regarding searching the internet, and 147 people (59.3%) had an average proficiency of English. The average age of the participants was 34.59 (Table 1).

The total score of health literacy in this study was 64.18 (Table 2). The total score for using social media was 55.14, which was in the average range (Table 3).

Table 1. Distribution and frequency of demographic information of the study's participant

Variables		Number	Percentage
Gender	Female	128	51.2
	Man	122	48.8
Education	Less than a bachelor's degree	105	43.8
	Bachelor's degree and higher than a bachelor's degree	135	56.2
Job	Employed	119	47.6
	Non-employed (retired/unemployed/housewife)	131	52.4
Source for access to contents related to health and diseases	Asking the doctor and health workers	113	45.6
	Internet and virtual networks	135	54.4
English language level	Weak	55	22.2
	Medium	147	59.3
	Good	33	13.3
	Very good	10	4.0
	Excellent	3	1.2
Skill at searching the Internet	Weak	11	4.5
	Medium	78	31.7
	Good	94	38.2
	Very good	37	15.0
	Excellent	26	10.6
Using social media to increase health literacy	Yes	238	84.5
	No	12	15.5
The average age of the participants	34.59		
		Mean±SD	**P***
Health literacy	Asking the doctor and health workers	18.08 ± 62.58	0.126
	Internet and social media	13.43 ± 65.68	
Using social media	Asking the doctor and health workers	14.48 ± 50.61	>0.001
	Internet and social media	12.75 ± 59.02	

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Table 2. The score of health literacy dimensions

	Mean±S.D	Min	Max
Access	3.94 ± 13.08	5	24
Reading skill	3.09 ± 8.04	4	20
Understanding	4.19 ± 11.71	4	27
Appraisal	3.01 ± 8.21	2	20
Decision-making and application of information	7.24 ± 23.43	6	43
Total score	15.80 ± 64.18	19	117

Table 3. The score of using social media

	Mean±S.D	Min	Max
Amount of use	4.93 ± 16.67	3	24
The purpose of using social media	6.63 ± 22.38	8	35
Evaluation of the users' trust	5.02 ± 16.41	4	35
Total score	14.14 ± 55.14	3	95

Table 4 shows the relationship between the use of social media and the development of health literacy. The results indicated a statistically significant and inverse difference between the use of social media and the development of health literacy (*P-value*= 0.034). An increase in the development of health literacy decreased the use of social media.

Table 4. The relationship between social media and the development of health literacy

variable	r	*P**
Health literacy-social media	-0.139	0.034
Pearson correlation*		

The results showed no significant difference between women and men in the score of health literacy development (*P-value*=0.055) nor the score for using social media (*P-value* = 0.437).

Also, the results showed no significant difference between employed and non-employed individuals in the health literacy development score nor in the average use of social media (*P-value* = 0.264).

The results showed no significant difference between the health literacy development score in people with less than a bachelor's degree and people with a bachelor's degree or higher (*P-value* =0.664). In addition, there was a significant difference between the average score of using social media in people with less than a bachelor's degree and those with a bachelor's degree or higher (*P-value* = 0.005). The average score for using social media was higher among people with bachelor's degrees and higher. (Table 5).

Table 5. Relationship between Demographic characteristics and Study Variables

variables		health literacy		Using social media	
		Mean±SD	*P*	Mean±SD	*P*
Gender	Men	66.14±15.79	0.055	54.40±14.72	0.437
	Women	62.28±15.64		55.84±13.59	
education	Less than a bachelor's degree	63.59±17.09	0.664	52.14±15.76	0.005
	Bachelor's degree and more than a bachelor's degree	64.51±15.11		57.63±12.64	
job	employed	64.83±16.74	0.536	54.07±13.72	0.264
	Non-employed (retired/unemployed/housewife)	63.58±14.92		56.13±14.51	

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Also, Table 6 shows that there was no significant difference between age and health literacy (*P-value* = 0.226). However, there was a significant direct relationship between age and using social media (*P-value*<0.001).

Table 6. Investigating the relationship between age and study variables

variables		health literacy	Using social media
age	*P*	0.226	<0.001
	r	0.078	-0.233

The results showed there was a statistically significant difference between the average score of people who use social media to increase their health literacy and those who do not (*P-value* < 0.001). People who used social media to increase their health literacy had better health.

Also, the results showed no significant difference between the health literacy development score of the people who ask their questions from doctors and healthcare workers and the people who get information through networks and social media (*P-value* = 0.126). In addition, there was a significant difference between the average score of using networks and social media in people who asked questions from doctors and healthcare workers and people who use networks and social media (*P-value* < 0.001). People who used these media had a higher score.

Discussion

In this study, the total score for using social media and health literacy was generally average (on the high side). There was a statistically significant relationship between age and education using social media. In addition, the results showed that using social media has affected health literacy, and an increase in the development of health literacy decreased using social media (and vice). In addition, people who used social media and media were less likely to ask their questions (regarding their health or illness) to doctors and healthcare workers. There was a statistically significant difference between the average score of people who use social media to increase their health literacy and those who do not. As a result, people who use social media to increase their health literacy had a higher score.

Rahimi et al (13) conducted a study, which showed a significant relationship between the amount of using social media and health literacy and showed that an increase in the amount of using social media increased people's health literacy. Riahi et al (14) conducted a study in Tehran, which showed that the electronic health literacy of the surveyed employees was more than average and nearly good. In this study, there was a significant difference between gender, academic understanding, and the level of knowledge of the English language and computers among the surveyed employees.

Niu et al (15) conducted a study in China, which showed a significant relationship between health literacy and using health-related social media. In addition, the relationship is stronger among young respondents and those who previously had positive experiences with health information on social media. Li et al (16) conducted a study in China, which showed that during the Covid-19 pandemic, social media effectively promoted preventive behaviors against spreading the Covid-19 virus among people.

Agner et al (17) conducted a study in America, which showed a significant relationship between health literacy and social media among people with serious mental illness (PWSMI) who are at high risk of physical illness and premature mortality. Patil et al (18) conducted a study in the United States, which showed that access, attitudes, and behaviors related to Covid-19 are associated with health literacy and digital health literacy among college students in the United States.

Qin et al (19) conducted a study in China, which showed that using social media increased e-health literacy and improved knowledge, attitudes, and performance toward Covid-19 vaccination among Chinese college students in the epidemic prevention and control phase

An intervention study was conducted by Kim et al. among people with low health literacy. This study

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showed that self-management interventions based on social media have the potential to help people overcome the disadvantages associated with low health literacy and increase it (20) Ahn et al (21) conducted a study in the United States of America, which showed that social media had encouraged people to use health information sources. There was a significant and positive relationship between health literacy, and the using social media Sun et al (22) conducted a study among nursing students in China, which showed a positive relationship between using social media and health literacy.

The results of these studies were consistent with the results of this research. In addition, the harmful effects of prolonged and excessive use of social media should not be overlooked. During the Covid-19, more and longer use of social media was associated with a negative impact on mental health, especially for teenagers and students (23).

Gilavand et al (24) conducted a study in Iran and the results showed that social media can play an effective role in improving learning and increasing the awareness of medical students.

The results of this research and similar studies indicated that the following strategies can be used for the optimal use of social media for the development of health literacy to overcome their increasing challenges:

1. Customizing the content of health messages in social media according to the users' age, gender, education, interests, nationality, and geographical area.
2. Paying attention to the cultural, ethnic, religious, and national considerations and sensitivities of users when producing health content on social media.
3. Using social media to present public health campaigns allows us to capitalize on sophisticated advertising techniques to deliver tailored messages directly to the communities that need them most with accuracy far beyond the reach of conventional mass media.
4. Preventing the share of false and misleading information for health promotion in social media. The participation of relevant users and reliable institutions helps to solve this shortcoming. Governments are required to form commissions of experts to improve digital regulation. In addition, authorized international institutions such as the World Health Organization can take responsibility for solving this problem and provide clear instructions for measuring health literacy if necessary.
5. Informing users about the harmful effects of prolonged and excessive use of social media.

Conclusion

Using social media affects people's health literacy, and those with low health literacy level refer to media to improve their health literacy. It is necessary to make the required plans for the optimal use of the potential capacities of these networks for the development of health literacy in society. People who use social media to develop their health literacy can acquire new information, be aware of the latest developments in the field of health and treatment and share them, and use the experiences of others. As a result, they become aware of the dangers that threaten their lives and health, their families, and society; this procedure can lead to higher self-confidence in managing people's health. The results provide insights for physicians and health researchers and increase understanding of the mechanisms behind social media use for health. This study also provides insights for health message designers who want to use social media platforms to promote public health. Future studies should investigate the improvement of community health literacy levels and users' experience with social media in different fields and disciplines.

Limitations

Telegram and WhatsApp social media are very popular and widely used in Iran. But they are blocked by the government and the users have to use a proxy to use them. Therefore, this factor had a negative effect on the responses of the

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respondents, and some clients refused to complete the questionnaires. Also, due to the number, dispersion, and demographic diversity of the statistical population, it was not possible to distribute the questionnaire to all the studied population.

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Conflict of interests

The authors declared no conflict of interests.

Authors' contributions

A.G, MR.F designed the research; A.D conducted the study; A.D., and M.A. analyzed data; A.G, MR.F wrote the paper., and A.G had the primary responsibility for final content. All the authors read and approved the final manuscript.

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