Research Paper
Evaluation of Media Literacy in Students of Mazandaran University of Medical Sciences

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ABSTRACT

Background and Purpose: Media literacy is defined as the ability to access, analyze, and evaluate the messages transferred by the media, which has various dimensions including creativity, critical thinking, and problem-solving. This study was conducted to investigate the media literacy of students of Mazandaran University of Medical Sciences.

Materials and Methods: In this descriptive cross-sectional study, 370 students of Mazandaran University of Medical Sciences participated. They were selected via social networks using stratified random sampling in 2021. The data were collected using demographic and media literacy measurements. Furthermore, the data were analyzed by SPSS software, version 20.

Results: The results showed that 87% and 13% of the participants had a moderate and high level of media literacy, respectively. The highest and lowest mean scores were related to dimensions of media message content perception and media message analysis. The study also showed a significant relationship between age, grade point average, and father's education level with media literacy. Using social media like Telegram, WhatsApp, and Facebook was significantly associated with media literacy.

Conclusion: The result showed that the rate of media literacy in students was moderate, but students had a low level of media message analysis and critical thinking. So, we conclude that there is a need to provide training in media literacy skills in institutions, universities, and schools.

Keywords: Media literacy, Medical students, Social media, Facebook

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1. Introduction

In recent years, young people use different media in their daily lives influencing socialization and literacy. This issue raised the issue of media literacy in the world. The development of this skill, which has various dimensions, including creativity, critical thinking, and problem-solving is an interesting concern in the international community [1, 2]. Media literacy is defined as the ability to access, analyze, and evaluate the messages transferred by the media that can be faced as a skill through which we, as an active and dynamic audience, can respond to messages conveyed by the media and have the power to choose when there are different messages. Three important aspects of media literacy are as follows: Promoting the awareness of media content, critical watching training, and social and political analysis [3].

The media literacy movement began in the United States, Canada, Australia, and the United Kingdom, and also since the 1980 s, there have been many efforts to expand media literacy around the world. After many meetings held by communication scientists, critics, and public health experts, especially in the United States, academics identified media exposure was considered as a risk factor, and media literacy was considered a protector [4]. Today's youth swim in a sea of media content and media literacy aims to help them stay afloat [5]. Lack of media literacy in students and at the community level makes them incapable of detecting and analyzing fake news, alternative facts, and false information [6]. The low level of media literacy in the population increases health problems and contagious and chronic diseases. For this reason, media literacy is considered an important indicator to determine the general status of public health [3].

Some studies conducted in Iran demonstrated that students' media literacy was at a low level and also thinking methods, problem-solving techniques, and ways of improving the teaching/learning process were at a low level [7]. Another study showed that the highest level of media literacy was observed in people with a higher level of information, while people with a lower level of media literacy were weak to judge and analyze the implied messages [8]. Other studies on media literacy in students revealed that the socioeconomic factors, personality traits, and family context of students were significantly associated with media literacy [9, 10].

Given that the Internet is the most popular source of information, students' use of smartphones, tablets, laptops, and computers has a great impact on media literacy. Since we are faced with a huge amount of information obtained from the Internet, each source having a specific purpose, media literacy helps us when, how much, and what media to use. By having media literacy, information processing can be performed freely or away from the influence of various sources [8, 11].

Many of the psychosocial problems of students are the illiteracy of civilization, and technological and political illiteracy may be due to the low level of media literacy and lack of training in this regard [12]. Being literate in a media era requires critical thinking skills that empower us in decision-making, whether in the classroom or the workplace. Empowering people through media literacy is an important prerequisite for fostering equitable access to information and knowledge. Therefore, students with an adequate level of media literacy will be able to evaluate messages conveyed by media and make decisions about the truth, inaccuracy, or media bias in their professional and personal lives [6]. Many students use social media and online tools to stay in touch and interact with people; therefore, the present study was conducted to investigate the level of media literacy and identify the factors affecting it among students of Mazandaran University of Medical Sciences.

2. Materials and Methods

This was a cross-sectional study conducted on 370 students of Mazandaran University of Medical Sciences in 2021. Considering the ratio of 0.05, a 95% confidence level, and a relative error of 0.05, the sample size was determined to be 370. The participants were selected using stratified random sampling.

The study inclusion criteria were students studying at Mazandaran University of Medical Sciences who had expressed their consent to participate in the study. Also, graduate students and individuals who answered less than 80% of items (questions) were excluded from the study.

The data were collected using a questionnaire that included two parts: (1) Demographic characteristics and (2) media literacy assessment. Demographic variables included age, gender, marital status, field of study, level of education, parent's education level, parent's occupation, household income, and student's grade point average (GPA). The media literacy questionnaire developed by Falsafi et al. [13] consists of 20 items in 5 dimensions including understanding the content of media messages

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(4 items), awareness of the hidden purposes of media messages (4 items), conscious choice of media messages (4 items), critical thinking at media messages (4 items), and media message analysis (4 items) was used to collect the data. It is scored on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The validity and reliability of the questionnaire with Cronbach alpha (α=0.75) were confirmed by the study of SotoudehRad et al. [14, 15].

The questionnaire link was sent to the student groups of Mazandaran University of Medical Sciences (via Telegram and WhatsApp platforms) in 2021. Sampling from each faculty (medicine, dentistry, pharmacy, health, nursing and midwifery, and paramedical) was according to the population of students. Descriptive statistics (such as No.(%), Mean±SD) and analytical statistics (e.g. analysis of variance) were used to analyze the data. The normal distribution of the results was checked by the Kolmogorov-Smirnov test. All statistical analysis was performed using SPSS software, version 20. A P-value of 0.05 or lower is generally considered statistically significant.

3. Results

The purpose of this study was to examine media literacy and identify factors affecting it in students of Mazandaran University of Medical Sciences. Table 1 shows the demographic characteristics of the study participants.

As shown in Table 1, 73.7% of the participants were undergraduate students, and 67.2% were aged 18-24 years. In sum, 73.9% of students' mothers were housewives and 53.5% of them had a high school diploma; 60% of students' fathers were self-employed and 46.8% had a high school diploma; 28.8% of students were in 1-4 semesters, and 54.6% were in 5-7 semesters; 84.4% of participants were single; and 71.7% of the participants were female. Approximately, 97% of students used social media, and 87% of the participants had a moderate level of media literacy but 13% had a high level of media literacy.

As depicted in Table 2, the highest Mean±SD scores were related to dimensions of media message content perception, such as giving importance to the way of creating content creation in the selection of media (3.81±0.972), understanding censorship in the content of media messages (3.77±0.838), media message analysis such as awareness of media content (3.78±0.894), and awareness of the hidden purposes of media messages such as understanding the cultural and political objectives of the media (3.70±0.911), respectively.

The lowest mean scores were observed in the dimensions of media message analysis like the effect of the prevailing atmosphere in the community on the media content analysis, critical thinking at media messages such as the Internet dominance due to limited information on the Internet (2.63±1.17), and dependence to contents and the specific content formats (2.47±1.9), respectively (Table 2).

Table 3 presents the range of scores, the mean score of media literacy, and its dimensions. The highest mean scores were related to dimensions of media message content perception (14.76±2.02), and the lowest mean scores were in critical thinking at media messages (12.26±2.33).

As shown in Table 4, age, GPA, and father's education level were significantly associated with media literacy (P=0.05). Our results demonstrated that the level of media literacy in students aged 25 to 30 was higher than in those who were 30 years old and under 25 years of age. Also, the level of media literacy in students with a GPA above 18 was higher than other students, and students whose fathers had a college degree showed a higher level of media literacy.

The results of the Tukey HSD post hoc test are shown in Table 5. Students with high GPAs had higher media literacy between groups. Also, the father's education had a significant relationship with academic education and media literacy. The Tukey post hoc test showed no significant relationship between age group and media literacy.

4. Discussion

The results of the present study demonstrated that the media literacy score of students was at a medium level, which was consistent with previous studies conducted in Iran [15-17]. It can be said that due to educational and research activities, students have access to communication technologies such as scientific databases, media, and virtual social networks. So, they have moderate to high media literacy. It can be said that due to educational and research activities, students have access to communication technologies, information such as information data bases, media, and virtual networks. So, it can be expected that they have medium to high media literacy. Therefore, it can be expected that they have medium to high media literacy.

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Table 1. Demographic characteristics of participants (N=370)

Variables		No. (%)
	18-24	250(67.2)
Age, y	25-30	104(28)
	>30	16(4.3)
	<14	69(18.5)
Grade point average (GPA)	14-18	247(66.4)
	>19	56(15.1)
	Under diploma	71(19.1)
Father education	Diploma	174(46.8)
	Academic	127(34.1)
	Bachelor	274(74.7)
Degree	MS	38(10.2)
	MD (doctor of medicine)	60(16.1)
	Dentistry	52(14)
	Medicine	77(20.7)
	Pharmacy	34(9.1)
College	Health	97(26.1)
	Nursing	72 (19.4)
	Paramedical	77(20.7)
	4-8 milions	120(32.7)
Income	9-13 millons	72(19.6)
	>14 milions	117(31.9)
Media literacy	Medium	321(87)
	High	48(13)

Other studies get different results on the level of media literacy. Sukmayadi contended that Indonesian internet users have low media literacy which could cause them to be very prone to fake news [18]. Juditha also asserted that media literacy was one of the most important approaches to combat the spread of fake news on social media [19].

Most students reported that they were not influenced by advertisements in the media and can detect the deception used in media. Our findings are similar to those of Barati et al. who observed that students have not used the media for entertainment but to strengthen their understanding of media messages [20].

The study investigated that students were weak in the dimension of media message analysis and critical thinking. This finding is in line with Ku Ky investigating the relationship between media consumption, media literacy, and critical thinking in adolescents who critically commented on a news report and performed well in understanding news as well as content and purpose, identified viewpoints, and distinguished fact from claims. However, their ability to evaluate evidence was weak

Table 2. Mean and standard deviation of media literacy score among students of Mazandaran University of Medical Sciences

Media Literacy	No.	Mean±SD
1- In choosing the media, I pay attention to the way of producing content in that media	372	3.81±0.972
2- I have the ability to recognize the content of media messages	371	3.61±0.809
3- I notice censors when using media	372	3.77±0.838
4- After using media content, I think about media planning to prepare that content	372	3.57±0.901
5- Some media are trying to tell me how to think	372	3.59±0.963
6- For many media, cultural and political goals are more important than informing me	372	3.70±0.963
7- I see in myself the ability to detect the deceptions of the media	372	3.54±1.005
8- It is easy for me to recognize the hidden goals in apparently neutral messages	372	3.48±0.939
9- Being aware of the policy of the media is effective in using them intelligently	372	3.59±0.911
10- I choose my favorite programs from different media	372	3.70±0.911
11- I choose media and programs based on my opinions and beliefs	372	3.59±0.963
12- I am not influenced by media advertising	372	3.48±0.994
13- The media is trying to influence me to maintain and expand their financial interests	372	3.66±0.965
14- The information available on the Internet has made the Internet dominate me	372	2.63±1.173
15- I have become dependent on specific content or content formats	372	2.47±1.095
16- I am aware of the negative effects of the media on myself	371	3.51±1.028
17- My awareness of the content of the media makes me use the media consciously	372	3.78±0.894
18- Lack of knowledge about the nature of the news makes me confused when facing all kinds of media	371	3.51±1.004
19- I need the training to analyze content from different media	372	3.56±1.017
20- The prevailing atmosphere of society plays a role in the analysis of media content	372	2.04±0.957

[21]. In their study, Sharifi et al. demonstrated that the level of students was unfavorable in terms of media criticism and production of media messages, which was in agreement with our study [22]. In their study, Arke and Primack showed a positive correlation between college students' media literacy scores and their scores on the California critical thinking skills test [5]. This dimension of media literacy known as critical thinking, focusing on social and political contexts, makes differences between media systems and economic requirements, ownership issues, and media control. Techniques used by media marketers can reach an acceptable level in students so that they can obtain adequate knowledge to understand the message or advertisement properly [5].

Ku et al. found that the interactive use of social media could contribute to critically think about information. They observed a positive association between people's exposure to ideologically diverse information [21]. These findings suggest that the prevailing atmosphere in society could contribute to how they analyze media content, and also the information available on the Internet caused the Internet to dominate them, and they followed the contents or specific content formats.

Many people use social media to share news content with friends, keep up to date with news and current affairs, comment on any content and ask questions, which can enhance media literacy skills including access, analysis, evaluation, and creation of media content [23]. Masterman also believed that if students are educated about the media and its content, they will not

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Table 3. Descriptive statistics of media literacy dimensions

Dimensions	Mean±SD	Min	Max	Range
Understanding the content of media message	14.76±2.02	4	19	4-20
Awareness of the hidden purposes of media messages	14.31±0.97	9	20	4-20
The conscious choice of media messages	14.35±2.0	7	20	4-20
Critical thinking in media messages	12.26±2.33	5	19	4-20
Media message analysis	12.90±2.11	8	18	4-20
Media literacy total	69.24±5.73	48	87	1-100

Table 4. The relationship between media literacy and demographic variables

Variables		Mean±SD	P	F
College	Dentistry	68.00±4.82	0.560	0.786
	Medicine	69.69±4.9		
	Pharmacy	68.55±5.53		
	Health	69.36±6.46		
	Nursing and midwifery	69.76±5.84		
	Paramedical	69.52±5.70		
Degree	Bachelor of Science	69.05±5.93	0.53	0.630
	Master science	70.02±5.45		
	PhD	69.63±4.91		
Father's education	Under diploma	67.33±7.23	0.007	0.007
	Diploma	69.64±5.27		
	Academic	69.79±5.18		
Age, y	>30	67.18±6.04	0.05	2.926
	25-30	70.27±6.14		
	<25	69.01±5.46		
GPA	<14	67.92±6.70	0.04	
	14-17	69.34±5.24		
	>18	70.46±6.24		

Abbreviations: SD, standard deviation; GPA, grade point average

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Table 5. Comparison post hoc test for variables and media literacy

Variables			Mean Difference	SD	P
Age	>30	25-30	-3.08	1.52	0.109
		<25	-1.82	1.46	0.428
	25-30	>30	3.08	1.52	0.109
		<25	1.25	0.66	0.143
	<25	>30	1.82	1.46	0.428
		25-30	-1.25	0.66	0.143
Father's education	Under diploma	Diploma	-2.29	0.8	0.01
		Academic	-2.45	0.84	0.01
	Diploma	Under diploma	2.29	0.8	0.01
		Academic	-0.15	0.66	0.96
	Academic	Under diploma	2.45	0.84	0.01
		Diploma	0.15	0.66	0.96
GPA	<14	14-17	-1.41	0.77	0.16
		>18	-2.53	1.02	0.03
	14-17	<14	1.41	0.77	0.16
		>18	-1.12	0.84	0.37
	>18	<14	2.53	1.02	0.03
		14-17	1.12	0.84	0.37

Abbreviations: SD, standard deviation; GPA, grade point average

only increase their ability to use the media intelligently for personal gain but also strengthen their values and beliefs about democracy and current affairs [24, 25]. Haji Heydari investigated the weakness of the student's critical thinking and its components including creativity, cognitive maturity, and mental engagement, and emphasized the need to teach this skill to strengthen media literacy [26].

The use of media and information can enhance skills, and the more accessibility to information, the more time people spend on social media [27]. Some studies investigated digital media literacy in students and they reported that the use of digital technology, such as the Internet, smartphones, and tablets could be considered an influential factor in the media literacy level [11, 28]. Based on a study conducted by the Indonesian Telematics Society (Mastel), social media including Facebook, Twitter, and Instagram are the most widely used channel

for spreading fake news [29]. For many media, cultural and political goals are more important than increasing the awareness of individuals and they attempt to influence users to maintain and expand their financial interests. Technology or media is only a tool that determines how we should act. In these circumstances, we need to understand to apply media literacy to an acceptable level to analyze the content of media messages [30].

Contextual conditions investigated in this study included social and economic status, individual characteristics, and family context. The results obtained from the studies have shown that students' media literacy varies based on the different internal and external variables [11]. This can be culturally, socially, and economically different for individuals due to the different living conditions in society and the level of their skills. The results of this study demonstrated that the level of media literacy in students with different aged groups (25-30,

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<25, and >30) was not significant, but the 25-30 years age group was higher than those in the 30-year-old group and under 25 years age group had a higher level of media literacy. The present study differs from previous studies in including the level of media literacy in adolescents. The results showed that adolescents had better performance in terms of media knowledge and critical thinking [31]. Li and Ranieri investigated the level of digital media literacy in Chinese students, and the results showed that age had a significant impact on the cognitive and tactical aspects of students, and increased age is associated with a higher level of media literacy [32]. Media literacy affects different variables like gender, job, education, access to smartphones, and social media. So, media literacy can be different in different age groups indicating that the level of media literacy of individuals can be different [11, 33].

In the present study, the level of media literacy in students with a GPA above 18 was higher than that of other students, and students whose fathers had an academic degree showed a higher level of media literacy. The Australian Council of Educational Research also reported that children whose parents had a bachelor's degree had a higher level of media literacy than those whose parents had lower levels of education. Also, another study found that the education level of parents is associated with children's use of the Internet at home [11]. A review that examined media literacy and its components in Iranian students demonstrated that there was a significant positive association between the education level of both parents, students, and media literacy so that people with a higher level of education were less affected by commercial advertisements, and as a result, their media literacy was higher [34].

But this does not mean that people with a higher level of education always have critical thinking at media messages and media message content perception. Studies have shown that even people with higher levels of education in the field of communication sciences and sociology are at risk of being influenced because they have a lower level of media literacy or do not have the necessary skills. Therefore, it is necessary to include short-term and continuous tainting programs of media literacy in schools and prepare pamphlets and educational materials for all people [33]. Also, it is recommended to hold review sessions of different media, and specialized conferences and meetings, prepare brochures and posters, and add the media literacy course to the curricula to improve media literacy among students.

5. Conclusion

The result showed that the rate of media literacy in students was moderate level, but students in media message analysis and critical thinking had low levels. Therefore, the results of this study can help develop many educational plans for media literacy by education specialists who work in formal and informal education. Given that media literacy has a special need, educational institutions, universities, and even schools are required to train the principles of media literacy.

Ethical Considerations

Compliance with ethical guidelines

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