The Extent to which Jordanian University Students Rely on Social Networking Sites and their Role in Awareness of Cancer

Dr. Rasmieh Al Shogran

Associate Professor at Jadara University

Email: Rasmieh20@yahoo.com

Email: alshogran@jadara.edu.jo

Abstract

This study aims to classify the degree to which Jordanian university students rely on social networking sites and their role in cancer awareness. The research population included all public and private university students in Jordan. A questionnaire was devised and administered to the study's sample of 500 students as part of the descriptive-analytical strategy. Utilizing SPSS software, the researcher verified the study's hypotheses and accomplished its objectives. The results demonstrated that social media campaigns (type of platforms, preferred message design/types, and preferred message source/sender) contributed effectively to cancer awareness. Due to its impact on society and cancer patients, the study recommended increasing social media interest in the psychological aspect of cancer patients and showcasing their struggle with the disease and how they overcame it.

Keywords: Jordanian university students, social networking sites, awareness of cancer, social media information

1. Introduction

Diseases are one of the problems that endanger human societies, but the most significant is the life-threatening ones, and cancer tops this list. Recent studies have demonstrated the spread of this disease in developing nations and predicted an increase in its incidence, predicting that it will become one of the most significant health concerns in these regions (Memish et al., 2019). Cancer causes numerous and diverse physical disorders (Galasso et al., 2019), including various infections, hair with stress and nausea, loss of appetite, diarrhea, hair loss, loss of fertility and sexual ability, disorders of the central nervous system, weight fluctuations, and psychological symptoms including anxiety, depression, and insomnia. In addition,

cancer patients experience burdensome social effects such as loss of income and social isolation and psychological symptoms such as feelings of disorder, anxiety, fear, brokenness, and depression. Indeed, there is no doubt that cancer is an incurable and dangerous disease that is difficult to cure, as cancer can cause adverse physical changes in the patient. The ability to socialize with others, the ability to carry out the work done by the patient, and other social effects or accompaniments of cancer, whether at the level of family, work, relationships with others with neighbors and relatives, or change in the social and economic habits of the family, as well as problems that arise in the family as a result of the illness of one of its members, especially the mother, father, husband, or wife (Rather & Bhagat, 2020).

Cancer has also become a concern for human development programs, accounting for 7.6 million deaths (approximately 13 percent of all deaths) in 2008, and killing more than 3.4 million people annually worldwide, with slightly more than half of these deaths occurring in developing countries due to rising life expectancy, continuous improvement in combating major health problems, and increased smoking consumption (Murad et al., 2022). Developing it led to a decline in the disease's incidence. 70% of all fatalities occur in low- and middle-income countries and 30% of cancer deaths are attributable to five behavioral and dietary risk factors: high body mass, inadequate fruit and vegetable consumption, lack of physical activity, smoking, and alcohol use (Turner et al., 2020).

In 2022, the National Cancer Registry in Jordan recorded 8,400 new cases of cancer, including 5,556 cases of Jordanians, bringing the proportion of new infections among Jordanians to 66.1% of the total number of cases. In addition, cancer incidence was higher among women than men, as 52% of women were diagnosed with cancer compared to 48% of men. Nonetheless, this disease remains the second leading cause of mortality, following cardiovascular diseases (Ozturk et al., 2022). According to the National Cancer Registry in Jordan, the number of detected cases of childhood cancers younger than the age of 15 years was 245 cases, or 4.4% of total cancer, with 134 cases among males, 111 cases among females, and 42% of the cases involving children under the age of five. The registry also revealed that the most common cancers among children are leukemia (24.9%), brain and nerve cancer (20.4%), lymphoma (17.1%), and bone and kidney cancer.

According to the National Cancer Registry, breast, colorectal, thyroid, uterine, and lymphocytic cancers were the most prevalent cancers among women. In contrast, colorectal, lung, bladder, prostate, and lymphoma were the most prevalent cancers among men (Caponio et al., 2022). Numerous studies have begun to examine the importance of social media in reaching larger audiences to promote public health knowledge and patient advocacy (Kumar et al., 2022). Twitter, Facebook, and Instagram are prevalent online platforms for communicating about anything in the present day. As the majority of social media content is accessible to the general public and may serve as a novel source of health-related information, many healthcare agencies and public health organizations (i.e., private companies and local, national, and international organizations) use social media as a significant online platform for health education and promotion (Chen et al., 2022). This study aims to classify the degree to which Jordanian university students rely on social networking sites and their role in cancer awareness.

2. Literature Review

The research is based on the theory of "Dependency System Theory," which provides an appropriate theoretical framework for developing hypotheses and interpreting the results in a manner that helps to achieve the desired goals, which are to attempt to understand the interdependence between students and social networks in their news and information-gathering activities. Schillinger, Chittamuru, and Ramírez (2020) study revealed that social media are crucial in promoting health awareness. Indeed, enhancing the public's health is essential; therefore, they should obtain their health information from more reliable sources. In the modern era, using social media as a health information-seeking tool is required to disseminate information to a large community and reap its benefits. Moreover, Wang et al. (2019a) reported that disseminating information on social media is the most dependable method for locating information that can be used to treat others fairly. Sharing information with a large community would be challenging without social media platforms. People with a sophisticated level of health attitude awareness can benefit from the social media information available.

In the meantime, Habes et al. (2020) reported that digital media is an effective instrument for sharing health information when necessary. This information can be utilized relatively to provide health information to the public. People can benefit from health knowledge and information if motivated to acquire it properly. The booming sharing of health information within a community is possible with social media, a digital instrument for contemporary work styles (Chen & Wang, 2021; Kurtenbach & Strong, 2022). Similarly, the modern community is equipped to share health-related social media information to educate individuals about their health. In this way, a sense of health improvement is fostered in individuals likely to obtain improved health facilities.

In addition, Gurrieri and Drenten (2019) concluded that health information communicated online could effectively improve health. It is feasible for the public to have a higher standard of health and access to better health facilities if they have the proper health opportunities. When the public is motivated to take health seriously, their behavior towards health improvement can be prompted. Thus, Chen et al. (2020) emphasized that the government should use social media to communicate health sector information to the public. The reliability of the information shared on social media assists the public in modifying their behavior. The treatment plans for various diseases also depend on the information the health sector shares with the public.

Meanwhile, Shawky et al. (2019) argued that sharing health information can effectively increase community health awareness. However, social media can be a modern instrument for communicating vital health information for significant health information sharing. People could confidently share health information if they had access to dependable health opportunities. Al-Dmour et al. (2020) reported that community health information sharing is a goal of public health programs. The government is required to use modern platforms such as social media as a means of sharing information to enhance health standards and health behavior. The information disseminated on digital platforms such as Instagram can effectively promote a healthy attitude.

Wang et al. (2019b) also noted that when individuals are motivated to improve their health, sharing health information can become a better information source. In this way, the medical treatment plans and diagnosis methodologies shared on social media can encourage the public to adopt healthier behaviors. Access to improved

health standards and their way of obtaining health information can lead to better health facilities (Banerjee & Meena, 2021). Social media has access to a large population, and the information disseminated on social media can attract people to a higher level of knowledge. Health information and successful opportunities for health behavior can enhance health standards. When individuals are expected to improve their health behavior, the dependability of their health attitudes can become effective.

Abbas et al. (2021) emphasized the function of social media in disseminating health information. People have access to social media and embrace the information shared on it. The impact of social media on public thought cannot be ignored. Thus, the information posted on social media platforms can be utilized to improve work performance. However, Izogo and Mpinganjira (2020) reported that using social media to disseminate information about the public sector is crucial due to its reach. The selection of target populations for sharing health information is also possible, facilitating the dissemination of information via social media. The ability to communicate health information via social media is a modern means of disseminating information to individuals.

Hypothesis 1: *The social media campaigns (the type of platform) effectively partook in cancer awareness.*

Hypothesis 2: *The social media campaigns (preferred message design/types) effectively partook in cancer awareness.*

Hypothesis 3: *The social media campaigns (preferred message source/sender) effectively partook in cancer awareness.*

3. Methodology

This study seeks to determine how much university students in Jordan rely on social networking sites for cancer awareness. Using a descriptive cross-sectional design, a situation was clarified by observing, describing, and documenting its characteristics at a single point in time. The principal instrument of the current study was a questionnaire, which was developed based on previous research. It consisted of three sections: the first for demographics and general information, the second for the extent to which Jordanian university students rely on social networking sites for cancer awareness, and the third for conclusions and recommendations. The third section measures the independent variables

(platforms, preferred message design/types, and preferred message source) and dependent variables (message source, preferred message design/types, and preferred message platform). According to Naser et al. (2020), the target population of this research will consist of all students at public and private universities in Jordan (the total number of students is 349,426). Non-probability-purposeful sampling will be used to recruit eligible candidates. Accordingly, 500 subjects will constitute the required sample size.

3.1 Respondents' Demographic Profile

Descriptive statistical tests were conducted on the collected data, including frequency, to demonstrate the participants' demographics and general information. As shown in Table 1, 57.2% of the respondents were females, and 68% attended a college of the humanities. In addition, 51.6% of respondents pursue an undergraduate bachelor's degree. In addition, 41.2% of them spend more than 5 hours per day on social media.

Table 1. Sample profile (N = 500)

Category	Category	Frequency	Percentage %
	Male	214	42.8
Gender	Female	286	57.2
	Total	500	100%
	Humanities	340	68.0
Collage	Scientific	160	32.0
	Total	500	100%
	Diploma	142	28.4
	BSc	258	51.6
Educational stage	Higher education	100	20.0
	Total	500	100%
	Less than 3 hours	94	18.8
The duration of daily social media	3- 5 hours	200	40.0
usage	More than 5 hours	206	41.2
	Total	500	100%

4. Results and Data Analysis

Content Validity determined the validity of the study instrument: the researcher presented the study tool in its preliminary form to arbitrators with expertise and competence in Jordanian universities to determine their opinions and

suggestions regarding the relevance of the study tool's paragraphs, the safety of its linguistic formulation, and its suitability for the purpose for which it was designed to measure. The arbitrators have presented numerous observations incorporated into the tool's ultimate form. The researcher approved the 80.0% agreement between arbitrators to retain or eliminate the paragraph. In addition, the reliability of the study scale was confirmed by applying the Cronbach-alpha reliability coefficient to the study sample; the results are presented in Table 2. The questionnaire is reliable and valid; the minimum acceptable value of Cronbach's Alpha, 0.70, was exceeded (Tavakol & Dennick, 2011).

Table 2. The Cronbach's alpha coefficients of study variables.

Level	Number of Items	Cronbach's Alpha
Social Media Platforms	5	0.892
Type of Message design	5	0.898
Source of the Message/sender	5	0.947
Awareness of cancer	5	0.817

4.1 Descriptive Analysis

This section intends to collect information about most social media platforms and review cancer-related information. The results of the frequencies and percentages are presented in Table 3. According to Table 3, most study participants believe that Facebook has the most cancer-related social media content, with a rate of 65.2%. In comparison, 64.2% of sample participants believe Twitter is the most. Instagram is followed by YouTube, TikTok, and Telegram, with respective usage rates of 61.4%, 61.2%, 53.2%, and 30.2%.

Table 3. Most Social Media Platforms review information related to cancer

No.	Social Media Platforms	Frequency	Percentage %
1	Facebook	326	65.2%
2	Twitter	321	64.2%
3	YouTube	306	61.2%
4	Instagram	307	61.4%
5	TikTok	266	53.2%
6	Telegram	151	30.2%
7	Other	96	19.2%

This section aims to collect information about the nature of cancer-related content disseminated on social media platforms. The results of the frequencies and percentages are shown in Table 4. Table 4 reveals that, according to the majority of study participant responses, the causes of cancer are the most frequently discussed topic regarding cancer on social media platforms, with a rate of 50.2%. Methods of diagnosing cancer incidence, cancer recovery experiences, and cancer prevention methods are followed with respective rates of 45.2%, 33.3%, and 33%.

Table 4. The nature of the published information relating to cancer

No.	Nature of the Published Information Relating to Cancer	Frequency	Percent %
1	Causes of cancer	251	50.2%
2	Symptoms of cancer	125	25%
3	Ways to prevent cancer	165	33%
4	Methods of Diagnosing the Incidence of Cancer	226	45.2%
5	Methods of treating cancer	131	26.2%
6	Cancer recovery experiences	166	33.2%

This section aims to collect information regarding the most prevalent form of cancer on social media. The results of the frequencies and percentages are presented in Table 5. Table 5 indicates that 82.4% of the responses from study participants indicate that breast cancer is the most prevalent variety of cancer on social media. The incidences of liver, blood, and cervical cancer are 79.6%, 75.6%, and 62.4%, respectively.

Table 5. The most common type of cancer on social media

No.	Nature of the Published Information Relating to Cancer	Frequency	Percent %
1	Breast Cancer	412	82.4%
2	Blood Cancer	378	75.6%
3	Cervical Cancer	312	62.4%
4	Bone Cancer	298	59.6%
5	Stomach Cancer	224	44.8%
6	Liver Cancer	398	79.6%
7	Lung Cancer	242	48.4%
8	Other	178	35.6%

Using descriptive statistics, data trends are introduced briefly. Included will be the mean and standard deviation (STD) central tendency measures for each variable.

Table 6 answers the research questions and demonstrates that social media campaigns can effectively increase cancer awareness (preferred platform, preferred message design/types, and preferred message source/sender). Facebook should be acknowledged as the most ubiquitous platform. It also demonstrates that a conversational appeal is the most important type of message positively associated with cancer awareness, followed by anecdotal appeal, descriptive scientific appeal, martyrdom appeal, and cartoon panic appeal, all of which were found to be of moderate importance. Table 6 demonstrates that academicians and experts are the most important source of information promoting cancer awareness, followed by professionals and reporters, senior state health officials, and physicians, rated as having a moderate level of importance. The same table demonstrates that cancer awareness was accorded moderate relevance.

Table 6. Descriptive Statistics of the Study Variables

Variables		Mean	STD	Rank
Independent variables				
	Facebook	3.26	1.30	1
	Twitter	3.16	1.21	2
Social Media Platforms	YouTube	2.78	1.15	3
	Instagram	2.65	1.11	5
	Other	2.74	1.06	4
	Conversational appeal	3.01	1.25	1
	Scientific descriptive	2.76	1.16	3
Type of message design/appeal	Anecdotal appeal	2.97	1.07	2
	Martyrdom appeal	2.74	1.32	4
	Cartoons panic appeal	2.68	1.16	5
	Physicians	2.71	1.27	5
	Academics and experts	3.08	1.42	1
Source of the Message	Media health	2.81	1.15	4
	Professionals/reporters	2.92	1.12	2
	Senior State health officials	2.84	1.14	3
Dependent variables				
Cancer Awareness		2.89	0.83	-

Using multiple regression analysis, the hypotheses of the study were tested. Additionally, the absence of a multi-colinearity issue and the normality of the independent variables were evaluated. Most variance inflation factor (VIF) values for hair and company should be less than 10, as low VIF values indicate a low correlation

between variables. The value of tolerance is the inverse of VIF. As a result, tolerance and variance inflation (VIF) were investigated; the results are presented in Table 7. Table 7 revealed that the VIF values were less than the critical value of 10, which is typically observed in most studies, indicating no multi-linearity issue among the independent variables.

Table 7. Multicollinearity and Normality Test

Independent Variable	VIF	Tolerance
Social Media Platforms	.490	2.043
Type of Message design	.350	2.853
Source of the Message/sender	.328	3.047

The results in Table 8 show that the determination coefficient (R^2) value for social media platforms amounted to 0.497, indicating that the model explains about 49.7% of the variance in cancer awareness. The results indicated that there was a statistically significant effect at the level of significance ($\alpha \leq 0.05$) for each of Facebook, Twitter, YouTube, Instagram, and others in raising awareness of cancer, where the value of (T) was 6.444, 4.401, 5.592, 3.463 and 5.011, which is a statistical function according to the value of (P-value) which is less than 0.05. Based on the B values, Facebook has the highest impact, equal to 0.181, while Instagram had the most negligible impact, with an impact value of 0.096.

Table 8. Results of test first hypothesis

Social Media Platforms	R	R^2	F	Sig (f)	B	T	Sig (t)
Constant					.764	7.540	.000
Facebook					.181	6.444	.000
Twitter	.705	.497	97.702	.000	.133	4.401	.000
YouTube					.162	5.592	.000
Instagram					.096	3.463	.001
Other					.150	5.011	.000

The results in Table 9 show that the determination coefficient (R^2) value for the Type of Message design amounted to 0.630, indicating that the model explains about 63% of the variance in cancer awareness. The results indicated that there was a statistically significant effect at the level of significance ($\alpha \leq 0.05$) for each Conversational appeal, Scientific descriptive, Anecdotal appeal, Martyrdom appeal,

and Cartoons panic appeal in raising awareness of cancer, where the value of (T) was 6.530, 6.645, 4.535, 4.968 and 6.745, which is a statistical function according to the value of (P-value) which is less than 0.05. Based on the B values, Cartoon panic appeal has the highest impact, equal to 0.201, while anecdotal appeal had the most negligible impact, with an impact value of 0.120.

Table 9. Results of test second hypothesis

Type of Message design	R	R²	F	Sig (f)	B	T	Sig (t)
Constant					.816	9.995	.000
Conversational appeal					.124	6.530	.000
Scientific descriptive	.794	.630	168.257	.000	.167	6.645	.000
Anecdotal appeal					.120	4.535	.000
Martyrdom appeal					.127	4.968	.000
Cartoons panic appeal					.201	6.745	.000

The multiple linear regression/ enter method was adopted to test the third hypothesis. Table 10 shows the corresponding results. The results in Table 10 show that the value of the determination coefficient (R^2) for the source of the Message/sender amounted to 0.957, indicating that the model explains about 95.7% of the variance in cancer awareness. The results indicated that there was a statistically significant effect at the level of significance ($\alpha \leq 0.05$) for each (physicians, academics and experts, media health, professionals/reporters, and senior state health officials) in raising awareness of cancer, where the value of (T) was 30.449, 35.291, 26.862, 29.337 and 3.728, which is a statistical function according to the value of (P-value) which is less than 0.05. Based on the B values, professionals/reporters peal has the highest impact, equal to 0.248, while Senior State health officials had the most negligible impact, with an impact value of 0.031.

Table 10. Results of test third hypothesis

Source of the Message/sender	R	R²	F	Sig (f)	B	T	Sig (t)
Constant					.230	8.366	.000
Physicians					.222	30.449	.000
Academics and experts	.978	.957	2194.061	.000	.206	35.291	.000
Media health					.218	26.862	.000
Professionals/reporters					.248	29.337	.000
Senior State health officials					.031	3.728	.000

5. Discussion

This study investigated the extent to which university students in Jordan rely on social networking sites for cancer awareness. A conceptual framework was constructed based on a review of the communication literature and the theory of interdependence to accomplish the study's objectives and conduct the research systematically. Utilizing applications to disseminate information about cancer, its causes and symptoms, and ways to prevent and treat it are among the advantages of utilizing social media platforms. The results indicated that Jordanian university students use social media extensively due to its ubiquitous accessibility. Facebook is also considered one of the most popular sites due to its popularity and ease of use by anyone, as it does not require any special skills or abilities, demonstrating the need for the appropriate authorities to employ it in the required manner to raise cancer awareness.

The results also demonstrated that social media frequently disseminate information about the causes of cancer as a precautionary measure intended to warn individuals about its causes and prevention. In addition, the analysis revealed that breast cancer is one of the most prevalent types on social media platforms. This is due to the high prevalence of this type among women and the significance of early examination in preventing the spread of the disease, as the cure rate reaches 95% with early detection. The results indicated that the cartoon distress call is the most effective at raising cancer awareness because it is more relatable to human nature and draws attention to its subject matter. The results also indicated that specialists are the most influential group in raising cancer awareness because they are the most knowledgeable and capable of defining cancer, its causes, and preventative measures.

According to Ortiz, Smith, and Coyne-Beasley (2019), social media platform is the most sophisticated method of disseminating health information to the public. People are influenced by the health information disseminated on social media platforms. People's access to health information can potentially enhance their health behavior and performance. The standard and dependability of health information on social media can be used to improve health facilities. Li and Liu (2020) emphasized that using social media to disseminate health information is essential for influencing the behavior of individuals to enhance their health status. Access to health information

by the public can be a factor in improving health facilities. People who lack access to clinics require spreading information through social media.

In addition, Parwani et al. (2019) reported that contemporary health institutes are striving to improve health behavior. The public's access to accurate health information is an opportunity to acquire them more efficiently. Sharing information about healthcare facilities contributes to the development of the health sector. Access to health information and people's behavior in pursuit of higher health standards is the method to move them toward health improvement. There is a great deal of health-related misinformation on social media, and this information must be enhanced over time (Suarez-Lledo & Alvarez-Galvez, 2021). The viability of communicating health behavior and standards to individuals is contingent upon the accuracy of health information and standards.

Oh, Lee, and Han (2021) emphasized that using social media to share health information can improve health facilities. Access to health improvement is possible when the appropriate health information is disseminated on social media platforms. When information is shared on social media platforms, the public's perception of the reliability of medical care and its quality can be enhanced. Moreover, Katz and Nandi (2021) concluded that social media is an appropriate tool for informing marginalized communities and individuals living in remote areas about health treatment options. The success of health information and its accessibility to the public is contingent upon sharing pertinent information. In the meantime, the public pursuing better health facilities relies on the existing health facilities. Access to health information and standards is required to enhance health more effectively.

In addition, Merchant and Lurie (2020) noted that social media platforms are commonly used to disseminate health information. The public has access to health information when provided with the necessary information. The improvement of health standards can facilitate the enhancement of health information. In addition, Shelton et al. (2019) reported that social media is a suitable platform for disseminating health information to the general public. Access to health information is feasible due to the availability of trustworthy health resources. Numerous modern institutions disseminate health-related information on social media to influence the public's advantage and

appropriate approach to the health standard. Thus, social media is a modern and reliable instrument for sharing and communicating health information with others to spread it.

6. Conclusions and Implications

As a developing nation, Jordan, like other developing nations, faces numerous health issues, most notably cancer. According to data presented at the Sixth International Conference of the Jordanian Hematology Society, there were 5,556 cancer patients in Jordan in 2018. Cancer requires awareness of its severity and the significance of fighting it, and the media in this field has a significant impact by highlighting it and drawing attention to its severity and preventative measures through a scientific discourse that is balanced and accessible. The topic's novelty is at the research level, the absence of studies on the subject, the significance of newspapers in presenting specific topics, and their influence on consumers and society.

Due to its impact on society and cancer patients, the study recommended increasing social media interest in the psychological aspect of cancer patients and showing stories of their struggle with the disease and overcoming it. Cancer treatment centers and the concerned authorities need to expand on cancer topics, highlighting some materials related to cancer topics on the funded pages due to their significance to the public, the prevalence of the disease in Jordan, and the high percentage of people infected with it each year, according to official statistics. Students in the media should be required to take a course that emphasizes the significance of social networks and the statement of disease awareness, as well as the ensuing standards and ethics. Conduct low-cost training courses for university students on using social networks and leveraging them for community service.

7. Future Directions

This study contributed significant findings to the existing body of knowledge. To determine the extent to which social networks influence the behavior and practices of students, however, it is recommended that researchers examine analogous communities, such as high school students, to determine the impact of social networks on student behavior and practices. In addition, the researchers hope to conduct sequential studies

examining the function of each communication network in cancer awareness. Similarly, the work to secure Internet access for all categories of Arab peoples, recognizing the right to information and communication as one of the fundamental rights to knowledge, would be an essential contribution to the literature of future studies.

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