

THE HEALTH RELATED USES OF SOCIAL MEDIA AMONG USERS IN SAUDI ARABIA

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ABSTRACT

Background: Social media refer to groups of social networking sites (SNS) that are used by many people to communicate and to share different information. Health-related issues became very popular subjects of discussion on these networks.

Aims & Objectives: To describe the health-related uses of SNS among users in Saudi Arabia and to identify the most trusted sources of health information for them.

Materials and Methods: A cross-sectional survey was conducted on the SNS, Twitter, among users in Saudi Arabia.

Results: The study included 816 users, almost two-third of them were women. The majority of users (83.1%) were ≤ 34 years of age. More than 60% of users reported following health-related accounts and 81.4% of them benefited from health information seen on SNS. Almost one-third of users discovered wrong health information. The majority of users (86.4%) trust health information only if from trusted sources and 72.1% of them check the information from other sources. Health-care providers were the most trusted sources of health information. Female gender and those with higher level of education were associated with the health-related use of SNS.

Conclusion: The users of SNS in Saudi Arabia are using it for health, and the majority of them supported the use of SNS for health-related activities. Any health intervention should consider the age of users as the majority of them are young.

Key Words: Social Media; Social Networking Sites; Health Related Issues; Saudi Arabia

Introduction

The social media refer to groups of social networking sites (SNS) (e.g., Twitter, Facebook, and Myspace) that are used by millions of people all over the world to communicate and to share different information about many topics.^[1,2] Owing to the increasing popularity of these websites and ability to spread the information quickly, these have been used by many organizations for marketing and education purposes.^[3-6]

Health issues became very popular subjects of discussion on these networks.^[7-12] Some of the health organizations and physicians started using these to improve awareness about major public health problems, to advocate for a healthier lifestyle, and to educate patients^[13-20]; however, the role of SNS in health education and advocacy is still limited and does not meet the health needs of the community.^[7]

One of the most popular free SNS is Twitter, which enable users to send a short 140-character message (tweets) to people who follow them. The followers can resend the message to other people; this feature helps to spread the information in a very short time.^[19,21]

During the pandemic of H1N1, in 2009, the Center for Disease Control and Prevention (CDC) has used Twitter to increase awareness among users by creating an

emergency information account that attracted more than 1.2 million followers, and another account for swine flu with more than 46,000 followers.^[7,22] This CDC experience highlighted social media as a powerful tool for health promotion.^[15]

In the Gulf region, SNS started to penetrate into the population, especially among the young generation. They use these to disseminate local news and events, to communicate with friends and families and to share their opinion with others.^[23]

The number of SNS users in Saudi Arabia is increasing every day; many of them use these as a source of general information.^[23] Some health-care providers in Saudi Arabia started to use SNS to communicate with users, for example, the Ministry of Health has a Twitter account that posts health information and updates. This account attracted more than 450,000 followers.

Thus, SNS have the potential to be used as a platform to educate users about their health, especially when young people are concerned. An assessment of the current users who use SNS for health and their willingness to receive health information and intervention is of great interest and importance.

This study aimed to describe the health-related use of SNS among users in Saudi Arabia.

Materials and Methods

A cross-sectional study design was adopted for this study. It was carried out between 15 March and 15 April 2013 and included current users of Twitter in Saudi Arabia.

On the basis of PwC Health Research Institute data showing that 34% people in United States used social media for health-related purposes, a sample size of 345 was estimated, with a desired precision of $\pm 5\%$, alpha of 0.05 (confidence interval of 95%), and power of 0.8. Using OpenEpi® online calculator, the sample size was calculated as follows:

$$n = [DEFF * Np(1 - p)] / [(d^2 / Z^2_{1-\alpha/2} * (N - 1) + p * (1 - p))]$$

Participants of the study were selected using a volunteer sampling method. Variables included in the questionnaire were demographic data, users' attitude of using SNS, health pursuits characteristics, trustworthy sources, and health-related uses of social media.

An Arabic questionnaire was designed based on a review of the literature to meet the objectives of the study. The questionnaire was validated by two experts in the field. It comprised three main sections. Section one was about demographic data, including age, gender, nationality, country of residence, and the education level. Section two was about the users' attitude of using SNS. Users were asked about the reasons of using SNS, time spent daily using SNS, and the preferred sources of health information. Section three was about health-related SNS uses. Users were asked whether or not they follow health accounts, have they wrote any health information, and did they get benefit from any health information available on SNS. Users were also asked about trusting health information available on SNS and checking it from other sources. Finally, users were asked about sources that make them trust more health information available on SNS and their opinion regarding the purpose of health-related use of SNS.

Most of the items of the questionnaire allow respondents to choose one right answer only, except three items (reasons of using SNS, preferred sources of health information, and types of health accounts followed), where the respondent can choose more than one answer if applied. The last two items (questions about sources affecting users' trust and their opinion regarding the health-related use of SNS) were in a format of five possible answers (accepting only one right answer),

according to the five-point Likert scale: 1, strongly trust; 2, trust; 3, neutral; 4, don't trust; and 5, strongly don't trust or 1, agree; 2, don't agree; 3, neutral; 4, don't agree; and 5, strongly don't agree.

The questionnaire was posted online using the SurveyMonkey website (a service that hosts online surveys) and short Web link was created for it. A pilot study was conducted on 23 SNS users to assess their understanding of the items of the questionnaire. Any problems and difficulties in answering the questions were identified and solved. The responses were excluded from the final analysis.

A short message asking users to participate in the study with attached Web link to the online questionnaire was advertised and distributed by one of the most popular advertising Twitter accounts among users in Saudi Arabia, which has more than 1.5 million followers. The message was sent and circulated among users at different times and on different days. When the users clicked on the link, they were directed to the webpage of the questionnaire. After they had finished answering the questions, all answers were saved automatically in the questionnaire webpage. Users were asked about the country of residence, and the online questionnaire was designed to filter out any responses from outside Saudi Arabia. The link to the questionnaire was kept circulating till the desired sample size was achieved and no further responses obtained.

Before conducting the study, the research protocol was approved by the institutional review board.

Data Entry and Analysis

All data transferred electronically from the questionnaire webpage and entered in SPSS software version 20, which was used for analysis. Categorical data represented as frequencies and percentage. Correlation and association between categorical variables were tested by using Chi square (χ^2). *p*-Values less than 0.05 were considered statistically significant.

Results

The study included a total of 816 SNS users. Table 1 presents their baseline characteristics. Almost two-thirds (62.3%) of the respondents were women. The majority (83.1%) were ≤ 34 years of age. More than half of the respondents (58.7%) reported spending 3 h or more daily using SNS.

Table-1: Baseline characteristics of participants (n=816)

Baseline Characteristics		N	%
Gender	Male	300	36.8
	Female	516	63.2
Age (yrs)	Less than 25	377	46.2
	25 -34	301	36.9
Nationality	More than 34	138	16.9
	Saudi	768	94.1
Level of education	Non Saudi	48	5.9
	High school or less	252	30.9
Time spent on SNS	More than high school	564	69.1
	< 1 hour daily	98	12
	1-2 hours daily	239	29.3
	3 -4 hours daily	220	27
	> 4 hours daily	259	31.7

Table-2: Users' reasons for using SNS* (n = 816)

Reasons	N	%
Communication with family and friends	379	46.4
Search for an information	445	54.5
Sharing ideas and opinions	534	65.4
Meeting new people	166	20.3
Getting the latest news	548	67.2
For fun	280	34.3
Others	7	0.9

* Multiple response

Table-3: Preferred users' sources of health information* (n = 816)

Source	N	%
Traditional media	241	29.5
Internet websites	389	47.7
Family and friends	137	16.8
Physicians and health practitioners	437	53.6
Social networking sites	352	43.1
Others	14	1.7

* Multiple response

Table-4: Type of health accounts followed by users* (n = 464)

Account	N	%
Public health and health education	345	69.8
Local hospital and medical institutes	54	10.9
Physicians and health practitioners	307	62.1
International health organization	84	17
Others	2	0.4

* Multiple response

Table-5: Health pursuit's characteristics

Characteristics ^a	Yes		No	
	N	%	N	%
Follow health accounts	464	60.5	216	26.5
Wrote health information	328	40.2	318	39
Benefited from health information	664	81.4	59	7.2
Retweet (resend) health information	506	62	182	22.3
Discovered wrong health information	298	36.5	201	24.6
Harmful wrong information ^b	38	12.8	214	71.8
Trust from trusted source only	705	86.4	111	13.6
Check from other sources	588	72.1	288	27.9
Looked for diagnosis in SNS	352	43.1	351	43
Diagnosed and treated ^c	165	46.9	187	53.1

^a "not sure" responses represent the remaining percent from the total percentage of all responses for each item.

^b Percentage from those who discovered wrong information.

^c Percentage from those who reported looking in SNS for diagnosis.

Getting the latest news and sharing ideas and opinions were reported by 67.2% and 65.4% of users, respectively, as the most important reasons of using SNS, as shown in Table 2. Searching for an information

(54.5%) and communication with family and friends (46.4%) were other important reasons reported by users. Other reasons of using SNS were having fun and meeting new people, which were reported by 34.3% and 20.3% of users, respectively.

Table-6: Health information sources and users' trust (n = 816)

Source of Health Information	Strongly Trust N (%)	Trust N (%)	Neutral N (%)	Don't Trust N (%)	Strongly Don't Trust N (%)
Based on others experience	42 (5.1)	288 (35.3)	319 (39.1)	98 (12)	69 (8.5)
Someone you know	112 (13.7)	377 (46.2)	239 (29.3)	54 (6.6)	34 (4.2)
Physicians accounts	259 (31.7)	426 (52.2)	93 (11.4)	24 (2.9)	14 (1.7)
General health accounts	74 (9.1)	378 (46.3)	280 (34.3)	64 (7.8)	20 (2.5)
Media and news organization	89 (10.9)	282 (34.6)	299 (36.6)	102 (12.5)	44 (5.4)
Local medical institutes	281 (34.4)	366 (44.9)	108 (13.2)	36 (4.4)	25 (3.1)
International health organization	381 (46.7)	316 (38.7)	85 (10.4)	22 (2.7)	12 (1.5)

Table-7: Users' opinion regarding the purpose of using SNS for health

Purpose of Use	Strongly Agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly Disagree N (%)
Communication with specialist for diagnosis	156 (19.1)	326 (40)	160 (19.6)	126 (15.4)	48 (5.9)
To search for treatment	137 (16.8)	310 (38)	191 (23.4)	130 (15.9)	48 (5.9)
During emergency	306 (37.5)	344 (42.2)	100 (12.3)	43 (5.3)	23 (2.8)
For health education	469 (57.7)	293 (35.9)	37 (4.5)	7 (0.9)	10 (1.2)
To share personal health experience	245 (30)	346 (42.2)	153 (18.8)	51 (6.3)	21 (2.6)
To raise awareness of harmful habits	516 (63.2)	247 (30.3)	31 (3.8)	7 (0.9)	15 (1.8)

Table 3 shows that physicians and health practitioners were the most reported (53.6%) preferred sources of health information among users. Internet websites and SNS were also reported by 47.7% and 43.1% of users, respectively, as preferred sources of health information. Traditional media (29.5%) and family and friends (16.8%) were other preferred sources reported by users. As shown in Table 4, public health accounts (69.8%) and personal accounts of physicians and health practitioners (62.1%) were the most reported type of health accounts followed by users.

Table 5 shows users' health pursuit characteristics. It shows that 60.5% of users were following health accounts. Over 81% of users have benefited from any health information they saw on SNS. Among users, 36.5% discovered wrong health information; of those, 12.8% reported a harm caused by this wrong information. More

than 86% of the users trust health information only if from trusted sources and 72.1% of them check the information from other sources. 43% of the users reported looking at SNS for a diagnosis for medical conditions they suffered from; of those, 46.9% have been diagnosed and advised for treatment.

Table 6 shows that 85.4% of users trusted a health information if the source was an international health organization account. Similarly, health information from personal physician accounts and local medical institute's accounts were trusted by 83.9% and 79.3% of users, respectively. Almost half of the users (49.9%) trusted a health information if the source was someone they know. General health accounts, media and news organization accounts were other sources that were trusted by 55.4% and 45.5% of users, respectively. Furthermore, 40.4% of users trusted a health information if it was based on the experience of others.

As shown in Table 7, users' opinion regarding the purpose of health-related use of SNS, the majority of users (93.6%) agreed to use SNS for health education and to disseminate useful health information. Similarly, 93.5% of users supported the use of SNS to raise awareness about harmful habits. SNS were agreed to be used for communication with people during an emergency and to share personal health experience by 79.7% and 72.2% of users, respectively. More than half of the users (54.6%) agreed to use SNS to search for treatment and 59.1% of them agreed to use SNS to communicate with medical specialists for diagnosis of their medical condition.

There was a significant association between the gender and whether or not the SNS users followed health accounts ($p < 0.001$). Female users were 1.8 times more likely than male users to follow health accounts. Moreover, female users were 1.6 times more likely than male users to appropriately trust health information ($p = 0.031$).

There was no significant association between age and whether or not the SNS users followed health accounts ($p = 0.725$). In addition, there was no significant association between age and whether or not the users trust health information appropriately ($p = 0.089$). Level of education was weakly associated with whether or not SNS users followed health accounts ($p = 0.012$). Users with level of education more than high school were 1.6 times more likely to follow health accounts than users with level of

education of high school or less. Furthermore, users with the level of education more than high school were 1.7 times more likely to appropriately trust health information than those with level of education of high school or less ($p = 0.01$).

There was no significant association between the time spent on SNS and whether or not the SNS users followed health accounts ($p = 0.254$).

The SNS users who followed health accounts were 9.7 times more likely to get benefited from health information than those who did not follow health accounts ($p < 0.001$, Pearson's $R = 0.323$).

The SNS users who followed health accounts were 6.2 times more likely to forward health information than those who did not follow health accounts ($p < 0.001$, Pearson's $R = 0.383$).

The SNS users who followed health accounts were 2.2 times more likely to write health information than those who did not follow health accounts ($p < 0.001$).

There was a significant association between trusting health information from trusted sources only and whether or not the users followed health accounts ($p < 0.001$). The SNS users who followed health accounts were 3.5 times more likely to trust health information from trusted sources only than those who did not follow health accounts.

The SNS users who followed health accounts were 1.9 times more likely to check health information from other sources than those who did not follow health accounts ($p < 0.001$).

The SNS users who followed health accounts were more likely to look on SNS for diagnosis of medical condition they suffered from than those who did not follow health accounts ($p < 0.001$).

The SNS users who followed health accounts were 2.5 times more likely been diagnosed and advised for treatment than those who did not follow health accounts ($p = 0.002$).

There was a significant association between trusting health information appropriately and whether or not SNS users check the information with another source ($p < 0.001$, Pearson's $R = 0.334$). The SNS users who trust

health information from trusted sources only were 6.8 times more likely to check health information from other sources than other users.

Discussion

Although few studies have been conducted to assess the health-related use of SNS among users, the majority of these studies had a positive conclusion about the users using these sites for health-related purposes.^[24-27] Similarly, this study indicates users of SNS in Saudi Arabia are using it for health-related activities.

The number of participants far exceeded the required sample size (236.5%) that was expected due to the nature of SNS. Because this improved the power of the study at no incurred cost, all subjects were recruited.

It is not surprising that the majority of the participants of this study were of young age as it reflected the fact that the majority of SNS users in general are young.^[23]

Previous studies^[24,26] found younger users were more likely than older users to use SNS for health and to trust a health information; however, this study did not find a significant association between the age of the users and whether or not they followed health accounts or trusting health information appropriately. This difference can be explained by the inability of this study to recruit older users sufficient enough to find significant results. However, this study found gender differences in term of health-related uses of SNS; women were more likely than men to use SNS for health-related purposes, which was similar to a finding of a survey^[24,27] among US users of SNS.

Our study found users with the level of education more than high school were more likely than others to use SNS for health, which is similar to what has been reported in the social life of health information report by the Pew Research Center,^[27] while it is different from the finding of the study by Thackeray et al.^[24] where no association was found between the level of education and the use of SNS for health.

More than half of the users (58.7%) spent 3 h or more daily in using SNS, which is considerably a long duration of time that should be used to deliver health education and interventions, especially these targeted young populations who are difficult to reach through other traditional channels.

In our study, 60.5% of users followed health-related accounts, whereas PwC Health Research Institute survey^[26], which was carried out in 2010 among US users, reported that only 30–40% of them were using the SNS for health. This difference in use can be explained by the growing popularity of SNS in the past 2 years all over the world, especially in our region,^[23] and many health-care providers started to use SNS as a channel to communicate with the users.

Only 40% of users reported posting health comments and information on SNS, giving the impression that users were more likely to consume health information than to actively participate, similar conclusion was found in another study.^[27]

The nature of SNS that allow users to write and share information with others and spread it in very short time raises the possibility of finding inaccurate health information. In our study, more than one-third of users discovered inaccurate health information; however, the study did not address how the users discovered this wrong information and what was its source. Thus, the need to study the content of health information on SNS is of great importance. However, the majority of the users reported a healthy attitude in which they trusted health information only if from trusted sources and many of them checked the information with other sources.

The SNS users in Saudi Arabia reported that health-care providers (physicians and medical institutes), whether local or international, were the most trusted sources of health information, similar finding was found in a survey done among US users.^[26] However, slightly more than 40% of users trusted health information if based on other's experience, considering the possible inaccurate information from other's experience, such attitude may result in unfavorable outcomes. It might be attributed to the deficiency of the official trusted health resources and highlight the need of more participation from health-care providers.

The users showed a positive attitude regarding the use of SNS for health. The majority of them supported to use SNS in health education, to disseminate useful health information, and to increase awareness about harmful habits. Such attitude indicates acceptance and willingness of users to receive health information through SNS. However users also supported using SNS to communicate with medical specialists for diagnosis of their medical conditions, an attitude that might lead to

negative outcomes considering the fact that proper diagnosis needs physician encounter, detailed history, clinical examination, and investigation.

Among limitations of this study, it used only one SNS, Twitter, as platform to recruit participants; users of other SNS were not included in which variation might exist. Other factors that found by other studies to affect the use of social media for health, such as general health status of the users and income, were not studied, and finally this study was mainly quantitative, the content of health information was not addressed.

Conclusion

In conclusion, the study shows that users of SNS in Saudi Arabia are using it for health; female gender and those with higher level of education were associated with the use of SNS for health-related activities. Although around one-third of users discovered wrong health information, the majority of users showed a positive attitude in which they trust health information only if from trusted sources. Health-care providers were found to be the most trusted sources of health information among users. The majority of users supported the use of SNS for health-related activities such as health education.

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