



**EVALUATION OF SOCIAL MEDIA AS A SOURCE OF HEALTH INFORMATION
AMONG MALE STUDENTS AT TAIF UNIVERSITY**

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ABSTRACT

Background: To improve young people's access to health information sources, new strategies that are attractive to them are beginning to emerge, and they make use of the power, creativity, and enthusiasm of this population.

Objectives: To evaluate and address factors associated with online health information-seeking behaviors among male students at Taif University to reduce health disparities. **Methods:** This research was carried at Taif University; Saudi Arabia included a representative sample of regular attending male students in the academic year 2015-2016. A self-administered validated questionnaire was used for data collection. It includes demographic data, source of health information, evaluation of the quality of health information, and difficulties in obtaining health information from the Internet.

Results: Out of 367 students targeted to be included in the study, 358 returned the completed questionnaire with a response rate of 97.5%. Their age ranged between 19 and 25 years with a mean of 20.8 and SD of 1.2 years. All were Saudis. Almost half of them (51.4%) were recruited from the college of Administration and Finance, and the remaining (48.6%) were recruited from the College of Pharmacy. Internet was the most reported source of health information (85.5%), followed by mass media (TV and Radio) (43%) and medical staff (41.3%). The least reported source was medical books (16%). Medical care staff ranked first (34.1%), followed by the Internet (30.1%) as the most trustful health information sources. Regarding reasons for searching medical information on Internet, saving time (74.7%), ease use (72.4%), updating information (42.4%) and lower cost (41.2%) were the commonest reported. General sites (google, yahoo) were the most frequent searched sites to get health information (70%), followed by specific medical sites (62.9%), Twitter (43.5%) and Instagram (23.5%).

Conclusion: Internet/social media are commonly used and trusted source of health information among male university students in Taif. Thus the accuracy of the data should be ascertained, and health care providers should explore ways of communicating online with a young population.

KEYWORDS: To improve young people's access to health information sources, a young population.

INTRODUCTION

Young people are usually seeking health information from multiple available sources, including physicians, families, schools, organized activities outside of school, the "street," and the Internet. As a result, they may struggle to decide which sources provide them with information that is understandable and useful, mainly related to potentially risky health behaviors such as smoking, sexual behavior, drug use, and physical inactivity.^[1]

They should have access to youth-friendly public services that address their psychological and reproductive health needs and well-being and provide professional, non-judgmental advice.^[2] Also, access to health information is an essential component of health promotion.^[3]

The Literatures show that the Internet serves as a major, if not primary, source of information for health-related issues for young people. It provides gateways and links to sources for information about effective preventive services and health care,^[5,6] and it can serve as a tool for an electronic support group.^[4] However, that adolescents find such information online does not ensure that they will practice healthy habits.^[8-10]

High-quality health information can be provided through websites, forums, blogs, and social networks, which have been some of the most popular channels for health promotion among young people in the past ten years.^[11,12]

A youth-care provider relationship is also significant in providing a better quality of care and having more accurate health information; this is especially important

in the management of chronic diseases, such as Diabetes, Hypertension, Coronary Heart Disease, and Congestive Heart Failure.^[13] When patients, in general, and young in specific are informed and involved in decision making, they are more adherent to medical recommendations and carry out more health-related behavior change (e.g., exercise, smoking cessation, and dietary modification).^[14] Such joint decision making requires patients to be completely informed of options and potential hazards of treatment,^[15] and to have confidence in their physician.

Preservation of professional boundaries online is essential to the integrity of the patient-physician relationship, because online "friendships" may create a dual relationship that may enforce medical care provided to the patient and introduce interactions beneficial to the relationship.^[16]

Youths have been active on social media to find health information, find support through discussion groups and forums, and chronicle their illness journeys.^[17] Naturally; they are also interested in using social media to facilitate communication between themselves and their health care providers. In a survey of patients of an outpatient family practice clinic, 56% wanted their providers to use social media for appointment setting and reminders, diagnostic test results reporting, health information sharing, prescription notifications, and answering general questions.^[18] For those young patients who do not use social media, many would start if they knew that they could connect with their health care providers there.^[18]

To improve young people's introduction to these resources, innovative approaches that are beautiful to the youth are starting to develop, and they make utilization of the power, creativity, and enthusiasm of youths. This is where learning technology, such as the Internet, is supposed to perform a significant role as a source of knowledge.^[19] Bearing in mind that accessible, relevant, and accurate health information can help guide decision makings, such as identifying alternative options or possible consequences.^[20]

Forty percent of the world's population now has an internet connection, the average global social media penetration is 39 %, and 1.5 billion people have internet access via mobile phone. This large-scale move in population use of digital, social and mobile media presents an unprecedented opportunity to connect with individuals on issues concerning health.^[21]

We conducted this study because the Internet is one of the primary resources of health information, especially for young adults, but website content is not always trustworthy or validated. Moreover, it is fundamental to assess the behaviors and attitudes of young people looking for online health-related information and their level of trust in such information. Furthermore, little is known about this specific population, particularly in our

region and the importance of online health searches for use and impact.

This study aims to evaluate and address factors associated with online health information-seeking behaviors among male students at Taif University in order to reduce health disparities.

The main objectives of this study are to identify sources of health information among male university students in Taif, KSA. Moreover, to evaluate the utilization of social media and the Internet to obtain health information among them. Furthermore, to determine factors associated with the source of health information among them.

LITERATURE REVIEW

In 2012, Alghamdi and Moussa conducted a cross-sectional study to identify the use of the internet to get health-related information among Saudi population and the quality of such information in comparison to that given by their health care providers. The date was collected through a self-administered questionnaire that was randomly distributed to public university hospital attendants. In general, 89.3% of the participants said the doctor was their primary source of health-related information. 58.4% of the participants have used the internet as a source of health-related information. 84.2% of them thought it is useful to use the internet as a health-related information source and their main reason was curiosity (92.7%).^[22]

Alghamdi and Almohideb in 2011 did a cross-sectional study to assess searching for health-related information among dermatology outpatients through the internet and its impact on the patient-doctor relationship.

A self-administered questionnaire was filled by dermatology outpatients.

47% of the participants have used the internet to get health-related information. About 93% of them stated that their doctors were the primary source of health-related information.^[23]

A study aimed to determine the characteristics of internet users aged 15 – 30 years by Beck et al. in 2014. The French health barometer 2010 was used in this study; Beck et al. found that 48.5% of internet users were aged 15 – 30 years get medical information through the internet. About 80% of them consider the online medical information is reliable. 33.3% of the health information seeker mentioned that their attitude and behavior had been changed due to such information.^[24]

2005 Hesseet al carried out a study aimed to identify the internet impact on health information seekers and their level of trust on health-related information websites. Data were collected from the Health Information National Trends Survey (HINTS); the analysis showed

63.7% of internet users enrolled in this study have searched for medical information for themselves or their relatives. The majority of them trusted the doctors as the main source of medical information (62.4%).²⁵ Rao and Theng conducted a study to answer the following research questions: what health topics do young adults frequently search online? And what are the problems encountered by young adults while searching online for health information?. The survey instrument was administered to undergraduate and graduate students at a major local university in Singapore. The questions in the instrument were constructed to analyze young adults' usage of online health information. 214 responses (men = 85, women = 129) were used in the data analysis. Respondents mainly looked for a specific disease (78%), exercise & fitness (75%), food & nutrition (72%) and certain medical treatment (70%). Unreliable (85%), scattered (85%) and poor quality of information (82%), unfamiliar source (83%), irrelevant results (80%) and information overload (80%) are the major problems identified. They concluded that usage of online health information has direct practical implications for search engine developers and health website designers to improve search designs and to ensure the quality of the content.^[26]

METHODS

This study, a cross-sectional, was conducted at Taif University in Taif city. Taif University (male section) consists of twenty colleges, including 16508 regular students.^[27] Consistent attending male students Taif University in the academic year 2015-2016 constituted the population of the current study. Regular attending students, Males, and all nationalities were included, while those who refuse to participate in the study were excluded.

Two separate sampling frames were prepared, the first for theoretical colleges of males and the second for scientific colleges of males. One college was randomly selected from each frame. Colleges of Pharmacy (males) and Administration and Finance (males) were randomly selected. Each college consisted of multiple levels. Five levels were chosen from the College of Pharmacy (1st-5th), and four levels were collected from the college of Administration and Finance (1st-4th). The sample size was divided into two parts and taken from each college. Then the number for each college was divided by the number of levels depending on the college (example pharmacy college has five levels, so the number was divided by 5 to get number that will be chosen from each level). The students in each level were chosen according to inclusion criteria every second student according to a number of students at each level. If the number of students in any branch not completed the target number, another branch was randomly selected.

The optimal size was estimated using online Roasoft sample size calculator, based on the total number of Taif University male students (16508). The estimated

prevalence of using the internet for obtaining health-related information was 58%, based on a previous Saudi study, 22 accepted margin of error was 5%, and the confidence level was 95%. The estimated sample size was 367 students. This sample present 2.2% of the total population. It will be increased to 400 in order to compensate for non-response.

The self-administered questionnaire designed by the researcher after reviewing relevant literature was used for data collection. It includes the following items; demographic data, source of health information, evaluation of the quality of health information, and difficulties in obtaining health information from the internet. The validity of the questionnaire was prepared by two family medicine and one community medicine consultants.

The researcher visited the recruited two colleges, he will obtain permission from the deans of the two chosen colleges, the researcher explained to the students how they fill the questionnaire as well as assured them about confidentiality, each selected student was requested to fill up the questionnaire during their break time and submitted to the college administration in the same day, at the end of the day the researcher collected all questionnaires from the college administration, and this process might require several days according to sample size required from each college.

Data was entered to the researcher's computer using SPSS version 21 software. Frequency and percentage were applied for data description in case of categorical data while the mean and standard deviation was applied for the description of continuous variables. Chi-square test (χ^2) was utilized to test for the association between two categorical variables. A p-value of ≤ 0.05 was considered for significance.

A pilot study was taken to test the questionnaire and the methodology; a pilot study was carried on 10% volunteers of the sample size from both colleges equally (20 students from each college). In addition, the researcher tested the reliability of the questionnaire by retesting the volunteers after 2-3 weeks to compare the answers. An average coefficient of correlation of 0.89 has been obtained. Results were excluded from the results of the main survey.

Permission from the Joint Program of Family Medicine in Taif City was obtained. Approval from the Regional Research and Ethics committee at Al-Hada Armed Forces hospital was obtained. Permission from deans of the involved colleges was obtained. Oral consent was collected from each participant to optional participation in the study, and all information was kept confidential.

RESULTS

Out of 367 students targeted to be included in the study, 358 returned the completed questionnaire. Thus, a response rate of 97.5% has been obtained.

Socio-demographic characteristics of the participants

As shown in table 1, the age of the students ranged between 19 and 25 years, with a mean of 20.8 and SD of 1.2 years. Almost two-thirds of them (67.2%) aged 21 years or less. All were Saudis. Nearly half of them (51.4%) were recruited from the college of Administration and Finance, and the remaining (48.6%) were recruited from the College of Pharmacy. Majority of them (98.3%) were singles. Regarding academic performance, most of them (74.8%) had very good in the last semester. About two-thirds of their fathers (61.5%) were at least university graduated whereas slightly more than half (53.6%) of their mothers were at least university graduated. Fathers were civil workers and militaries among 41.9% and 22.3% of them, respectively. Almost two-thirds of their mothers (63.1%) were housewives. The family income was below 5000 SR/month among 3.9% of the students, whereas it exceeds 20000 SR/month among 36.3% of them.

Table 1: Socio-demographic characteristics of the participants (n=358).

Socio-Demographics	Number	%
Age in years		
≤21	254	70.9
>21	104	29.1
Range	19-25	
Mean±SD	20.8±1.2	
College		
Administration and Finance	184	51.4
Pharmacy	174	48.6
Marital status		
Married	6	1.7
Single	352	98.3
Academic performance		
Excellent	4	1.1
Very good	268	74.8
Good	60	16.8
Pass	24	6.7
Weak	2	0.6
Father`s education		
Illiterate	4	1.1
Read & write	20	5.6
Primary	10	2.8
Intermediate	38	10.6
Secondary	66	18.4
University	158	44.2
Post-graduate	62	17.3
Mother`s education		
Illiterate	28	7.8
Read & write	26	7.3
Primary	16	4.5
Intermediate	30	8.4
Secondary	66	18.4
University	154	43.0
Post-graduate	38	10.6

Table 1: Socio-demographic characteristics of the participants (n=358). (Cont.)

Socio-demographics	Number	%
Father`s occupation		
Civil	150	41.9
Military	80	22.3
Retired	100	27.9
Businessman	26	7.3
Others	2	0.6
Mother`s occupation		
House wife	226	63.1
Working	132	36.9
Family income (SR/month)		
<5000	14	3.9
5000-10000	68	19.0
10001-20000	146	40.8
>20000	130	36.3

Health information

When students were asked to evaluate the quality of their health information, 26.3% of them claimed that it is excellent whereas 40.2% and 31.3% of them described it as very good and good, retrospectively. Only 2.2% of the students described it as weak.

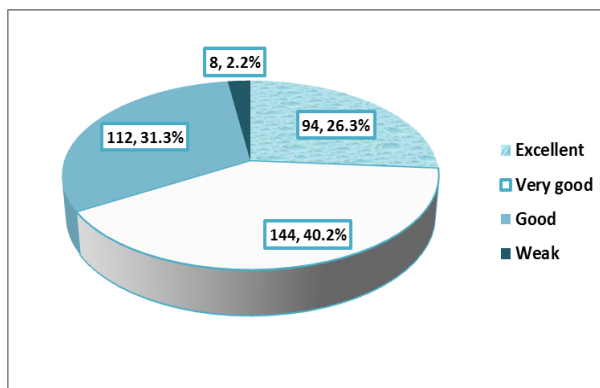


Figure 1: Self evaluation of the quality of health information among male University students.

When they were asked if health education is necessary for any person, as shown in figure 2, majority of them (84.4%) answered that it always necessary whereas 14.5% responded that it is sometimes necessary.

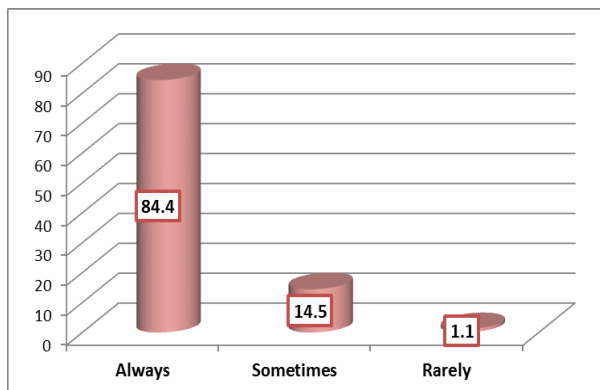


Figure 2: Student`s attitude towards importance of health education to a person.

When the students were inquired about the frequency of searching for health information, 56% of them sometimes answered whereas 38% answered always. Sixteen students (4.5%) answered rarely, and 1.7% never searched for health information. Figure 3.

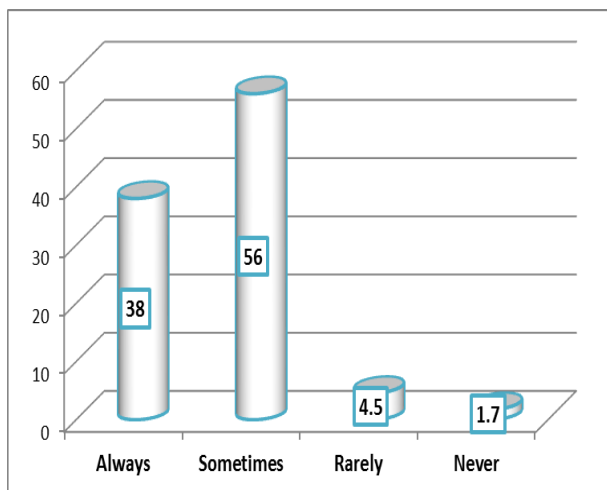


Figure 3: Frequency of searching for health information among University male students.

Regarding the source/s of health information reported by the students, figure 4 shows that Internet was the most reported source (85.5%), followed by mass media (TV and Radio) (43%) and medical staff (41.3%). The least reported source was medical books (16%).

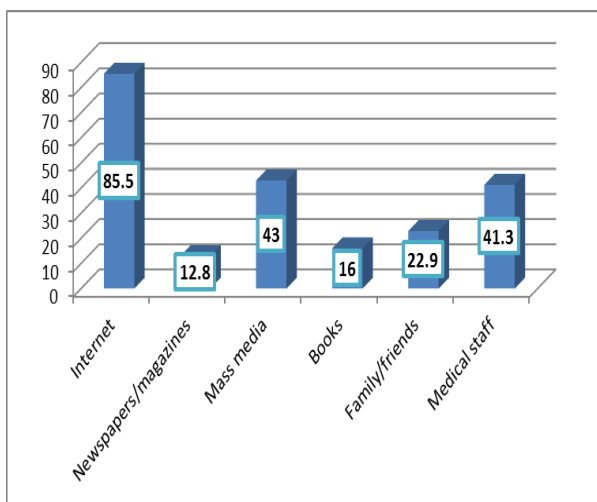


Figure 4: Source of information regarding health among University male students.

Regarding the trustful source of health information reported by the students, figure 5 shows that medical care staff ranked first (34.1%), followed by the Internet (30.1%). Medical books, mass media, and family/friends were reported by 21.8%, 4.5%, and 3.9%, respectively as most trustful sources of health information.

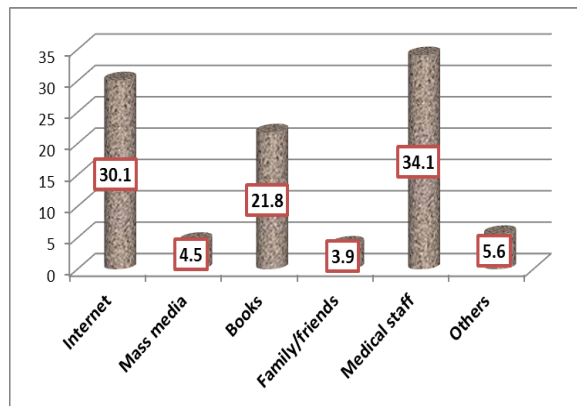


Figure 5: Most trustful source of information regarding health reported by male university students.

Table 2 illustrates the impact of socio-demographic characteristics of the students on the choosing of the most trustful source for getting health information. Medical staffs were reported as the most trustful source of health information by 37% of students aged 21 years or lower whereas medical books were reported by 30.8% of those aged over 21 years, $p < 0.001$. Students of the College of Administration and finance trusted medical staff (38%), internet (34.8%) and medical books (19.6%) as sources of health information whereas those of college of pharmacy trusted medical staff (29.9%). Internet (25.3%) and medical books (24.1%) as the most trustful source of information, $p < 0.001$. One-third of married students trusted the internet, medical books, or other sources whereas single students trusted medical staff (34.7%) and internet (30.1%) as a source for getting health information, $p = 0.044$. The most trustful source of getting health information was internet amongst students whose mothers are housewives (38.1%) whereas that of students whose mothers are working as medical staff (42.4%), $p < 0.001$. Additionally, academic performance, father's education, and job, mother's education, and family income were significantly associated with the most trustful source of health information.

Table 2: Association between socio-demographic characteristics of the male University students and trustful source of health information.

Socio-demographics	Most trustful sources of information regarding health						p-value
	Internet N (%)	Mass media N (%)	Books N (%)	Family/ Friends N (%)	Medical staff N (%)	Others N (%)	
Age in years							
≤21 (n=254)	82 (32.3)	8 (3.1)	46 (18.1)	14 (5.5)	94 (37.0)	10 (3.9)	<0.001
>21 (n=104)	26 (25.0)	8 (7.7)	32 (30.8)	0 (0.0)	28 (26.9)	10 (9.6)	
College							
Administration and Finance (n=184)	64 (34.8)	2 (1.1)	36 (19.6)	8 (4.3)	70 (38.0)	4 (2.2)	<0.001
Pharmacy (n=174)	44 (25.3)	14 (8.0)	42 (24.1)	6 (3.4)	52 (29.9)	16 (9.2)	
Marital status							
Married (n=6)	2 (33.3)	0 (0.0)	2 (33.3)	0 (0.0)	0 (0.0)	2 (3.3)	0.044
Single (n=352)	106 (30.1)	16 (4.5)	76 (21.6)	14 (4.0)	122 (34.7)	18 (5.1)	
Academic performance							
Excellent (n=4)	0 (0.0)	0 (0.0)	2 (50.0)	0(0.0)	0 (0.0)	2 (50.0)	<0.001
Very good (n=268)	78 (29.1)	12 (4.5)	62 (23.1)	14 (5.2)	92 (34.3)	10 (3.7)	
Good (n=60)	22 (36.7)	4 (6.7)	12 (20.0)	0 (0.0)	22 (36.7)	0 (0.0)	
Pass (n=24)	8 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	8 (33.3)	8 (33.3)	
Weak (n=2)	0 (0.0)	0 (0.0)	2 (100)	0 (0.0)	0 (0.0)	0 (0.0)	
Father`s education							
Illiterate (n=4)	0 (0.0)	0 (0.0)	2 (50.0)	0 (0.0)	0 (0.0)	2 (50.0)	<0.001
Read & write (n=20)	4 (20.0)	4 (20.0)	8 (40.0)	0 (0.0)	4 (20.0)	0 (0.0)	
Primary (n=10)	6 (60.0)	0 (0.0)	2 (20.0)	0 (0.0)	2 (20.0)	0 (0.0)	
Intermediate (n=38)	14 (36.8)	2 (5.3)	4 (10.5)	0 (0.0)	16 (42.1)	2 (5.3)	
Secondary (n=66)	16 (24.2)	2 (3.0)	22 (33.3)	0 (0.0)	20 (30.3)	6 (9.1)	
University (n=158)	44 (27.8)	4 (2.5)	28 (17.7)	10 (6.3)	62 (39.2)	10 (6.3)	
Post-graduate (n=62)	24 (38.7)	4 (6.5)	12 (19.4)	4 (6.5)	18 (29.0)	0 (0.0)	
Mother`s education							
Illiterate (n=28)	6 (21.4)	0 (0.0)	6 (21.4)	0 (0.0)	16 (57.1)	0 (0.0)	<0.001
Read & write (n=26)	6 (23.1)	2 (7.7)	8 (30.8)	0 (0.0)	4 (15.4)	6 (23.1)	
Primary (n=16)	10 (62.5)	0 (0.0)	2 (12.5)	0 (0.0)	4 (25.0)	0 (0.0)	
Intermediate (n=30)	4 (13.3)	2 (6.7)	10 (33.3)	0 (0.0)	10 (33.3)	4 (13.3)	
Secondary (n=66)	26 (39.4)	0 (0.0)	18 (27.3)	0 (0.0)	20 (20.3)	2 (3.0)	
University (n=154)	46 (29.9)	10 (6.5)	26 (16.9)	8 (5.2)	58 (37.7)	6 (3.9)	
Post-graduate (n=38)	10 (26.3)	2 (5.3)	8 (21.1)	6 (15.8)	10 (26.3)	2 (5.3)	
Father`s occupation							
Civil (n=150)	54 (36.0)	6 (4.0)	26 (17.3)	8 (5.3)	48.(32.0)	8 (5.3)	<0.001
Military (n=80)	20 (25.0)	6 (7.5)	22 (27.5)	0 (0.0)	28 (35.0)	4 (5.0)	
Retired (n=100)	24 (24.0)	4 (4.0)	28 (28.0)	2 (2.0)	36 (36.0)	6 (6.0)	
Businessman (n=26)	10 (38.5)	0 (0.0)	2 (7.7)	4 (15.4)	10 (38.5)	0 (0.0)	
Others (n=2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	(0 90.0)	2 (100)	

Table 2: Association between socio-demographic characteristics of the male University students and trustful source for health information (Cont.).

Socio-demographics	Most trustful sources of information regarding health						p-value
	Internet N (%)	Mass media N (%)	Books N (%)	Family/Friends N (%)	Medical staff N (%)	Others N (%)	
Mother`s occupation							
House wife (n=226)	86 (38.1)	6 (2.7)	52 (23.0)	4 (1.8)	66 (29.2)	12 (5.3)	<0.001
Working (n=132)	22 (16.7)	10 (7.6)	26 (19.7)	10 (7.6)	56 (42.4)	8 (6.1)	
Family income (SR/month)							
<5000 (n=14)	0 (0.0)	2 (14.3)	6 (42.9)	0 (0.0)	6 (42.9)	0 (0.0)	0.010
5000-10000 (n=68)	32 (47.1)	2 (2.9)	10 (14.7)	0 (0.0)	20 (29.4)	4 (5.9)	
10001-20000 (n=146)	44 (30.1)	4 (2.7)	36 (24.7)	6 (4.1)	50 (34.2)	6 (4.1)	
>20000 (n=130)	32 (24.6)	8 (6.2)	26 (20.0)	8 (6.2)	46 (35.4)	10 (7.7)	

When students were asked why they are reading and searching for health information, their responses are summarized in figure 6. Almost two-thirds of the students (62%) were searching for health information to have general knowledge, more than half of them (55.3%) to prevent getting a disease, and 42.5% searching for health information once got a disease. To have knowledge about sensitive topics was reported by 18.4% of the students.

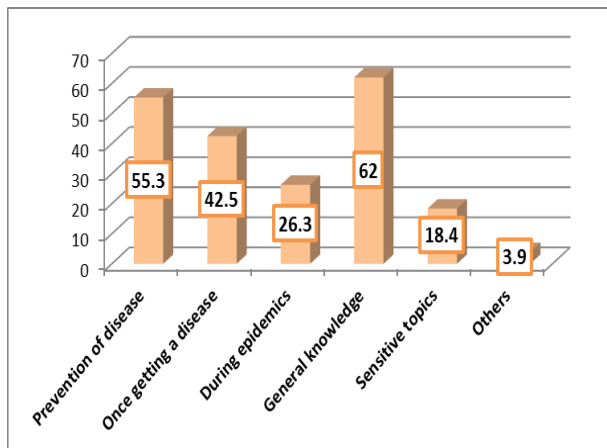


Figure 6: Reasons pushing male university students for searching for health information.

Using social media in getting health information

From table 3, it is recognized that the majority of male university students (88.2%) claimed that they are always using the internet. Almost half of the participants

(49.2%) reported that they are sometimes using internet/social media in getting health information whereas 28.5% claimed that they are always using internet/social media in getting health information. Eighteen students (5%) never used internet/social media for obtaining health information.

Among those who never or rarely used social media for getting health information (n=80), 54 (67.5%) cited that they don't trust the accuracy of information.

Regarding reasons for searching medical information on the internet, saving time (74.7%), ease use (72.4%), updating information (42.4%) and lower cost (41.2%) were the commonest reported.

General sites (google, yahoo) were the most frequent searched sites to get health information (70%), followed by specific medical sites (62.9%), Twitter (43.5%) and Instagram (23.5%). Figure 7.

When students were asked if they were able to use the internet efficiently to get needed health information, 33.5% and 57% of them reported that they always and sometimes we're ready. Figure 8.

A minority of students (5.6%) still had difficulties in searching health information through the internet, whereas 14.5% never had problems in searching for such information. Figure 9.

Table 3: Using the internet in getting health information among male University students, Taif (n=358).

	Frequency	Number
Using internet		
Always	316	88.2
Sometimes	38	10.6
Rarely/never	4	1.2
Using internet/social media in getting health information		
Always	102	28.5
Sometimes	176	49.2
Rarely	62	17.3
Never	18	5.0
Reasons for not or rarely using social media (n=80)		
Don't confident with its importance	11	13.8
Confident but don't know how to use	6	7.5
Don't trust accuracy of information	54	67.5
Others	9	11.2
Reasons for searching medical information on internet (n=340)		
To safe time	254	74.7
Updating information	144	42.4
Lower cost compared to others	140	41.2
High validity of information	52	15.3
Easily used	246	72.4
Others	6	1.8

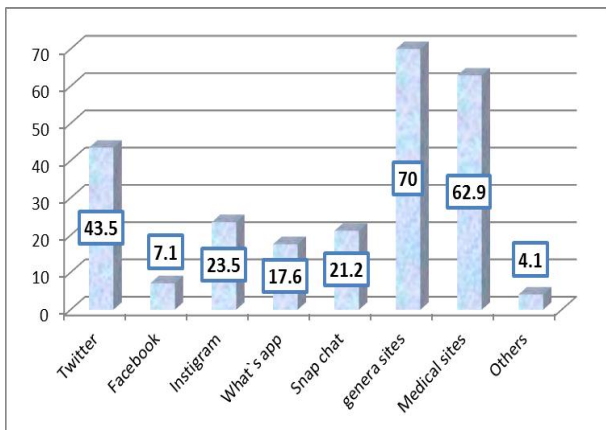


Figure 7: Social media used by male University students for getting medical information.

whereas 27.9% of them were rarely or never trust such information.

- Most of the students either strongly agreed (11.2%) or agreed (52.0%) that internet health information fulfilled their needs.
- Discussing with a physician or other HCWs regarding internet information was never done by 31.3% of the students.
- 10.1% of the students claimed that internet health instruction or health information harmed them or others.
- 62.6% of the students claimed that internet health instruction or health information helped them.
- Health information obtained from the internet had affected the health care of students or others in 66.5% of them.

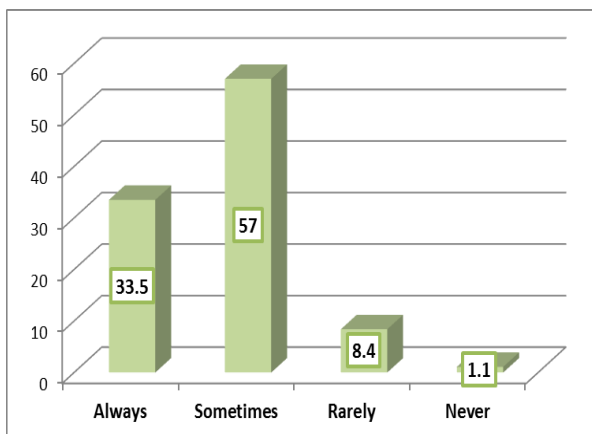


Figure 8: Students' self-ability in getting health information through using the internet.

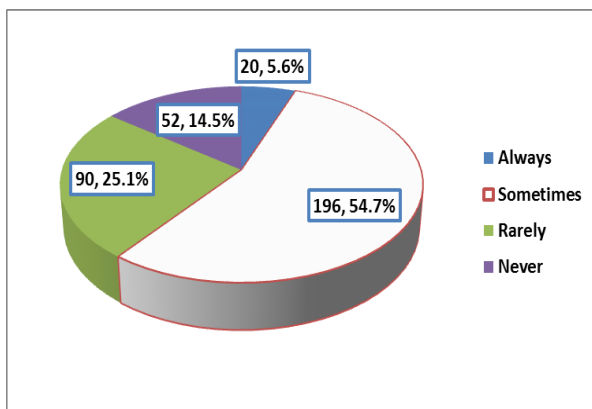


Figure 9: Having difficulty to use the internet to get needed health information compared to other sources.

Evaluation of internet health information

From table 4, we can conclude the following

- A considerable percentage of male university students had difficulties in searching for health information through the internet. These difficulties were described as always or sometimes among 5.6% and 54.8% of them, respectively.
- A minority of the students (7.3%) were still trusting health information obtained through social media,

Table 4: Evaluation of the Health Information Obtained From The Internet: Students` opinion.

Items	Categories	Frequency	Percentage
Having difficulties in searching for internet information compared to other sources	Always	20	5.6
	Sometimes	196	54.8
	Rarely	90	25.1
	Never	52	14.5
Trusting health information obtained through social media	Always	26	7.3
	Sometimes	323	64.8
	Rarely	82	22.9
	Never	18	5.0
Internet health information fulfilling my needs	Strongly agree	40	11.2
	Agree	186	52.0
	Neutral	106	29.5
	Disagree	26	7.3
Discussing with physician or other HCWs regarding internet information	Always	78	21.8
	Often	40	11.2
	Sometimes	128	35.7
	Never	112	31.3
Internet health instruction or health information harm you or others	Yes	36	10.1
	No	194	54.2
	Don` t know	128	35.8
Internet medical instruction or health information apparently help you or others	Yes	224	62.6
	No	38	10.6
	Don` t know	96	26.8
Effect of health information on your/others health care	Yes	238	66.5
	No	56	15.6
	Don` t know	64	17.9

From table 5, it is evident that academic performance of students was significantly associated with trusting health information obtained through social media as all of those who got excellent compared to none of those who got weak always or sometimes trusting such information, $p=0.023$. Father`s educational level was significantly associated with students` trusting of health information obtained through social media as the majority of students whose fathers are secondary school educated (84.8%) compared to 51.6% of those whose fathers are post-

graduated and 50% of those whose fathers are illiterate trusted such information, $p<0.001$. Similarly, mother`s educational level was significantly associated with students` trusting of health information obtained through social media as the majority of students whose mothers are intermediate school educated (86.7%) compared to 52.6% of those whose mothers are post-graduated trusted such information, $p=0.010$. Other studied factors were not significantly associated with students` trusting of health information obtained through social media.

Table 5: Socio-demographic characteristics associated with trusting health information obtained through social media.

Socio-demographics	Trusting health information obtained through social media		p-value
	Always/sometimes N=258 N (%)	Rarely/never N=100 N (%)	
Age in years ≤21 (n=254) >21 (n=104)	186 (73.2) 72 (69.2)	68 (26.8) 32 (30.8)	0.444
College Administration and Finance (n=184) Pharmacy (n=174)	130 (70.7) 128 (73.6)	54 (29.3) 46 (26.4)	0.539
Marital status Married (n=6) Single (n=352)	6 (100) 252 (71.6)	0 (0.0) 100 (28.4)	0.138
Academic performance Excellent (n=4) Very good (n=268) Good (n=60)	4 (100) 188 (70.1) 50 (83.3)	0 (0.0) 80 (29.9) 10 (16.7)	0.023

Pass (n=24)	16 (66.7)	8 (33.3)	
Weak (n=2)	0 (0.0)	2 (100)	
Father`s education			
Illiterate (n=4)	2 (50.0)	2 (50.0)	<0.001
Read & write (n=20)	14 (70.0)	6 (30.0)	
Primary (n=10)	8 (80.0)	2 (20.0)	
Intermediate (n=38)	22 (57.9)	16 (42.1)	
Secondary (n=66)	56 (84.8)	10 (15.2)	
University (n=158)	124 (78.5)	10 (21.5)	
Post-graduate (n=62)	32 (51.6)	30 (48.4)	
Mother`s education			
Illiterate (n=28)	16 (57.1)	12 (42.9)	0.010
Read & write (n=26)	20 (76.9)	6 (23.1)	
Primary (n=16)	12 (75.0)	4 (25.0)	
Intermediate (n=30)	26 (86.7)	4 (13.3)	
Secondary (n=66)	54 (81.8)	12 (18.2)	
University (n=154)	110 (71.4)	44 (28.6)	
Post-graduate (n=38)	20 (52.6)	18 (47.4)	
Father`s occupation			
Civil (n=150)	104 (69.3)	46 (30.7)	0.252
Military (n=80)	62 (77.5)	18 (22.5)	
Retired (n=100)	68 (68.0)	32 (32.0)	
Businessman (n=26)	22 (84.6)	4 (15.4)	
Others (n=2)	2 (100)	0 (0.0)	

Table 5: Socio-demographic characteristics associated with trusting health information obtained through social media (Cont.).

Socio-demographics	Trusting health information obtained through social media		p-value
	Always/sometimes N=258 N (%)	Rarely/never N=100 N (%)	
Mother`s occupation			
House wife (n=226)	164 (72.6)	62 (27.4)	0.783
Working (n=132)	94 (71.2)	38 (28.8)	
Family income (SR/month)			
<5000 (n=14)	8 (57.1)	6 (42.9)	0.090
5000-10000 (n=68)	50 (73.5)	18 (26.5)	
10001-20000 (n=146)	114 (78.1)	32 (21.9)	
>20000 (n=130)	86 (66.2)	44 (33.8)	

DISCUSSION

As far as up to our awareness, this observational study is the first to examine the source of information regarding health among university students in Taif.

Following what had been reported by Smith, 28 and Van de Belt et al., 29 our findings revealed that the source of health information was the Internet among the majority of the students (85.5%), followed by (TV and Radio) (43%) and medical staff (41.3%).

This is higher than AlGhamdi et al 22, who found in a survey included general population that 58.4% of all respondents searched online for health-related information and that health care professionals were the primary source of health-related information. Our findings correspond with a study performed in Brazil, which found that the Internet was the primary source of health-related information for 86% of all respondents.³⁰ Similar results were also found in a study involving

patients suffering from a chronic disease. Approximately 90% of the respondents that searched for additional disease-related information indicated that they used the Internet.³¹ This difference can be explained by differences in the characteristics of the study population: our study included male university students. Health care providers should recognize that the vast majority of Saudi male students use online sources for health-related information. Therefore, they should focus on providing high-quality patient information via online channels.

In the current study, approximately two-thirds of the male university students self-evaluated their health information as excellent or very good. In the same time, a considerable percentage of them had difficulties in searching for health information through the Internet. A study by Moon et al. reported that 70% of subjects told investigators that they read "know well," while in fact, their mean scores reflected a low level of knowledge.³²

This suggests that persons may usually overestimate their knowledge level.^[33]

Comparing the present study's results with previous studies carried out among adolescents and young people revealed similarities in some aspects; this study found that male university students while searching for health information utilized mainly general online sites, however in the present study also specific medical sites were being used by a considerable proportion of students. This finding was similar to that described in the Eysenbach study 34 and Hansen et al. study.^[35]

There is even a growing trend worldwide toward the utilization of social media in patient education, health information sharing, and professional peer connections.³⁶ Already almost 1000 hospitals worldwide have some form of institutional presence on social media.³⁷ In the existing research, more than half of students claimed that they used social media (Twitter, Instagram, What's app) in getting health information and among those who never or rarely used social media for obtaining health information, the most frequently reported cause was not trusting the accuracy of information. Recently, Cain said that non-trusting health information in social media should be treated by efforts to improve health care through its useful use.^[38]

The Internet is considered the most critical health information source available to young people. It is recognized that young people have difficulties accessing traditional health services; therefore, the Internet offers them confidential and convenient access to a considerable level of information about different health subjects.^[4]

In accordance with the aforementioned statement and confirming it, the present study revealed that the most frequently utilized sources of health information were the Internet, followed by mass media and medical staff while the most trustful source of health information reported by students was health care staff followed by the Internet and medical books. Also, regarding reasons for searching medical information on the Internet, they said ease to use, saving time, updating data, and relatively low cost. Therefore, the Internet may offer opportunities for identifying deficiencies in health information among the young population in Saudi Arabia and building better health literacy skills among them, as part of health curriculum interventions to improve the population's future health.^[39]

Ettel et al 40 found that 22% of students reported modifying their behavior based on their findings in online searches. In the present study, almost two-thirds of the students claimed that internet health information helped them and had an effect on them and others. However, it is unknown what the outcome of these changes in behavior was or whether they were sustained or temporary.

A significant number of students in the present study sometimes trusted information found on the Internet, similar to what was seen by previous studies.^[40,41]

Although young people use the Internet as a source of information for health-related issues, four questions remain about their ability to conduct proper and effective searches. Hansen et al. reported that 69% of students could find a correct and useful answer to a health question but used trial-and-error approaches to find sites and did not necessarily consider the source of the content when searching.³⁵ Also, Gray et al. reported that young people had deficiencies in their health literacy skills.³⁹ In the current study, a considerable percentage of male university students sometimes had difficulties in searching for health information through the Internet. Almost one-third of them claimed that they never discuss HCWs regarding internet information

Among limitations of the present study, it included only male university students from a single university in Taif whose students do not necessarily reflect the population in general. For this reason, we are not sure of the generalizability of the present study's results. However, we included students from two different colleges (literature and Scientific), and we attempted to find the "best-case scenario." The cross-sectional design that makes it difficult to sort out the causal relationships among variables studied. Finally, because almost all variables were not mutually exclusive, we could not make an association with the socio-demographic background of the students for all variables.

CONCLUSION

The most reported sources of health information among male university students in Taif were internet, followed by mass media (TV and Radio) and medical staff whereas the most trustful sources were medical staff, followed by the internet and medical books. Most of them trust the health information obtained through the internet and reported that internet health information fulfilling their needs. Also, a considerable percentage of them claimed that internet health information helped them and had an effect on them.

Reasons for searching medical information on the internet by university students were \ ease use, saving time, updating data, and relatively low cost.

Twitter is the most frequently utilized social media for getting health information. Most of the students talk to a physician or health care worker about the internet obtained health information.

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