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Social Media as a Health-related Information Source about the Coronavirus among a Sample of Kuwaiti Youth

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Abstract

Due to the rapid dissemination of COVID-19, the public community has begun following social media as a main source of health-related information daily due to the grave, life-threatening implications on patients' health. The current study aims to (1) detect socio-demographic differences, knowledge of COVID-19 symptoms and general health, and social media trust among youth; (2) determine the degree of using social media and traditional media among youth; and (3) examine the relationship between using social media to track COVID-19 news (symptoms, general health knowledge, and social media trust) and the degree of using social media. This is a cross-sectional study conducted among 663 Kuwaiti youth from all governorates in Kuwait. A self-administrated questionnaire consisted of demographic information and variables related to using social and traditional media to receive information about COVID-19. Findings detect that females and older youth participants show higher COVID-19 general health knowledge and more trust in social media. Males reported highest in following Satellite TV channels, and Instagram as sources of health information. The youngest age group reported a greater use of social media in general. The primary social media platform for following the news is Twitter, with Kuwait TV being the main source of traditional media.

Keywords: Social Media; Health Information; Coronavirus; Youth; Kuwait.

وسائل التواصل الاجتماعي كمصدر للمعلومات المتعلقة بالصحة حول فيروس كورونا بين عينة الشباب

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الملخص

بسبب الانتشار السريع لجائحة كورونا COVID-19، بدأ الأفراد داخل المجتمع يوماً في متابعة وسائل التواصل الاجتماعي كمصدر رئيس للمعلومات المتعلقة بالصحة بسبب آثاره الخطيرة والمهددة للحياة على صحة المرضى. تهدف الدراسة الحالية إلى (1) الكشف عن الاختلافات الاجتماعية والديموغرافية لمعرفة الأعراض المصاحبة لجائحة كورونا COVID-19، والصحة العامة، والثقة بوسائل التواصل الاجتماعي بين الشباب، (2) تحديد درجة استخدام وسائل التواصل الاجتماعي ووسائل الإعلام التقليدية بين الشباب، (3) فحص العلاقة بين استخدام التواصل الاجتماعي لمتابعة أخبار كورونا (الأعراض، المعرفة الصحية العامة، والثقة في وسائل التواصل) ودرجة استخدام وسائل التواصل الاجتماعي. أجريت هذه الدراسة المقطعية على 663 شاباً كويتياً من جميع المحافظات الكويتية. يتكون الاستبيان الذي يعتبر الأداة الرئيسية من المعلومات الديموغرافية، والمتغيرات المتعلقة باستخدام الوسائل الاجتماعية والتقليدية للأعلام لتلقي معلومات حول الجائحة. كشفت النتائج إلى أن المشاركين الإناث، والشباب الأكبر سناً يظهرون معرفة صحية عامة أعلى وثقة أكبر في وسائل التواصل الاجتماعي. سجل الذكور نسبة أعلى في متابعة القنوات الفضائية والانسغرام كمصادر للمعلومات الصحية. سجلت الفئة العمرية الأصغر من الشباب درجة أكبر في استخدام وسائل التواصل الاجتماعي بشكل عام. أشارت النتائج إلى أن المصدر الرئيسي لمتابعة الأخبار لوسائل التواصل الاجتماعي هو تويتر بين أفراد العينة، بالإضافة إلى تلفزيون الكويت كأحد أبرز الوسائل الإعلامية التقليدية.

الكلمات المفتاحية: وسائل التواصل الاجتماعي؛ المعلومات الصحية؛ فيروس كورونا؛ شباب؛ الكويت.

Introduction

Based on an April 7, 2020, World Health Organization (WHO) report, the coronavirus disease 2019 (COVID-19) pandemic hit more than 200 countries and territories since its outbreak in December 2019 in Wuhan, China (WHO, 2020; Huang et al., 2020; Lu et al., 2020). Worldwide, the WHO report (WHO, 2020) reveals that total confirmed cases of COVID-19 exceeded more than 1,200,000, and more than 70,000 patients died from respiratory system sickness⁽¹⁾. Due to the coronavirus's rapid dissemination, the difficulty of controlling its spread between individuals, and its long incubation period, the general public began following daily traditional and social media as their main sources of COVID-19 information due to the grave, life-threatening implications on patients' health (Kouzy et al., 2020; Jahanbin & Rahmanian, 2020). Several studies (Huang et al., 2020; Lu et al., 2020; Zhu et al., 2020) show that individuals started obtaining health information about the disease from internet resources due to the abundance of easy-to-obtain information available at any time and the ability to chat with other users who seek the same information. Furthermore, studies (van Uden-Kraan et al., 2009; Merolli et al., 2015; Jain et al., 2015; Schumacher et al., 2014; Chunara et al., 2012) detect that social media can enhance patient empowerment through the use of online support groups with members with similar health conditions, which might improve their health outcomes through information exchange, advice, and recommendations.

However, the following studies' findings reveal that there are inaccurate and misleading health-related information videos made available through social media platforms such as Facebook, Twitter, and YouTube (Baker et al., 2003; Eysenbach & Kohler, 2003; Ball & Lewis, 2012; Chandrasekaran et al., 2017). For example, numerous videos featuring inaccurate information have been posted and shared on YouTube about diseases such as the H1N1 influenza pandemic (16.2%) (Pandey et al., 2010) and the West Nile virus (20.7%) (Dubey et al., 2014). Pennycook et al., (2020) examines social media users' behaviors and responses for sharing COVID-19 related information. Findings of the study detects that participants

who have insufficient knowledge about the accuracy of the content, they decide to share it with others without checking whether the information is right or wrong.

Based on a WHO report (WHO, 2020) about COVID-19, the first cases (44 patients) were reported in Wuhan City in the Hubei Province of China December 31, 2019, and were diagnosed with pneumonia of unidentified etiology. On January 12, 2020, these symptoms was confirmed as the novel coronavirus known worldwide as COVID-19. There are many common signs of the COVID-19 virus that resemble flu symptoms like coughing, fever, fatigue, and shortness of breath. The health condition of patients diagnosed with COVID-19 vary depending on their immune system, health status, and age. Primary recommendations to minimize the spread of this virus include washing one's hands regularly with soap and water for twenty seconds, cleaning one's hands with an alcohol-based hand sanitizer, avoiding gatherings and crowded places, and avoiding touching one's mouth, eyes, and nose (WHO, 2020). The significance of the current study is its examination of the impact of social media on Kuwaiti youth's knowledge about COVID-19's signs and risk factors during the current outbreak of the virus worldwide. Several successful studies have utilized technology through social media and other internet resources such as search queries for sensing and tracing emerging diseases, including influenza (Ginsberg et al., 2009; Zhang, 2019), dengue (Chan et al., 2011), and SARS (Dion et al., 2015).

According to the Pew Internet and American Life Project (2013), one in four teens are internet users and social media sites have become accessible for everyone due to the high prevalence of smartphones. Further, Social media, social life report (2012) reveal that the majority (90%) of teens and young adults report using social media. According to Data Reportal report in January 2023, 83.7 percent of the total population in Kuwait use social media platform. Through these digital platforms, unlimited information can be created, exchanged, and shared through blogs, networking sites, photographs, podcasts, video sharing, and virtual gaming or social worlds. Researchers (McCracken et al., 2007; Park et al., 2006; Mulye et al., 2009) demonstrate the significant role of social media as a source of health education for teens and

(1) From the beginning of the pandemic till August 2020.

younger children, especially for seeking information on such sensitive topics as sexually transmitted diseases, unplanned pregnancy, violence, mental health disorder, and eating disorders. Verhoef et al. (2014) demonstrate that social media provides many benefits as a source of health-related information to adolescents and young adults. For example, social platforms can offer a better understanding to users on topics like rating the quality of healthcare services, tracking patients' experiences, and posting comments about the physician or healthcare amenity (Wonga et al., 2014).

Several studies have been conducted to examine how adolescents and young adults use social media to obtain health information and how they share it to assess their attitudes toward using social media as a source of health-related information. For example, Bull et al. (2012), who studied young people between the age of 16 to 24 years old in the United States who use Facebook as a means of social interaction, aims to detect whether messages delivered via Facebook containing sexual health information can prevent risky sexual behavior among users. Cavallo et al. (2012) studied female college students under the age of 25 who use Facebook to determine the influence of content on intervention practices, such as physical activity education and supervising and online social networking, looking at the frequency of participants using Facebook and their levels of interaction on discussion boards.

Hausmann et al. (2017) studied 244 American young adults age 12 years or older to assess how these adolescents use social media to get health information and communicate with medical providers. Findings from the study reveal that social media use for health learning, exchanging health information, and connecting with their physicians were limited. Moreover, results show that 51.5% of the adolescents had used and exchanged health information through social platforms. The main health information topics obtained were sexual health (9.5%), chronic medical conditions (12.4%), acute medical conditions (41.9%), wellness (57.1%), and mood (76.2%), and only participants with poor health conditions shared health information. The main reasons for exchanging health-related information included seeking other treatment options (13.3%), entertainment (22.9%), sharing their health

status (26.7%), seeking a support system (31.4%), looking for health advice (41%), and desiring to communicate with others with similar health issues (43.8%). In addition, a Hausmann et al. (2017) study illustrates that females posted more health-related information than males and younger adolescents between the age of 12 and 14 reported less posting about their health through social media compared to the other age groups. Facebook was the most frequently used social media platform for posting health-related information (58.1%), followed by Instagram (31.4%), Twitter (26.7%), and blogs (11.4%). A Deborah et al. (2014) study among 169 Senegalese youth aged 15-25 aimed to explain how they utilized health-related information from traditional and new forms of media, detect obstacles concerning media use, examine their level of skills and the capabilities required to search for this information. The study outcomes reveal that Senegalese youth utilize both types of media platforms either with their family members or friends, and their main reasons for use were for fun, knowledge acquisition, and communication purposes. The main health-related information that youth were seeking for was mostly related to sexual and reproductive health information.

Awofeso et al. (2019) studied 120 United Arab Emirates participants aged 18-35, investigating the most commonly used social media networks, the frequency of seeking health-related information through social platforms, and the methods for evaluating the credibility of health information. Findings of the study illustrate that the most frequently used social media platforms were YouTube (82%), Instagram (87%), and WhatsApp (95%), and more than three-fourths (81%) of the participants reported that they frequently use social media to get health-related information. The most reliable sources of health information were social media accounts for UAE government health agencies (15%), international healthcare organization sites (20%), and physicians' health blogs (21%). The most frequently reviewed health-related topics were skin care (16%), nutrition (20%), and chronic diseases such as cardiovascular disease, diabetes, and hypertension (29%). Google search results were the most reliable source for health information (41%), with others (22%) depending on "reliable" social media sites.

Based on the UK's Royal Society of Public Health and Youth Health Movement report in 2017, social media platforms have a significant impact on youth mental health, and 91% of young people seek social networking sites frequently due to anxiety. The social platform fostering the most positive impact on mental health and well-being was YouTube, whereas the most harmful were Instagram and Snapchat. Moreover, the report highlights the positive effect of accessing social media on youth mental health when they interacted with helpful online emotional support services. Habes et al., (2020) performed a study among students at Jordanian Universities to investigate the influence of social media advertising on controlling the outspread of Covid-19 pandemic. They found significant role of social media advertising in educating the public with qualified professionals health information. Social media considered as one of the most influential and effective sources of modifying public perceptions and attitudes.

To the researchers knowledge, there are few studies that have been conducted during the pandemic of COVID-19 time in Kuwait related to detect the main sources of Kuwaiti communication usage for gaining health-related information of the pandemic. Al-Hasan et al., (2020) investigates the influence of using social media as a source of COVID-19 pandemic information on citizens' adherence actions and behaviors toward governmental regulations in the three countries (Kuwait, South Korea, and United States). Finding of the study reveals that there are a positive association between citizens' self and others' adherence and excessive usage of general health information, and health related information source for COVID-19. Ali et al., (2020) examined public health information, precautionous behaviors, knowledge about the main symptoms of COVID-19 infection and main source of information about the pandemic. Findings of the study reveals that more than three-fourth of the participants used social media as the main source for information related to the pandemic and half of participants reported that they obtain information related to the pandemic from the World Health Organization. Both studies were conducted during the COVID-19 pandemic among adults to assess the role of using social media platforms as a source of health-related information during the pandemic.

The current study may be considered as one of the earliest studies that examine which kind of sources of communication Kuwaiti youth currently are using as their main resource for health-related information during the COVID-19 pandemic.

The significant of the study

The findings of the current study will help better understand the portion of Kuwait's population that uses social media as a trusted source of health-related information during the coronavirus pandemic. In addition, it will show how using these tools as a source of virus information could lead to the dissemination of rumors and misinformation during a period of time that could fuel public panic, fear, and paranoia, leading to negative effects on governmental efforts to contain it during a public health emergency (Merino, 2014; Gonsalves & Staley, 2014).

Objective of the Study and Research Questions

The current study aims to (1) detect socio-demographic differences, knowledge of COVID-19 symptoms and general health information, and social media trust among youth; (2) determine the degree of using social media and traditional media as sources of health information based on age and gender; (3) examine the relationship between using media to track COVID-19 news (symptoms, general health knowledge, and social media trust) and the degree of using social media; and (4) predict the degree of using social media to obtain COVID-19 symptoms knowledge, general health knowledge, and trust in the social media. The current study will try to answer the following research questions: 1) Are there any significant differences between participants' socio-demographic characteristics and knowledge of COVID-19 symptoms, general health knowledge, and social media trust? 2) Are there any significant differences between the degree of using social media and traditional media and adolescents' socio-demographic characteristics? 3) Are there any significant differences between using media to track COVID-19 symptoms, general health knowledge, and social media trust and the degree of using social media and participants' sociocultural characteristics? 4) Can using social media to obtain COVID-19 symptoms knowledge and general health knowledge predict the degree of trust in the social media platform among participants?

Method

Sample

A total of 663 Kuwaiti youth between the ages of 17-24 ($M=20.82$; $SD=2.17$) were selected from the study conducted in Kuwait, which had a total of 2018 respondents (Al-Sejari & Al-Kandari, 2020), and were asked to voluntarily answer questions. Male was 300 (45.3%) and female was 363 (54.7%). The sample size of the study represents almost 0.03% of the total number of 15-to-24-year-olds in Kuwait (The Public Authority for Civil Information, 2020). Most respondents were in the university level (76.9%) and others were in the high school or below (23.1%). Most of them came from middle socioeconomic status (72.4%) while 22.6% in higher and 5% in lower socioeconomic status. The respondents included participants of all governorates in Kuwait. The respondents came from the governorates of Capital (22.6%), Hawalli (11.1%), Ahmedi (17.1%), Farwaniyyah (23.2%), Jahra (16.6%), and Mubark Al-Kabeer (9.2%). Ethical and legal procedures were followed by researchers according to the Kuwait University rules and regulations. It needs to be stated here that this research was a part of larger project that conducted in Kuwait by researchers.

Instruments

The questionnaire is composed of demographic information: age, gender, education level, and governorates (all six governorates). Age was divided into two categories: respondents 20 years or below and those 21 years and above. Education level divided to four categories four this sample (1= Middle school or below to 4=graduate). The questionnaire included three variables related to using social media. First, respondents were asked about the degree to which they followed news and information of COVID-19 through one of six social media platforms - Twitter, Facebook, WhatsApp, YouTube, Snapchat, and Instagram - which are the most commonly used in Kuwait (Al-Kandari, 2019). Second, respondents were asked how often they followed COVID-19 news through traditional media, namely Kuwait TV, local newspapers, Kuwait radio stations, and satellite TV channels). The third question set to determine how frequently they used each of these six social media tools in rela-

tion to the other platforms. A six-point scale, from very much (6) to never (1) was used for these three variables.

Three scales were used in this study: the COVID-19 Symptoms Knowledge Scale (CSKS), the COVID-19 General Health Knowledge Scale (CGHKS), and the Social Media Trust Scale (SMTS). CSKS was developed by the researcher and used after reviewing information from the World Health Organization. It examined the respondents' knowledge of nine symptoms, including "fever," "cough," "shortness of breath," and "difficulty breathing," with an answer scale of "yes" (1), "no" (0), and "do not know" (0). Overall knowledge is nine out of nine. CGHKS was also developed by the researcher and used after reviewing information from WHO. It included general information about the coronavirus that the respondents already know. Seventeen informational facts were selected for this study, such as "fast spreading," "infectious disease," "may appear two to 14 days after exposure," "spread by touching polluted stuff," "elderly more effected," etc. Possible answers were "yes" (1), "no" (0), and "do not know" (0). Overall knowledge is seventeen out of seventeen. Finally, SMTS, also developed by the researcher, contains information regarding the degree to which respondents trust information coming from social media in general. It consisted of eight sentences, including: "I trust social media more than the official TV"; "I return more quickly to social media than others to check any news about the coronavirus"; "I found the right information about the coronavirus in social media"; and "the fastest way to hear news about the coronavirus came from social media." A five-point scale from strongly agree (5) to strongly disagree (1) was used. The highest possible score is 40 and the lowest is 0.

Five faculty members from the College of Social Sciences at Kuwait University reviewed the scales to ensure their validity. For reliability, all scales showed high internal consistency overall from 0.86 to 0.92.

Statistical Procedures:

Descriptive and inferential statistics were used, and SPSS (version 23) was used for data analysis. A T-test was used to examine the differences between male and female and youngest and oldest respondents in the COVID-19 Symptoms Knowledge Scale (CSKS), the

COVID-19 General Health Knowledge Scale (CGHKS), and the Social Media Trust Scale (SMTS). A Pearson Correlation was used to examine the association between following COVID-19 news, the degree of one's social media usage, and the CSKS, CGHKS, and SMTS. A multivariate regression was used to predict the effect of using social media and traditional media to follow COVID-19 news and the degree of social media use to obtain COVID-19 symptom knowledge, general health knowledge, and trust in social media.

Results:

Results set out to examine the differences among the COVID-19 Symptoms Knowledge Scale (CSKS), COVID-19 General Health Knowledge Scale (CGHKS), and Social Media Trust Scale (SMTS) in males and females and in the two age categories; to establish frequency of looking at the news through social and traditional media; and to determine the degree of using social media, with Tables 1 and 2 showing these differences.

Table (1): Mean, Standard Deviation and t Value for Corona Symptoms Knowledge Scale (CSKS) , Corona General Health Knowledge Scale (CGHKS) , and Social Media Trust Scale (SMTS) in Male and Female and two different age groups (21 < & 21 > years) .

Gender	CSKS			CGHKS			SMTS		
	<i>M</i>	<i>SD</i>	<i>t</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>M</i>	<i>SD</i>	<i>t</i>
Male	5.78	1.62	.264	11.62	2.30	-2.97**	22.87	5.29	-2.02*
Female	5.72	1.51		12.41	1.91		24.17	4.70	
Age	CSKS			CGHKS			SMTS		
	<i>M</i>	<i>SD</i>	<i>t</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>M</i>	<i>SD</i>	<i>t</i>
20 < years	5.66	1.54	-.769	12.07	1.91	-1.66*	23.32	4.92	-2.12*
21 > years	5.78	1.52		12.41	2.06		24.39	4.72	

* $P < 0.05$

Data reported that there are no significant differences between genders and age categories in respondents among the CSKS, while differences were found in the CGHKS and the SMTS. Females showed a higher mean in the CGHKS and SMTS compared with males. Also, respondents age 21 years and above reported higher means compared with the youngest respondents, as shown in Table 1.

In regard to who said they followed the news through social and traditional media and the degree of social media use by gender, Table 2 shows that the only significant differences were found in those following news via Instagram and YouTube. Males reported higher means in following these two social media platforms. Of those following traditional media, males reported higher in following Satellite TV channels while no significant differences were

found in the other sources of traditional media. For the differences in the degree of using social media, the only significant finding was the degree to which males and females used YouTube. Males showed higher means than females in their use of the social platform. No other significant differences were found in the other variables, as shown in Table 2.

Data reported only significant differences between the younger and older groupings of youth and their degree of using other social media channels and social media in general. The youngest age group reported higher means in their degree of using other social media platforms and the degree of using social media in general. On the other hand, there are no significant differences between the youngest and oldest youth in other variables, as shown in Table 2.

Table (2): Mean, standard deviation and t-value for following news through social and traditional media and degree of using social media in male and female and age.

Media Variables	Male		Female		t-value	20< years		21>years		t-value	All Sample		
	M	SD	M	SD		M	SD	M	SD		M	SD	Rank
<u>Folw news SM</u>													
Snapchat	3.82	1.99	3.89	2.02	-.253	3.98	1.99	3.80	2.03	.888	3.88	2.01	2
Whatsupp	2.52	1.86	3.89	1.77	-1.52	3.89	1.73	3.77	1.83	.618	3.82	1.79	3
Instagram	3.99	1.83	3.36	1.92	2.44*	3.54	1.97	3.43	1.95	.534	3.49	1.92	4
Facebook	1.13	.660	1.12	.717	.055	1.05	.376	1.18	.874	-1.65	1.12	.706	6
YouTube	2.37	1.92	1.83	1.51	2.42*	2.04	1.70	1.84	1.50	1.16	1.93	1.60	5
Twitter	4.17	1.86	4.34	1.92	-.655	4.18	2.00	4.40	1.83	-1.12	4.31	1.91	1
<u>Folw Trad Media</u>													
Kuwait TV	3.16	1.90	3.44	1.98	-1.06	3.24	1.95	3.50	1.98	-1.31	3.39	1.97	1
Local Newspapers	1.52	1.29	1.44	1.12	.448	1.39	.995	1.50	1.25	-.924	1.46	1.15	4
Kuwait Radio	1.63	1.35	1.54	1.21	.535	1.49	1.08	1.61	1.33	-.918	1.56	1.23	3
Satellite TV	2.30	1.87	1.69	1.27	3.14**	1.71	1.27	1.87	1.51	-1.08	1.80	1.41	2
<u>Deg using SM</u>													
Twitter	4.01	1.93	4.39	1.88	-1.49	4.18	1.96	4.43	1.83	-1.30	4.32	1.89	5
Facebook	1.18	.742	1.12	.688	.624	1.09	.517	1.16	.803	-.992	1.13	.697	8
Whatsupp	4.68	1.41	4.78	1.42	-.568	4.81	1.36	4.73	1.46	.514	4.77	1.42	3
YouTube	4.33	1.66	3.63	1.71	3.03**	3.78	1.75	3.74	1.69	.190	3.76	1.72	6
Snapchat	4.84	1.67	4.82	1.63	.643	4.79	1.72	4.84	1.57	-.313	4.82	1.63	2
Instagram	4.61	1.54	4.61	1.63	.682	4.66	1.70	4.57	1.55	.529	4.61	1.61	4
Othr SM	2.41	1.78	2.31	1.77	.940	2.56	1.91	2.16	1.64	2.10*	2.33	1.77	7
Use SM in general	5.05	1.18	4.99	1.34	.428	5.15	1.16	4.89	1.26	2.06*	5.00	1.23	1

*P<0.05; **P<0.01

Table 3 examines the relationship between using social and traditional media to follow COVID-19 news and the degree of using social media (in the full sample and in both males and females) and between the CSKS, CGHKS, and the SMTS among respondents. Data showed also that Twitter was ranked the top social media platform for following news, with Snapchat second and WhatsApp third. The last was following

news through Facebook and YouTube. For following news through traditional news, Kuwait TV channel was ranked first, followed by Satellite TV channels, Kuwait radio, and local newspapers, respectively. Respondents said their top social media channel was Snapchat, followed by WhatsApp and Instagram. Twitter, YouTube, other social media, and Facebook ranked from fourth to seventh, respectively.

Table (3) Correlation among using media to follow coronavirus news (social media and traditional) and degree of using social media (in all sample and both male and female) and Corona Symptoms Knowledge Scale (CSKS), Corona General Health Knowledge Scale (CGHKS), and Social Media Trust Scale (SMTS).

Using media to follow Coronavirus news	CSKS			CGHKS			SMTS		
	Male	Female	All	Male	Female	All	Male	Female	All
<u>Social Media</u>									
Snapchat	.030	.146*	.132*	.084	.027	.095	-.042	.001	-.113*
Whatsup	.170	.072	.084	-.239	-.097	-.082	-.025	-.045	-.055
Instagram	.238	.066	.090	-.019	-.177*	.003	-.103	.018	-.076
Facebook	.110*	-.031	.117*	.246	.012	.121*	.401**	.049	.121*
YouTube	.250*	.091	.117*	-.065	-.111	.003	.028	-.066	-.024
Twitter	.108	-.073	.023	.061	.142	.049	-.024	.071	-.059
<u>Traditional Media</u>									
Kuwait TV	.228*	.144*	.130*	.045	.108	.037	.091	.277**	.221**
Newspapers	.244	.084	.065	.049	-.044	.047	.048	.125	.164**
Kuwait Radio	.260*	.105	.117*	.148	.002	.081	.263*	.065	.090
Satellite TV	.229*	.086	.122*	.102	-.024	.060	-.186	.050	-.006
<u>Degree of using Social Media</u>									
Twitter	.090	.083	.098	.085	.105	.017	.003	.043	-.056
Facebook	.086	-.085	.001	.241	-.026	.095	.397**	.057	.083
Whatsup	.215	.168*	.159**	-.020	-.023	.008	-.058	-.085	-.131*
YouTube	-.023	-.087	.032	.064	-.134	-.035	-.027	-.156	-.051
Snapchat	-.114	.173*	.103*	-.013	.015	.052	.106	-.045	-.113*
Instagram	.019	.008	.009	-.016	-.143	-.042	.027	.003	-.060
Other Social Media	.133	.065	.035	.056	.012	.027	.164	-.008	.059
Using SM in general	.136	.020	.057	-.139	.104	.020	-.003	-.008	-.076

*P<0.05; **P<0.01

Data in Table 3 reported that there is a significant association between knowledge of COVID-19 symptoms and following news through Snapchat, Facebook, and YouTube for the entire sample. Association was shown in Snapchat in females only and Facebook and YouTube in males. No significant association was found in other variables. For following traditional media, data presented an association between knowledge of COVID-19 symptoms and Kuwait TV channels, Kuwait radio, and

satellite TV channels. No association was found with local newspapers. For males, no association was found with following news through local newspapers only, while in females no association was found with local newspapers, Kuwait radio, and satellite TV channels.

For the degree of using social media and its association with knowledge of COVID-19 symptoms, data reports a relationship with Snapchat and WhatsApp

only through the sample and among females, while there was an association in all variables in males. For COVID-19 general health knowledge and its association with using media to follow COVID-19 news, data shows association between COVID-19 general health knowledge of the sample and only Facebook in all samples and in males, while association was found with Instagram in females only. For traditional media, no association was found between COVID-19 general health knowledge and all variables in the entire sample and in males and females. It is the same with the degree of using social media; no association was found between the degree of using social media and COVID-19 general health knowledge in all variables.

For the social media trust scale, association were found between this scale and following the news thorough Snapchat and Facebook in the entire sample and only with Facebook in males, while no association was found in females in all variables. Association was found between following the news through traditional media (Kuwait TV and local newspapers) in the entire sample and only with Kuwait TV in females and Kuwaiti radio in males. No association was found in

other variables. Results reported association between the degree of using Facebook and Snapchat with the social media trust scale, while in all variables association was found with Facebook in males and no association was found in females.

A regression model was used to predict the effect of using social media and traditional media to follow COVID-19 news and to predict the degree of using social media to obtain COVID-19 symptoms knowledge, COVID-19 general health knowledge, and trust in social media, with Table 4 illustrating these results.

x1 = gender; x2 = education; x3 = follow up throw snap; x4 = follow up throw whatsapp; x5 follow up throw instagram; x6 = follow up throw facebook; x7 = follow up throw youtube; x8 = follow up throw twitter; x9 = follow up throw tv; x10 = follow up throw newspaper; x11 = follow up throw protcasting; x12 = follow up throw sattalites; x13 = Degree of using twitter; x14 = Degree of using facebook; x15 = Degree of using whatsapp; x16 = Degree of using youtube; x17 = snapchat; x18 = Degree of using instagram; x19 = Degree of using other Social Media; x20 = Degree of using in general.

Table (4) Regression coefficient on the effect of Media variables on Corona Symptoms Knowledge Scale (CSKS), Corona General Health Knowledge Scale (CGHKS) , and Social Media Trust Scale (SMTS).

CSKS	B	Beta	t. value
Follow Facebook	.442	.177	2.49*
Follow Twitter	-.170	-.212	2.24**
Degree of using Twitter	.196	.119	4.22***
Degree of using Facebook	-.345	-.151	-1.99**
Degree of using Whatsup	.157	.143	1.98*
Degree of using Instegram	-.128	-.134	-1.76*
Adjusted R Square		.048	F=1.799*
Multiple R		.108	
CGHKS	<u>B</u>	<u>Beta</u>	<u>t. value</u>
Education	.205	.098	1.74*
Follow Snapchat	.171	.172	2.32*
Follow Whatsup	-.243	-.221	-3.08**
Adjusted R Square		.050	F=1.87*
Multiple R		.108	
SMTS	B	Beta	t. value
Education	.758	.151	2.82**
Follow Kuwait TV	.632	.257	4.28***
Follow Kuwait Newspapers	.880	.211	3.24**
Follow Satellites	-.406	-.122	-1.95*
Degree of using Snapchat	-.378	-.132	-1.79*
Adjusted R Square		.132	F=3.49***
Multiple R		.185	

*P<0.05; **P<0.01; ***P<0.001

Results indicate that following Facebook and Twitter, the degree of using Twitter, Facebook, WhatsApp, and Instagram was significantly associated and predicted by the CSKS. The analysis also indicates that education and following Snapchat and WhatsApp were significantly associated and predicted by the CGHKS. Analysis further indicates that education and following Kuwait TV channels, Kuwait local newspapers, satellites TV channels, and the degree of using Snapchat were significantly associated and predicted by the SMTS.

Discussion

The current study detects that female Kuwaiti youth were more knowledgeable about COVID-19 general health information and had a higher trust in social media than male Kuwaiti youth. This is comparable to other outcomes (Alkhatlan et al., 2018; Higgins et al., 2011) demonstrating that females reported higher rates of searching for health-related information online than males and hold higher levels of education. These gender differences can be attributed to several socio-demographic characteristics that influence the behavior of those seeking health-related information such as users' age, level of education, skills and experience using the internet as the main source of obtaining information (Higgins et al., 2011; Jardine et al., 2015; Farzandipur et al., 2016). Moreover, the current study illustrates that older respondents showed more knowledge of COVID-19 general health information and more trust in social media than younger ones. This can be attributed to users' background characteristics like the level of experience with the social media platform concerning COVID-19 health information and the different purposes for using social media among younger adolescents (Lenhart et al., 2015; Lenhart, 2016; Borca et al., 2015; Korchmaros et al., 2015; Eisma et al., 2004). Adolescents mainly use social media networks for making new friends, posting videos and music on their profile pages, playing games, and self-reference support. Findings from Pfeil et al., (2006) demonstrate that age has a significant influence on users' behavior in online settings and communication. Older users tend to use social media networks for searching for health information and exchanging information with others through these network tools. For older users, utilizing social media provides both social and emotional support, social interaction with other users and the

ability to obtain more information and news (Preece, 2000). Outcomes according to Pfeil et al. (2009) reveal an age difference between social media users, that younger users over their older counterparts tend to have a higher number of online friends, use more social media networks for posting music and videos on their profile pages, receive on average ten times more comments, and have a less informative and personal self-description.

In addition, this study reveals that male youth reported higher frequencies of using YouTube than female youth, a finding comparable to others illustrating gender differences in relying on internet-based resources for inquiries and demands (Kasahara et al., 2019). For example, findings (Tüfekçi, 2008; Thelwall, 2008; Lenhart & Madden, 2007) show there is significant difference in genders, with the use of social media platforms, interacting with others, and keeping in touch with friends being the main purposes of using social networks among females, whereas searching for new friends and searching for new users with similar interests were the main purpose among males who use social media.

As the present study detects, male youth reported higher frequencies of using YouTube than do female youth, potentially due to several notable functions of YouTube as a social networking platform where users can socialize and interact with others and as an educational resource where health information and lessons are displayed visually as videos (Fox, 2010; Fox & Jones, 2009; Doja, 2011). On the other hand, findings of this study are inconsistent to outcomes from Hausmann et al. (2017) indicating that females use Instagram and Pinterest for posting health-related information more than males, because users can protect their identity and easily exchange information with others who have similar circumstances, the platforms are popular among their social network, providing an easy way to share information with friends.

Moreover, findings (Bölükbaş & Yıldız, 2005; Fallows, 2005) demonstrate significant differences between males and females in their intentions for using Facebook. Males were mainly using Facebook for the purpose of making new connections and friendships, whereas females were using Facebook for keeping up with current relationships, for educational use, and as a memo to follow their agenda. These difference

in gender preference for using social media can be due to several factors, such as their purpose for using social media, whether functions and characteristics meet their privacy needs, traditional social roles, and proficiencies in using these platforms.

Furthermore, this study finds that female youth watched satellite TV channels and male youth listened to Kuwaiti radio stations as their main sources of traditional media to obtain health information about COVID-19, findings similar to other (Rutsaert et al., 2013; Van de Belt et al., 2013; Glik et al., 2014; Al-Kandar & Alsejari, n.d.) illustrating high awareness in participants that sources should be credible and trustworthy in seeking out health-related information. During the pandemic of COVID-19 worldwide, Kuwaiti official sectors (the Ministry of Health, Ministry of Information, and Ministry of Interior) keep announcing and broadcasting to the public through different types of traditional and social media about following and receiving COVID-19 information only from official government accounts. Since February 23, 2020, with the first case of COVID-19 virus discovered in Kuwait, both the Kuwait Ministry of Health and Ministry of Information started to present interviews, programs, and shows about COVID-19 general health information, keeping the audience updated with the progress of the pandemic outbreak locally and worldwide. During the pandemic in Kuwait, female youth usually prefer to stay at home and watch satellite TV channels to be updated about the progression of the disease, as they are more worried and frightened about getting infected with the virus. On the other hand, male youth usually prefer to sit outdoors in the garden or front yard during the lockdown and listen to Kuwaiti radio stations to obtain information about the virus.

Additionally, the present study detects that Kuwaiti youth use Twitter to follow news about COVID-19, followed by Snapchat and WhatsApp. This finding is similar to other studies (Culotta, 2010; Kwak et al., 2010; Han et al., 2012; Kouzy et al., 2020; Jahanbin & Rahmanian, 2020) demonstrating the essential role of Twitter as a source of health information during the pandemic period of COVID-19. These studies reveal that users prefer using Twitter because they believed it is a useful application for providing credible and trustworthy information through millions of daily broadcasted messages. The preference of using

Twitter among Kuwaiti youth can be due to its adequacy and ease of access, instant news, and descriptive information linked to other websites concerning COVID-19. Since the COVID-19 pandemic in Kuwait, daily officials upload messages and videos from the Kuwait Ministry of Health and official health accounts worldwide about information related to public health attitudes and behaviors, such as social isolating, hand washing, or accessing health care, awareness about the disease and its symptoms, and the official number for the call center to contact during the outbreak.

Conclusion

In conclusion, the current study reveals that youth participants did not rely on social media as a source of health information concerning the common symptoms of COVID-19. Moreover, findings of this study detect that there are gender differences among those using social media to gain general health information of COVID-19 and about trusting the health information posted on the platform about the virus. Also, this study identified that there are certain social media networks common among Kuwaiti youth that have been utilized for obtaining and spreading information about COVID-19.

Public health workshops are needed to educate youth about how to evaluate health-related information sites as well as training on how to find the official site on the internet and social media. Further studies are recommended to examine the use of social media platforms as a search engine for health-related information among Kuwaiti youth. Also, a study is needed to describe the behavior of Kuwaiti youth in seeking out health information to understand how this population utilizes social media networks and what types of diseases, issues, and concerns are most commonly posted and exchanged via social media.

Declaration of conflicting interests

The Author declares that there is no conflict of interest

References

Al-Hasan, A., Yim, D., & Khuntia, J. (2020). Citizens' adherence to COVID-19 mitigation recommendations by the government: A 3-country comparative evaluation using web-based cross-sectional survey data. *Journal of medical Internet research*, 22(8), e20634.

- Ali, K. F., Whitebridge, S., Jamal, M. H., Alsafy, M., & Atkin, S. L. (2020). Perceptions, knowledge, and behaviors related to COVID-19 among social media users: cross-sectional study. *Journal of medical Internet research*, 22(9), e19913.
- Al-Kandari, Y. Y. (2019). The role of social media in cultural development and joint Gulf cultural work. present in: *The Intellectual Seminar for Re-Formulating the Strategic of the Gulf Cooperation Council Countries*, The National Council for Culture, Arts and Letters, March 3-8, 2019, Kuwait.
- Al-Kandari, Y., & Al-Sejari, M. (2020). The informational role of social media in acquiring Coronavirus health knowledge: Kuwait as an example. (not published).
- Alkhatlan, H. M., Rahman, K. F., & Aljazzaf, B. H. (2018). Factors affecting seeking health-related information through the internet among patients in Kuwait. *Alexandria Journal of Medicine*, 54 (4), 331-336. <https://doi.org/10.1016/j.ajme.2017.05.008>.
- Awofeso, N., Gaber, Y. & Bamidele, M. (2019) Determinants of Youth Engagement with Health Information on Social Media Platforms in United Arab Emirates. *Health*, 11, 249-262. <https://doi.org/10.4236/health.2019.112022>
- Baker, L., Wagner, T.H., Singer, S., & Bundorf, M.K. (2003). Use of the internet and e-mail for health care information. *JAMA*, 289, :2400-2406
- Ball, J., & Lewis, P. (2012). "Twitter and the Riots: How the News Spread," *The Guardian*, December 7, 2011, available online at www.guardian.co.uk/uk/2011/dec/07/twitter-riots-hownews-spread.
- Bölükbaş, K. & Yıldız, M.C. (2005). İnternet Kullanımında Kadın-Erkek Eşitsizliği. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi*. 12, 103-113.
- Borca, G., Bina, M., Keller, P.S., Gilbert, L.R., & Begotti, T. (2015). Internet use and developmental tasks: adolescents' point of view. *Comput Human Behav*, 52:49–58
- Bull, S.S., Levine, D.K., & Black, S.R., et al. (2012). Social media-delivered sexual health intervention: A cluster randomized controlled trial. *Am J Prev Med*, 43: 467474.
- Cavallo, D.N., Tate, D.F., & Ries, A.V., et al. (2012). A social media based physical activity intervention. *Am J Prev Med*; 43: 527.
- Chan, E.H., Sahai, V., Conrad, C., & Brownstein, J.S. (2011). Using Web Search Query Data to Monitor Dengue Epidemics: A New Model for Neglected Tropical Disease Surveillance. *PLoS Neglected Tropical Disease*, 5(5), e1206. <https://doi:10.1371/journal.pntd.0001206>.
- Chandrasekaran, N., Gressick, K., & Singh, V. (2017). The Utility of Social Media in Providing Information on Zika Virus. *Cureus*, 9(10), e1792. <https://doi:10.7759/cureus.1792>.
- Chunara, R., Andrews, J.R., & Brownstein, J.S. (2012). Social and news media enable estimation of epidemiological patterns early in the 2010 Haitian cholera outbreak. *Am J Trop Med Hyg*, 86(1):39–45. <https://doi:10.4269/ajtmh.2012.11-0597>.
- Culotta, A. (2010). Towards detecting influenza epidemics by analyzing Twitter messages. In: *Proceedings of the First Workshop on Social Media Analytics – SOMA '10*. New York, NY: ACM Press p. 115–22.
- Data Reportal (2023). <https://datareportal.com/reports/digital-2023-kuwait>.
- Deborah, G., Massey, P., Gipson, J., Dieng, T., Rideau, A., & Preli, M. (2014). Health-related media use among youth audiences in Senegal. *Heal Pro Inter*, 31 (1) 73-82. <https://doi:10.1093/heapro/dau060>.
- Dion, M., AbdelMalik, P., & Mawudeku, A. (2015). Big Data and the Global Public Health Intelligence Network (GPHIN). *Canada communicable disease report = Relevé des maladies transmissibles au Canada*, 41(9): 209-214.
- Doja, A., & Barrowman, N., et al. (2011). YouTube videos as a teaching tool and patient resource for infantile spasms. *J Child Neurol*, 26(7): 804–809.
- Dubey, D., Amritphale, A., & Sawhney, A. (2014). Analysis of YouTube as a source of information for West Nile virus infection. *Clin Med Res*, 12, 129–132.
- Eisma, R., Dickinson, A., Goodman, J., Syme, A., Tiwari, L., & Newell, A. (2004). Early user involvement in the development of information technology related products for older people. *Uni Acce Inform Soci*, 3: 131–140.
- Eysenbach, G., & Kohler, C. (2003). What is the prevalence of health related searches on the World Wide Web? Qualitative and quantitative analysis of search engine queries on the internet. In: *AMIA Annual Symposium Proceeding*, 225–9.

- Fallows, D. (2005). How women and men use the Internet. Pew Internet & American Life Project. Available from: http://www.pewInternet.org/pdfs/PIP_Women_and_Men_online.pdf.
- Farzandipur, M., Jeddi, F.R., & Azimi, E. (2016). Factors affecting successful implementation of hospital information systems. *Acta Informatica Medica*, 24, 51–55.
- Fox, S. & Jones, S. (2009). The social life of health information (Americans' pursuit of health takes place within a widening network of both online and offline sources). Pew Internet & American Life Project; California HealthCare Foundation, Washington, DC, June 2009.
- Fox, S. (2010). Online health search 2006. Pew Internet & American Life Project, Washington, DC, October 2006. 6. Fox S and Purcell K. Chronic disease and the internet. Pew Internet & American Life Project, Washington, DC, March 2010.
- Ginsberg, J., Mohebbi, M.H., Patel, R.S., Brammer, L., Smolinski, M.S. & Brilliant, L. (2009). Detecting influenza epidemics using search engine query data. *Nature*, 457(7232), 1012–1014.
- Gonsalves, G., & Staley, P. (2014). Panic, paranoia, and public health – the AIDS epidemic's lessons for Ebola. *New England Journal of Medicine*, 371, 2348–2349.
- Habes, M., Alghizzawi, M., Ali, S., Salih Alnaser, A., & Salloum, S. A. (2020). The Relation among Marketing ads, via Digital Media and mitigate (COVID-19) pandemic in Jordan. *International Journal of Advanced Science and Technology*, 29(7), 12326–12348.
- Han, H., Nakawatase, H., & Oyama, K. (2012). An exploratory analysis of browsing behavior of web news on Twitter. In : 2012 International Conference on Social Informatics; 2012 Dec 5–7; Lausanne: IEEE (2012). p. 86–95. <https://doi:10.1109/SocialInformatics.2012.41>
- Hausmann, J.S., Touloumtzis, C., White, M.T., Colbert, J.A., & Gooding, H. (2017) Adolescent and Young Adult Use of Social Media For Health and its Implications. *J Adolesc Heal*, 60(6): 714–719. <https://doi:10.1016/j.jadohealth.2016.12.02>.
- Higgins, O., Sixsmith, J., Barry, M.M., & Domegan, C. (2011). A literature review on health information seeking behavior on the web: a health consumer and health professional perspective ECDC, Stockholm.
- Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., Zhang, L., Fan, G., Xu, J., Gu, X., Cheng, Z., & Cao, B. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*, 395(10223), 497–506. [https://doi:10.1016/S0140-6736\(20\)30183-5](https://doi:10.1016/S0140-6736(20)30183-5).
- Jahanbin, K., & Rahmanian, V. (2020). Using twitter and web news mining to predict COVID-19 outbreak. *Asian Pac J Trop Med*; 13: <https://doi:10.4103/1995-7645.279651>
- Jain, S.H., Powers, B.W., Hawkins, J.B., & Brownstein, J.S. (2015). The digital phenotype. *Nat Biotechnol*, 33(5):462–463. DOI: 10.1038/nbt.3223 .
- Jardine, C.G., Boerner, F.U., Boyd, A.D., & Driedger, S. M. (2015). The More the Better? A Comparison of the Information Sources Used by the Public during Two Infectious Disease Outbreaks. *PLoS ONE*, 10(10):e0140028. <https://doi:10.1371/journal.pone.0140028>.
- Kasahara, G. M., Houlihan, D. & Estrada, C. (2019). Gender Differences in Social Media Use and Cyberbullying in Belize: A Preliminary Report . *Int J Psych Stu*, 11, 2. <https://doi:10.5539/ijps.v11n2p32>.
- Korchmaros, J.D., Ybarra, M.L., & Mitchell, K.J. (2015). Adolescent online romantic relationship initiation: differences by sexual and gender identification. *J Adolesc*, 40:54–64.
- Kouzy, R., Abi Jaoude, J., & Kraitem, A., et al. (March 13, 2020) Coronavirus Goes Viral: Quantifying the COVID-19 Misinformation Epidemic on Twitter. *Cureus* 12(3): e7255. DOI 10.7759/cureus.7255.
- Kwak, H., Lee, C., Park, H., & Moon, S. (2010). What is Twitter, a social network or a news media? In: Proceedings of the 19th International Conference on World Wide Web—WWW '10; 2010 April 26–30; Raleigh, NC: ACM p. 591–600.
- Kuwait Central Statistical Bureau : https://www.csb.gov.kw/Default_en.
- Lenhart, M., & Madden, M. (2007). Teens, Privacy and Online Social Networks. How teens manage their online identities and personal information in the age of MySpace. Pew Internet & American Life Project Report. Retrieved June 17, 2009, from http://www.pew-internet.org/~media/Files/Reports/2009/PIP_Adult_social_networking_data_memo_FIN_AL.pdf.

- Lenhart, A., & Page, D. (2015). *Teens, Social Media, and Technology Overview 2015* Pew Research Center. 2015 2.
- Lenhart, A., Duggan, M., & Perrin, A., et al. (2015). *Teens, social media & technology overview 2015*. Available at: www.pewinternet.org/files/2015/04/PI_TeensandTech_Update2015_0409151.pdf.
- Lenhart, A. (2016). Chapter 4: Social Media and Friendships. Available at: <http://www.pewinternet.org/2015/08/06/chapter-4-social-media-and-friendships/>.
- Lu, R., Zhao, X., Li, J., Niu, P., Yang, B., Wu, H., Wang, W., Song, H., Huang, B., Zhu, N., Bi, Y., Ma, X., Zhan, F., Wang, L., Hu, T., Zhou, H., Hu, Z., Zhou, W., Zhao, L., Chen, J., Meng, Y., Wang, J., Lin, Y., Yuan, J., Xie, Z., Ma, J., Liu, W., Wang, D., Xu, W., Holmes, E.C., Gao, G.F., Wu, G., Chen, W., Shi, W., & Tan, W. (2020). Genomic characterisation and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding. *Lancet*, *S0140-6736(20)*, 30251-8. [https://doi.org/10.1016/S0140-6736\(20\)30251-8](https://doi.org/10.1016/S0140-6736(20)30251-8). Epub 2020 Jan 30.
- McCracken, M., Jiles, R., & Blanck, H.M. (2007). Health behaviors of the young adult U.S. population: behavioral risk factor surveillance system. *Prev Chronic Dis*, *4*:A25.
- Merino, J. G. (2014). Response to Ebola in the US: misinformation, fear, and new opportunities. *British Medical Journal*, *349*, g6712.
- Merolli, M., Gray, K., Martin-Sanchez, F., & Lopez-Campos, G. (2015). Patient-Reported Outcomes and Therapeutic Affordances of Social Media: Findings From a Global Online Survey of People With Chronic Pain. *J Med Internet Res*, *17(1)*:e20–e29. <https://doi.org/10.2196/jmir.3915>.
- Mulye, T.P., Park, M.J., & Nelson, C.D., et al. (2009). Trends in adolescent and young adult health in the United States. *J Adolesc Health*, *45*:8–24
- Pandey, A., Patni, N., Singh, M., Sood, A., & Singh, G. (2010). YouTube as a source of information on the H1N1 pandemic. *American Journal Preventive Medicine*, *38(3)*, e1–e3. <https://doi.org/10.1016/j.amepre.2009.11.007>.
- Park, M.J., Mulye, P.T., Adams, S.H., Brindis, C.D., & Irwin, C.E. Jr. (2006). The health status of young adults in the United States. *J Adolesc Health*, *39*:305–317.
- Pennycook, G., McPhetres, J., Zhang, Y., Lu, J. G., & Rand, D. G. (2020). Fighting COVID-19 misinformation on social media: Experimental evidence for a scalable accuracy-nudge intervention. *Psychological science*, *31(7)*, 770-780.
- Pew Internet and American Life Project: Social Networking. Accessed 2 Dec 2013, at (<http://www.pewinternet.org/topics/Social-Networking.aspx?typeFilter=5>).
- Perrin, A. (2015). *Social Media Usage: 2005–2015*. Pew Research Center, (15) 1-12.
- Pfeil, U., Arjan, R., & Zaphiris, P. (2009). Age differences in online social networking – A study of user profiles and the social capital divide among teenagers and older users in MySpace, *Compu Hum Beh*, *25*: 643–654.
- Preece, J. (2000). *Online communities: Designing usability, supporting sociability*. Chichester: John Wiley and Sons, Ltd.
- Royal Society of Public Health and Youth Health Movement (2017) #StatusOfMind: Social Media and Young People's Mental Health and Wellbeing. RSPH, London. <https://www.rsph.org.uk/uploads/assets/uploaded/62be270a-a55f-4719-ad668c2ec7a74c2a.pdf>
- Rutsaert, P., Pieniak, Z., Regan, A., McConnon, A. & Verbeke, W. (2013). Consumer interest in receiving information through social media about the risks of pesticide residues. *Food Control*, *34*, 386–392.
- Schumacher, K.R., Stringer, K.A., & Donohue, J.E., et al. (2014). *Social Media Methods for Studying Rare Diseases*. Apr. <https://doi.org/10.1542/peds.2013-2966>.
- Social media, social life: how teens view their digital lives. 2012. Aug 5 2013, at (<http://www.common-sensemedia.org/sites/default/files/research/social-mediasociallife-final-061812.pdf>)
- StatisticsCanada. *Internet use by individuals, by selected characteristics. 2010*. Available: <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/com-m35a-eng.htm>. Accessed 24 October 2014.
- Thelwall, M. (2008). Social networks, gender, and friending: An analysis of myspace member profiles. *J. Amer. Soc. Inf. Sci. Technol.* *59*, 8, 1321–1330
- Tufekci, Z. (2008). Grooming, gossip, facebook, and myspace. *Info, Commu Soci*, *11(4)*, 544-564. <https://doi.org/10.1080/13691180801999050>.

Van De Belt, T.H., Engelen, L.J., Berben, S.A., Teerenstra, S., Samsom, M., & Schoonhoven, L. (2013). Internet and social media for health-related information and communication in health care: preferences of the Dutch general population. *Journal Medical Internet Research*;15(10),e220.[https:// doi: 10.2196/jmir.2607](https://doi.org/10.2196/jmir.2607).

Van Uden-Kraan, C.F., Drossaert, C.H.C., Taal, E., Seydel, E.R., & van de Laar, M.A.F.J. (2009). Participation in online patient support groups endorses patients' empowerment. *Pati Edu and Coun*, 74(1):61–69. [https://doi : 10.1016/j.pec.2008.07.044](https://doi.org/10.1016/j.pec.2008.07.044) .

Verhoef, L.M., Van de Belt, T.H.,& Engelen, L.J., et al. (2014). Social media and rating sites as tools to understanding quality of care: a scoping review. *J Med Internet Res*, 16:e56.

Wonga, C.A., Merchanta, R. M., & Moreno, M. A.(2014). Using social media to engage adolescents and young adults with their health. *Healthc (Amst)*, 2(4): 220–224. [https://doi:10.1016/j.hjdsi.2014.10.005](https://doi.org/10.1016/j.hjdsi.2014.10.005).

World Health Organization, <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>.

World Health Organization, (2020) <https://www.who.int/health-topics/coronavirus>

Zhang, Y., Yakob,L., Bonsall,M.B.,& Hu,W. (2019). Predicting seasonal influenza epidemics using cross-hemisphere influenza surveillance data and local internet query data. *Scientific reports*, 9(1),3262-3262.

Zhu, N., Zhang, D., Wang, W., Li,X., Yang, B., Song, J. (2020). A Novel Coronavirus from Patients with Pneumonia in China, 2019. *The New England journal of medicine*, 382(8), 727-733. [https://doi: 10.1056/NEJMoa2001017](https://doi.org/10.1056/NEJMoa2001017). Epub 2020 Jan 24.