**Original Article :**

# Impact of Social Media on Risk Perception And Preventive Behaviors Toward Covid-19 In Saudi Arabia

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**Abstract**

**Background & Aims:**
Coronavirus disease (COVID-19) is an unprecedented pandemic in which social media can play a pivotal role in shaping public risk perception and enhances compliance with preventive behaviors. This study aimed to assess the impact of social media on risk perception and preventive behaviors toward COVID-19 in the Kingdom of Saudi Arabia.

**Methods:**
The study was conducted through a social media web-based survey on the adult population (872 responses). It comprised four parts: Socio-demographic Characteristics and Scales of Social Media Exposure to COVID-19 Risk Information, Perceived Role of Social Media during COVID-19 Pandemic; Risk Perception, and Preventive Behaviors.

**الملخص**

**الخلفية و الاهداف :**
يُعد انتشار فيروس كورونا (كوفيد-١٩) هو جائحة غير مسبوقة فى الوقت الحالي حيث يمكن أن تلعب وسائل التواصل الاجتماعي دورًا محوريًا في تشكيل إدراك المجتمع للمخاطر وتعزيز الامتثال للسلوكيات الوقائية. الهدف من هذه الدراسة هو تقييم تأثير وسائل التواصل الاجتماعي على إدراك المخاطر والسلوكيات الوقائية تجاه (كوفيد-١٩) في المملكة العربية السعودية.

**طريقة البحث :**
أُجريت الدراسة على السكان البالغين المقيمين بالمملكة العربية السعودية حيث تم إجراء دراسة وصفية مستعرضة على المشاركين بالدراسة باستخدام استبيان ذاتي يتألف من أربعة أجزاء: الخصائص الاجتماعية والديموغرافية وتأثيروسائل التواصل الاجتماعي وكذلك إدراك المخاطر والسلوكيات الوقائية تجاه فيروس كورونا (كوفيد-١٩).

**النتائج :**
شارك فى الدراسة ٨٧٢ بالغ و أظهرت النتائج أن غالبية المشاركين

**Results:**

A majority of the study respondents fall under the moderate and high category for all scales; preventive behaviors (9.2%, 88.0%) with a mean rank of 4.35 ±0.71; risk perception (25.6%, 68.1%) a mean rank of 3.57 ±0.69; the perceived role of social media (33.5%, 59.3%) with a mean rank of 3.48 ±0.59 and exposure to COVID-19 risk information (30.3%, 48.3%) with a mean rank of 3.31 ±0.9; respectively. Social media exposure to COVID-19 risk information and the perceived role of social media were significant predictors of both COVID-19 risk perception and preventive behaviors.

**Conclusion:**

Social media was the main source of health information about COVID-19 and had a major significant impact on risk perception and preventive behaviors among adults in Saudi Arabia.

**Keywords:**

COVID-19, Social media, Risk perception, Preventive behaviors

فى الدراسة يندرجون تحت فئة المتوسط والعالي لجميع المقاييس. فالسلوكيات الوقائية (٩,٢٪ ، ٨٨,٠٪) بمتوسط ٤,٣٥ ± ٠,٧١ ؛ إدراك المخاطر (٢٥,٦٪ ، ٦٨,١٪) بمتوسط ٣,٥٧ ± ٠,٦٩ ؛ الدور الملحوظ لوسائل التواصل الاجتماعي (٣٣,٥٪ ، ٥٩,٣٪) بمتوسط رتبة ٣,٤٨ ± ٠,٥٩ والتعرض لمعلومات مخاطر فيروس كورونا (كوفيد-١٩) (٣٠,٣٪ ، ٤٨,٣٪) بمتوسط تصنيف ٣,٣١ ± ٠,٩

**الخلاصة:**

وسائل التواصل الاجتماعي هي المصدر الرئيسي للمعلومات الصحية حول فيروس كورونا (كوفيد-١٩) ولها تأثير كبير على إدراك المخاطر والسلوكيات الوقائية بين البالغين في المملكة العربية السعودية.

## 1. Introduction:

After the incidence of the pandemic of the two novel coronaviruses related respiratory syndromes; Severe Acute Respiratory Syndrome (SARS-CoV) in 2003 and Middle East Respiratory Syndrome (MERS-CoV) in 2012, a third unprecedented zoonotic coronavirus named SARS-CoV2 emerged in December 2019. It was originally registered as the cause of viral pneumonia outbreak in Wuhan; China there soon spread across the globe as was declared by the World Health Organization (WHO) as the Coronavirus Disease (COVID-19) pandemic in March 2020 [1-3]. Until June2020 WHO confirmed that COVID-19 was affecting 216 countries or territories, resulting in over 20 million confirmed cases and more than 800,000 deaths [4]. In the Kingdom of Saudi Arabia (KSA), there have been over 300,000 confirmed cases with over 3000 deaths [5]. Since the confirmation of the first case of COVID-19 in KSA, on Monday 2 March 2020, the government has been vigilantly monitoring the situation and developing country-specific measures in alignment with the WHO

guidelines for the outbreak [6].

This growing pandemic is considered a tremendous and exceptional event that necessitates urgent actions, collaboration, and responsiveness not only from authorities, but also from the general population to support rapid containment of the disease, with sharing of up-to-date statistics and health information, and guidance on preventive measures and safety precautions [7]. Social media platforms such as Facebook, Twitter, and Instagram can have an influential role in the success and sustainability of such exercises. It can aid in fostering the immediacy of dissemination of valuable health messages in such emergency situations, reaching the majority of the population in a relatively short time and increasing accessibility of information about the COVID-19 situation locally, nationally, and globally. It can be utilized by health professionals and organizations to increase population awareness and provide evidence-based preventive and control measures to guide decision-making and the adoption of positive health behaviors. It can also have a crucial role in enhancing contact between researchers, public health authorities, scientists, experts, and sponsoring agencies, for efficient and rapid global response [1,6,7].

Recently, the WHO centered social media as a basic channel for risk communication and facilitation of community engagement that can enhance necessary behavioral changes to combat pandemic diseases that support emergency preparedness and health planning. This global crisis can be mitigated through public readiness to adopt COVID-19 related preventative health behaviors which are associated with public risk perception, which is one of the fundamental aspects of protection motivation theory and a critical determinant for successful management of public health risks throughout pandemics. Risk perception is best described as a subjective psychological experience that is shaped by individual differences and cognitive, emotional, social, and cultural variations on both individual and group levels. This can aid policymakers in designing effective risk communication strategies to fight disease outbreaks and pandemics [8-10].

Previous evidence has shown inconsistency in the validity and credibility of the health information provided through social media as users are typically sharing and re-sharing information without verifying or validating its source which can fuel speculation, dissemination of misinformation, and rumors currently known as “infodemic”. It can be associated with public panic as it spreads faster than the pandemic itself. In addition, the ambiguous nature of the COVID-19 can fuel much of the me-

dia hype and erratic public response. The propagation of this misinformation may jeopardize the work of governments and health authorities to control COVID-19, provoking panic, and risky behaviors [1,11,12]. Thus, the role of social media during a disease outbreak is a rising controversial issue. Many studies were conducted to assess the role of social media, but not much is known about its role during disease outbreaks more so with contradicting knowledge due to the exceptional nature of the COVID-19 pandemic. Therefore, the current study findings can support building strategies for health communication that will sustain the efforts to combat the COVID-19 pandemic. The aim of this study was to assess the impact of social media on risk perception and preventive behaviors toward COVID-19 in the Kingdom of Saudi Arabia, and the specific objectives of the research were to:

- Examine exposure for social media risk information about COVID-19
- Assess risk perception about COVID-19
- Investigate the preventive behaviors toward COVID-19
- Identify the perceived role of social media during the COVID-19 pandemic.

## 2. Materials and Methods:

*2.1 Study Design and Population:*

A descriptive cross-sectional research design was employed. The data were collected using a web-based electronic survey created using Survey Monkey and distributed via a link shared on multiple social media platforms such as Facebook, Twitter, Instagram. The target population of this study was the Saudi adult population of both gender, aged more than 18 years, and residing in the KSA during the COVID-19 pandemic.

*2.2 Study Tools:*

It comprised four parts that were developed by the researcher team after a thorough review of relevant and recent literature except for the Risk Perception Scale that was Adapted from the European Project for Effective Communication in Outbreak Management (ECOM 2015) [13].

*Part I: Socio-demographic characteristics and social media exposure to COVID-19 risk information*

- Socio-demographic Characteristics: age, sex, marital status, education, occupation, place of work, residence, and monthly income.
- Social Media Exposure to COVID-19 Risk Information scale: assessed the extent of utilization of social media as a resource for COVID-19 related information during the past month. It contained 4 items rated on a 5-point Likert scale (1) never, (2) rarely, (3) sometimes, (4), often, (5) always. In addition, the type of frequently used social

media platforms. The total score was calculated where higher scores corresponded to a high exposure rate to COVID-19 risk information via social media.

*Part II: Perceived Role of Social Media during COVID-19 Pandemic Scale*

Examined the perception of the role of social media during the COVID-19 pandemic. It contained 7 items rated on a 5-point Likert scale from (1) strongly disagree to (5) strongly agree. One negative statement was assigned a reversed score. The total score was pooled where higher scores indicated a higher perception of social media role [14,15]

*Part III: COVID-19-Risk Perception Scale*

Adapted from the ECOM project (2015) to develop an evidence-based risk perception assessment tool for infectious diseases. It was further translated into the Arabic language by the researcher team. It consisted of 5 items rated on a 5-point Likert scale from (1) strongly disagree to (5) strongly agree. The total score was calculated where higher scores signify a higher COVID-19 risk perception level [13,16]

*Part IV: COVID-19 Preventive Behaviors scale*

Used to assess the extent of engagement in COVID-19 preventive behaviors. It incorporated 6 items rated on a 5-point Likert scale (1) never, (2) rarely, (3) sometimes, (4), often, (5) always. The total score was calculated where higher scores highlighted a higher engagement level in COVID-19 preventive behaviors [17].

*2.3 Validation and Pilot Study:*

The tool was tested for content and face validity through a jury of 7 experts in public health at Saudi Electronic University (SEU). Necessary modifications were performed to ensure the ease and relevance of the content of the survey tool. Reliability was assured using the Alpha Cronbach test and seemed to have homogenous elements with a statistically satisfactory internal consistency score for all scales: social media exposure ($\alpha$=0.90), risk perception ($\alpha$=0.85), preventive behaviors ($\alpha$=0.80), and perceived role of social media ($\alpha$=0.75).

A pilot study carried out on 30 adults who were not incorporated in the full study sample with the aim of assuring the clarity, reliability, and applicability of the tools. Required modifications were completed to confirm the suitability of the survey tool for use in the study.

*2.4 Data Collection:*

The link to the online self-administered questionnaire was made available on various social media applications (Twitter, Facebook, WhatsApp, and Instagram) for one month during July 2020. On receiving and clicking the link the participants were directed to the information about the study

and informed consent. After their acceptance to take the survey they could start to fill in the questionnaire, the average time required to fill it was10-15 minutes.

*2.5 Statistical Analysis:*

Data scoring for 5-Likert scales was utilized based on the extent of approval for 1st (1-1.79), 2nd (1.80-2.59), 3rd (2.60-3.39), 4th (3.40-4.19), and 5th (4.20-5) degrees. The intervals were coded into three levels: low [1.00-2.59], moderate [2.60-3.39], and high [3.40 -5.00].

Data was investigated using Statistical Package for Social Science [SPSS] version 26. Descriptive statistics such as Frequency, Percent, Arithmetic Mean, and Standard Deviation were used for summarizing the study data. Analytical statistics such as weighted mean were used for the categorization of Likert scale items. Pearson and Spearman correlation coefficients were used to explore the relationship between the study variables. Multiple linear regression analysis was performed to assess the impact of social media on risk perception and preventive behaviors. The cut-off value of statistical significance (P-value) set at 0.05.

*2.6 Research Ethics:*

The Research Ethics Committee of Saudi Electronic University approved the study (Code SEUREC-CHS20116). The participants received the questionnaire with an explanation of the study, its purpose, and the required instructions were given. Informed online consent was attained from all the respondents prior to proceeding to the survey. Participants were assured about the anonymity and confidentiality of their responses and using it for the study's purpose only.

## 3. Results

A total of 1000 responses were recorded, of which 128 were excluded as under 18 years of age, non-Saudi, or not residing in the KSA during the pandemic, or did not submit a completed set of responses to the survey. A total of 872 responses were retained for analysis.

*3.1 Socio-demographic characteristics of the study respondents and most commonly used social media platforms:*

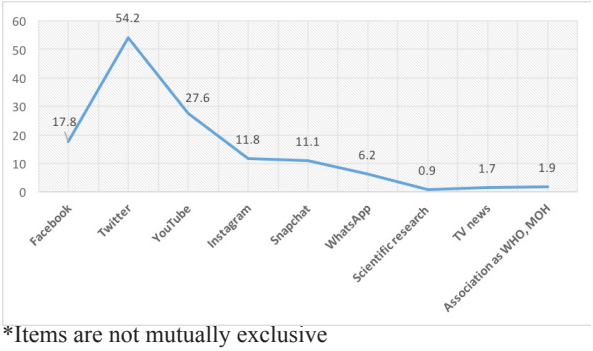
Table (I) shows that the mean age of the study respondents is 34.33±10.36, 75.5% are females and 58.7% are married. Bachelor level education is found among 51.3% while only 3.6% have primary educational level. More than half (59.4%) are employed mainly in the governmental sector (70.8%) and 47.4% have enough monthly income for basic needs only. Moreover, 47.3% reside in the Central region of KSA while only 6.2% reside in the Southern region.

Table (I) Socio-demographic characteristics (n=872)

| Parameters | Frequency (%) | |
|---|---|---|
| Age (in years) | Mean ± SD = 34.33±10.36 | |
| 18 > 25 | 167 | 19.2 |
| 25 > 35 | 306 | 35.1 |
| 35 >45 | 245 | 28.1 |
| ≥ 45 | 154 | 17.7 |
| Gender | | |
| Male | 214 | 24.5 |
| Female | 658 | 75.5 |
| Marital status | | |
| Single | 313 | 35.9 |
| Married | 512 | 58.7 |
| Widow | 10 | 1.1 |
| Divorced | 37 | 4.2 |
| Educational Level | | |
| Primary education | 31 | 3.6 |
| High school | 78 | 8.9 |
| Bachelor education | 447 | 51.3 |
| Postgraduate education | 316 | 36.2 |
| Occupation | | |
| Working | 518 | 59.4 |
| Not working | 354 | 40.6 |
| **Place of work** n=518 | | |
| Governmental sector | 367 | 70.8 |
| Non-governmental sector | 140 | 27.1 |
| Free business | 11 | 2.1 |
| Monthly income | | |
| Not enough and need to loan | 124 | 14.2 |
| Enough for basic needs only | 413 | 47.4 |
| Enough and saving | 335 | 38.4 |
| **Place of residence**: | | |
| Eastern region | 156 | 17.9 |
| Western region | 174 | 19.9 |
| Central region | 412 | 47.3 |
| Southern region | 54 | 6.2 |
| Northern region | 76 | 8.7 |

Twitter has the highest rank (54.2%) followed by YouTube (27.6%) among the study respondents as a source of information about COVID-19. Only 1.9% uses official websites such as WHO and Ministry of Health (MOH) and only 0.9% use scientific research (Figure 1).

Figure (1) Distribution of the study respondents according to the most common used social media platforms (n=872)




*Items are not mutually exclusive

### *3.2 Descriptive statistics of the studied variables:*

A majority of the study respondents fall under the moderate and high category for all scales; preventive behaviors (9.2%, 88.0%) with a mean rank of 4.35 ±0.71; risk perception (25.6%, 68.1%) a mean rank of 3.57 ±0.69; perceived role of social media (33.5%, 59.3%) with a mean rank of 3.48 ±0.59 and exposure to COVID-19 risk information (30.3%, 48.3%) with a mean rank of 3.31 ±0.9; respectively (Table II).

### *3.3 Regression analysis between the studied variables and their correlation with the Socio-demographic variables:*

The multiple linear regression model is significant (F=38.04, P= 0.00). The coefficient of multiple determination (R2) is 0.81 or 81.0% of the variation in risk perception is predicted by independent varia-

Table (II) Distribution of the study respondents according to the studied variables

| Variables | Mean ± SD | Low n (%) | Moderate n (%) | High n (%) |
|---|---|---|---|---|
| Preventive behaviors | 4.35 ±0.71 | 25(2.8) | 80 (9.2) | 767(88.0) |
| Risk perception | 3.57 ±0.69 | 55(6.3) | 223 (25.6) | 594(68.1) |
| Perceived role of social media | 3.48 ±0.59 | 63(7.2) | 292 (33.5) | 517(59.3) |
| Social media exposure to risk information about COVID-19 | 3.31 ±0.91 | 187(21.4) | 264(30.3) | 421(48.3) |

bles where exposure to COVID-19 risk information has a higher impact (β = 0.193) than the perceived role of social media (β = 0.152). The model concludes that both; exposure to COVID-19 risk information (t= 5.590, P=0.00) and the perceived role of social media (t= 4.394, P=0.00) are significant predictors of risk perception.

Regarding preventive behaviors; the model is also significant (F=56.18, P= 0.00). R2 is 0.114 or 11.4% of the variation in preventive behaviors is predicted by the independent variables where the perceived role of social media (β = 0.276) has a higher impact than exposure to COVID-19 risk information (β=0.124). The model concludes that both; exposure to COVID-19 risk information (t= 3.651, P=0.00) and the perceived role of social media (t= 8.116, P=0.00) are significant predictors of preventive behaviors.A multicollinearity test was used to verify the existence of the mentioned relationship (VIF=1.131< 3) which indicates the nonexistence of multicollinearity (Table III).

Table (III) Multiple linear regression model of the relationship between exposure to COVID-19 risk information, perceived role of social media, risk perception and preventive behaviors (n=872)

| DV | IV | VIF | R | $R^2$ | F | sig | B | B | t | Sig |
|---|---|---|---|---|---|---|---|---|---|---|
| Risk perception | Social media exposure to risk information about COVID-19 | 1.131 | 0.284 | 0.81 | 38.04 | 0.000** | 0.148 | 0.193 | 5.590 | 0.000** |
| | Perceived role of social media | | | | | | 0.177 | 0.152 | 4.394 | 0.000** |
| Preventive behavior | Social media exposure to risk information about COVID-19 | | 0.338 | 0.114 | 56.18 | 0.000** | 0.096 | 0.124 | 3.651 | 0.000** |
| | Perceived role of social media | | | | | | 0.326 | 0.276 | 8.116 | 0.000** |

IV: Independent variables DV: Dependent Variables

F: Model significance Adjusted R2: (coefficient of determination)

B: unstandardized coefficient **Significant at P < 0.01

β: standardized coefficient t: independent samples t test

VIF: Variance Inflation Factor for multicollinearity

Table (IV) demonstrates a significant positive relationships between exposure to COVID-19 risk information and educational level (rho=0.08, P= 0.01), between the perceived role of social media and educational level (rho= 0.11, P= 0.002) and monthly income (rho= 0.08, P= 0.01), and between preventive behaviors and age (r=0.15, P= 0.00), gender (r=0.09, P= 0.01), and marital status (rho=0.13, P= 0.00). However, a significant negative relationship is revealed between risk perception and monthly income (rho= -0.103, P= 0.002).

Table (IV) Relationship between the study respondents' Socio-demographic characteristics and the studied variables (n=872)

| Variables | Exposure to COVID-19 risk information | | Perceived role of social media | | Risk perception | | Preventive behaviors | |
|---|---|---|---|---|---|---|---|---|
| | r/rho | P value | r/rho | P value | r/rho | P value | r/rho | P value |
| Age | 0.03 | 0.36 | -0.03 | 0.41 | -0.06 | 0.11 | 0.15 | 0.00** |
| Gender | 0.05 | 0.11 | 0.08 | 0.02 | -0.06 | 0.09 | 0.09 | 0.01* |
| Marital status | 0.03 | 0.29 | 0.01 | 0.74 | -0.02 | 0.55 | 0.13 | 0.00** |
| Educational Level | 0.08 | 0.01* | 0.11 | 0.002** | -0.03 | 0.32 | 0.05 | 0.19 |
| Occupation | -0.06 | 0.09 | 0.05 | 0.18 | -0.01 | 0.97 | -0.06 | 0.06 |
| Monthly income | -0.05 | 0.88 | 0.08 | 0.01* | -0.103 | 0.002** | 0.041 | 0.22 |

Note. Pearson's correlation coefficient used with quantitative continuous variables and dichotomous variables while Spearman's correlation coefficient used with other variables

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is highly significant at the 0.001 level (2-tailed).

## 4. Discussion:

The current study demonstrates that social media plays a major role as the main source of information about COVID-19. It showed that nearly half of the respondents had high and about one-third had moderate social media exposure to risk information about COVID-19. More than half of them had a high perception of the role played by social media during the COVID-19 pandemic, social media use has become easily accessible and highly appealing in the new era of technology, and the preference is for readily accessible and condensed information. Most of the respondents were found to be educated and had sufficient monthly income for basic needs and this was found to be positively correlated with social media exposure and the perceived role of social media during the COVID-19 pandemic. Similar findings were shown by a study from China by Mya, et al. (2020)[18] examined COVID-19 related awareness, perceived risk, and preventive behaviors among adults. Two-thirds of their respondents reported that they obtained health in-

formation about the COVID-19 from social media and perceived them as reliable, most trusted, and shared without verifying the source of information, while only a minority were used official MOH sources. In assessing the mental health problems associated with social media use during the COVID-19 outbreak in china, Gao, et al. (2020) [19] found that more than 80% of the respondents reported frequent exposure to social media searching for information about COVID-19. They further explored that highly educated respondents used social media as a source of information about COVID-19 more than those less educated. However, the study by Mya, et al. (2020) [18] found that respondents agreed to the necessity of sharing official MOH information about COVID-19 to avoid rumors and perceived that they were easy and timely access. The study by Karasneh, et al. (2020) [20] showed that respondents had moderate trust in what was shared on social media and agreed that media increase public fear and anxiety in these situations. A study from Canada by Bridgman, et al. (2020)[21] which compared the role of news and social media in COVID-19 related misperception, found that COVID-19 misinformation is highly circulated on social media platforms (especially Twitter). Thus, the role of social media during pandemics is controversial and requires more research to understand the extent and consequences of its utilization.

The present study clarified that the highest percent of the respondents had high and moderate COVID-19 risk perception; this can be explained that the dominant female gender and the middle-income level among the respondents with high concern for living conditions and infection risk. Similarly, Karasneh, et al. (2020) [20] and He, et al. (2020) [22] found that COVID-19 risk perception was predicted by the female gender. The latter also found a significant negative correlation between risk perception and monthly income which was compatible with the present study. Parallel findings were supported by three previous studies where respondents had high-risk perception score regarding fatality of the disease, perceived susceptibility, and concern about family health; the study by Karasneh, et al. (2020) [20], and the work of Honarvar, et al. (2020) [23] to assess Iranian adults' knowledge, attitudes, practices, and risk perceptions about COVID-19, and He, et al. (2020) [22] who analyzed COVID-19 risk perceptions and its related factors in China. However, Mya, et al. (2020)[18]depicted that COVID-19 risk perception was moderate (77.2%) or high (22.8%) with no respondents in the low category. This finding was attributed to the respondents' incorrect perceptions about COVID-19 as

less common among young and healthy people and the high fatality of the disease. The current study proved that the highest percentage of the respondents had high and moderate preventive behaviors toward COVID-19 which were further positively correlated with age, gender, and marital status. Also, the study found that a high rate of females who were married, and this could be due to the cultural context and concern for family welfare. Congruent findings were shown by a Saudi study done by Al-Hanawi, et al. (2020) [24] to assess the population's COVID-19 related knowledge, attitude, and practice. They found that most of the respondents had good preventive practices toward COVID-19 especially women and adults. Abdelrahman, (2020) [25] explored the effect of personality attributes, risk perception, and protecting behaviors against COVID-19 in Qatar and reported that the majority of respondents were adhering to COVID-19 preventive behaviors which are higher among women than men. Iorfa, et al. (2020) [26] investigated COVID-19 knowledge, risk perception, and protective behaviors showed that older age, female gender predicted higher involvement in precautionary behaviors among Nigerians. On the other hand, Mya, et al. (2020) [18] found that most of the respondents had inadequate preventive behaviors toward COVID-19 (only 22% of them had good practices). This can be attributed to the prevalent low knowledge level among most of the respondents in this contrary study. Faasse and Newby, (2020)[27] conducted an Australian study about public perception about COVID-19 and found that COVID-19 protective health behaviors were relatively low at the beginning of the outbreak however the intended behaviors were reassuringly high. This can be attributed to the lack of perceived risk at the beginning of the COVID-19 pandemic. The current study represented that social media exposure to risk information about COVID-19 and the perceived role of social media during the COVID-19 pandemic were significant predictors of both risk perception about COVID-19 and its preventive behaviors. This sheds the necessary light on the role of social media in shaping perceptions and engagement in preventive behaviors. The applied linear regression model showed that the social media exposure and its perceived role during the COVID-19 pandemic predicted 81.0% of the variation in risk perception where social media exposure to COVID-19 risk information had a higher impact than the perceived role of social media. In addition, it predicted that 11.4% of the variation in COVID-19 preventive behaviors where the perceived role of social media has a higher impact than social media exposure

to COVID-19 risk information. Congruent findings were shown in five recent studies. Faasse and Newby, (2020) [27] found that higher media exposure was a powerful predictor of COVID-19 preventive behaviors and vaccination intentions. Huynh, (2020) [28] investigated the role of media in risk perception among Vietnamese and Karasneh, et al. (2020)[20] from Jordan, explored that using social media had a positive impact on COVID-19 risk perception. Oh, et al. (2020) [29] demonstrated that social media exposure had a significant positive indirect effect on preventive behaviors and risk perception through the role of emotions (fear and anger) as mediators of the relationship. Choi, et al. (2017) [30] examined the effect of social media on risk perceptions during the MERS outbreak in Korea and showed that social media exposure was positively related to risk perception.

However, Bridgman, et al. (2020) [21] found a strong association between social media exposure and misperceptions about COVID-19 which were also found to be associated with lower levels of risk perceptions and social distancing compliance. This highlights that the impact of social media on risk perception and preventive behaviors during pandemics and outbreaks is still an area that requires additional research and the need for efforts to ensure the credibility of the information posted on social media platforms to enhance public risk perceptions to initiate active public response and promote preventive measures. The WHO has developed a webpage 2020 (myth busters) to detect and correct misinformation disseminated through social media about COVID-19 by developing special teams for technical risk communication to reply and track COVID-19 related myths and rumors. In addition to, guaranteeing the availability of evidence-based data about COVID-19 which is the most excellent vaccine against misinformation and rumors [31]

## 5. Conclusion:

The current study concluded that social media is an important source of health information about COVID-19 and has a major impact on risk perception and preventive behaviors. High and moderate trends of all the study variables were detected from the study findings regarding social media exposure for COVID-19 risk information, the perceived role of social media in COVID-19 pandemic, risk perception, and preventive behaviors. Social media exposure to COVID-19 risk information and the perceived role of social media were found to be significant predictors of both COVID-19 risk perception and preventive behaviors.

## 6. Recommendation:

- Development of social media-based hotlines to enhance public awareness and compliance with COVID-19 preventive behaviors.
- Establishment of social media-based risk communication campaigns and awareness programs with infographics about COVID-19 for public mobilization and disease containment.
- Enhancing public education to avoid dissemination of any misinformation without validating sources to avoid misleading data and rumors about COVID-19.
- Further research on the role of social media during pandemics and the relationship between social media use and mental health.

## Authors' Contribution:

All authors approved the final article.

## Conflict of interest:

authors affirm no conflicting interests.

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