

Effect of Social-Media based Nursing Instructions on Knowledge, and Self-Health Monitoring for Patients Suspected with Covid-19 during Quarantine

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Abstract

Background: In the COVID-19 era, social media has a significant benefit in terms of rapid transmission of instructional content. **Aim:** To evaluate the effect of social media-based nursing instructions on knowledge, and self-health monitoring for patients suspected with Covid-19 during quarantine. **Setting:** Screening unit of Main University Hospital, and Cardiology Hospital at Assiut University Hospitals. **Patients:** A total of ninety-three patients were chosen by purposive sampling technique. **Design:** Quasi (Pre-Post-test) experimental study. **Tool:** A structured interview-based questionnaire contained; Demographic profile, Quarantine patients' knowledge assessment, & Daily quarantined patient's self-health monitoring. **Results:** The mean age was 40.86 years old, with the majority being females. There was a highly statistically significant difference between pre/post of total knowledge score regarding Covid-19 and quarantine measures (15.52 ± 6.79 , 29.29 ± 2.21) respectively presented by P value equal (0.001**). Furthermore, there was a statistically significant difference between patients' educational level and their pre-total knowledge score with (P-Value = 0.002**). **Conclusion:** Social media-based nursing instructions could be a useful tool for enhancing knowledge and remote self-health monitoring for patients suspected with Covid-19 while they are at the quarantined period. **Recommendations:** More researches are needed to see how patients with Covid-19 could be satisfied with social media-based nursing guidance to improve their level of knowledge, as well as remote self-health monitoring.

Keywords: Health Monitoring, Nursing Instructions, Social Media, Patients Suspected with Covid-19 & Quarantine

Introduction:

Since 2020, the term “quarantine” has become familiar due to the global pandemic of coronavirus disease 19 (COVID-19). The coronavirus disease 2019 (COVID-19) pandemic has become world's largest public health emergency of the 21st century. On 30 January 2020, the World Health Organization declared COVID-19 to be a public health emergency of international concern (**World Health Organization, 2020**).

Quarantine has been used for many centuries as a strategy to control epidemic diseases that threaten to spread nationally or internationally. Quarantine means separation and restriction of movement of persons who have potentially been exposed to a contagious disease but are seemingly healthy. WHO recommends that contacts of patients with laboratory-confirmed COVID-19 should be quarantined for 14 days from the last time they were exposed to the patient, according to the WHO (**Xin et al., 2020**). **Huang et al., 2020 & Parola et al., 2020** also, explains that, quarantine should be implemented for

those contact people who is involved in any of the following from 2 days before and up to 14 days after the beginning of symptoms in individual suspected with or positively affected with COVID-19 and having direct contact with any patient with COVID-19 within 1 meter and for more than 15 minutes, providing direct services to any patient with COVID-19 without wearing proper personal protective equipment, living in the same residence in a close environment as a patient with COVID-19, for any length of time, travelling with patient with COVID-19 in close distance (within 1 meter separation).

As one of the key sources of information, social media platforms are considered the most comprehensively used and easiest accessible devices among users all over the world, because of quarantine and physical separation practices. More importantly, these tools are very effective to disseminate knowledge and information concerning diseases or a natural disaster (**Gonlez-Padilla & Tortolero-Blanco, 2020**).

Nursing instructions which provided to patient suspected with COVID-19 during quarantine are considered the most important measures that can help and play a crucial role in communicating why this measure is needed and providing appropriate support to enable patients to pass the quarantine period safely. Also, it provides people with clear, up-to-date, transparent, and consistent guidance, and with reliable information about quarantine measures implementation (World Health Organization, 2020).

Remote patient monitoring (RPM) sometimes known as remote patient management, involves the asynchronous transmission of health care data between physically distant patients and health care providers to aid in clinical management and it has been shown to be a viable alternative to traditional in-person care in terms of hospital readmission and symptom detection (Hamilton et al., 2020); & (Peretz et al., 2018).

The value of using RPM to deliver care to patients during the COVID-19 pandemic especially when people are in quarantine setting was recently described by, Watson et al., 2020, as it is low-cost, and has bidirectional features, which foster communication between patients and health care providers in an environment devoid of contamination. Moreover, Monaghesh and Hajizadeh, 2020, mention that RPM allows for daily monitoring of symptoms for patient with COVID-19 during the quarantine period.

Significance of the study:

The first patient with COVID-19 in Egypt was detected on February 30, 2020 (Worldometer, 2020). With high transmission efficiency and infectivity, quarantine for suspected patient with COVID-19 is considered a powerful preventive measure to control the spread of this disease. As well, COVID-19 marked the first global pandemic in the age of social media to establish active communications with the patients and then applied it to improve in patient's health. (Tangcharoensathien et al., 2020). Hence, the main goal of the present study was to evaluate the effect of social media-based nursing instructions on knowledge, and self-health monitoring for patients suspected with Covid-19 during quarantine.

Operational definitions:

Social media are web-based communication tools that enable people to interact with each other by sharing and consuming information. Available social media in this article are Mobile phone, Messenger, and WhatsApp (Zhao & Zhang, 2017)

Remote health monitoring: often abbreviated as RPM (and sometimes known as remote patient management), It is a method of healthcare delivery

that uses the latest advances in information technology to gather patient data outside of traditional healthcare settings (American Telehealth Association, 2018).

Quarantine means separation and restriction of movement of persons who have potentially been exposed to a contagious disease but are seemingly healthy (Xin et al., 2020).

Aim:

to evaluate the effect of social media-based nursing instructions on knowledge, and self-health monitoring for patients suspected with Covid-19 during quarantine.

Hypothesis:

The post mean of total knowledge scores of the patients suspected with Covid-19 during quarantine period who will be received social media-based nursing instructions as well self- health monitoring will be significantly higher than their pre mean of total knowledge scores.

Patients and Method:

Design: Quasi (Pre-Post-test) experimental design has been used to carry out this study.

Setting: This study has been carried out in screening unit of Main University Hospital, and Cardiology Hospital at Assiut University Hospitals.

Study patients and eligibility criteria: A total of (93) patients were recruited

- Aged between 18-65 years.
- Both genders.
- ⊖ Suspected with COVID-19
- Willing to participate
- Access to an electronic device and internet (mobile phone/tablet)

Exclusion criteria:

Patients having a history of mental illness, dementia, or severe communication problems.

Sampling technique: Purposive sampling technique was used. The estimation of the sample size was done by using the Epi info program based on 95% confidence coefficient, 10% acceptable error, 50% expected frequency and a population size of 300. The program revealed that the sample size is (93) patient.

Study Tool and Technique: A structured interview-based questionnaire was used to obtain information from the study patients. It was written in Arabic language, &it included the following parts:

Part 1: Demographic profile: It included (7) items related to age, gender, marital status, educational status, city of residence, type of house, and profession.

Part 2: Quarantine patients' knowledge assessment. It used to assess patient's knowledge about COVID-19 and its preventive measures adapted from (Erfani et al., 2020); & (The World Health

Organization, 2020). Using 10 questions related to incubation period, its clinical presentations, the prognosis of the diseases, and transmission routes, following social distancing measures and avoiding crowded places, wearing a face mask, & maintaining a balanced diet rich with vitamins and minerals to strengthen the immune system. Also, in this part 20 questions were related to quarantine measures knowledge adapted from (Elgendy et al., 2020); & (The World Health Organization, 2020). As stay at home, hand washing, self-monitoring (measuring body temperature, and monitoring disease symptoms), use of masks, social distancing, house cleaning, disinfectant and ventilation, avoid gatherings, following respiratory etiquette measures, restriction of movement, avoid sharing personal household items such as dishes, cups, towels, eating meals separately from family members, drink a lot of fluids, eating a lot of vegetables and fruits, using vitamins and minerals.

Scoring system:

All questions were closed-ended, and the participants were given a choice of answering by yes or no for knowledge. The incorrect response was given a (0) score, while (1) point was given for the correct answer. Total questions were =30 questions. Patients with knowledge, scores <70 % (Score<21) were considered as having unsatisfactory knowledge level, while those who scored 70% or more (Score >21) were considered having satisfactory knowledge level. Total knowledge score was 30 score

Part 3: Daily quarantined patient's self-health monitoring: it was prepared by Virginia Department of Health on Screening, (2020): which help patients to monitor themselves daily for at least 14 days from entering the quarantine setting at home and keep track of his symptoms with Covid-19. The section captured by (15) items related to body temperature monitoring twice daily, felt feverish, muscle aches, fatigue, runny nose, sore throat, cough, difficult breathing, severe headaches, diarrhea, nausea or vomiting, loss of smell/ loss of taste and sleep regularity. After the patient complete the symptom tracker log sheet daily, he or she submit it to the researchers throughout social media websites.

Data Collection Procedure:

- The study tool was formulated after extensive national and international literature review.
- The face validity was established by panel of 7 experts; three professors of Medical Surgical Nursing, three professors of community health nursing and one professor of clinical pathology who reviewed the study tool for clarity, relevance, comprehensiveness, understanding, and applicability.

- Reliability of the study tool was checked using Cronbach's alpha giving the value of (0.781) for tool used to evaluate the effect of social media-based nursing instructions on knowledge, and self-health monitoring of patients suspected with covid-19 during quarantine.
- An official approval letter was secured from directors of Assiut University hospitals and Cardiology Hospital. Verbal permission also was obtained from clinical resident and head nurse of screening unit. Before starting any data collection, the explanation for the study aim was done to obtain permission and cooperation for data collection.
- Prior patients' interview the study's purpose and nature were described, as well as patient consent was secured for voluntary participation. Anonymity and confidentiality were guaranteed.

Ethical consideration (consent):

- Research proposal was approved from Ethical Committee in the Faculty of Nursing.
- There is no risk for study subject during application of the research.
- The study was followed common ethical principles in clinical research.
- Oral consent was obtained from patient or guidance that is willing to participate in the study, after explaining the nature and purpose of the study.
- Confidentiality and anonymity were assured.
- Study subjects have the right to refuse to participate and or withdraw from the study without any rational any time.
- Study subject privacy was considered during collection of data
- A pilot study was carried out in a selected setting in December 2020 to test the feasibility and practicability of the study tools on 10% (9 individuals) of the total sample size, and an amendment was made accordingly. Those patients who were involved in the pilot study were included in the main study.
- Collection of data for this study began in March (2020) & ended in July (2020).
- All individuals who visited the mentioned setting for COVID-19 screening were the source of the study participants. The patient's stay in the hospital for 48 hours waiting for investigations result.
- The researchers were interviewing the patients individually to collect the necessary data (the pretest).

Nursing instructions: This was prepared in a booklet by the researchers according to WHO Considerations for quarantine of contacts of patients with COVID-19 (World Health Organization, 2020). It designed based on the analysis of the pretest and patients' need identified, in a simplified Arabic language and was supported by photo illustrations, it contained items

related to: meaning of quarantine, who should be quarantined, duration for quarantine, and recommendations to implement quarantine as provision of adequate food, water, protection, hygiene and communication; implementation of the infection prevention and control (IPC) measures; & the requirements for monitoring the health of quarantined persons during quarantine period.

- After that, the researchers sent a copy of nursing teaching content in the form of Power Point presentation software with video recording for more attraction and information clarification to all the study patients. Nursing instructions about Covid-19 & quarantine measures were available for the study patients at any time throughout the study period (14 day) using social media websites as (Messenger and WhatsApp and personal e-mails if available).
- A structured interview-based questionnaire was used pre implementation of nursing instructions to obtain information of the study participants related to demographic profile, and quarantine patients' knowledge. The questionnaire assessing knowledge toward Covid-19 & quarantine measures was answered on a yes/no basis. Tool (I), (the second section). It took an average of 10 to 15 minute. During data collection, filled questionnaires were checked for completeness and consistency.
- After data collection, the researchers were started explanation of nursing teaching content in the second day of patient's interview, in the form of face-to-face lecture. It was prepared using posters (including washing hands, hand rub with disinfectant, when and how wear face mask, measuring body temperature technique, environmental cleaning and disinfectant). At the time of explanation, the duration of lecture was about 15 – 20 minutes according to patient tolerance (**Coronavirus disease (COVID-19) advice for the public: When and how to use masks, 2020**).
- Before the patient discharge from the screening unit; the researchers emphasized the importance of remote health monitoring from their quarantine site at home to daily follow up of persons which include screening for body temperature and symptoms in accordance with **Virginia Department of Health on Screening, (2020)** for all patients and arranged with them methods of communication for follow up which included a 14 days at home quarantine and the time (from 9 in the morning to 2 in the afternoon) and (from 5 in the evening to 11 in the evening)

Follow up phase: Directly after nursing instructions implementation, –patient interview questionnaire was filled by the researchers as an immediate post-test to evaluate the effect of social media-based nursing instructions on knowledge, and self-health

monitoring of suspected patients with covid-19 during quarantine.

Statistical analysis:

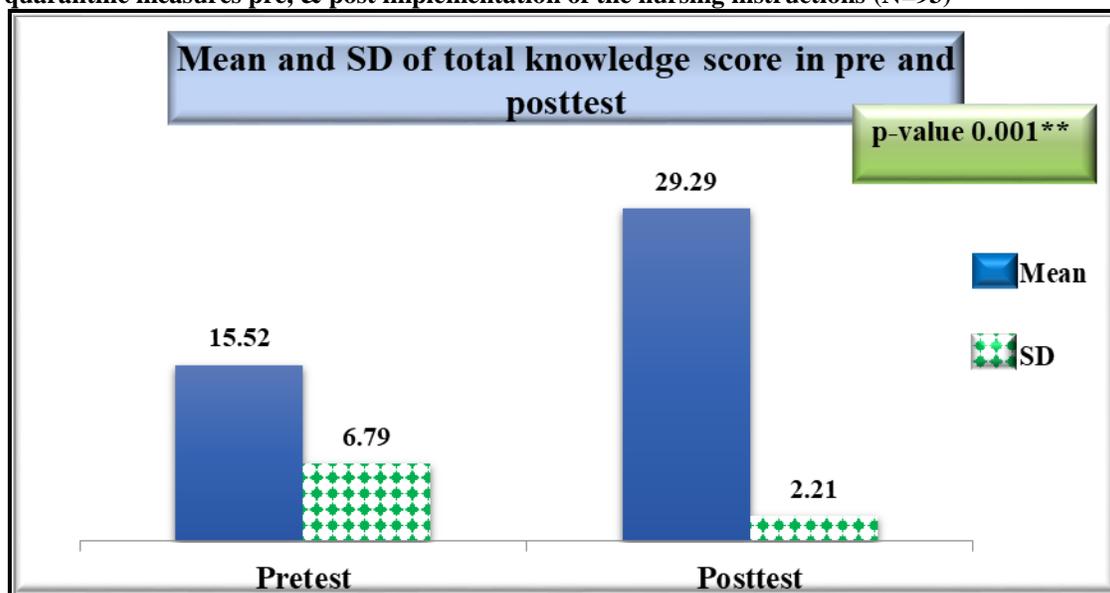
The Statistical Package for Social Sciences (SPSS) version (20) was used for extracting the data from the excel file and performing the analysis. The qualitative variables were described using frequency and percentages, and quantitative variables were described using range, mean, and standard deviation. Chi-square test was used. P value <0.05 was considered significant.

Results

Table (1): Frequency distribution of the study patients according to demographic profile. (N=93)

Variables	Category	N.	%
Age group	• Less than 30 yrs.	24	25.8
	• 30-40 yrs.	25	26.9
	• More than 40 years	44	47.3
Mean age	40.86±12.72		
Gender	• Male	29	31.2
	• Female	64	68.8
Marital status	• Single	14	15.1
	• Married	75	80.6
	• Divorced	1	1.1
	• Widow	3	3.2
Educational level	• Illiterate	0	0.0
	• Primary School	1	1.1
	• Secondary School	48	51.6
	• University	44	47.3
City of residence	• Rural	41	44.1
	• Urban	52	55.9
Types of house	• Apartment	53	57.0
	• Home	40	43.0
Profession	• Retired	6	6.5
	• Employee	63	67.6
	• Housewife	14	15.1
	• Craftsman	1	1.1
	• Freelance	2	2.2
	• Not working	7	7.5

Figure (1): Comparison of mean score and standard deviation (S.D.) of patient's knowledge regarding covid-19 & quarantine measures pre, & post implementation of the nursing instructions (N=93)



(**) highly statistically significant difference

Table (2): Mean score and standard deviation of body temperature monitoring reported by patients suspected with covid-19 during 14 days of quarantine (N=93)

Body temperature monitoring (Mean ±SD)	14 days of quarantine													
	1 st	2 nd	3 th	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th	13 th	14 th
	38.5	38.4	38.2	37.9	37.6	37.3	37.2	37.1	37.2	37.1	37.1	37.1	37.1	37.1
±0.45	±0.36	±0.41	±0.45	±0.47	±0.41	±0.27	±0.24	±0.22	±0.20	±0.20	±0.17	±0.20	±0.19	

Figure (2): Daily self-health monitoring symptoms reported by patients suspected with covid-19 during the 14 days of quarantine (N=93)

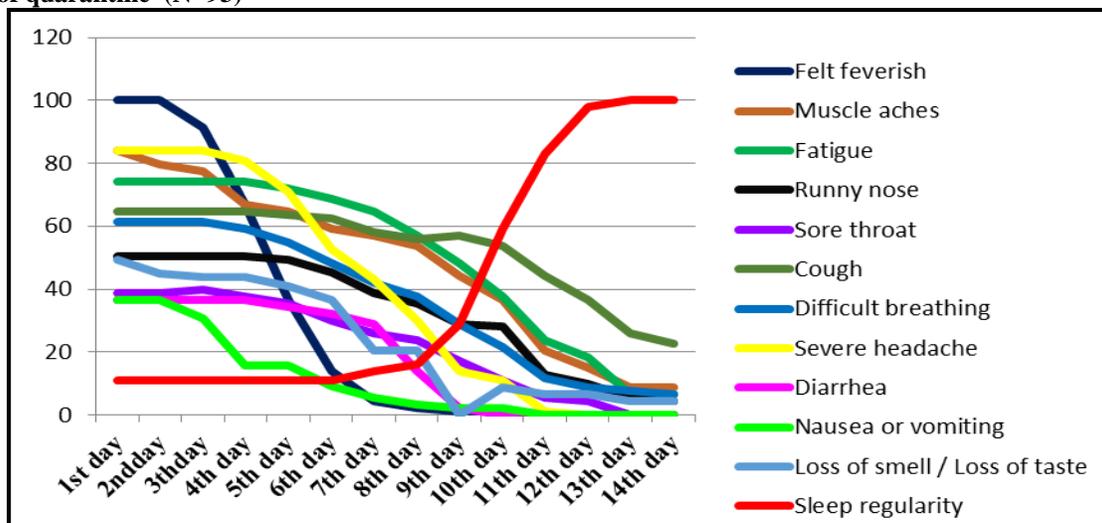


Table (3): Relation between demographic profile and total knowledge score among suspected patients with covid-19 pre implementation of social media-based nursing instructions (N=93)

Personal data	Total knowledge in pre test				Total	P-value
	Satisfactory		Unsatisfactory			
	N	%	N	%		
Age group						0.311
• Less than 30 yrs.	5	20.8	19	79.2	24(100.0)	
• 30-40 yrs.	9	36.0	16	64.0	25(100.0)	
• More than 40 yrs.	9	20.5	35	79.5	44(100.0)	
Marital status						0.172
• Unmarried	2	14.3	12	85.7	14(100.0)	
• Married	20	26.7	55	73.3	75(100.0)	
• Divorced	1	100.0	0	0.0	1(100.0)	
• Widow	0	0.0	3	100.0	3(100.0)	
Educational level						0.002**
• Illiterate	0	0.0	10	100.0	10(100.0)	
• Primary School	0	0.0	1	100.0	1(100.0)	
• Secondary School	7	14.6	41	85.4	48(100.0)	
• University	16	47.1	18	52.9	34 (100.0)	
Residence						0.129
• Rural	3	17.1	34	82.9	41(100.0)	
• Urban	5	30.8	36	69.2	52(100.0)	

Chi-square test

(**) highly statistical significant difference

Table (1): Depicts that the mean age of the study patients was 40.86 years with ± 12.72 standard deviation, less than half of them (47.3%) belonged to the age group of more than 40 years old. Majority of them (68.8%, 67.7%) respectively were females and employee and living in apartment, and little over half of them (50.1%, 55.6%) respectively were holding a secondary school and were living in urban areas.

Figure (1): Illustrates a highly statistically significant difference between pre and post implementation of the social media-based nursing instructions regarding covid-19 & quarantine measures ($P=0.001^{**}$).

Table (2): Shows that the patients' body temperature increased significantly over the first three days of quarantine compared to the last day of quarantine.

Figure (2): Demonstrates that, majority of the study patients suffer from fever, muscle aches, severe headache, fatigue, cough, and difficult breathing.

Table (3): Relation between demographic profile and total knowledge score among patients suspected with covid-19 pre implementation of social media-based nursing instructions is presented in table 3. It points to statistically significant association with patient's educational level pre implementation of the nursing instructions ($P\text{-Value} = 0.002^{**}$).

Discussion:

Countries relied on non-pharmaceutical interventions to fight the COVID-19 epidemic in early 2020. Among non-pharmaceutical interventions, quarantine interventions were very effective in reducing COVID-19 transmissions. A modelling study conducted for 11 European countries estimated that general quarantine alone allowed for a reduction of 81% in the number of COVID-19 infections (Raoufi et al., 2020) & (Flaxman et al., 2020). The coronavirus pandemic of 2020 is the first global health crisis in the age of social media. So, the study's aim was to evaluate the effect of social media-based nursing instructions on knowledge, and self-health monitoring for patients on quarantined suspected with Covid-19 during quarantine.

Based on the result of the current study; it was found that the mean age of the study patients was 40.86 years old with ± 12.72 standard deviation, less than half of them belonged to the age group of more than 40 years old. Majority of them were females, or employee, and little over half of them were holding a secondary school level of education. This could be attributed to that patient aged more than 40 years were prone to develop more infections as natural immunity declines gradually at older ages. Also, from the researchers' point of view, the closeness of contact with others in work settings, and using public transport that prone the employee's patients at risk of acquire COVID-19 infection.

Similar finding was revealed by (Labban et al., 2020) who found that more than half of the respondents were between the ages of 35 and 50 years old. On the other hand, (Daniel et al., 2021) revealed contradictory results, where they found the majority of study participants were males, had college level of education and the mean age of them was 35.5 years old with ± 13.0 standard deviation.

Regarding residence of the study patients, the results of the present study demonstrated that, more than one half were living in urban areas. In this respect, (Yan et al., 2021) found most of the study participants were living in urban areas. It may be attributed to rural residents have a higher prevalence of pre-existing conditions and comorbidities (e.g., diabetes, heart disease, obesity, and smoking) that put them at greater risk of COVID-19 complications.

The existing study also, showed that there was a highly statistically significant difference between pre and post implementation of social media-based nursing instructions regarding covid-19 & quarantine measures. This could be attributed to these patients need simplified and organized information in order to reduce panic and depression during the quarantine period. Also, this could be attributed to the characteristics of the sample as the majority of them were educated. This study finding was supported by (Ahmed et al., 2021) & (Elgendy et al., 2021) as they mentioned that patient education and remote care are crucial part of the nursing role when its implementation reduces the use of resources in health centers, improves access to care, while minimizing the risk of direct transmission of the infectious agent from person to person, decrease patient worry and raises patients' satisfaction level regarding the healthcare services provided.

Alzoubi et al., 2020, they are consistent with the findings of the current study which claimed that people have gained awareness and knowledge about the disease and its transmission, via social media platforms to protect themselves and their families. According to the researchers' explanation, this finding could be related to the declaration of the pandemic, Egypt's Ministry of Health, which allowed for them to use all means of communications, such as mobile messages, and even sponsored ads on social media platforms (Facebook, WhatsApp, Messenger, Twitter, and Snapchat) in teaching to such group of patients about the disease and its main preventive measures.

Regarding daily self-health monitoring among patients at quarantine period for 14 days, it was found that there was a significant increase in the patients' body temperature in the first 3 days compared to its presence on the last day of quarantine area. Also, it was found that, the majority of the study patients

suffer from fever, muscle aches, severe headache, fatigue, cough, and difficulty in breathing.

According to **Elkbuli et al., 2020 & Chauhan et al., 2020**, as they pointed that implementing and utilizing remote management system to manage patients with COVID-19, especially when people are in quarantine enabling them to contact with health care provider to get an advice about their health problems, which allows for daily monitoring of symptoms, reduces the use of limited hospital resources, improves access to care, and lessens the transmission of COVID-19 infection. This may be attributed that remote patient monitoring provides protection to both the nurse and patient, preventing possible spread of COVID-19 infection while allowing for continued patient care.

Also, **O'Moore et al., 2020**, observed in their study that patient suspected with "COVID-19 infection, needs quarantine for at least 14 days. These results also are in congruence with (**Hopkins, 2020**) who stated that the temperature seems to rise to approximately 39 degrees or more during the first days of home quarantine and then the person may feel a partial improvement until the end of 14-day period. Moreover, (**Zhong et al., 2020**) they identified the common symptoms of COVID-19 as fever, fatigue, dry cough, myalgia, dyspnea, headache, dizziness, and abdominal pain.

On studying the relation between demographic profile and total knowledge score regarding covid-19 & quarantine measures, it was found that in this study, there was a statistically significant association between patients' total knowledge score and their educational level. Our results were compatible with many studies done by (**Yazew et al., 2021**); (**Zhong et al., 2020**); (**Byanaku et al., 2020**); (**Alahdal et al., 2020**); (**Al-Hanawi et al., 2020**) ; & (**Abdelhafiz et al., 2020**), as all the prewise studies conducted in different parts of the world that showed similar significance finding in terms of better knowledge and practice about COVID-19 infection were among the educated and employed people. From the researchers' point of view, this category always searches and finds out what is new about this virus through social or other sites in order to protect himself and his family.

Finally, it could be concluded that, social media-based nursing instructions given for patients suspected with covid-19 during quarantine period had achieved its hypothesis by improving patients' knowledge and showed its impact on daily monitoring of symptoms.

Conclusions:

Our findings showed that social media-based nursing instructions could be a useful tool for enhancing knowledge and remote self-health monitoring of

patients suspected with Covid-19 infection while they are in quarantined.

Recommendations:

More research is needed to see to what extend patients are satisfied with social media-based nursing guidance, as well as remote self-health monitoring. Also, using observational method to assess patient's compliance with quarantine measures instructions

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Conflict of Interest.

There is no conflict of interest related to this research.

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