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ASSESSMENT OF KNOWLEDGE, ATTITUDES AND COMPLIANCE WITH COVID-19 PRECAUTIONARY MEASURES AMONG UROLOGY PATIENTS IN AL-JOUF REGION, SAUDI ARABIA

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Abstract

Current study aims to investigate the level of knowledge, attitudes, and practices to COVID-19 precautionary measures among urology patients attending outpatient clinics in the public hospitals at Al-Jouf region, Northern of Saudi Arabia.

A descriptive cross-sectional study was carried out in Al-Jouf region, Northern of Saudi Arabia. The study sample was recruited conveniently. The sample size was 274 urology patients who attended three public hospitals in Al-Jouf region; they are Prince Muteab bin Abdulaziz public hospital, Al-Qurayyat General hospital and Tabarjal public hospital. A self-filled questionnaire consisting of four parts was distributed over the study participants. The questionnaire will consist of 32 items measuring the knowledge, attitudes, and practice of COVID-19 precautionary measures. A three-point Likert scale will be used to scale each item (Agree, neutral, and disagree).

The study findings revealed that Saudi urology patients in Al-Jouf region had a level of knowledge about COVID-19 precautionary measures (2.15±0.74). In addition, the results showed that the participants had positive attitudes towards COVID-19 precautionary measures (2.47±0.68). Finally, the study results indicated that there was a high degree of compliance to the safety practices of COVID-19 pandemic (2.32±0.63).

The study concluded that the urology patients attending the outpatient clinics in Al-Jouf region had a high level of knowledge, positive attitudes and high compliance to the COVID-19 precautionary measures. The study recommended performing more extensive educational programs and awareness campaigns to increase patients' knowledge, awareness and compliance to the precautionary measures of COVID-19 outbreak.

Keywords: *COVID-19, compliance, attitudes, knowledge, practices, urology.*

Introduction

Coronavirus disease 2019, also called COVID-19, is caused by a highly contagious virus of Coronavirus family called as sever acute respiratory syndrome coronavirus-2 (SARS-CoV-2) [*Alahdal Het al., 2020; Al-Hanawi M, 2020*]. It first appeared in the Wuhan city of China in December 2019, and has quickly spread out around the world [*Almutairi A et al., 2020*]. Mainly affecting the respiratory system, SARS-CoV-2 can cause pneumonia and acute respiratory distress syndrome (ARDS) as well as several other extrapulmonary manifestations, including hematologic, cardiovascular and thrombotic sequelae. These extrapulmonary manifestations can be either due to direct or indirect effects of the COVID-19.

The virus spreads through droplets, when an infected person coughs or sneezes, they project droplets of the virus out into the air [*Al-Rabiaah A et al., 2020; Carmine C, Giorgi Federico M, 2020; Lou B et al., 2020*]. These droplets then land on different surfaces or are inhaled by healthy person. This direct inhalation of viral droplets is the most common way by which virus spreads [*Dashraath B et al., 2020*]. Another way by which the spread is when the viral droplets land on surfaces (like door handles, elevator buttons) and If a healthy person touches the surface that has droplets on it and then touches their eyes, nose or mouth, it's possible for them to get sick [*Diao B et al., 2020; Ebrahim S, Memish, Z, 2020*]. These are gateways for the virus to enter into human body.

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COVID-19 is an ongoing pandemic. It is quickly spreading worldwide, and this enhanced the World Health Organization (WHO) to declare the emergency state on January 31st 2020 due to the concerns about an emerging outbreak of COVID-19 [*Fauci A et al, 2020; Gupta, M et al., 2020*]. Countries around the world have put in precaution measures to limit the spread of this pandemic to their citizens [*Lau S et al., 2020*]. There is a lot out there about COVID-19. Guidelines and recommendations are changing quickly as we learn more about the virus and how it acts [*Ng Y, Peggy P, 2020*]. Trying to keep up with "what to do" and "what not to do" can be confusing and overwhelming.

As corona virus spreads to almost all of the countries across the world, people are taking all the necessary precautions, including avoiding physical contact, the way people greet others is now also witnessing a change where people really shying away from handshakes and hugs [*Nooh H, et al., 2020*]. A number of studies have been carried out investigate the level of knowledge, attitudes, and practices to COVID-19 precautionary measure. Currently only the precautionary measures are the ways to prevent spreads of COVID-19. So, this study aims to investigate the level of knowledge, attitudes, and practices to COVID-19 precautionary measures among urology patients attending outpatient clinics in the public hospitals at Al-Jouf region, Northern of Saudi Arabia.

Significance of the study: Despite several precautionary decisions made by the Saudi government to prevent the spread of infection, there were many cases [*Surveillances V, 2020*]. The virus impacts the respiratory system, which led to deaths, according to global health reports [*Paquot M, Plonsky L, 2020*]. Many of the published studies on COVID-19 have highlighted lungs as the main organ affected in this disease.

To overcome it is possible, due to the uniting the knowledge and will of all doctors in the world

The number of COVID-19 cases in Saudi Arabia significantly indicated that there was no broken ring in the viral spread chain [*Patel Z et al., 2020*]. Following the precautionary measures recommended either by the international health bodies or by the Saudi Ministry of Health might be still not significant. Compliance to precautionary measures was reported in different studies as the main step that remarkably breaks the outbreak chain. Therefore, it is important to investigate the compliance of the community members to the precautionary measures of COVID-19 outbreak in Saudi Arabia in general, and patients attending primary healthcare institutions in particular [*Qian G et al., 2020*]. The current study aims to measure the knowledge, awareness and both practice and compliance of the public to COVID-19 precautionary measures among urology patients attending public hospitals in Al-Jouf region, northern of Saudi Arabia.

MATERIAL AND METHODS

Research design/Methodology: The quantitative research design was used in this study. A cross-sectional study was carried out to answer the research questions. The cross-sectional studies can also be called a prevalence study because a cross-sectional study is measuring the prevalence of exposure, disease, or phenomenon in a specific population. Therefore, it is looking at individuals, so that is one way characterizing it from ecologic studies. The cross- sectional studies look at a single point of time. In cross-sectional study, we have a defined population and we just look at the proportion of the population that has the exposure or the variable under investigation [*Russell C et al., 2020*].

Population and Setting: The population of this study was urology patients (Saudi and non-Saudi) attending the urology outpatients clinics in the public hospitals in Al-Jouf Region in the period between June and October/2020. The population number 1341 as indicated by the records of the selected settings.

Al-Jouf region is one of the regions located in the Kingdom of Saudi Arabia, and it is surrounded by many countries from all directions, so it is bordered on the north western side by the Hashemite Kingdom of Jordan, and on the southern side it is bordered by the city of Hail and Tabuk, and on the north and east side is bordered by the northern border region, and this region is distinguished by planting a large number of olive trees on its land, in addition to being considered one of the largest resorts

for olive production in the Kingdom of Saudi Arabia, with a population of about 500 thousand people.

The study investigated three public hospitals, they are: Prince Muteab bin Abdulaziz public hospital, Al-Qurayyat General hospital and Tabarjal public hospital. The targeted groups were urology patients attended the urology outpatients clinics in the period between June and October/2020.

Prince Muteab bin Abdulaziz has an operational capacity of 300 beds and providing healthcare services for more than 370 thousands of people living in Skaka city and the surrounding areas. In addition, Al-Qurayyat General hospital has an operational capacity of 250 beds and providing healthcare services for more than 200 thousands of citizens and residents. Finally, Tabarjal public hospital with an operational capacity of 150 beds is providing healthcare services for more than 60 thousands of people residing in Tabarjal city and the surrounding villages.

Sampling Strategy and Sample Size: The researchers recruited a convenient sample in this study. A non-probability sampling method was used in this study to select the appropriate number of participants. Convenient sampling is a non-random sampling method that chooses individuals that are easiest to recruit. The sample size will be calculated using a confidence interval of 0.95 and a margin error of 5%. Therefore, the sample size recruited from Al-Jouf region population will be 274 participants. This sampling technique will be used as it is nearly impossible to get a random sample. The advantage of convenience sampling is that it is a cheap method and extensively used/understood.

Data collection instrument: The data collection instrument in this study was an adapted version of the self-filled questionnaire developed in the study of Al-Ahdal H. and co-authors (2020). The questionnaire consisted of two parts; the first part will be investigating the participants' demographic characteristics (Age, gender, years of experience, educational level, marital status, and the type of the urological disorder). The second part will be consisted of 32 items measuring the level of urology patients knowledge (13 items), Attitudes (8 items) and practices (11 items) related the precautionary measures of COVID-19. A Three-point Likert scale ranging from 1 (disagree) to 3 (agree) was used to scale each item.

This study was carried out in the third quarter of 2020, between June and October. The data collection process will be scheduled to start in July and end at the beginning of October. A snowball strategy will be used to reach the maximum number of the participants. The snowball strategy includes asking the possible participants to recruit as much participants as they can by sending the questionnaire link to them.

Inclusion and Exclusion Criteria

Inclusion criteria:

- Being a urology patient attending the urology outpatients clinics in Al-Jouf city at least for the last six months.
- Being over 18 years.
- Able to read and write either Arabic or English languages.

Exclusion criteria

- Individuals younger than 18 years old
- Individuals living in Al-Jouf for less than six months.
- Individuals unable to write or read both Arabic and English.

Data Analysis plan: The researchers designed the primary version of the questionnaire and check this version for validity and reliability. The questionnaire was distributed to the urology patients attending the urology outpatient clinics in the selected settings. The researchers visited the outpatient clinics several times to ensure recruitment of the highest number of the subjects. A consent form was enclosed with the questionnaire package. The researchers introduced the aim, significance and expected outcomes of the study for the recruited patients. The gathered data was checked for completeness and was analyzed using the Statistical Package of Social Sciences. The participants; demographic data were analyzed using the descriptive statistics such as frequencies, percentages, means and standard deviations. The responses to the questionnaire items were analyzed through calculating the descriptive statistics, such as frequencies, percentages, means, and standard deviations.

Ethical considerations ; The following ethical issues will be taken in consideration when conducting the present study: Getting the research conducting approval from Ethical approval (No 050) to conduct study was obtained from Local Ethical Committee, MOH, KSA, prior to data col-

lection in 27/09/2020. In addition, the participants' were asked to sign a consent form before enrolling in this study. The signing of the consent form granted the participants an access to the online questionnaire. The participants' were ensured that the data will be used only for research purposes and will not be introduced to public. Finally, the participants were granted the right to withdraw from the study without any further consequences. For the data collection instrument, the authors' permission had been taken before using the items to collect data from the study participants.

Results

The results shown in table 1 represent the socio-demographic and clinical characteristics of the study participants. The results showed that males constituted 54% of the study participants, whereas 46% were females. The patients aged 35 to less than 45 years represented the highest category of the study participants (n=131, 47.8%). About 70.4% (n=193) of the participating patients were married. With regard to employment status of the study participants, the majority of the participants (n=204, 70.4%) were having full time jobs. Investigating the educational level of the study participants revealed that 80.7% (n=221) of the participating patients were holding a bachelor degree.

Finally, investigating the urological disorder of the study participants indicated that 51.8% (n=142) of the study participants had Urinary Tract Infections (UTIs), 29.6% (n=81) had kidney stones, and 4.7% (n=13) had benign prostatic hyperplasia.

The results shown in table 2 represent the means and standard deviation scores of the participants' responses on the knowledge scale related to COVID-19 precautionary measures. The results revealed that item four stating that "COVID-19 is transmitted by coughing" was ranked first (2.62±1.03), followed by item five stating that. "The disease is transmitted through touching and shaking hands" with a mean score of 2.51±0.57, in the third rank was the sixth item stating that "The disease is transmitted by using an infected person tools" (2.41±0.68). The lowest ranked items were the first item stating that "COVID-19 is transmitted because of immunodeficiency' (2.16±0.71), the eleventh item stating that "One week is the period needed to recover from COVID-19 disease and able to socialize with others" (2.14±107), followed by the ninth item "The disease symptoms are similar to seasonal influenza symptoms" (2.09±0.83), the tenth item "One of the disease symptoms is diarrhea" (1.44±1.07) and the second item "COVID-19 is transmitted because of genetic diseases" (1.16±0.55).

The results revealed that the total scale score of the knowledge of the COVID-19 precautionary measure was 2.15±0.74, which indicated that urology patients had a high level of knowledge regarding the COVID-19 precautionary measures.

The results shown in table 3 represent the mean and standard deviation scores of the attitudes towards COVID-19 precautionary measures among

Table 1.

Socio-demographic characteristics of the participating Urology Patients.

Variable	n (%)
Gender:	
Female	126 (46)
Male	148(54%)
Age	
Less than 25 years	12 (4.4%)
25 - 35 years	81 (29.6)
35 - 45 years	131 (47.8)
More than 45 years	50 (18.2)
Marital Status	
Single	24 (8.8%)
Married	193 (70.4%)
Divorced	35 (12.8%)
Widowed	22 (8%)
Employment	
Full time	204 (74.4%)
Part time	55 (20.1%)
No job	15 (5.5%)
Educational level	
Illiterate	3 (1%)
School certificate	19 (6.9%)
Diploma	7 (2.6%)
Bachelor degree	221 (80.7%)
Master degree or higher	24 (8.8%)
Urological disorder	
Benign prostatic hyperplasia	13 (4.7%)
Prostate cancer	9 (3.3%)
Nocturia	2 (0.73%)
Hematuria	6 (2.2%)
Urinary tract infections	142 (51.8%)
Kidney stones	81 (29.6%)
Bladder Cancer	1 (0.36)
Infertility	9 (3.3%)
Prostatitis	3 (1.1%)
Kidney tumor	8 (2.91%)

Saudi urology patients. The results revealed that the eighth item stating that "Curfew can reduce the spread of the virus" was ranked first (2.88±0.61), followed by first item stating that "Stay at home helps to reduce the spread of the virus" (2.87±0.71). The third rank was for the sixth item stating that "Closure of malls can reduce the spread of the virus" (2.82±0.73). In addition, the third statement stating that "Isolate infected people can help to limit the spread of disease" was ranked fourth (2.79±0.63), followed by the second statement "Closure of the land, sea and airports can reduce the spread of the virus" (2.69±0.51).

The lowest ranked statements were the seventh statement "Stop travelling between cities can control the spread of the disease" (2.35±0.54), followed by the fifth statement: "Stopping schools and universities can reduce the spread of the virus" (2.34±1.21). Finally was the fourth statement "Socialize with family and friends can limit the spread of the virus" (1.03±0.49).

The results of the attitudes scale showed that the participants had positive attitudes towards the precautionary measures of the COVID-19 pandemic, as the total score of the attitudes scale was (2.4 ±0.68).

The results shown in table 4 represent the mean and standard deviation scores of the urology patients practices related to COVID-19 precautionary measures. The participants indicated that Wearing masks in public places can reduce the spread of the virus (2.93±0.48), Covering mouth and nose during sneezing and coughing can reduce the spread of the virus (2.91±0.71), Wearing a mask during sickness can reduce the spread of the virus (2.80±0.56), Washing hands carefully with soap can reduce the spread of the virus (2.71±0.54). Cleaning and sanitizing surfaces can reduce the spread of the virus (2.51±0.55).

TABLE 2.

Means and standard deviations of the knowledge items scale.

No	Items	M	SD	Rank
1	COVID-19 is transmitted because of immunodeficiency	2.16	0.71	9
2	COVID-19 is transmitted because of genetic diseases	1.16	0.55	13
3	COVID-19 is transmitted from a viral-infected person to a non-infected another person	2.32	0.48	6
4	COVID-19 is transmitted by coughing	2.62	1.03	1
5	The disease is transmitted through touching and shaking hands	2.51	0.57	2
6	The disease is transmitted by using an infected person tools	2.41	0.68	3
7	The disease is transmitted by sexual intercourse	2.33	0.77	5
8	The disease can be transmitted from human to pets and vice versa	2.21	0.50	8
9	The disease symptoms are similar to seasonal influenza symptoms	2.09	0.83	11
10	One of the disease symptoms is diarrhea	1.44	1.18	12
11	One week is the period needed to recover from COVID-19 disease and able to socialize with others	2.14	1.07	10
12	Children can be infected with the virus that causes COVID-19	2.36	0.57	4
13	Treatment with antibiotics can kill the virus caused COVID-19 disease	2.29	0.72	7
	Total	2.15	0.74	

TABLE 3.

Means and standard deviations of the Attitudes items scale.

No	Items	M	SD	Rank
1	Stay at home helps to reduce the spread of the virus	2.87	0.71	2
2	Closure of the land, sea and airports can reduce the spread of the virus	2.69	0.51	5
3	Isolate infected people can help to limit the spread of disease	2.79	0.63	4
4	Socialize with family and friends can limit the spread of the virus	1.03	0.49	8
5	Stop schools and universities can reduce the spread of the virus	2.34	1.21	7
6	. Closure of malls can reduce the spread of the virus	2.82	0.73	3
7	Stop travelling between cities can control the spread of the disease	2.35	0.54	6
8	Curfew can reduce the spread of the virus	2.88	0.61	1
	Total	2.47	0.68	

In addition, the patients reported that Drinking water is a positive practice that can reduce the spread of the virus (2.34±0.61), they Sanitize all groceries before using can reduce the spread of the virus (2.19±0.77), Wearing masks for healthy people can reduce the spread of the virus (2.16±1.08), Washing fruit and vegetables with soap and water can reduce the spread of the virus (2.01 ± 0.37), Shaking hands can reduce the spread of the virus (1.81±0.68). Finally, the participants reported that touching eyes, nose and mouth can reduce the spread of the virus (1.17±0.64).

The results of the total practices scale showed that the urology patients had a high level of correct practices related to the COVID-19 precautionary measures (2.32±0.63).

TABLE 4.

Means and standard deviations of the Practice items scale.

No.	Items	M	SD	Rank
1	Washing hands carefully with soap can reduce the spread of the virus	2.71	0.54	4
2	Touching eyes, nose and mouth can reduce the spread of the virus	1.17	0.64	11
3	Covering mouth and nose during sneezing and coughing can reduce the spread of the virus	2.91	0.71	2
4	Wearing a mask during sickness can reduce the spread of the virus	2.80	0.56	3
5	Wearing masks in public places can reduce the spread of the virus	2.93	0.48	1
6	Wearing masks for healthy people can reduce the spread of the virus	2.16	1.08	8
7	Drinking water is a positive practice that can reduce the spread of the virus	2.34	0.61	6
8	Cleaning and sanitizing surfaces can reduce the spread of the virus	2.51	0.55	5
9	Shaking hands can reduce the spread of the virus	1.81	0.68	10
10	Washing fruit and vegetables with soap and water can reduce the spread of the virus	2.01	0.37	9
11	Sanitize all groceries before using can reduce the spread of the virus	2.19	0.77	7
	Total	2.32	0.63	

DISCUSSION

Present study sought to assess the level of knowledge, attitudes and practices of COVID-19 precautionary measures among urology patients attending the urology outpatient clinics in Jouf region, northern of Saudi Arabia. The findings of the study revealed that the study participants had a high level of knowledge about the COVID-19 precautionary measures. This was evident by their responses related to mode of transmission of the COVID-19 virus, identifying the symptoms of the disease, the recovery period from the disease, and the use of antibiotics to treat the disease. This high level of knowledge might be attributed to the extensive and different awareness campaigns held by the health authorities in Jouf region, especially in the public hospitals. The health authorities in Saudi Arabia had performed extensive campaigns to increase the patients' knowledge and awareness about the precautionary measures during the last four months. In addition, the high level of knowledge among the urology patients might be attributed mainly to the health education interventions and campaigns performed by the healthcare workers in the urology departments.

Present study results are somehow similar to the results reported by Al-Ahdal H. and co-authors (2020), which revealed that Saudi population, had a moderate to high level of knowledge regarding the precautionary measures of COVID-19 outbreak. In addition, the findings are similar to the findings reported by Al-Hanawi M. and co-authors (2020) who reported that Saudi community members had a high level of knowledge about the precautionary measures of COVID-19 pandemic.

Moreover, the results of the current study revealed that urology patients had positive attitudes towards the precautionary measures of COVID-19 pandemic. The participants showed positive attitudes towards the social distancing precautionary measures such as staying at home, isolating infected people, stopping the educational process and many other actions that might prevent the spread of the virus. In addition, the participants showed positive attitudes towards closing air, sea and land ports to the country in order to prevent

the entrance of possible infected people to the country. The study participants reported that curfew would strongly reduce the spread of the virus. The positive attitudes of the urology patients towards the COVID-19 precautionary measures might be attributed to the declared benefits of the social distancing and closure of ports in reducing the spread of the virus. The health authorities heavily focused on the social distancing as a core mean to reduce the spread of the virus. In addition, the educational content distributed through media means and healthcare workers strongly participated in forming positive attitudes towards COVID-19 precautionary measures among the patients attending the urology outpatient clinics. Furthermore, the positive attitudes towards COVID-19 precautionary measures might be attributed to the educational level of the study participants. As noticed, the majority of the study participants were holding a bachelor degree, which means that they are educated enough and understand the significance of the precautionary measures taken to reduce the spread of the virus.

The findings of this study are similar to the findings reported by Al-Ahdal H. and co-authors (2020) and the findings reported by Al-Hanawi M. and co-authors (2020), which revealed that Saudi community members had positive attitudes towards the precautionary measures of COVID-19 pandemic.

Finally, the study findings showed that the urology patients attending the outpatient clinics in Jouf city showed a high level of practices related to the COVID-19 precautionary measures. This was shown by reporting the correct practices such as personal hygiene practices, wearing personal protective equipment, cleaning and sanitizing the utilities and groceries before using them and limiting the complimenting acts. This high level of satisfying practices might be referred to the high level of knowledge and the positive attitudes towards the COVID-19 precautionary measures. In addition, the high level of practices related to COVID-19 pandemic precautionary measures could be referred to the warning alarms released by the health authorities, the regulations and the laws taken to ensure the commitment of the public to the precautionary measures to reduce the spread of the virus.

The findings of the current study are in line and consistent with the findings reported by Al-Ahdal H. and colleagues (2020) who reported that Saudi community members are compliant to the safety practices that might reduce the spread of the COVID-19 pandemic. On the other hand, the results were inconsistent with Powell-Jackson T. and co-authors (2020) findings, which revealed that Tanzanian healthcare workers had a low level of compliance to the safety practices related to COVID-19 pandemic. In addition, the results were inconsistent with those findings [*Almutairi A et al., 2020*], which indicated that the Saudi community members had a low level of compliance to the safety practices related to COVID-19 outbreak.

Conclusion

The study results showed that urology patients attending the urology outpatient clinics in Jouf region had a high level of knowledge, positive attitudes and high level of safety practices related to COVID-19 pandemic. Despite this high level of knowledge, attitudes and practices, still there is a need to perform an extended research study to explore a wider range of knowledge and practices related to COVID-19 outbreak. The study recommends implementing extensive educational and awareness campaigns to educate patients attending the public hospitals about the transmission modes, safety practices, treatment options and symptoms of COVID-19 pandemic.

REFERENCES

1. *Alahdal H, Basingab F, Alotaibi R. (2020).* An analytical study on the awareness, attitude and practice during the COVID-19 pandemic in Riyadh, Saudi Arabia. Journal of infection and public health. 13(10): 1446-1452
2. *Al-Hanawi MK, Angawi K, Alshareef N, Qattan AM, Helmy HZ., et al. (2020).* Knowledge, attitude and practice toward COVID-19 among the public in the Kingdom of Saudi Arabia: a cross-sectional study. Frontiers in Public Health. 8.
3. *Almutairi AF, Bani Mustafa AA, Alessa YM, Almutairi SB, Almaleh Y. (2020).* Public trust and compliance with the precautionary measures against COVID-19 employed by authorities in Saudi Arabia. Risk Management and Healthcare Policy. 13: 753

4. *Al-Rabiaah A, Temsah MH, Al-Eyadhy AA, Hasan GM, Al-Zamil F., et al. (2020).* Middle East Respiratory Syndrome-Corona Virus (MERS-CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia. Journal of infection and public health. 13(5): 687-691.
5. *Carmine C, Giorgi Federico M.* (2020). Genomic variance of the 2019-nCoV coronavirus. J Med Virol. 92(5): 522-528
6. *Dashraath P, Wong JL, Lim MX, Lim LM, Li S., et al. (2020).* Coronavirus disease 2019 (COVID-19) pandemic and pregnancy.American journal of obstetrics and gynecology. 222(6): 521-531.
7. *Diao B, Wen K, Chen J, Liu Y, Yuan Z., et al. (2020).* Diagnosis of acute respiratory syndrome coronavirus 2 infection by detection of nucleocapsid protein. MedRxiv. 13-1
8. *Ebrahim SH, Memish ZA. (2020).* COVID-19: preparing for superspreader potential among Umrah pilgrims to Saudi Arabia. Lancet (London, England). 395(10227): e48
9. *Fauci AS, Lane HC, Redfield RR. (2020).* Covid-19 – navigating the uncharted. The New England Journal of Medicine. 382:1269-1268
10. *Gupta MK, Vemula S, Donde R, Gouda G, Behera L, Vadde R. (2020).* In-silico approaches to detect inhibitors of the human severe acute respiratory syndrome coronavirus envelope protein ion channel. Journal of Biomolecular Structure and Dynamics. 1-11
11. *Lau SK, Luk HK, Wong AC, Fan RY, Lam CS., et al. (2019).* Identification of a novel betacoronavirus (merbecovirus) in amur hedgehogs from China. Viruses. 11(11): 980.
12. *Lou B, Li TD, Zheng SF, Su YY, Li ZY., et al. (2020).* Serology characteristics of SARS-CoV-2 infection after exposure and post-symptom onset. European Respiratory Journal. 56(2)
13. *Ng YM, Peggy PL. (2020).* Coronavirus disease (COVID-19) prevention: Virtual classroom education for hand hygiene.
14. *Nooh HZ, Alshammary RH, Alenezy JM, Alrowaili NH, Alsharari AJ., et al. (2020).* Public awareness of coronavirus in Al-Jouf region, Saudi Arabia. Journal of Public Health. 1-8.
15. *Paquot M, Plonsky L. (2017).* Quantitative research methods and study quality in learner corpus research. International Journal of Learner Corpus Research. 3(1): 61-94
16. *Patel ZM, Fernandez-Miranda J, Hwang PH, Nayak JV, Dodd R., et al. (2020).* Precautions for endoscopic transnasal skull base surgery during the COVID-19 pandemic. Neurosurgery. 87(1): E66-E67
17. *Powell-Jackson T, King JJ, Makungu C, Spieker N, Woodd S., et al. (2020).* Infection prevention and control compliance in Tanzanian outpatient facilities: a cross-sectional study with implications for the control of COVID-19. The Lancet Global Health. 8(6): e780-e789
18. *Qian G, Yang N, Ma AH, Wang L, Li G., et al. (2020).* COVID-19 transmission within a family cluster by presymptomatic carriers in China. Clinical Infectious Diseases. 71(15): 861-862
19. *Russell CD, Millar JE, Baillie JK. (2020).* Clinical evidence does not support corticosteroid treatment for 2019-nCoV lung injury. The Lancet. 395(10223): 473-475.
20. *Shang J, Wan Y, Liu C, Yount B, Gully K., et al. (2020).* Structure of mouse coronavirus spike protein complexed with receptor reveals mechanism for viral entry. PLoS pathogens. 16(3): e1008392
21. *Surveillances V. (2020).* The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19). China, 2020. China CDC weekly. 2(8): 113-122.
22. *Tian X, Li C, Huang A, Xia S, Lu S., et al. (2020).* Potent binding of 2019 novel coronavirus spike protein by a SARS coronavirus-specific human monoclonal antibody. Emerging microbes & infections. 9(1): 382-385
23. *Zu ZY, Jiang MD, Xu PP., et al. (2020).* Coronavirus Disease 2019 (COVID-19): A Perspective from China. Radiology. 200490.

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