Knowledge and Compliance of Radiologic Technologists on the IATF Guidelines for COVID-19 in a Government Hospital in a City in Isabela

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Abstract

Aim: This study assessed the level of knowledge and compliance towards IATF quidelines for COVID-19 among radiologic technologists in a selected government hospital in a city in Isabela.

Methodology: This study employed the descriptive-correlational research method using surveys to determine the relationship between the variables. The study was conducted in a city in the province of Isabela. Thirty (30) participants gave consent to the study. The study included Radiologic Technologists who are employed and working in the government-owned hospital within Santiago City. The researcher used complete enumeration, where all members of the whole population are measured.

Results: With a correlation coefficient (r) of 0.18, there is no correlation between the level of knowledge and level of compliance of radiologic technologists on the IATF guidelines for COVID-19. Further, a p-value of 0.59 is revealed which means that there is no significant relationship between the level of knowledge and level of compliance of radiologic technologists on the IATF guidelines for COVID-19.

Conclusion: The respondents are highly complying with the guidelines set by the IATF. They view themselves as compliant on the different things set by the IATF. However, they also encourage some viable adjustments for the employees and patients. An example of this is being truthful to the current health situation of the employees such as those who have symptoms of COVID-19. On the other hand, the respondents were heterogeneous in terms of compliance on hand washing, sterilization and disinfection of equipment, isolation precautions (airborne, droplets, and contact precautions).

Keywords: radiologic technologist, IATF guidelines, compliance, knowledge

INTRODUCTION

COVID-19 is a rapidly spreading illness and has proceeded in a worldwide pandemic. In the Philippines, active cases of COVID-19 are increasing and have threatened both local health and healthcare workers.

COVID-19 preventive measures recommended by World Health Organization (WHO) consist of regular handwashing, with soap and running water or using alcohol-based hand sanitizer; using face masks; avoid touching the eyes, nose, and mouth if hands are not clean; and avoiding close physical contact. However, despite the more significant destructive consequences of COVID-19 to individuals and public health, noncompliance with the preventive measures has been reported worldwide.

The Philippine government reinforced a multi-sectoral response to the COVID-19 through the Interagency Task Force (IATF) on Emerging Infectious Diseases chaired by the Department of Health (DOH). Through the National Action Plan (NAP) on COVID-19, the government aims to curb the spread of COVID-19 and mitigate its socioeconomic impacts.

The Philippines implemented various actions, including a community guarantine in Metro Manila which expanded to Luzon, as well as other parts of the country; raised its testing capacity from one national reference laboratory with the Research Institute of Tropical Medicine (RITM) to 23 licensed testing labs across the country;



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worked towards ensuring that its healthcare system can handle surge capacity, including for financing of services and management of cases needing isolation, quarantine, and hospitalization; and addressed the social and economic impact to the community by providing social amelioration to low-income families.

IATF, in its Resolution No. 60-A, directed the local government units to implement stringent enforcement of minimum public health standards starting August 1, 2020. The IATF, in its Omnibus Guidelines, defines minimum public health standards as "public health measures that do not involve vaccines, medications, or other pharmaceutical interventions, which individuals and communities can carry out in order to reduce transmission rates, contact rates and the duration of infectiousness of individuals in the population to mitigate COVID-19." Wearing masks, washing hands, and the practice of social distancing are part of the minimum public health standards. Social distancing ensures physical distance between people have become a crucial strategy in the battle against the spread of the coronavirus. Furthermore, studies have shown that wearing face shields, in addition to wearing masks and physical distancing, would further reduce virus transmission in low ventilation settings.

Given that COVID-19 is a respiratory disease that can cause lung complications such as pneumonia and, in the most severe cases, acute respiratory distress syndrome, or ARDS on many patients, RTs have been on the frontlines of the pandemic.

X-ray imaging is vital in the diagnostic workup and evaluation of patients suspected or confirmed to have COVID-19; hence, radiology healthcare workers (HCWs) were an essential part of the early containment response to the pandemic. This pandemic resulted in an abrupt paradigm shift of Radiologic Technologists' lives in healthcare systems, leading to stressful and overwhelming challenges in their daily battle against this illness. Radiology services are facing rising demands to introduce stricter infection control measures. The radiologic technologist is expected to adhere to the IATF protocols while coping with a surge in patients.

The Philippines, on Saturday, August 28, 2021, recorded its highest-ever daily tally of COVID-19 cases -19,441, pushing the country's total confirmed cases past the 1.9-million mark. With the latest numbers, the Philippines' total caseload is now at 1,935,700. The government sought to boost healthcare capacity to ease strains on hospitals and medical staff stretched by the second wave of infections. The recent increase in cases, coupled with the presence of Delta variant in the Philippines, prompted the government to heighten quarantine restrictions in communities where infections and hospital admissions are on the rise.

Previous study conducted by Kumar et al. (2020) showed that about one-tenth of healthcare workers remove their masks while talking to the patient, four-fifths of them reused surgical masks, and 44.9% correctly dispose of the used facemask yellow-coded bags. Overcrowding, limited infection prevention materials/supplies, less commitment of healthcare providers to the policies and procedures, insufficient training, and lack of policy were factors affecting COVID-19 prevention practice.

Compliance with the IATF quidelines and infection prevention and control (IPC) protocols is critical in minimizing the risk of coronavirus disease (COVID-19) infection among radiologic technologists. However, data on IATF and IPC compliance among radiologic technologists in COVID-19 referral hospitals are unknown in the Philippines.

Research Questions

This study determined the level of knowledge and compliance towards IATF quidelines for COVID-19 among radiologic technologists in a selected government hospital in a city in Isabela.

Specifically, it sought to answer the following research questions:

- 1. What is the demographic profile of the respondents in terms of:
 - 1.1 Age
 - 1.2 Sex
 - 1.3 Work area
 - 1.4 Highest educational attainment
 - 1.5 Employment status
 - 1.6 Length of service
 - 1.7 Living arrangement
- 2. What is the level of knowledge of the radiologic technologists on the IATF guidelines for COVID-19?
- 3. What is the level of compliance of the radiologic technologists on the IATF guidelines for COVID-19?
- 4. Is there a significant difference between the level of knowledge of radiologic technologists on the IATF quidelines for COVID-19 when they are grouped according to their demographic profile?

- 5. Is there a significant difference between the level of compliance of radiologic technologists on the IATE quidelines for COVID-19 when they are grouped according to their demographic profile?
- 6. Is there a significant relationship between level of knowledge and level of compliance of radiologic technologists on the IATF guidelines for COVID-19?
- 7. What intervention activities may be proposed to improve the level of knowledge and level of compliance of the radiologic technologists on the IATF guidelines for COVID-19?

Hypothesis

Given the stated research problem, the following hypotheses were tested on 0.05 level of significance: Hypothesis 1: There is no significant difference between the level of knowledge of radiologic technologists on the IATF guideline for COVID-19 when they are grouped according to their demographic profile. Hypothesis 2: There is no significant difference between the level of compliance of radiologic technologists on the IATF guideline for COVID-19 when they are grouped according to their demographic profile. Hypothesis 3: There is no significant relationship between level of knowledge and level of compliance of radiologic technologists on the IATF Guidelines for COVID-19.

METHODS

Research Design

This study used a descriptive, correlational design using surveys to determine the relationship between the knowledge and the level of compliance of the radiologic technologists on the IATF guidelines for COVID-19.

Population and Sampling

This study was conducted in a city in the province of Isabela from January to March 2021 with 30 respondents. The study included Radiologic Technologists who are employed and working in the government-owned hospital within Santiago City. The researcher used complete enumeration, where all members of the whole population are measured.

Instrument

A survey questionnaire was used to collect the necessary data in this study. Said instrument was validated by experts in the field.

Data Collection

The data were gathered, read, and analyzed following the objective of the study and in adherence to all protocols in the conduct of research.

Treatment of Data

The data gathered were recorded, tabulated, and analyzed using statistical analysis. Pearson's correlation was used to find the significant relationship between the knowledge and level of compliance on the IATF guidelines. ANOVA was used to determine significant differences in the knowledge and level of compliance on the IATF quidelines with regard to the profile variables of the participants such as age, civil status, work area, educational attainment, and length of service.

Ethical Considerations

The objectives of the study were fully explained to all participants. All the respondents were duly informed before collecting the data.

RESULTS and DISCUSSION

Majority of the respondents are on 31-34 years old, female, working in general radiography, graduate of bachelor's degree, are permanent in their work, with 4-6 years of service, and are living alone.

Level of Knowledge of the Radiologic Technologists on the IATF guidelines for COVID-19

Table 1 shows the Level of knowledge of the Radiologic Technologists on the IATF guidelines for COVID-19.

Table 1

Level of knowledge of the radiologic technologists on the IATF guidelines for COVID-19 Level of Knowledge

- 4- Very Knowledgeable
- 3- Moderately Knowledgeable
- 2- Slightly Knowledgeable
- 1- Not Knowledgeable

IATF Guidelines	Mean	Interpretation	
		•	
1. Minimum public health standards shall be complied with at all times for the duration of the GCQ.	3.67	Strongly Agree	
The movement of all persons are not be limited to accessing goods and	3.07	Strongly rigide	
services but also to recreational venues such as internet cafes, billiard halls,			
amusement arcades, bowling alleys, and similar venues.	3.43	Agree	
3. Travel is allowed for everyone except minors, senior citizens aged 60 and			
above, persons with comorbidities, and pregnant women.	3.83	Strongly Agree	
4. Entertainment venues with live performers such as karaoke bars, bars, clubs, concert halls, theaters, and cinemas shall not be permitted to operate, work, or			
be undertaken during GCQ.	3.83	Strongly Agree	
		3, 3	
5. Outdoor sports courts or venues for contact sports, scrimmages, games, or	3.67	Ctrongly Agroo	
activities are permitted to operate, work, or be undertaken during GCQ.	3.0/	Strongly Agree	
6. Construction projects are allowed, but it is subject to strict compliance with			
the construction safety guidelines issued by the DPWH.	3.77	Strongly Agree	
7. Agencies and instrumentalities of the government are fully operational and operate at a minimum of thirty percent (30%) up to full on-site capacity as			
determined by the head of the agency, in accordance with the relevant rules			
and regulations issued by the CSC.	3.73	Strongly Agree	
8. Hotels and resorts should not allow guests aged over sixty-five years (65)			
years to check-in for leisure purposes.	3.77	Strongly Agree	
9. Religious gatherings are allowed up to ten percent (10%) of the venue capacity.	3.37	Agree	
10. Gatherings for necrological services, wakes, inurnment, and funerals for	3.37	Agree	
those who died of causes other than COVID-19 are allowed up to ten percent			
(10%) of the venue capacity only.	3.7	Agree	
11. Visits to memorial parks, cemeteries, and columbaria are limited to not more than ten (10) persons per group and not exceeding thirty percent (30%) of the			
venue capacity.	3.17	Agree	
12. The road, rail, maritime, and aviation sectors of public transportation shall			
be allowed to operate at such capacity and protocols in accordance with guidelines issued by the DOTr.12. The road, rail, maritime, and aviation sectors			
of public transportation shall be allowed to operate at such capacity and	3.83	Strongly Agree	

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protocols in accordance with guidelines issued by the DOTr.		
13. Shuttle services of permitted establishments are not be subjected to an ID system but should maintain compliance with minimum public health standards.	3.87	Strongly Agree
14. Walking, jogging, running, biking, golf, swimming, tennis, badminton, equestrian, range shooting, diving, and skateboarding are allowed.	4.00	Strongly Agree
15. Those below eighteen (18) years of age and above sixty-five (65) may be allowed outdoor non-contact sports and other forms of exercise	3.83	Strongly Agree
16. Face-to-face or in-person classes for basic education are still suspended.	4.00	Strongly Agree
17. Local government units impose uniform curfew hours.	4.00	Strongly Agree
18. Violators of quarantine protocols will be punished with stiff fines and possible jail time.	3.57	Strongly Agree
Total Mean	3.71	Strongly Agree

The statements "Walking, jogging, running, biking, golf, swimming, tennis, badminton, equestrian, range shooting, diving, and skateboarding are allowed," "Face-to-face or in-person classes for basic education are still suspended," and "Local government units impose uniform curfew hours," got the highest mean of 4. This implies that the respondents strongly agreed that they know these statements as a guideline for COVID-19. On the other hand, the statement" Visits to memorial parks, cemeteries, and columbaria are limited to not more than ten (10) persons per group and not exceeding thirty percent (30%) of the venue capacity," got the lowest mean of 3.17. An average of 3.71 is gleaned from the table which is interpreted as Strongly Agree. This means that the respondents strongly agreed that they have knowledge of the statements given above.

The result of the study is supported by Bautista, Balibrea and Bleza (2020) in their study "Knowledge, Attitude and Practice Toward the Coronavirus Disease (COVID-19) Outbreak Among Selected Employed People in the National Capital Region, Philippines" mentioned that the average knowledge score of the selected Filipino workers from the NCR who were included in this study was high at 92%. This is important to highlight since limited knowledge about the pandemic will bring additional burden to the government in terms of communicating basic information about the disease.

Okaro, Eze and Ohagwu (2010) in their study "Awareness, Knowledge, Attitude and Practice of Blood and Body Fluid Precautions among Radiographers in Enugu, Nigeria," mentioned that radiographers have acquired their knowledge through symposia and clinical seminars, an indication that still, knowledge regarding infection control is not limited to the four corners of the classroom.

Level of Compliance of The Radiologic Technologists on the IATF Guidelines for COVID-19

Table 2 shows the level of compliance of the radiologic technologists on the IATF guidelines for COVID-19.

Table 2 Level of Compliance of The Radiologic Technologists on the IATF Guidelines for COVID-19

GCQ Protocols	Mean	Interpretation
I. I wear the advised proper face masks and face shield at all		
times.	4.5	Highly Compliant
2. I maintain one (1) meter physical distancing.	4.2	Compliant
3. I frequently wash and disinfect my hands.	4.8	Highly Compliant
4. I avoid high-foot traffic and crowded places.	4.3	Highly Compliant
5. I avoid all nonessential travel.	3.3	Moderately Compliant
6. I exercise during nonpeak hours.	3.3	Moderately Compliant
7. I don't go out unless I need to go to work or buy groceries.	4.8	Highly Compliant
8. I avoid sharing equipment if possible.	5	Highly Compliant
O I avaid shaking hands/wash hands after physical contact with		
9. I avoid shaking hands/wash hands after physical contact with others.	5	Highly Compliant
10. I stay home when sick.	4.9	Highly Compliant
Total Mean	4.4	Highly Compliant

The statements "I avoid sharing equipment, if possible," and "I avoid shaking hands/wash hands after physical contact with others," got the highest weighted mean of 5. This implies that the respondents know that sharing equipment and shaking hands should be avoided to reduce the possibility of virus transmission and is highly compliant with it. On the other hand, the statement "I avoid all nonessential travel," and "I exercise during nonpeak hours," got the lowest weighted mean of 3.3. This implies that the respondents are moderately compliant with this IATF guidelines. A general weighted mean of 4.40 is gleaned from the table which implies that the respondents are highly compliant on the guidelines posed by IATF for COVID-19.

It can be concluded that the respondents are highly complying with the guidelines set by the IATF. They view themselves as compliant on the different things set by the IATF. However, they also encourage some viable adjustments for the employees and patients. An example of this is being truthful to the current health situation of the employees such as those who have symptoms of COVID-19. Further, the patients and the people coming in and out of the hospital should also be strictly guided on following the guidelines set by the IATF.

The result is supported by Bautista, Balibrea and Bleza (2020) in their study "Knowledge, Attitude and Practice Toward the Coronavirus Disease (COVID-19) Outbreak Among Selected Employed People in the National Capital Region, Philippines" mentioned that in terms of compliance, respondents in this study follow strict measures such as the washing of hands using soap, maintaining proper hygiene, using disinfectants and alcohol, wearing face masks, and maintaining proper social distancing when outside the home. They also avoid physical contact and taking public transportation. Overall, respondents in this study are practicing good measures to avoid contracting or spreading COVID-19.

Statistical Significance between the between the level of knowledge of radiologic technologists on the IATF guidelines for COVID-19 and their demographic profile

Table 3 Significant Difference between the Level of Knowledge of Radiologic Technologists on the IATF Guidelines for COVID-19 when grouped according to their Demographic Profile

Source	DF	Sum of Square	Mean Square	F Statistic	P-value
Groups (between groups)	7	23082.533	3297.5047	789.3325	0
Error (within groups)	232	969.2001	4.1776		
Total	239	24051.7331	100.6349		

Table 3 shows the significant difference between the level of knowledge of Radiologic Technologists on the IATF guideline for COVID-19 when they are grouped according to their demographic profile. The test statistic F equals 789.332452, which is not in the 95% region of acceptance. The observed effect size f is large (4.88). This indicates that the magnitude of the difference between the averages is large. The η2 equals 0.96. It means that the group explains 96% of the variance from the average. A p-value of 0.00 is gleaned from the table which means that it is safe to reject the null hypothesis. There is a highly significant difference between the level of knowledge of radiologic technologists on the IATF Guideline for COVID-19 when they are grouped according to their demographic profile.

Statistical Significance between the level of compliance of radiologic technologists on the IATF guidelines for COVID-19 and their demographic profile

Table 4 Significant Relationship between the Level of Compliance of Radiologic Technologists on the IATF Guidelines

for COVID-19 when grouped according to their demographic profile

R-Value	Interpretation	P-Value	Interpretation	Decision
0.08	No correlation	0.809	Not Significant	Accept the Null Hypothesis

Table 4 shows the significant relationship between the level of compliance of radiologic technologists on the IATF quidelines for COVID-19 when they are grouped according to their demographic profile. The table shows an rvalue of 0.08 which means that there is no correlation between the level of compliance of radiologic technologists on the IATF guidelines for COVID-19 when they are grouped according to their demographic profile. Further, a p-value of 0.809 is revealed on the table which means that it is safe to accept the null hypothesis. Therefore, there is no significant relationship between the level of compliance of radiologic technologists on the IATF guidelines for COVID-19 when they are grouped according to their demographic profile.

The study revealed that there is no correlation between the Level of Compliance of Radiologic Technologists on the IATF Guidelines for COVID-19 when grouped according to their demographic profile. Further, a p-value of 0.809 is revealed on table 11 which means that it is safe to accept the null hypothesis. Therefore, there is no significant relationship between the level of compliance of Radiologic Technologists on the IATF Guideline for COVID-19 when they are grouped according to their demographic profile.

The result of the study is supported by Denney et al (2021) in their study "Knowledge and practice of personal protective measures during the COVID-19 pandemic: A cross-sectional study in Saudi Arabia" stated that adherence of public to the advised personal protective measures by the WHO, including hand hygiene and wearing gloves and masks, is crucial to control the COVID-19 pandemic. This study showed that the Saudi population has a relatively high knowledge and implementation of hand hygiene and wearing facial masks and gloves. Increased awareness and practice were associated with females, high socioeconomic status and high levels of education. Low practice of protective measures was significantly associated with youth (below 37 years old) and residents of the northern part of the Kingdom as well as residents with a lower level of education or income. Tailored education programs and emphasis by public health authorities on sustained compliance of protective measures by the public is necessary for individuals with low practice to improve their overall practice of personal protective measures.

Relationship between the level of knowledge and the level of compliance of radiologic technologists on the IATF guidelines for COVID-19

Table 5 Significant Relationship Between Level of Knowledge and Level of Compliance of Radiologic Technologists on the IATF Guidelines for COVID-19

R-Value	Interpretation	P-Value	Interpretation	Decision
0.18	No correlation	0.59	Not Significant	Accept the Null Hypothesis

Table 5 shows the significant relationship between the level of knowledge and the level of compliance of radiologic technologists on the IATF guidelines for COVID-19. The table shows an r-value of 0.18 which means that there is no correlation between the level of knowledge and the level of compliance of radiologic technologists on the IATF guidelines for COVID-19. Further, a p-value of 0.59 is revealed on the table which means that it is safe to accept the null hypothesis. Therefore, there is no significant relationship between the level of knowledge and level of compliance of radiologic technologists on the IATF guidelines for COVID-19.

The study revealed that there is no correlation between the Level of Knowledge and Level of Compliance of Radiologic Technologists on the IATF Guidelines for COVID-19. Further, a p-value of 0.59 is revealed on the table which means that it is safe to accept the null hypothesis. Therefore, there is no significant relationship between the level of knowledge and level of compliance of radiologic technologists on the IATF quidelines for COVID-19.

The result of the study is supported by Verdad (2002). The respondents have complied to the great extent concerning the policies and guidelines on hand washing, sterilization and disinfection of equipment, needlesticks or other sharp instruments, isolation precautions (droplet and contact precautions). Compliance to a moderate extent was noted on isolation dealing with airborne precautions. In general, Verdad finds out that if the level of awareness is low, the level of compliance is also low.

Summary, Conclusions, and Recommendations

In terms of knowledge of the radiologic technologists on the IATF guidelines for COVID-19, the study revealed that the respondents have a high level of knowledge on the IATF Guidelines for COVID-19. It can be concluded that most of the respondents are fully aware of the guidelines imposed by the IATF. This also means that most of the respondents know how to reduce the possibility of transmission of virus.

With regard to the level of compliance of the radiologic technologists on the IATF guidelines for COVID-19, it can be concluded that the respondents are highly complying on the guidelines set by the IATF. They view themselves as compliant on the different things set by the IATF. However, they also encourage some viable adjustments for the employees and patients. An example of this is being truthful to the current health situation of the employees such as those who have symptoms of COVID-19. On the other hand, the respondents were heterogeneous in terms of compliance on hand washing, sterilization and disinfection of equipment, isolation precautions (airborne, droplets, and contact precautions).

Based on the result of the study, some intervention activities may be proposed to improve the level of knowledge and level of compliance of the radiologic technologists on the IATF guidelines for COVID-19. First is a refresher course or seminar which will tackle the IATF Guidelines for COVID-19. This should be taken by all the employees of the hospital in order to refresh them on the guidelines to be followed in order to reduce the possibility of virus transmission.

Further, it is also imperative for the people coming in and out of the hospital to always be reminded of the IATF Guidelines to be complied inside the hospital. Postings of information materials on the different facilities of the hospital can remind these people to follow the guidelines set by the IATF. Moreover, to those who will not comply with the guidelines set, it is recommended that they must be reprimanded for their non-compliance. It must be done to ensure that all of the people and employees will follow the guidelines set.

REFERENCES

- Boldog, P., Tekeli, T., Vizi, Z., Dénes, A., Bartha, F.A. and Röst, G. (2020), "Risk assessment of novel coronavirus COVID-19 outbreaks outside China", Journal of Clinical Medicine, Vol. 9 No. 2, pp. 1-12, 571.
- Castles S. Migration, crisis, and the global labour market. Globalizations. (2011) 8:311–24. doi: 10.1080/14747731.2011.576847
- Chan, J.F.W., Yuan, S., Kok, K.H., To, K.K.W., Chu, H., Yang, J. and Tsoi, H.W. (2020), "A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study cluster", The Lancet, Vol. 395 No. 10223, pp. 514-523.
- Chen, J., Lu, H., Melino, G. et al. COVID-19 infection: the China and Italy perspectives. Cell Death Dis 11, 438 (2020). https://doi.org/10.1038/s41419-020-2603-0external icon
- Cho H, Ippolito D, Yu YW. Contact tracing mobile apps for COVID-19: privacy considerations and related tradeoffs. arXiv [preprint]. arXiv:2003.11511 (020).
- Curley, M. and Thomas, N. (2004), "Human security and public health in Southeast Asia: the SARS outbreak", Australian Journal of International Affairs, Vol. 58 No. 1, pp. 17-32.
- Dey M, Loewenstein M. How many workers are employed in sectors directly affected by COVID-19 shutdowns, where do they work, and how much do they earn? Monthly Labor Rev. (2020). doi: 10.21916/mlr.2020.6







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- Djalante, R., Nurhidayah, L., Lassa, J., Minh, H.V., Mahendradhata, Y., Phuong, N.T.N. and Sinapoy, M.S. (2020b), a policy sciences analysis", Social Science "The ASEAN's responses to COVID- 19: Network, PsyArXi, 3595012, p. 368.
- Dialante, R., Shaw, R. and DeWit, A. (2020a), "Building resilience against biological hazards and pandemics: COVID-19 and its implications for the Sendai Framework", Progress in Disaster Science, Vol. 6, p. 100080.
- Fauzi, M.A. (2019), "Knowledge sharing in Asia Pacific via Virtual community platform: a systematic review", International Journal of Web Based Communities, Vol. 15 No. 4, pp. 368-394.
- Fauzi, M.A., Nya-Ling, C.T., Thursamy, R. and Ojo, A.O. (2019), "Knowledge sharing: role of academics towards institution", VINE Journal of Information and Knowledge research productivity in higher learning Management Systems, Vol. 49 No. 1, pp. 136-159.
- Food and Agriculture Organisation of the United Nations. Migrant workers and the COVID-19 Pandemic. Rome (2020).
- Giang, H.T.N., Shah, J., Hung, T.H., Reda, A., Truong, L.N. and Huy, N.T. (2020) "The first Vietnamese case of COVID-19 acquired from China", The Lancet Infectious Diseases, Vol. 20 No. 4, pp. 408-409.
- Gorbalenya, A.E., Baker, S.C., Baric, R.S., deGroot, R.J., Drosten, C., Gulyaeva, A.A., Haagmans, B.L., Lauber, C., Leontovich, A.M., Neuman, B.W., Penzar, D., Perlman, S., Poon, L.L.M., Samborskiy, D., Sidorov, I.A., Sola, d Ziebuhr, J. (2020), "Severe acute respiratory syndrome-related coronavirus - The species and its viruses, a statement of the Coronavirus Study Group", BioRxiv, pp. 1-15, doi: 10.1101/2020.02.07.937862 (accessed 11 February 2020).
- Green A. The role of migration in labour-market adjustment: the British experience the 1980s. Environ Plann A. (1994) 26:1563-77. doi: 10.1068/a261563
- Jennings, R. (2020), Indonesia Goes Soft on COVID Lockdown to Relieve Stressed Economy, available at: https://www.voanews.com/sciencehealth/coronavirus-outbreak/indonesia-goes-soft-covidlockdown-relieve- stressed-economy.
- Jones, A. (2020), Coronavirus: Should the World Worry about Singapore's Virus Surge?, available at: https://www.bbc.com/news/world-asia-52232147.
- Katz R, Wentworth M, Quick J, Arabasadi A, Harris E, Geddes K, et al. Enhancing public-private cooperation in epidemic preparedness and response. World Med Health Policy. (2018) 10:420-5. doi: 10.1002/wmh3.281
- Lai, C.C., Shih, T.P., Ko, W.C., Tang, H.J. and Hsueh, P.R. (2020), "Severe acute respiratory syndrome coronavirus 2 disease-2019 epidemic (SARS-CoV-2) and corona virus (COVID-19): the and the challenges", International Journal of Antimicrobial Agents, Vol. 55, p. 105924.
- Le TT, Andreadakis Z, Kumar A, Román RG, Tollefsen S, Saville M, et al. *The* COVID-19 vaccine development landscape. Nat Rev Drug Discov. (2020) 19:305-6. doi: 10.1038/d41573-020-00073-5
- Lee, Y.N. (2020), "Philippines is prepared for the coronavirus outbreak to last until secretary", Asia Economy, available at: https://www.cnbc.com/2020/04/08/coronavirus-philippine-financesecretary-on-funding-to-support-economy.html.
- Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., Tong, Y. and Xing, X. (2020), "Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia", New England Journal of Medicine, Vol. 382 No. 13, pp. 1199- 1207.



- Low, M. (2020), "Investigation of three clusters of COVID-19 in Singapore: implications for surveillance and response measures", *The Lancet*, Vol. 395 No. 10229, pp. 1039-1046.
- Lu, H., Stratton, C.W. and Tang, Y.W. (2020), "Outbreak of pneumonia of unknown etiology in Wuhan China: the mystery and the miracle", *Journal of Medical Virology*, Vol. 92 No. 4, pp. 401-402.
- Malik, P., Lenka, U. and Sahoo, D.K. (2018), "Proposing micro-macro HRM strategies to overcome challenges of workforce diversity and deviance in ASEAN", *Journal of Management Development*, Vol. 37 No. 1, pp. 6-26.
- Medina, A.M. (2020b), "Malaysia issues second stimulus package to combat COVID-19: salient features", available at: https://www.aseanbriefing.com/news/malaysia-issues-second-stimulus-package-combat-covid-19-salient-features/.
- Minh Duc, N., Duc Ha, H., Anh Tuan, T., Lien Bang, M.T., Hong Duc, P. and Minh Thong, P. (2020), "From first COVID-19 case to current outbreak: a Vietnamese report", *Electron Journal of General Medicine*, Vol. 17 No. 4, em208, 2020.
- Munir, Q., Lean, H.H. and Smyth, R. (2020), "CO2 emissions, energy consumption and economic growth in the ASEAN-5 countries: a cross-sectional dependence approach", *Energy Economics*, Vol. 85, 104571.
- National Bureau of Statistics of China. Purchasing Managers Index for February 2020 *National Bureau of Statistics of China [Press Release]. Beijing: Department of Service Statistics of NBS.* (2020). Available online at: http://www.stats.gov.cn/english/PressRelease/202003/t20200302_172 9254.html (accessed 30 March 2020).
- Sohrabi, C., Alsafi, Z., O'Neill, N., Khan, M., Kerwan, A., Al-Jabir, A. and Agha, R. (2020), "World health organization declares global emergency: a review of the 2019 novel coronavirus (COVID-19)", *International Journal of Surgery*, Vol. 76, pp. 71-76.
- The Jakarta Post (2020), No Lockdown for Indonesia, Jokowi Insists as COVID- 19 Cases Continue to Rise, available at: https://www.thejakartapost.com/news/2020/03/24/no-lockdown-for-indonesia-jokowi-insists-as-covid-19-cases-continue-to-rise.html.
- The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. *The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) China 2020. CDC weekly.* 17 February 2020. 10.46234/ccdcw2020.032
- Thongnoi, J. (2020), Coronavirus: Bangkok's Lockdown Leaves Vulnerable Thais Struggling, available
 Wilder-Smith, A., Chiew, C.J. and Lee, V.J. (2020), "Can we contain the COVID- 19 outbreak with the same
 measures as for SARS?", *The Lancet Infectious Disease*, Vol. 20 No. 5, pp. e102-e107.
 World Health Organization. Coronavirus Disease (COVID-2019) *Situation Reports. Geneva* (2020).
- World Health Organization. Coronavirus Disease 2019 (COVID-19): Situation Report 100. Geneva (2020).
- Xu, Z., Shi, L., Wang, Y., Zhang, J., Huang, L., Zhang, C. and Tai, Y. (2020), "Pathological findings of COVID-19 associated with acute respiratory distress syndrome", *The Lancet Respiratory Medicine*, Vol. 8 No. 4, pp. 420-422, 395.
- Yamey G, Schäferhoff M, Aars OK, Bloom B, Carroll D, Chawla M, et al. Financing of international collective action for epidemic and pandemic preparedness. *Lancet Global Health.* (2017) 5:e742–4. doi: 10.1016/S2214- 109X(17)30203-6 Global Preparedness Monitoring Board. A world at Risk: Annual Report on Global Preparedness for Health Emergencies. Geneva: World Health Organization (2019).

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Zhu, N., Zhang, D., Wang, W., Li, X., Yang, B., Song, J. and Niu, P. (2020), "A novel coronavirus from patients England Journal of Medicine, Vol. 382 No. 8, pp. 727-733. with pneumonia in China, 2019", New