



The Role of Caregivers in Elder Care during Coronavirus Disease-2019 Outbreaks

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Abstract

The elderly and their caregivers are at higher risk from Coronavirus Disease-2019, particularly for elderly with chronic health conditions. To prevent the transmission of the virus, those elderly issued strict physical distance, restricting most interactions between the elderly and their caregivers. On the other side, caregivers can serve as crucial and trusted partners in the elderly's care to curb the spread of the COVID-19 virus. Hence, this study aims to analyze the knowledge, attitudes, practices (KAP), and the role of caregivers in providing services to the elderly during the outbreaks. A descriptive quantitative study was conducted from May to June 2020. The survey was utilizing Google Forms in four cities in Indonesia. A total of 317 out of 400 participants had completed the survey. The knowledge of the COVID-19 score was 79.50%, attitude 92.11%, and practice 90.54%. The caregivers' role in protecting the elderly from COVID's infection was about 98.42%. They could continue their routine activities during physical distancing 84.54%, treated elderly by not going to the hospital (60.04%), not visited any crowded place, wore masks and washed their hand after activity (87.38%). They agreed that government would finally successfully control COVID-19 (90.22%). This study concluded that the knowledge, attitude, practice and role of caregivers on COVID-19 effectively prevents the caregivers neglecting the elderly during the COVID-19 outbreak. Future information on elderly care need to consider not just the risks of the virus, but also the healthy lifestyle.

Introduction

The elderly and their caregivers have been severely affected by the coronavirus disease 2019 (Covid-19) pandemic. With growing cases and sporadic spread of the virus this can only worsen for both the elderly and their caregivers (Gardner et al., 2020). World Health Organization (WHO) announced a new type of pneumonia cases, known as coronavirus or covid-19, in Wuhan City, China (Zhu et al., 2020), but the proper treatment

was unidentified (Casella et al., 2020). The escalation in the number of Covid-19 cases spread quite rapidly globally. To respond to it, WHO declared covid-19 as a pandemic (Cucinotta & Vanelli, 2020).

The novel Covid-19 case had spread very fast. On March 2, 2020, the Indonesian Government had announced two confirmed cases of Covid-19 (Setiati & Azwar, 2020). As of April 30, 2020, it has increased to 10,119 in 30 provinces. The five highest areas in the covid-19

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cases are Jakarta, Depok, Bandung, Yogyakarta and East Java (Kementerian Kesehatan Republik Indonesia, 2020). In response to Covid-19, critical readiness and response are needed, such as equipping health workers and health service facilities management with important information, procedures, and tools to be safe and effective at work (WHO, 2020a).

These Covid-19's patients usually show symptoms of an upper respiratory tract viral infection (Mawaddah et al., 2020), including progressive shortness of breath (Alzamora et al., 2020), fever (Tian et al., 2020), cough (dry) (Huang, 2020), sore throat (Lovato et al., 2020), smell loss without significant rhinorrhea or nasal congestion (Cooper et al., 2020), malaise (Alzamora et al., 2020), headache (Bolay et al., 2020), muscle pain or malaise (Wujtewicz et al., 2020), myalgia (Berger, 2020), nausea (Andrews et al., 2020), vomiting (Andrews et al., 2020), tachypnea (> 30 breaths/min) (Tay & Harwood, 2020), and hypoxia (SpO₂ < 90% on room air) (Monto et al., 2000).

Sensitivity of taste and/or smell, diarrhea, fever, fatigue, and vomiting are usually founded on Covid-19 patients as well (Larsen et al., 2020; Graham et al., 2020). To date, COVID-19 does not have an effective cure yet. But early symptom recognition and timely seeking of treatment and prevention practices can accelerate disease recovery and combat the spread of the virus. The elderly with comorbidities may be more likely to be exposed. If the case becomes severe, it can cause heart injury, respiratory failure, acute respiratory distress syndrome, and lead to death (Feng et al., 2020; Holshue, 2020).

WHO has been categorized COVID-19 disease as a pandemic. This virus is known to be a highly contagious and life-threatening disease (WHO, 2020d). Besides, the transmission of COVID-19 has become an emerging and rapidly changing global health challenge in all life aspects (WHO, 2020b). Caregivers and/or health workers are not only dealing directly with the fight against this highly contagious disease but also by a higher likelihood of contracting this disease compared to the rest of the general population (McKibbin & Fernando, 2020).

Furthermore, WHO also mentioned that in many contexts, health services are delivered

at the community level and in the home by community health workers, traditional medicine practitioners, social care workers, or a variety of formal and informal community-based providers, including caregivers, that refers to their parents, spouses and other family members or friends providing informal care as opposed to the care provided by formal health-care providers in the home (WHO, 2020b).

Home care may be considered for an adult with confirmed or suspected COVID-19 when inpatient care is unavailable or even unsafe (e.g. when capacity is insufficient to meet and also be cared for at home, if necessary (WHO, 2020c). In this case, caregivers [formal and non-formal] play a role (Sarafino & Smith, 2012) in responding to the COVID-19 outbreak and become the backbone of services for the elderly to limit or cope with the spread of the disease. Elderly caregivers are the same as other health workers. They have a very high risk for infection with the COVID-19 in their efforts to protect the larger community in terms of service to the elderly, therefore knowing caregivers knowledge, attitudes, and practices related to the COVID-19 virus and the role played during the pandemic very necessary in the implementation of services to the elderly (Kung et al., 2012).

By seeing the increasingly high environmental demands on service quality, we need to improve the service quality. In this case knowledge, attitudes, and the caregivers' role in fulfilling excellent service to the elderly (Sarafino & Smith, 2012). In the COVID-19 pandemic, knowledge, attitudes and practices and the role of caregivers related to COVID-19 should have to master what it is and how the spread of COVID-19 and what attitudes and attributes sought to improve the service quality to the elderly so that both parties can feel the benefits as much as possible (Kilzer & Skinner, 1953). Based on the background stated above, it is necessary to conduct studies on knowledge, attitudes, and practices related to COVID-19 in elderly caregivers. And their relation to the role in caring for the elderly during the COVID-19 pandemic. It is generally more vulnerable to infectious complications due to age and comorbid conditions.

Method

A descriptive quantitative study used Google Forms and distributed through "WhatsApp" groups from May to June 2020. The purpose is to collect and automate analyze the knowledge, attitude, practice, and elders caregivers' roles (The KAP Survey Model, 2020). The respondents targeted were 400 caregivers in 4 cities in Indonesia: Jakarta, Depok, Bandung, Yogyakarta. These regions were considered a representative of big cities with a high population of elderly. The initial stage of this study targeted 100 respondents from each city.

An investigation of Knowledge, Attitudes, and Practices (KAP) can utilize qualitative and quantitative techniques. However, due to the current condition of the COVID-19 outbreak, this study used quantitative one using a quick survey through an online survey (Shih & Xitao, 2008). The early stages were difficult because previously, the online survey was not accustomed to being done by the public in our country, and due to the urgency of the case, this quick survey was carried out through an online survey using Google form and distributed through WA group (The KAP Survey Model, 2020).

The respondents were restricted from the community and aged over 18 years of age. The researcher explained the study objectives and purposes. The respondents who agreed to participate should complete the questionnaire by clicking on the link. Participants had to answer questions with 'yes' or 'no' if they are willing to participate as respondents voluntarily. Then the respondents were asked to fill out a questionnaire that had to be filled in by themselves.

The questionnaire consisted of three parts: demography condition of the respondents, knowledge, attitude, practice, and the elders' caregivers' role. Demographic variables consists of age, sex, marital status, education, and occupation. The questionnaire of knowledge was measured by whether the respondents could identify the causes of the disease and transmission, general symptoms, risks, and the prevention of Covid-19. Attitudes were measured according to the awareness of social distancing at work, worship, and stay at

home. Practices was measured by conducting prevention activities such as washing hands, not in a crowded place, not touching the face, cough and sneeze etiquette, wearing masks, and using disinfectant to prevent covid-19.

While the caregivers' role was regarding the caring done to the elderly during the outbreaks, understanding the medical history disease of the elderly, so they can avoid going to the clinic/hospital if the condition is not too severe. And the last was regarding the belief the government will finally successfully control the pandemic. These questions were answered by true/false with an additional option "I don't know" and agree and not agree answered. Data analyzes used the SPSS program with univariate analysis (Neuman, W.L.,2013).

However, our study has limitations because there is no standard tool for assessing KAP regarding COVID-19 in caregivers. But in the end, we attempted to use and modify the questionnaire used in the previous survey for KAP assessment on the prevention of respiratory tract infections in China. (Zhong et al., 2020) (Goni et al., 2020). Another limitation of the study was on the sample, which was selected not through sampling. In turn, the collection method, where the respondents had to have access to the internet and smartphone or computers to complete the survey. The study has been cleared by the Ethics Committee of Lembaga Penelitian dan Pengabdian Masyarakat Universitas Respati Indonesia, Number 041/SK.KEPK/UNR/IV/2020. All participants signed informed consent as their agreement in participation. The authors declare that there is no conflict of interest.

Result and Discussion

The survey research took place in four cities; Jakarta, Depok, Bandung, and Yogyakarta, as the representative of the cities with a high elderly population where the caregiver's profession is needed and has become an elderly care part. The survey was conducted in the community, with total respondents 317 out of 400 participants completed the survey questionnaire. The data collection was through an indirect online questionnaire distributed from May to June 2020. The result of demographic characteristics showed in table

1. That 50.2% respondents aged 30-49 years, 90.2% were women, education mostly senior high (50.8%), and 78.9% were married, their occupation mostly as family caregivers (45.1%). (Table 1).

Table 1. Demographic Characteristics of Participants

Characteristic	Description	Number of participants (%)
Gender	Male	31 (9,8)
	Female	286 (90,2)
Age-group	18 – 29 years	24 (7,6)
	30 – 49 years	159 (50,2)
	≥ 50 years	134 (42,3)
Marital status	Not married	21 (6,6)
	Married	250 (78,9)
	Divorce	46 (14,5)
Education	Primary	21 (6,6)
	Junior high	51 (16,1)
	Senior high	161 (50,8)
	Academy/University	84 (26,5)
Occupation	Caregivers (formal/informal)	32 (10,1)
	Family caregivers	143 (45,1)
	Volunteer	49 (15,5)
	Student/Part time job	2 (0,6)
	Other	91 (28,7)

Source: primary data, 2020

In this survey the number of female respondents was higher than men. This condition is often found in various activities in every city in Indonesia. Otherwise, the study by (Hanaoka & Norton, 2008) found informal caregiver usage by adult women and the characteristics that influence the formal caregiver usage in Japan. They found that marital status and cost of life were very significant factors in deciding whether to provide informal or formal caregivers for their parents or not. Traditionally, the role of daughter-in-law as caregivers has been less relevant than that of unmarried daughter. Those whose children are financially disadvantaged decide not to depend on formal caregivers (Hoffman & Wallace, 2018). For those who have unmarried children, and also less educated, it seems that it is the choice to play the role of informal caregivers (Liu et al., 2013).

In table 2, respondents' knowledge, attitude, and practice showed that 79.5% of participants were knowledgeable regarding the main symptoms of COVID-19 of the elderly with chronic diseases. Although it is acceptable

and considered quite good, since basic aspects regarding the COVID-19 and protection measures were explored. In which expect knowledge to be better. These findings in line with previous studies in Egypt and China, which reported that most respondents believe that the COVID-19 is more dangerous for the elderly and for those suffering from chronic diseases (Abdelhafiz et al., 2020)(Huang, 2020).

Research by (Kusuma & Wijaya, 2013) found that health cadres with high knowledge were 18 times more likely to be active in controlling tuberculosis cases than those with low knowledge. Meanwhile, health cadres with good attitudes are eight times more likely to be proactive in controlling tuberculosis cases than fewer attitudes. Furthermore, according to (Geldsetzer, 2020), knowledge of clinical symptoms, the need to avoid crowded places, and immediately avoid contact with infected people is a preventive way. Another important thing and should be done more often is to wash hands as often as possible to prevent the COVID-19 virus. Accurate, precise, and relevant knowledge will consistently alleviate

Table 2. Descriptive Statistics of Knowledge, Attitude, and Practice of the Caregivers to avoid the Covid-1

		Frequency	Percent
Knowledge	Good	252	79.5
	Not good	65	20.5
	Total	317	100.0
Attitude	Positive	292	92.1
	Negative	25	7.9
	Total	317	100.0
Practice	As per health protocol	287	90.5
	Not as per health protocol	30	9.5
	Total	317	100.0

Source: primary data, 2020

the virus threat and improve preventive practices as an act for the safety of oneself and others (Padala et al., 2020; Reckrey, 2020).

Meanwhile, the majority of attitudes were favorable (92.11%) when it came to successfully control COVID-19 by government and winning the battle, false information distributed by social networks, due to the fear and anxiety that exists in these cases can be mitigated by a culture of proper information use (Azwar, 2013). Anwar also mentioned that social attitude is the result of social interaction. Through social interaction, a person shows a certain attitude towards the psychological object encountered (Domènech-Abella et al., 2017). Various factors can influence attitudes, for example, personal experiences (Irving et al., 2017), information received (Forsman & Svensson, 2019), the culture where a person comes from (Faller et al., 2018), education (Casemiro et al., 2018), religion (Bakhtiari et al., 2019), and emotional factors in a person (Mohammadpour et al., 2018). Attitude changes occur when the information they receive they can understand, accept and agree with it.

Regarding the practices, most are adequate (90.54%). Most of them reported not having gone to places with mass attendance, wore a mask, and washed hands before and after activities. Next, table 3 explained the results of all domain of the role of elderly caregivers to prevent the transmission during the outbreak were keep the elderly from contracting COVID-19 by encouraging the elderly to do physical distancing 99.1%, treated elderly at home by not going to the hospital (64.%), wore masks (89.6%) and washed their hand after

activity (96.5%), (Table 3). Another study by (Ratnasari et al., 2019) revealed that cadres' occupation and behavior are the defined factors affecting their role in early TB cases detection in the community.

Besides, the Indonesian government has also appealed to the public to maintain social distancing during the outbreak. Social distancing is known to reduce mortality and morbidity. But the benefits of social distancing depend on the individual's understanding (Reluga, 2010). This protocol also encourages the public to avoid gathering with friends or family (Ghinai et al., 2020), as well as sports in public places (Zhang et al., 2020), ceremonies, and other gatherings (Courtemanche et al., 2020), to avoid the transmission of the corona virus (McCloskey et al., 2020).

The main problem with the protocol regulation is most Indonesians do not adhere to health protocols. They still do other activities outside the home, such as going on vacation, going to various places, or even going to their hometown (Saifulloh, 2020). Many people ignore the importance of maintaining social distancing because of other interest (Abdullah, 2020). Fortunately, from this result study on physical/social distancing, most of the caregivers obey the government regulation to avoid the virus transmission both for the caregivers themselves and the elderly. In table 4, the study revealed that respondents agreed that the information provided by the government regarding the outbreak of COVID-19 was clear enough (92.4%). They also believe that government will finally successfully control COVID-19 as much as 90.2%. (Table 4)

Table 3. Descriptive Statistic of the Role of Caregivers to Prevent Transmission of the COVID-19

	Frequency	Percent
Wearing facial mask		
Yes	284	89.6
No	33	10.4
Total	317	100.0
Wash hands before and after activity		
Yes	306	96.5
No	11	3.5
Total	317	100.0
Physical distancing		
Yes	314	99.1
No	3	9
Total	317	100.0
Self-care not to go to clinic or hospital		
Yes	203	64.0
No	114	36.0
Total	317	100.0

Source: primary data, 2020

Table 4. Descriptive Statistic of Response to the Government in Handling COVID-19

	Frequency	Percent
Information on COVID-19 clear enough		
No	24	7.6
Yes	293	92.4
Total	317	100.0
Government able to handle the COVID-19		
No	31	9.8
Yes	286	90.2
Total	317	100.0

Source: primary data, 2020

Nevertheless, this survey is the first survey conducted to assess KAPs of elderly caregivers on COVID-19 by online surveys. The result might be useable to formulate targeted for health care workers (Roberta Hunt, 2013) and or caregivers in the incidents of COVID-19 in Indonesia.

Conclusion

In conclusion, the knowledge on COVID-19 of the caregivers in 4 cities (Jakarta, Depok, Bandung, and Yogyakarta) of Indonesia population during the outbreak was acceptable, attitudes have been mostly favorable, the practices are adequate, and so do the role of

caregivers in caring for the elderly. They agreed that the government would finally successfully control COVID-19. However, it is necessary to implement massive education campaigns for caregivers, to increase the proportion of knowledge about COVID-19 to stop its spread. With the awareness of the community and the health authorities, it is possible to stop and decrease COVID-19 cases throughout the Indonesia territory.

This study recommends further studies to the caregivers, formal and informal, across the country regarding their KAP of the COVID-19. And the role in caring for the elderly against the virus. Other than that,

providing education and training, especially regarding symptoms and transmission, is very important in increasing caregivers' knowledge on COVID-19. The survey results also suggest that interventions in COVID-19 must be carried out comprehensively to overcome social stigma and discrimination before they become uncontrollable.

References

- Abdelhafiz, A.S., Mohammed, Z., Ibrahim, M.E., Ziady, H.H., Alorabi, M., Ayyad, M., & Sultan, E.A., 2020. Knowledge, Perceptions, and Attitude of Egyptians Towards the Novel Coronavirus Disease (COVID-19). *Journal of Community Health*, 45(5), pp.881–890.
- Alzamora, M.C., Paredes, T., Caceres, D., Webb, C.M., Webb, C.M., Valdez, L.M., & La-Rosa, M., 2020. Severe COVID-19 during Pregnancy and Possible Vertical Transmission. *American Journal of Perinatology*.
- Andrews, P.L.R., Cai, W., Rudd, J.A., & Sanger, G.J., 2020. COVID-19, Nausea and Vomiting. *Journal of Gastroenterology and Hepatology*.
- Azwar, S., 2013. Sikap Manusia: Teori dan Pengukurannya. In *Sikap Manusia: Teori dan Pengukurannya*.
- Bakhtiari, A., Yadollahpur, M., Omidvar, S., Ghorbannejad, S., & Bakouei, F., 2019. Does Religion Predict Health-Promoting Behaviors in Community-Dwelling Elderly People?. *Journal of Religion and Health*, 58(2), pp.452–464.
- Berger, J.R., 2020. COVID-19 and the Nervous System. *Journal of NeuroVirology*, 26(2), pp.143–148.
- Bolay, H., Gül, A., & Baykan, B., 2020. COVID-19 is a Real Headache!. *Headache*, 60(7), pp.1415–1421.
- Casella, M., Rajnik, M., Cuomo, A., Dulebohn, S.C., & Di Napoli, R., 2020. Features, Evaluation and Treatment Coronavirus (COVID-19) - StatPearls - NCBI Bookshelf. In *StatPearls*.
- Casemiro, F.G., Quirino, D.M., Diniz, M.A.A., Rodrigues, R.A.P., Pavarini, S.C.I., & Grato, A.C.M., 2018. Effects of Health Education in the Elderly with Mild Cognitive Impairment. *Revista Brasileira de Enfermagem*, 71(suppl 2), pp.801–810.
- Cooper, K.W., Brann, D.H., Farruggia, M.C., Bhutani, S., Pellegrino, R., Tsukahara, T., Weinreb, C., Joseph, P.V., Larson, E.D., Parma, V., Albers, M.W., Barlow, L.A., Datta, S.R., & Di Pizio, A., 2020. COVID-19 and the Chemical Senses: Supporting Players Take Center Stage. *Neuron*, 107(2), pp.219–233.
- Courtemanche, C., Garuccio, J., Le, A., Pinkston, J., & Yelowitz, A., 2020. Strong Social Distancing Measures In The United States Reduced The COVID-19 Growth Rate. *Health Affairs (Project Hope)*, 39(7), pp.1237–1246.
- Cucinotta, & Vanelli, 2020. WHO Declares COVID-19 a Pandemic. In *Acta Biomedica*.
- Domènech-Abella, J., Lara, E., Rubio-Valera, M., Olaya, B., Moneta, M.V., Rico-Uribe, L.A., Ayuso-Mateos, J.L., Mundó, J., & Haro, J.M., 2017. Loneliness and Depression in the Elderly: the Role of Social Network. *Social Psychiatry and Psychiatric Epidemiology*, 52(4), pp.381–390.
- Faller, J.W., Teston, E.F., & Marcon, S.S., 2018. Conceptual Structure of Aging in Different Ethnicities. *Revista Gaucha de Enfermagem*, 39, pp.e66144.
- Feng, S., Shen, C., Xia, N., Song, W., Fan, M., & Cowling, B.J., 2020. Rational Use of Face Masks in the COVID-19 Pandemic. *The Lancet Respiratory Medicine*, 8(5), pp.434–436.
- Forsman, B., & Svensson, A., 2019. Frail Older Persons' Experiences of Information and Participation in Hospital Care. *International Journal of Environmental Research and Public Health*, 16(16).
- Gardner, W., States, D., & Bagley, N., 2020. The Coronavirus and the Risks to the Elderly in Long-Term Care. *Journal of Aging and Social Policy*, 32(4–5), pp.310–315.
- Geldsetzer, P., 2020. Using Rapid Online Surveys to Assess Perceptions During Infectious Disease Outbreaks: A Cross-Sectional Survey on Covid-19 among the General Public in the United States and United Kingdom. *MedRxiv: The Preprint Server for Health Sciences*.
- Ghinai, I., Woods, S., Ritger, K.A., McPherson, T.D., Black, S.R., Sparrow, L., Fricchione, M.J., Kerins, J.L., Pacilli, M., Ruestow, P.S., Arwady, M.A., Beavers, S.F., Payne, D.C., Kirking, H.L., & Layden, J.E., 2020. Community Transmission of SARS-CoV-2 at Two Family Gatherings — Chicago, Illinois, February–March 2020. *MMWR. Morbidity and Mortality Weekly Report*.
- Goni, M.D., Naing, N.N., Hasan, H., Wan-Arfah, N., Deris, Z.Z., Arifin, W.N., Hussin, T.M.A.R., Abdulrahman, A.S., Baaba, A A., & Arshad, M.R., 2020. Development and Validation of Knowledge, Attitude and Practice Questionnaire for Prevention of Respiratory Tract Infections Among Malaysian Hajj

- Pilgrims. *BMC Public Health*, 20(1), pp.1–10.
- Graham C.W., Dela, C.C.S., Cao, B., Pasnick, S., & Jamil, S., 2020. Novel Wuhan (2019-NCoV) Coronavirus. *American Journal of Respiratory and Critical Care Medicine*, 201(4).
- Hanaoka, C., & Norton, E.C., 2008. Informal and Formal Care for Elderly Persons: How Adult Children's Characteristics Affect the Use of Formal Care in Japan. *Social Science and Medicine*, 67(6), pp.1002–1008.
- Hoffman, G.J., & Wallace, S.P., 2018. The Cost of Caring: Economic Vulnerability, Serious Emotional Distress, and Poor Health Behaviors Among Paid and Unpaid Family and Friend Caregivers. *Research on Aging*, 40(8), pp.791–809.
- Holshue., 2020. First Case of 2019 Novel Coronavirus in the United States. In *New England Journal of Medicine*.
- Huang, T., 2020. COVID-19 Patients' Clinical Characteristics, Discharge Rate, and Fatality Rate of Meta-analysis. *Journal of Medical Virology*, 92(6), pp.577–583.
- Irving, J., Davis, S., & Collier, A., 2017. Aging With Purpose: Systematic Search and Review of Literature Pertaining to Older Adults and Purpose. *International Journal of Aging and Human Development*, 85(4), pp.403–437.
- Kementerian Kesehatan Republik Indonesia., 2020. Situasi Terkini Perkembangan Coronavirus Disease (COVID-19) 14 April 2020.
- Kilzer, E., & Skinner, B.F., 1953. Science and Human Behavior. *The American Catholic Sociological Review*.
- Kung, W.W., Tseng, Y.F., Wang, Y., Hsu, P.C., & Chen, D., 2012. Pilot Study of Ethnically Sensitive Family Psychoeducation for Chinese-American Patients With Schizophrenia. *Social Work in Mental Health*.
- Kusuma, I.M., & Wijaya., 2013. Pengetahuan, Sikap Dan Motivasi Terhadap Keaktifan Kader Dalam Pengendalian Tuberkulosis. *Jurnal Kesehatan Masyarakat*.
- Larsen, J.R., Martin, M.R., Martin, J.D., Kuhn, P., & Hicks, J.B., 2020. Modeling the Onset of Symptoms of COVID-19. *Frontiers in Public Health*, 8.
- Liu, J., Guo, M., & Bern-Klug, M., 2013. Economic Stress Among Adult-Child Caregivers of the Oldest Old in China: The Importance of Contextual Factors. *Journal of Cross-Cultural Gerontology*, 28(4), pp.465–479.
- Lovato, A., Rossetini, G., & de Filippis, C., 2020. Sore Throat in COVID-19: Comment on "Clinical characteristics of Hospitalized Patients with SARS-CoV-2 Infection: A Single Arm Meta-analysis." *Journal of Medical Virology*, 92(7), pp.714–715.
- Mawaddah, A., Gendeh, H.S., Lum, S.G., & Marina, M.B., 2020. Upper Respiratory Tract Sampling in COVID-19. In *Malaysian Journal of Pathology*.
- McCloskey, B., Zumla, A., Ippolito, G., Blumberg, L., Arbon, P., Cicero, A., Endericks, T., Lim, P.L., & Borodina, M., 2020. Mass Gathering Events and Reducing Further Global Spread of COVID-19: A Political and Public Health Dilemma. *The Lancet*, 395(10230), pp.1096–1099.
- McKibbin, W., & Fernando, R., 2020. The Global Macroeconomic Impacts of COVID-19: Seven Scenarios. *Asian Economic Papers*, pp.1–55.
- Mohammadpour, A., Sadeghmoghadam, L., Shareinia, H., Jahani, S., & Amiri, F., 2018. Investigating the Role of Perception of Aging and Associated Factors in Death Anxiety Among the Elderly. *Clinical Interventions in Aging*, 13, pp.405–410.
- Monto, A.S., Gravenstein, S., Elliott, M., Colopy, M., & Schweinle, J., 2000. Clinical Signs and Symptoms Predicting Influenza Infection. *Archives of Internal Medicine*, 160(21), pp.3243–3247.
- Padala, P.R., Jendro, A.M., Gauss, C.H., Orr, L.C., Dean, K.T., Wilson, K.B., Parkes, C.M., & Padala, K.P., 2020. Participant and Caregiver Perspectives on Clinical Research During Covid-19 Pandemic. *Journal of the American Geriatrics Society*, 68(6), pp.E14–E18.
- Ratnasari, N.Y., Marni, M., & Husna, P.H., 2019. Knowledge, Behavior, and Role of Health Cadres in The Early Detection of New Tuberculosis Case in Wonogiri. *Jurnal Kesehatan Masyarakat*.
- Reckrey, J.M., 2020. COVID-19 Confirms It: Paid Caregivers Are Essential Members of the Healthcare Team. *Journal of the American Geriatrics Society*, 68(8), pp.1679–1680.
- Reluga, T.C., 2010. Game Theory of Social Distancing in Response to an Epidemic. *PLoS Computational Biology*, 6(5), pp.1–9.
- Sarafino, E.P., & Smith, T.W., 2012. *Health Psychology: Biopsychosocial Interactions* (7th ed.). In United States of America: John Willey & Sons Inc.
- Setiati, S., & Azwar, M.K., 2020. COVID-19 and Indonesia. *Acta Medica Indonesiana*.
- Shih, T.H., & Xitao, F., 2008. Comparing Response Rates from Web and Mail Surveys: A Meta-analysis. *Field Methods*, 20(3), pp.249–271.

- Tay, H.S., & Harwood, R., 2020. Atypical Presentation of COVID-19 in a Frail Older Person. *Age and Ageing*, 49(4), pp.523–524.
- Tian, S., Hu, N., Lou, J., Chen, K., Kang, X., Xiang, Z., Chen, H., Wang, D., Liu, N., Liu, D., Chen, G., Zhang, Y., Li, D., Li, J., Lian, H., Niu, S., Zhang, L., & Zhang, J., 2020. Characteristics of COVID-19 Infection in Beijing. *Journal of Infection*, 80(4), pp.401–406.
- WHO., 2020a. Coronavirus Disease (COVID-2019) Situation Reports. World Health Organisation.
- WHO., 2020b. Global Surveillance for Human Infection with Novel Coronavirus (2019-nCoV) Interim Guidance 31 January 2020. WHO.
- WHO., 2020c. Home Care for Patients with COVID-19 Presenting with Mild Symptoms and Management of Their Contacts. World Health Organization.
- WHO., 2020d. Infection Prevention and Control During Health Care when COVID-19 is Suspected. Who.
- Wujtewicz, M.A., Dylczyk-Sommer, A., Aszkielowicz, A., Zdanowski, S., Piwowarczyk, S., & Owczuk, R., 2020. COVID-19-What Should Anaesthesiologists and Intensivists Know About It?. *Anaesthesiology Intensive Therapy*, 52(1), pp.34–41.
- Zhang, Y., Zhang, H., Ma, X., & Di, Q., 2020. Mental Health Problems During the COVID-19 Pandemics and the Mitigation Effects of Exercise: A Longitudinal Study of College Students in China. *International Journal of Environmental Research and Public Health*, 17(10).
- Zhong, B.L., Luo, W., Li, H.M., Zhang, Q.Q., Liu, X.G., Li, W.T., & Li, Y., 2020. Knowledge, Attitudes, and Practices Towards COVID-19 among Chinese Residents During the Rapid Rise Period of the COVID-19 Outbreak: A Quick Online Cross-sectional Survey. *International Journal of Biological Sciences*, 16(10), pp.1745–1752.
- Zhu, N., Zhang, D., Wang, W., Li, X., Yang, B., Song, J., Zhao, X., Huang, B., Shi, W., Lu, R., Niu, P., Zhan, F., Ma, X., Wang, D., Xu, W., Wu, G., Gao, G. F., & Tan, W., 2020. A Novel Coronavirus from Patients with Pneumonia in China, 2019. *New England Journal of Medicine*.