

The Clinical and Psychological Condition of Elderly Patient Infected by Covid 19 with Comorbidity: Literature Review

Ahmad Fadhlur Rahman¹, Kartinah²

^{1,2} Faculty of Health Science, Universitas Muhammadiyah Surakarta (UMS), Surakarta, Indonesia

Corresponding author: Kar194@ums.ac.id

Abstract

Purpose: to know and describe the clinical and psychological condition of the elderly with Covid 19 with Comorbidity

Methodology: This research is a literature review research by conducting a search using a nursing or health research data base, namely Google Scholar, Science Direct, NCBI, and Elsevier with the keywords of each selected variable.

Results: A total of 2340 patients were included in this literature review, with patient demographic characteristics including gender, age and comorbidities. A total of 1187 (51.1%) patients were male and 1153 (48.9%) were female, the age distribution of these patients was between 60-75 years (79%) and ≥ 75 years (21%) with comorbidities in the form of hypertension (45%), diabetes (24%), heart disease (19%), COPD (8%), kidney disease (4%), and liver disease (3%). Clinical signs that appear in elderly people with hypertension and diabetes who are infected with Covid 19 are clinically found to be fever (33%), cough (26%), fatigue (13%), difficulty breathing (14%), anorexia (4%), diarrhea (4%), headache (2%), myalgia (2%), nausea (2%) and vomiting (1%). Psychologically, the signs and symptoms that appear in the elderly include depression, anxiety, and excessive feelings of fear.

Applications / Originality / Value: The findings of clinical conditions that appear most in the literature review are fever, followed by cough, difficulty breathing, fatigue, anorexia, diarrhea, headache, myalgia, nausea and vomiting. While the psychological conditions that arise include stress, anger, depression, irritability, sleep disturbances, feelings of loneliness, excessive fear, and social disorders.

Introduction

The world is currently experiencing an extraordinary event, a virus that was first discovered in December 2019 in the city of Wuhan, China, which has become a pandemic that has swept the entire world. This virus was identified as a new type of Betacoronavirus which was eventually named 2019 Novel Coronavirus (2019-nCoV) (Burhan et al, 2020). The spread of this virus occurs very quickly every day because of its virus that spreads through droplets. Globally, WHO noted that, the spread of confirmed positive cases had reached 216 countries around the world with 69,521,294 confirmed cases, with 1,582,674 patient deaths and 49,761,033 recovered cases (WHO Coronavirus Disease (COVID-19) Dashboard, 2020). Indonesia itself continues to experience an increase in positive cases of Covid 19 every day. According to a report from the Task Force for the Acceleration of Covid 19 Management on its official website, it recorded that there were 611,631 confirmed positive cases in all regions of Indonesia, where the number of deaths from Covid 19 patients was 18,653 and the number of patients who recovered was 501,376 people (RI Covid Task Force, 2020)

Based on these data, it was found very surprising information that the highest percentage of positive cases of Covid 19 was in patients with an age range of 31-45 years, but the highest cases of death occurred. in patients aged > 60 years. This virus can infect all ages, but the elderly are a group that is very vulnerable to the impact caused by this virus. Elderly is defined as someone who has reached the age of 65 years or more (Orimo et al., 2006). The vulnerability was caused because the aging process is accompanied by various vulnerabilities such as psychological, social, and environmental vulnerabilities, so that these vulnerabilities carry the risk of various kinds of infections and decreased immune responses. In addition, the elderly have a high risk of suffering from comorbidities and increased hospitalizations which increase the likelihood of contracting infections during the Covid 19 pandemic (Banerjee, 2020). Elderly people who suffer from Covid 19 have a higher mortality rate compared to younger patients (Liu et al, 2020).

The results of research conducted by Fang, Karakiulakis & Roth (2020) state that hypertension and diabetes mellitus are the most common comorbid causes of death in elderly patients infected with Covid 19 with case presentations of 23.7% and 16.2%. In Indonesia, according to data from the Task Force for the Acceleration

of Covid 19 RI Management, the most common comorbidities in patients with Covid 19 are Hypertension and Diabetes Mellitus (DM), with 51.2% of each case for Hypertension and 34.9% for diabetes mellitus, followed by data on other comorbidities that appear including heart disease (18.2%), chronic obstructive pulmonary disease (8.2%), kidney (5.5%) and cancer (1.6%) (RI Covid Task Force, 2020). Elderly who is infected with Covid 19 and has a history of hypertension and diabetes mellitus will have a high chance of experiencing acute respiratory failure syndrome (Schiffirin et al, 2020).

The condition of these vulnerable elderly people can also have an impact on their psychological health. Health anxiety, panic, adjustment disorders, depression, chronic stress, and insomnia are things that usually occur in older people who are infected with Covid 19. Lack of cognitive abilities in the elderly can also affect their level of cooperation in following the preventive recommendations given, thus making the elderly more easily infected with this virus. Therefore, the role of family and society is very important in preventing the transmission of Covid 19 in the elderly, because it can help reduce the occurrence of severity in elderly, so that the elderly have a good quality of life . (Banerjee, 2020).

Purpose

The Purpose of this literature review to know and describe the clinical and psychological condition of the elderly with Covid 19 with Comorbidity

Method

Research Design

This research is a literature review

Data Collection

research by conducting a search using a nursing or health research database, published in Google Scholar, Science Direct, NCBI, and Elsevier with the keywords are The condition of the elderly with Covid 19 with Comorbidity, the clinical condition and characteristic \ of the elderly with Covid 19 with comorbidity, and the psychological impact on the elderly with covid 19. the researcher determines the time period for the journal published in the last 5 years .

Inclusion and Exclusion Criteria

Criteria Inclusion	type of research design <i>Mix methods study</i> , cross-sectional, <i>retrospective study</i> , <i>descriptive studies</i> , <i>systematic reviews</i> and meta-analyzes
	the theme of research is the clinical and pasychological condition elderly Patients infected by Covid 19 with comorbidity
	Publication of the journal reputable in English and available <i>Full -text</i> .
	Publications published from 2015 to 2020
Exclusion Criteria	study used a sample size of less than 30 respondents
	Research reports in the form of a thesis monograph

Data Synthesis

This literature review is synthesized using a narrative method by classifying similar extracted data according to the measured results to answer the objective. Research journals that match the inclusion criteria are then collected and a journal summary is made including the title of the study, the year the journal was published, the method and a summary of the results or findings. The summary of the research journal is entered into a table sorted alphabetically and the year of publication of the journal and according to the format mentioned above. The data that has been collected are then looked for similarities and differences and then discussed to draw conclusions.

Result

The results of the search from the database of health journals, the researcher found approximately 18,133 journals that were found with keywords that match the research topic. Furthermore, after the identification, screening and eligibility of the journals were carried out, 69 journals were obtained. However, as many as 51 journals were not in accordance with the research objectives and focus of discussion, so they were excluded and resulted in 18 journals for final review

A total of 2340 patients were included in this literature review, with patient demographic characteristics including gender, age and comorbidities. A total of 1187 (51.1%) patients were male and 1153 (48.9%) were female, the age distribution of these patients between 60-75 years was 1813 (79%) and ≥ 75 years as many as 496 (21%).) with comorbidities in the form of hypertension as much as 1030 (45%), diabetes as much as 552 (24%), heart disease 450 (19%), COPD 178 (8%), kidney disease 92 (4%), and liver disease 64 (3%). Signs and symptoms that appear in elderly people with hypertension and diabetes who are infected with Covid 19 are clinically found to have fever (33%), cough (26%), fatigue (13%), difficulty breathing (14%), anorexia (4%), diarrhea (4%), headache (2%), myalgia (2%), nausea (2%) and vomiting (1%). Psychologically, as shown in table 1, the signs and symptoms that appear in the elderly include depression, anxiety, and feelings of excessive fear etc. (Dubey, S et al, 2020) (Jiang, Z et al. 2020) and (Sun, N et al. 2020).

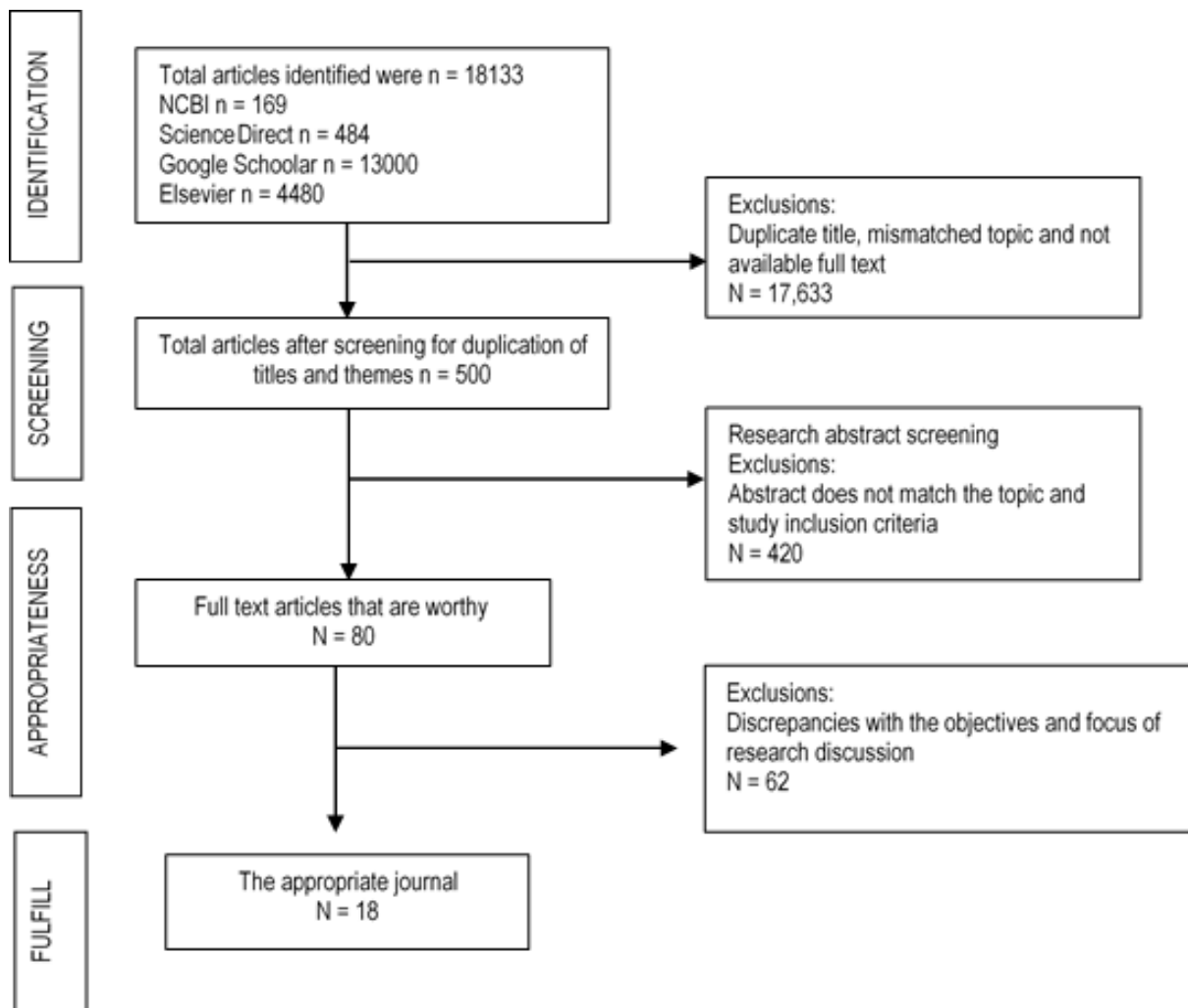


Figure 1 Journal Search Flowchart

Table 1. Psychological conditions in elderly patients infected with Covid 19

No	The Psychological condition
1.	Fear
2.	Denial
3.	Stigma during the early stages
4.	Anxiety
5.	Stress
6.	Anger
7.	Depression
8.	Sleep Disturbance
9.	Feeling of Loneliness
10.	Social Disorder

Source: (Dubey, S., et al, 2020) (Jiang, Z., et al. 2020) and (Sun, N., et al. 2020)

Table 2. Demographic data and clinical condition of elderly infected with Covid 19 in literature review

No	Author	Dang, J. zhong, (1)	Dai, S.P (2)	Zhao, M (3)	Song, J (4)	Li, P (5)	Niu, S (6)	Liu, K (7)	Chen, Y (8)	Guo, T (9)	Li, T (10)	Gao, S., (11)	Wang, L (12)	Lian, J (13)	Zhu, X (14)	Leung, C (15)	Total (n=2340)	Percentage	
Gender																			
1.	Men	12	9	250	12	100	34	12	42	48	187	101	166	58	67	89	1187	51%	
2.	Woman	5	14	277	13	104	26	6	54	57	125	109	173	78	47	65	1153	49%	
Age																			
1.	60-74	-	23	359	25	85	44	18	65	85	312	210	339	136	-	112	1813	79%	
2.	>75	17	-	168	0	119	16	-	0	20	-	-	-	-	114	42	496	21%	
Habit																			
1.	Smoking History (%)	13,6%																	
Comorbidities																			
1.	Hypertension	9	10	220	8	74	15	5	56	46	178	115	138	53	61	42	1030	45%	
2.	Diabetes mellitus	5	6	84	6	36	3	3	96	27	121	38	54	24	21	28	552	24%	
3.	Cardiovascular Disease	8	13	54	4	44	5	2	17	17	93	52	53	6	61	21	450	19%	
4.	COPD	3	5	32	1	21	9	-	1	9	27	3	21	3	24	19	178	8%	
5.	Kidney illness	6	3	17	-	5	-	-	6	5	10	18	13	2	-	7	92	4%	
6.	Liver Disease	-	1	17	-	-	-	1	1	5	11	18	2	6	-	2	64	3%	
Sign and Symptoms																			
1.	Fever	13	18	401	17	159	47	14	37	70	252	151	311	115	95	21	1721	33%	
2.	Cough	5	14	307	16	100	34	6	61	68	239	148	179	85	68	62	1392	26%	
3.	Difficulty breathing	-	1	151	9	64	18	-	34	31	167	17	138	-	52	29	711	14%	
4.	Fatigue	11	1	163	6	31	14	2	43	35	83	73	135	24	51	-	672	13%	
5.	Anorexia	-	-	73	1	30	-	-	-	9	-	23	94	-	-	-	230	4%	
6.	Diarrhea	-	-	52	3	27	-	-	8	10	25	24	43	-	10	8	210	4%	
7.	Headache	-	-	31	-	-	4	-	6	-	28	13	25	8	-	1	116	2%	
8.	Myalgia	-	1	-	-	17	-	-	19	8	18	12	16	-	4	-	95	2%	
9.	Nausea	-	-	13	-	9	-	-	5	-	22	11	13	-	4	2	79	2%	
10.	Vomiting	-	-	15	-	-	-	3	-	6	-	-	-	-	3	-	27	1%	

Discussion

In this literature review, of 18 studies that discuss the clinical conditions of elderly people who have comorbidities and are infected with Covid 19, the largest accumulation of respondents is male (51%) with an elderly age range between 64-74 years (79%). This is supported by the theory that the male elderly are more at risk of being infected with Covid 19 and experiencing worsening conditions when they have comorbidities because men tend to have more bad habits than women (such as smoking, drinking alcohol, and more diseases. underlying causes), which is also why men with COVID-19 are more likely to die. (Qiu et al., 2020). The occurrence of the aging process in the elderly causes changes in the physiological functions of the elderly's body, this makes the elderly population vulnerable to chronic health conditions, diseases such as diabetes and cardiovascular or lung diseases not only at a higher risk of developing severe disease but also an increased risk of death if they occur. worsening when the elderly are infected with Covid 19 (Sanyaolu et al., 2020).

The majority of comorbidities suffered by elderly patients in this literature review are hypertension with a total accumulated cases of 1030 (45%), and followed by diabetes mellitus as much as 552 (24%) total accumulated cases from 15 journals reviewed. This is in accordance with data in previous studies which stated that hypertension is one of the comorbidities that many elderly people infected with Covid 19 (Qiu, P et al. 2020). There is not enough data to show whether people with diabetes and hypertension are more likely to be infected with Covid-19 than the general population, but the main problem faced by people with diabetes and hypertension is the problem of the end result that has the potential to experience worsening of the condition, not a greater chance. great for catching a virus. In this literature review, the majority of which are from China, shows that people with diabetes and hypertension have a much higher rate of serious complications and death than people without diabetes and hypertension.

Hypertension is one of the most common conditions in COVID-19 patients with severity. In this literature review, researchers reviewed several studies that looked at the relationship between hypertension and the severity of COVID-19. These results indicate that the risk of respiratory disease is significantly higher in hypertensive patients. Patients with hypertension were also found to be at higher risk for acute respiratory disease and chronic lower respiratory disease (Zaki, N., et al). Disturbances in glucose and lipid metabolism act as an initial trigger in the development and increase of various metabolic diseases, such as type 2 diabetes, dyslipidemia, nonalcoholic fatty liver disease, hypertension, atherosclerosis, and cardiovascular complications. (Chen, Y., et al).

Patients with type 2 diabetes are more likely to experience increased severity of COVID-19. In a cohort study of 7,337 patients with COVID-19 with and without type 2 diabetes, it was evident that those with type 2 diabetes required increased intervention for longer hospital stays than those without diabetes. It showed that those with poorer blood glucose control had an increased overall mortality rate than those with better glucose control (Sanyaolu et al., 2020). Signs and symptoms that appear clinically in elderly patients in this literature review are fever (33%) then cough (26%) and patients with difficulty breathing (14%). This is the same as the meta-analysis research conducted by Qiu, P (2020) which shows the results that the clinical signs that generally appear are fever and cough.

There are 4 studies that show a difference in temperature in the age range of the elderly who suffer from fever. The results of research conducted by Zhao.M (3) showed that the elderly with body temperature <37.7oC more suffered by the elderly aged 60-74 years. Meanwhile, 3 other studies (6,9,13) showed that the elderly in the same age range suffered more from fever with temperature 37,7-38o C. The results of this study also indicate that it is possible that in some cases fever that occurs in the elderly can increase in more severe fever conditions to reach a temperature > 39oC. Apart from fever and cough, other clinical signs that appear in the elderly in this literature review are fatigue (13%), difficulty breathing (14%), anorexia (4%), diarrhea (4%), headache (2%), myalgia. (2%), nausea (2%) and vomiting (1%), this shows that the elderly with comorbid diseases and infected with Covid 19 require more intensive care to help restore their body condition so that there is no further worsening.

Besides discussing clinical conditions in elderly patients infected with Covid 19, this literature review discusses psychological conditions in these elderly people, as many as 3 journals that researchers reviewed in this literature review. According to Dang, J et al (2020) the psychological condition of patients is also associated with

an increase in mortality. Depression symptoms later in life are caused by processes associated with aging, such as inflammatory disease behaviors, weakness, and mild cognitive impairment, all of which have been associated with increased mortality

In the research journal by Sun N (2020) shows the results that when patients are diagnosed with Covid 19 and show signs of fever and cough symptoms they feel fear of their condition, especially fear of death. In addition, they also deny that they have been infected with Covid 19. Several stressors that trigger psychological problems in patients include patient discomfort caused by clinical symptoms that appear, stress caused by quarantine which results in them being far from family, social disorders, and changes in life habits (Sun, N et al. 2020).

Other psychological impacts that arise include anxiety, irritability and feelings of stress or excessive anger (Dubey, S et al. 2020). Elderly patients need more attention because they have other factors that may affect their mental health. The understanding of this disease can also play a role in the mental distress of the patient in addition Environmental stressors, physical illness, separation from family and friends, and other comorbid psychological problems are also associated with this condition. This can cause problems in their sleep quality, the elderly and those with comorbid chronic diseases have a higher risk of experiencing sleep problems. Patients who have moderate or severe clinical symptoms are more likely to suffer from sleep problems than those who have mild symptoms (Jiang, Z et al. 2020)

Conclusion

Based on the results of research and discussion in this literature review, it can be concluded that the elderly are male with an age range of 60-74 years and suffering from Covid 19 with comorbidities can be described based on clinical and psychological conditions. The most clinical findings in this literature review are fever, followed by cough, difficulty breathing, fatigue, anorexia, diarrhea, headache, myalgia, nausea and vomiting. While the psychological conditions that arise in elderly include stress, anger, depression, irritability, sleep disturbances, feelings of loneliness, excessive fear, and social disorders.

Limitation

This study has limitations, first, that there are few sources reviewed in this study, due to limited access to more specific topics and focus on discussing the clinical and psychological conditions of the elderly infected with comorbidity. Second, the researchers did not discuss more specifically about the relationship and the more specific relationship between the elderly with comorbidity who were infected with Covid 19 and their clinical conditions because the research sources were still very limited.

Acknowledgement

Thank you to the Universitas Muhammdiyah Surakarta for giving me the opportunity and facilitating me in conducting this research.

References

- Banerjee, D., 2020. The impact of Covid - 19 pandemic on elderly mental health. *International Journal of Geriatric Psychiatry*, pp. 1-2.
- Burhan, E., Isbaniah, F., Susanto, AD, Aditama, TY, Soedarsono., Et al. (2020). *Pneumonia Covid-19 Diagnosis & Management in Indonesia*. Jakarta: Indonesian Lung Doctors Association (PDPI). ISBN: 978-623-92964-0-7
- Chen, Y., Chen, J., Gong, X., Rong, X., Ye, D., Jin, Y., Zhang, Z., Li, J., & Guo, J. (2020). Clinical Characteristics and Outcomes of Type 2 Diabetes Patients Infected with COVID-19: A Retrospective Study. *Engineering*, xxxx. <https://doi.org/10.1016/j.eng.2020.05.017>
- COVID-19, G. (2020). Distribution Map | Task Force for the Acceleration of Handling COVID-19. Retrieved 5 July (2020), from <https://covid19.go.id/peta-sebaran>

- Dai, SP, Zhao, X., & Wu, J. hui. (2020). Effects of Comorbidities on the Elderly Patients with COVID-19: Clinical Characteristics of Elderly Patients Infected with COVID-19 from Sichuan, China. *Journal of Nutrition, Health and Aging*.<https://doi.org/10.1007/s12603-020-1486-1>
- Dang, J. zhong, Zhu, G. yan, Yang, Y. jie, & Zheng, F. (2020). Clinical characteristics of coronavirus disease 2019 in patients aged 80 years and older. *Journal of Integrative Medicine*, 18 (5), 395–400.<https://doi.org/10.1016/j.joim.2020.07.002>
- Dubey, S., Biswas, P., Ghosh, R., Chatterjee, S., Dubey, MJ, Chatterjee, S., Lahiri, D., & Lavie, CJ (2020). Psychosocial impact of COVID-19. *Diabetes and Metabolic Syndrome: Clinical Research and Reviews*, 14 (5), 779–788.<https://doi.org/10.1016/j.dsx.2020.05.035>
- Fang, L., Karakiulakis, G., & Roth, M. (2020). Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection ?. *The Lancet Respiratory Medicine*, 8 (4), e21. doi: 10.1016 / s2213-2600 (20) 30116-8
- Gao, S., Jiang, F., Jin, W., Shi, Y., Yang, L., Xia, Y., Jia, L., Wang, B., Lin, H., Cai, Y., Xia, Z., & Peng, J. (2020). Gao et al - Risk factors influencing the prognosis of elderly patients infected with COVID-19. 12 (13), 12504–12516.
- Girdhar, R., Srivastava, V. and Sethi, S., 2020. Managing mental health issues among elderly during COVID-19 pandemic. *Journal of Geriatric Care and Research*, 7 (1), pp. 32-35.
- Guo, T., Shen, Q., Guo, W., He, W., Li, J., et al. (2020). Clinical Characteristics of Elderly Patients with COVID-19 in Hunan Province, China: A Multicenter, Retrospective Study. *Gerontology*, 66 (5), 467–475.<https://doi.org/10.1159/000508734>
- Jiang, Z., Zhu, P., Wang, L., Hu, Y., Pang, M., & Ma, S. (2020). Psychological distress and sleep quality of COVID-19 patients in Wuhan, a lockdown city as the epicenter of COVID-19. *Journal of Psychiatric Research*, June.<https://doi.org/10.1016/j.jpsychires.2020.10.034>
- LeMone., P. and Burke., 2017. *Medical-Surgical Nursing Volumes 1-3: Critical Thinking For Person-Centered Care*. 3rd ed. Melbourne: Pearson Australia Pty Ltd, pp.564-566.
- Leung, C. (2020). Risk factors for predicting mortality in elderly patients with COVID-19: A review of clinical data in China. *Mechanisms of Aging and Development*, 188 (April), 111255.<https://doi.org/10.1016/j.mad.2020.111255>
- Li, P., Chen, L., Liu, Z., Pan, J., Zhou, D., Wang, H., Gong, H., Fu, Z., Song, Q., Min, Q., Ruan, S., Xu, T., Cheng, F., & Li, X. (2020). Clinical features and short-term outcomes of elderly patients with COVID-19. *International Journal of Infectious Diseases*, 97, 245–250.<https://doi.org/10.1016/j.ijid.2020.05.107>
- Li, T., Lu, L., Zhang, W., Tao, Y., Wang, L., Bao, J., Liu, B., & Duan, J. (2020). Clinical characteristics of 312 hospitalized older patients with COVID-19 in Wuhan, China. *Archives of Gerontology and Geriatrics*, 91 (June), 104185.<https://doi.org/10.1016/j.archger.2020.104185>
- Lian, J., Jin, X., Hao, S., Cai, H., Zhang, S., Zheng, L., Jia, H., Hu, J., Gao, J., Zhang, Y., Zhang, X., Yu, G., Wang, X., Gu, J., Ye, C., Jin, C., Lu, Y., Yu, X., Yu, X.,... Yang, Y. (2020). Analysis of Epidemiological and Clinical Features in Older Patients With Coronavirus Disease 2019 (COVID-19) Outside Wuhan. *Clinical Infectious Diseases: An Official Publication of the Infectious Diseases Society of America*, 71 (15), 740–747.<https://doi.org/10.1093/cid/ciaa242>
- Liu, K., Chen, Y., Lin, R., & Han, K. (2020). Clinical features of COVID-19 in elderly patients: A comparison with young and middle-aged patients. *Journal of Infection*, 80 (6), e14 – e18.<https://doi.org/10.1016/j.jinf.2020.03.005>
- Niu, S., Tian, S., Lou, J., Kang, X., Zhang, L., et al. (2020). Clinical characteristics of older patients infected with COVID-19: A descriptive study. *Archives of Gerontology and Geriatrics*, 89, p.104058. <https://doi.org/10.1016/j.archger.2020.104058>
- Orimo, H., Ito, H., Suzuki, T., et al. (2006). Reviewing the definition of «elderly». *Geriatrics And Gerontology International*, 6 (3), 149-158. doi: 10.1111 / j.1447-0594.2006.00341.x
- Qiu, P., Zhou, Y., Wang, F., Wang, H., Zhang, M., Pan, X., Zhao, Q. and Liu, J., (2020). Clinical characteristics,

- laboratory outcome characteristics, comorbidities, and complications of related COVID-19 deceased: a systematic review and meta-analysis. *Aging Clinical and Experimental Research*, 32 (9), pp. 1869-1878.
- Riddle, M., 2019. American Diabetes Association: Standards of Medical Care in Diabetes-2019. *Diabetes Care*, 42 (Supplement 1), pp. S173-S181
- Sanyaolu, A., Okorie, C., Marinkovic, A., Patidar, R., Younis, K., Desai, P., Hosein, Z., Padda, I., Mangat, J. and Altaf, M., 2020. Comorbidity and its Impact on Patients with COVID-19. *SN Comprehensive Clinical Medicine*, 2 (8), pp. 1069-1076.
- Schiffirin, E., Flack, J., Ito, S., Muntner, P., & Webb, R. (2020). Hypertension and COVID-19. *American Journal Of Hypertension*, 33 (5), 373-374. doi: 10.1093 / ajh / hpaa057
- Snyder, H., (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, pp. 333-339.
- Sommers, M., (2018). *Davis's Diseases And Disorders: A Nursing Therapeutics Manual (Revised)*. 6th ed. Philadelphia: FA Davis Company.
- Song, J., Hu, W., Yu, Y., Shen, X., Wang, Y., Yan, J., Yang, X., Gong, S., & Wang, M. (2020). A comparison of clinical characteristics and outcomes in elderly and younger patients with covid-19. *Medical Science Monitor*, 26, 1-8. <https://doi.org/10.12659/MSM.925047>
- Sun, N., Wei, L., Wang, H., Wang, X., Gao, M., Hu, X., & Shi, S. (2021). Qualitative study of the psychological experience of COVID-19 patients during hospitalization. *Journal of Affective Disorders*, 278 (24), 15-22. <https://doi.org/10.1016/j.jad.2020.08.040>
- Swearingen, P., (2016). *All-In-One Care Planning Resource*. 4th ed. Philadelphia, PA: Elsevier / Mosby, pp. 355-356.
- Unger, T., Borghi, C., Charchar, F., Khan, N., Poulter, N., et al. (2020). 2020 International Society of Hypertension Global Hypertension Practice Guidelines. *Hypertension*, 75 (6), pp. 1334-1357.
- Wang, L., He, W., Yu, X., Hu, D., Bao, M., Liu, H., Zhou, J., & Jiang, H. (2020). Coronavirus disease 2019 in elderly patients: Characteristics and prognostic factors based on 4-week follow-up. *Journal of Infection*, 80 (6), 639-645. <https://doi.org/10.1016/j.jinf.2020.03.019>
- WHO Coronavirus Disease (COVID-19) Dashboard. (2020). Retrieved 5 July 2020, from https://covid19.who.int/?gclid=Cj0KCQjw9IX4BRCCARIsAOD2OB0AQTA7vzFjik5S-vO3wi7BRHCL9W7vOLhxi ePgq9Tow4gCWd_rKsaAvL5EALw_wcB
- WHO Director-General's remarks at the media briefing on 2019-nCoV on 11 February (2020). Retrieved 5 July (2020, from [https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-\(2020\)](https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-(2020))
- WHO.int. 2020. Hypertension. [online] Available at: <https://www.who.int/health-topics/hypertension/#tab=tab_1> [Accessed 17 August 2020].
- Williams, L. and Hopper, P., 2015. *Understanding Medical-Surgical Nursing*. 5th ed. Philadelphia: FA Davis Company, pp. 418-420.
- Zaki, N., Alashwal, H., & Ibrahim, S. (2020). Association of hypertension, diabetes, stroke, cancer, kidney disease, and high-cholesterol with COVID-19 disease severity and fatality: A systematic review. *Diabetes and Metabolic Syndrome: Clinical Research and Reviews*, 14 (5), 1133-1142. <https://doi.org/10.1016/j.dsx.2020.07.005>
- Zhao, M., Wang, M., Zhang, J., Gu, J., Zhang, P., Xu, Y., Ye, J., Wang, Z., Ye, D., Pan, W., Shen, B., He, H., Liu, M., Liu, M., Luo, Z., Li, D., Liu, J., & Wan, J. (2020). Comparison of clinical characteristics and outcomes of patients with coronavirus disease 2019 at different ages. *Aging*, 12 (11), 10070-10086. <https://doi.org/10.18632/aging.103298>
- Zhu, X., Yuan, W., Huang, K., Wang, Q., Yao, S., Lu, W., Liu, L., & Fu, T. (2020). Clinical Features and Short-Term Outcomes of 114 Elderly Patients with COVID-19 in Wuhan, China: A Single-Center, Retrospective, Observational Study. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3548774>