

# A Review on Nutrition and Dietary Recommendation During COVID-19 Pandemic



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## ABSTRACT

**Introduction:** The current pandemic situation of COVID-19 remains severe, affecting every aspect of our lives. Currently, the spread of inaccurate information or fake news on the internet is causing the community to panic. The public is sharing nutrition remedies that claimed to cure or prevent this virus without support from evidence-based studies. Thus, the study aims to determine current evidence based on nutrition and dietary recommendation practiced by affected countries of COVID-19. **Methodology:** We performed a scoping review using electronic journal databases with the MeSH terms “Novel coronavirus”, “2019 nCoV”, “COVID-19”, “SARS-CoV-2”, “nutrition therapy”, “nutrition intervention”, “nutrition remedies”, “traditional Chinese medicine”, and “immune system”. A scoping review framework was used to chart the evidence-based on Preferred Method in Reporting Systematic Review and Meta-analysis extension for Scoping Reviews (PRISMA-ScR). **Results:** A total of 44 articles met the inclusion criteria from 1 January to 10 April and were used in the review. 60.7% of these studies were identified as review studies, 14.4% observational studies, 10.7% as laboratory diagnoses, 7.1% case studies, and 7.1% study on a clinical trial. This scoping review demonstrates that there is no miracle cure, specific food, or supplement that can cure or prevent COVID-19. Currently, there is no confirmed treatment or vaccine for the disease. **Conclusion:** Practicing healthy eating habits is the best nutrition recommendation during the pandemic. It is essential to understand that no supplement, particular diet, or other lifestyle modification other than social distancing, and proper hygiene practices can protect you from COVID-19.

## INTRODUCTION

The current pandemic situation of COVID-19 remains severe. At present, there are no specific antiviral drugs or vaccines against COVID-19 infection for potential therapy for humans. Lately, much has been discussed about the nutritional intervention for COVID-19. The public is sharing nutrition remedies that claimed to cure or prevent this virus without support from evidence-based studies. To investigate the source of discrepancy, we examined the current evidence-based on medical nutrition therapy and dietary recommendation practiced by affected countries of COVID-19. Currently, there are no definite recommendations available in terms of medical, nutritional therapy guidelines for the treatment of COVID-19.

## METHODOLOGY

### STAGE

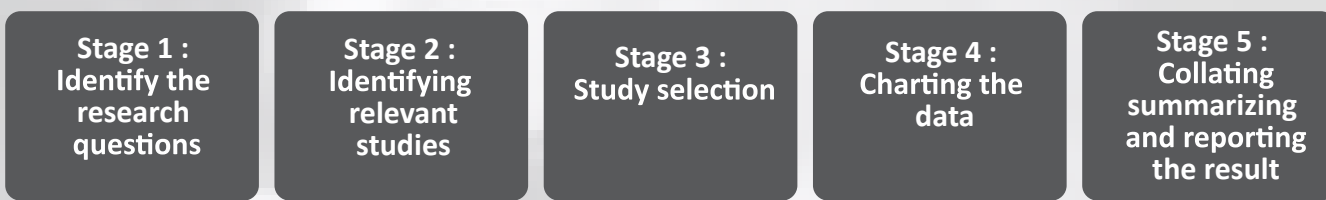


Figure 1: Stage of scoping study (Arksey and O'Malley, 2005).

**TIME FRAME** for publications: 1 January 2020 to 10 April 2020.

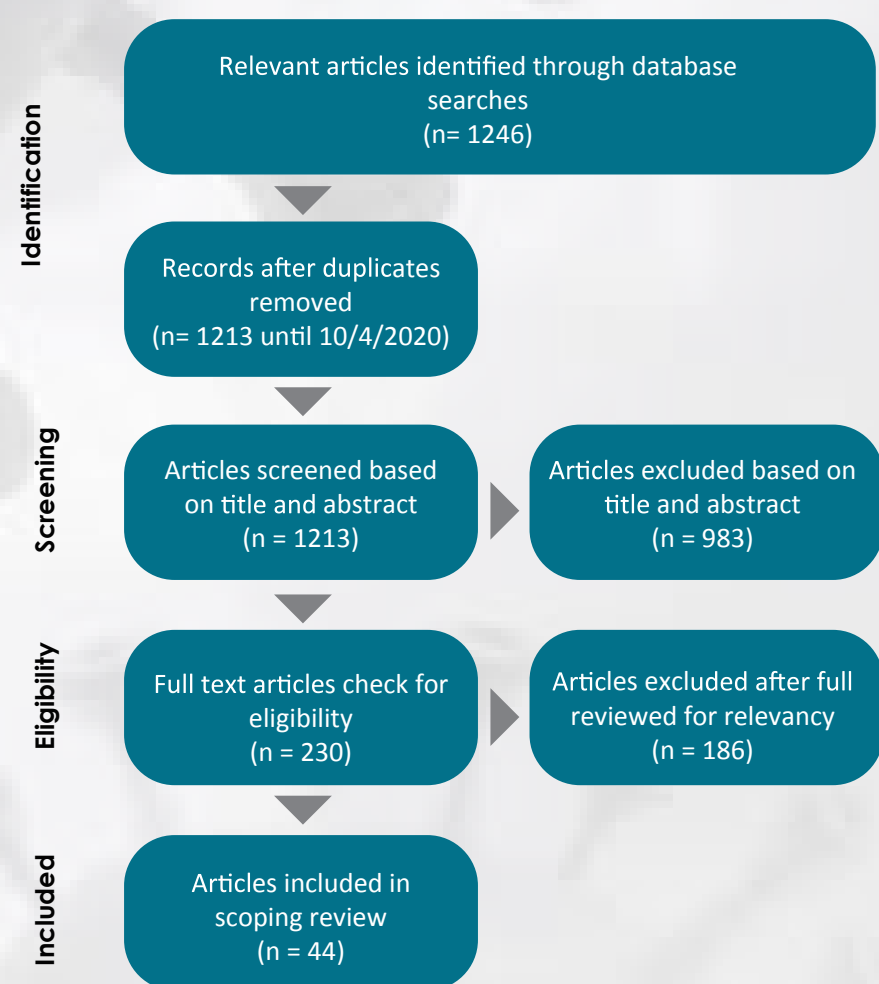


Figure 2: Scoping review process selection of articles (PRISMA)

### Eligibility criteria

#### Inclusion criteria

- Published after 1st January 2020 until 10th April 2020 (except for websites)
- Available in Malay and English
- Examined the nutrition remedies about COVID-19 which might cure or provide protection from this virus

#### Exclusion criteria

- Does not target one or more nutrition remedies about COVID-19
- Does not evaluate or describe situation of “promoting” certain “dishes”, leaves and product that has been implemented to prevent a person from being infected with COVID-19

## RESULTS AND DISCUSSIONS

Results were then categorized by author(s), year of publication, type of publication, aims of study or subject of the article, study design, outcomes/conclusion, a summary of aspects addressed, and keywords.

Figure 3: Source of data

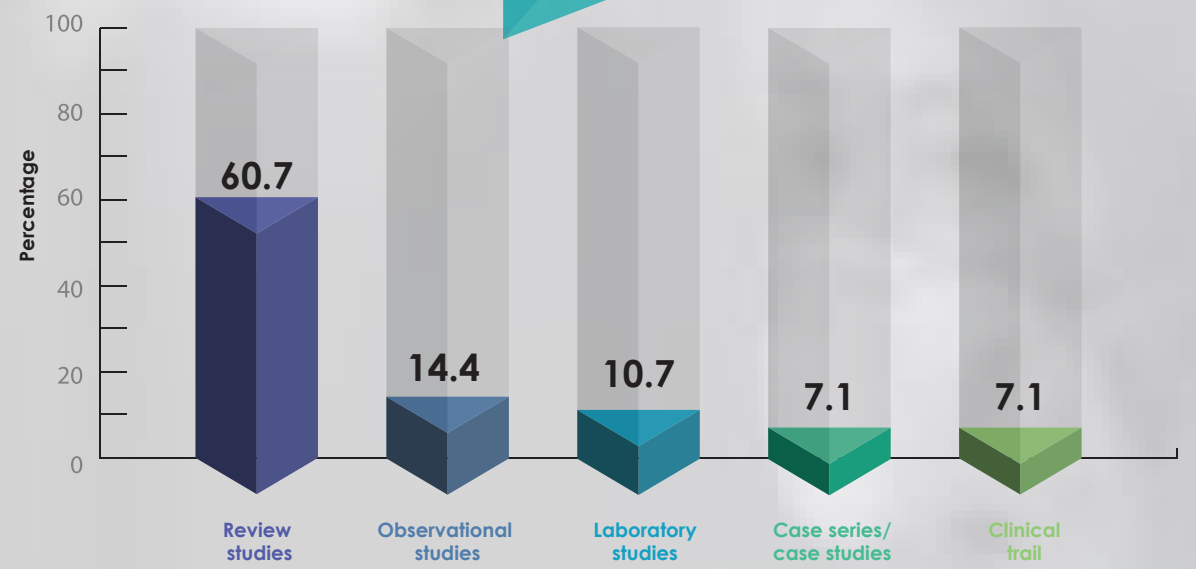
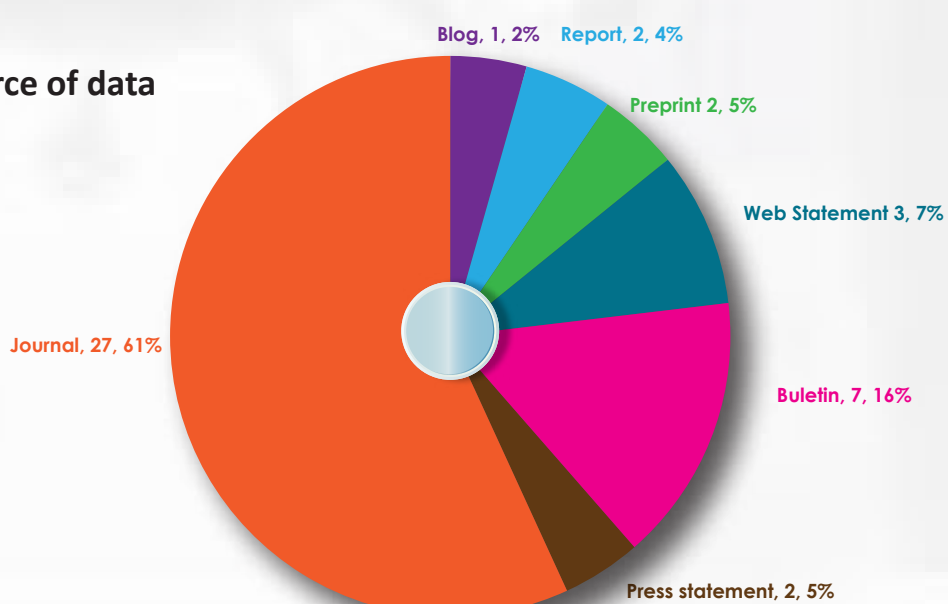


Figure 4: Articles categorized by publication type

- Vitamin C affects severe viral respiratory tract infections and significantly found able to lower the incidence of pneumonia. It also helps to kill viruses and reduces the symptoms of infection (Player et al., 2020). The possibility that vitamin C affects severe viral respiratory tract infections would seem to further study, especially in light of the recent pandemic.
- Vitamin D modulates the immune system and plays a significant role in protecting and lowers the severity of respiratory lung infections especially among children (predisposes respiratory infections) (Andrew, 2020). Vitamin D have been shown to enhance immunity but no specific evidence these nutritional measures can help protect against, or even lessen the effects of COVID-19 infection.
- Vitamin E, vitamin D, and zinc enhance immunity, and require more research to be implemented in a clinical setting because consuming supplements can sometimes be hazardous as the ingredients the products can cause more harm than good (Ronis et al, 2018).
- Micronutrients and minerals such as magnesium, zinc, and selenium that being suggested to improve viral infection (Andrew, 2020). Magnesium plays an essential role in vitamin D metabolism, which helps convert vitamin D to its active form (Deng et al., 2013). Zinc is part of a central role in the immune system and alters host resistance to infection (Shankar & Prasad,1998) and zinc-deficient persons experience increased susceptibility to a variety of pathogens. Selenium inhibits viral replication (Guillin et al., 2019).
- Eating according to the Malaysian Dietary Guidelines as recommended by the Ministry of Health Malaysia ensures the intake of adequate amounts of energy, protein, micronutrients, and other food components is the key to developing good immune system.
- Traditional Chinese Medicine showed promising results and gave a convincing outcome to treat COVID-19 patients (Ren et al., 2020; Wang et al., 2020; Chan et al., 2020; and Yang et al., 2020). We strongly suggest that more research is needed on the usage of Traditional Chinese Medicine for COVID-19 treatment.
- Drinking water is essential to maintain the balance of body fluid that optimize body function. Nevertheless, hydration is vital in general health, and more fluid intake is essential during infection. The novel coronavirus can be killed in the water at 56 degrees Celsius or higher after 30 minutes. Still, the human body cannot lift its temperature to 56 degrees Celsius (WHO, 2020). Xu et al. (2020) recommended fluid intake based on COVID-19 symptoms that come with the progress of the infections.
- This pandemic has emphasized that good nutrition and a healthy life is the key to strengthening immunity. Although eating a well-balanced diet can help to ensure the normal functioning of the immune system, no specific nutrient, food, or supplement is going to "boost" it beyond the average level. Therefore, prevention and minimizing the symptoms are more accessible than to treat during severe illness phases. Nevertheless, the Ministry of Health Malaysia (2020) denies the validity of some health tips such as taking certain vitamins and foods, alkaline foods and hot drinks and sunbathing below sun to defeat the COVID-19 virus.

## CONCLUSION

The nutrition recommendation that were listed and searched in all the search engines were thoroughly studied for evidence-based literature support. Unfortunately, none could provide concrete and precise evidence to support nutritional values, properties, or cure to help treat COVID-19. The best way to protect yourself is simple healthy habits like sleeping enough, exercising, eating well, and finding good ways to reduce stress. There is no supplement, diet, or other lifestyle modification other than social distancing, and proper hygiene practices can protect you from COVID-19.

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## References

- Andrew WS. Nutritional treatment of Coronavirus. Released at January 30, 2020. OMNS [Internet]. 2020 [cited 2020 Apr 8]. Available from: <http://www.orthomolecular.org/resources/omns/v16n06.shtml>.
- Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int. J. Soc. Res. Methodol.* 2005;8:19–32.
- Chan KW, Wong VT, Tang SCW. COVID-19: An Update on the epidemiological, clinical, preventive and therapeutic evidence and guidelines of Integrative Chinese–Western Medicine for the management of 2019 novel Coronavirus disease. *Am J Chin Med.* 2020;48:1–26. doi: 10.1142/S0192415X20500378.
- Deng X, Song Y, Manson JE, Signorello LB, Zhang SM, Shrubsole MJ, Ness RM, Seidner DL, Dai Q. Magnesium, vitamin D status and mortality: results from U.S. National Health and Nutrition Examination Survey (NHANES) 2001 to 2006 and NHANES III. *BMC Medicine* [Internet]. 2013 [cited 2020 Mar 28];11:187. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/23981518>.
- Ministry of Health Malaysia. Neem leaves for Covid 19 treatment. Putrajaya (Malaysia): Ministry of Health; 2020 [cited 2020 Mar 20]. Available from: <https://www.infoshat.gov.my/index.php/multimedia/infografik/item/penggunaan-daun-semambu-neem-bagi-wabak-covid-19>. Ren JL, Zhang AH, Wang XJ. Traditional Chinese medicine for COVID-19 treatment. *Pharmacol Res* [Internet]. 2020 [cited 2020 Mar 20];155:104743. Available online: <https://doi.org/10.1016/j.phrs.2020.104743>.
- Player G, Saul AW, Downing D, Schultemaker G. Published research and articles on vitamin C as a consideration for pneumonia, lung infections, and the novel Coronavirus
- Ronis MJJ, Pedersen KB, Watt J. Adverse Effects of nutraceuticals and dietary supplements. *Annu Rev Pharmacol Toxicol.* 2018;58:583–601. doi:10.1146/annurev-pharmtox-010617-052844.
- Shankar AH, Prasad AS. Zinc and immune function: the biological basis of altered resistance to infection. *Am J Clin Nutr.* 1998;68:447S–463S. doi: 10.1093/ajcn/68.2.447S.
- Wang Z, Chen X, Lu Y, Chen F, Zhang W. Clinical characteristics and therapeutic procedure for four cases with 2019 novel coronavirus pneumonia receiving combined Chinese and Western medicine treatment. *Biosci Trends* 2020;14:64–68. doi: 10.5582/bst.2020.01030.
- Xu K, Cai H, Shen Y, Ni Q, Chen Y, Hu S, et al. Management of corona virus disease-19 (COVID-19): the Zhejiang experience. *Med Sci* [Internet]. 2020 [cited 2020 Mar 20];49(1):0. Available from: [https://www.researchgate.net/publication/339509581\\_Management\\_of\\_corona\\_virus\\_disease-19\\_COVID-19\\_the\\_Zhejiang\\_experience](https://www.researchgate.net/publication/339509581_Management_of_corona_virus_disease-19_COVID-19_the_Zhejiang_experience).
- Yang Y, Islam MS, Wang J, Li Y, Chen X. Traditional Chinese Medicine in the treatment of patients infected with 2019-New Coronavirus (SARS-CoV-2): A review and perspective. *Int J Biol Sci* 2020;16:1708–1717. doi:10.7150/ijbs.45538.