

## Short Commentary

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# The role of complementary and alternative medicines in general health and immunity

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### Abstract

The immune system is a host protection system that includes numerous biological structures and processes in an organism which protects from diseases. It has been showed that there is significant relationship between immune system function and infectious diseases both in animal models and in humans. The aim of this research is to investigate whether Complementary and Alternative Medicines (CAMs) can be useful in boosting immune system to prevent and/or treat the infectious diseases in the early stage of infection. Accordingly, the previous research on this issue is investigated and the results re provided. This study also performs an analysis on the consumers' reviews on turmeric to find the effectiveness of turmeric intake in improving general health status of patient through WebMD data. The results of this study demonstrated that the majority of consumers are highly satisfied with the use of turmeric in improving their health conditions. It is also found that the majority of patients have used turmeric as the alternative therapies and got positive results in their treatments. In general, the results of this research provided several recommendations on the use of CAMs for infectious diseases and revealed that immune system may be boosted by CAMs and accordingly help in prevention and/or treatment of infectious diseases. However, further evaluations for the use of CAMs through consumers' experience analysis are needed to come to robust conclusions regarding the benefits of CAM as an alternative medicine for infectious disease such as COVID-19.

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### Introduction

As the behavior of COVID-19 is relatively similar to the other respiratory infections [1], boosting immune system function might be beneficial in the control of infection by the virus. Accordingly, keeping the immune system healthy through healthy diets throughout the year is critical to prevent infections. Furthermore, the studies has shown that supplementing with certain minerals, vitamins, herbs and other substances may strengthen the immune system and potentially protect them

from infection diseases. Nonetheless, despite the beneficial of CAMs for prevention and/or treatment of infection diseases demonstrated in some clinical investigations, additional research on CAMs through clinical and customer experience analyzes are needed to draw definitive conclusions on the effectiveness of CAMs for the prevention and/or treatment of infectious diseases such as influenza and COVID-19.

As a Complementary and Alternative Medicine (CAM), curcumin is a hydrophobic polyphenol and an active component of the spice turmeric in enolic and keto forms. This CAM has demonstrated to be effective in preventing or treating diseases such as viral infections. Curcumin antiviral activity against a variety of viruses has been observed, including Zika virus, Chikungunya virus, hepatitis viruses, human papillomavirus, human immunodeficiency virus, herpes simplex virus-2 as well as respiratory influenza virus [2].

In a study by [3], the authors evaluated the effect of turmeric powder on the innate immunity of common carp. The results of their study showed that turmeric powder supplementation is a promising immunostimulant. They found that, turmeric powder can improve fish performance and innate immunity. The authors in [4] found that the properties of curcumin are antioxidant and anti-inflammation. The study by [5] on the biological activities of curcuminoids, the authors comprehensively reviewed the previous works and concluded that curcuminoids have extensive biological activity as an antioxidant, anti-inflammatory, neuroprotective, antitumor, arthritis, radioprotective and anti-acidogenic. The study by [6], the authors investigated potential use of turmeric in COVID-19. They concluded that turmeric has a promising efficacy against influenza A viral infections. In addition, they suggested well-defined randomized studies for the evaluation of turmeric derivatives efficacy against SARS-CoV-2. From investigating previous studies, [7] concluded that curcumin may have a potential role to treat COVID-19.

In the recent study on the COVID-19 depression with immunity booster, the authors in [8] suggested from the previous studies that nutraceuticals like curcumin can be a promising option as immunity boosters and antidepressants for psycho-neuroimmune response. Curcumin has also been effective in hindering SARS-coronavirus replication [9]. According to [10] cited by [1], the effectiveness of curcumin against COVID-19 can be due to the genomic similarity of severe acute respiratory syndrome coronavirus 2 with SARS-coronavirus (>80%) and MERS-CoV. According to [1], the experimental results from previous research show the potential of curcumin in the prophylactic management as well as the therapeutic of respiratory infections and pathophysiology. This recommends the curcumin implementation in COVID-19 [1].

### Conclusion

In conclusion, the immune system is a host protection system that includes numerous biological structures and processes in an organism which protects from diseases. It was found that there is significant relationship between immune system function and infectious diseases both in animal models and in humans. According to our analysis from WebMD data, it was also found that the majority of consumers are highly satisfied with the use of turmeric in improving their health conditions. The results of the data analysis demonstrated that the majority of patients have used turmeric as the alternative therapies and got positive results in their treatments. However, further evaluations for the use of CAMs through consumers' experience anal-

ysis are needed to come to robust conclusions regarding the benefits of CAM as an alternative medicine for infectious disease such as COVID-19. Although, the previous research found that immune system plays an important role against infection diseases and the CAMs can be useful in enhancing immune system function, there is few numbers of clinical investigations and tests which confirm and support the usefulness of CAMs for infection diseases in general and COVID-19 in particular. In addition, the data from consumers' experiences on the use of CAMs for COVID-19 is needed to be firm regarding the antiviral potential of herbal compounds. Thus, it is recommended that more investigation, specially on human subjects, is performed on the effect of CAMs for enhancing the immune system function and consequently its impact on prevention and treatment of infectious diseases.

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