Herbal Healing: COVID-19 Survivors' Use and Beliefs of Herbal/Oral Dietary Supplements in Suburban Malaysia

Nor Bahiyah binti Abdul Rahman[1], Munirah binti Mohamad[1], Erfan Khan Bin Yusuf Khan[1], Nur Dalilah binti Abd Razak[1], Anis Aisar binti Bibudin[1], Nurul Najwa binti Zainudin[1]

[1] Hospital Hulu Terengganu, Ministry of Health Malaysia

Abstract

Introduction: The global surge in COVID-19 cases and limited treatment options resulted in widespread concern and a search for alternative preventive measures. In Malaysia, many individuals have turned to Herbal and Oral Dietary Supplements (HODS) to support their health.

Objective: This study aimed to examine the prevalence of HODS use among surveyed COVID-19 survivors, evaluate their usage and beliefs regarding HODS consumption, and to find the association between sociodemographic variables and HODS use.

Methods: This cross-sectional study was conducted among COVID-19 survivors from May to August 2022. Data were collected through Google Forms distributed via WhatsApp®, utilising patient information obtained from the Hospital Hulu Terengganu COVID Operation Centre. Multiple logistic regression was employed to identify the factors associated with HODS usage.

Results: A total of 341 patients participated in the study. The mean age of respondents was 32.7± standard deviation (SD) of 10.2 years. The majority were female (71.3%), Malay (96.2%), and had higher education (85.0%). Overall, 44.9% (n=153) of respondents reported using HODS to manage or prevent COVID-19 symptoms. The patients used HODS to strengthen immunity (95.4%) and maintain overall health and wellness (94.0%). Despite sourcing HODS from pharmacies (59.5%), many users relied on suggestions from friends or relatives (68.6%). Age (adjusted odds ratio (AOR): 0.97; 95% CI: 0.94-0.99; p=0.013), male (AOR: 2.87; 95% CI: 1.66-4.97; p<0.001), and not employed (AOR: 0.40; 95% CI: 0.23-0.69; p=0.001) were significantly associated with HODS usage.

Conclusion: HODS use was prevalent among COVID-19 survivors, with the usage significantly higher among younger, male, and employed individuals. These findings highlighted a critical need for pharmacists and public health authorities to provide proactive, evidence-based guidance to ensure safe and rational HODS consumption.

Keywords: Herbal/oral dietary supplements, COVID-19, survivors

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Corresponding author: Nor Bahiyah binti Abdul Rahman
Department of Pharmacy, Hospital Hulu Terengganu, Batu 23, Jalan Kuala Berang, 21700 Kuala Berang, Terengganu Darul Iman.
Email: norbahiyah@moh.gov.my

Introduction

Coronavirus Disease 2019 (COVID-19) is an infectious illness caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) virus. It spreads through respiratory droplets or when contaminated hands come into contact with the mucous membranes of the mouth, nose, or eyes (1). The first reported case in Malaysia occurred in January 2020, and this disease began to spread rapidly throughout the country, reaching 5.3 million confirmed cases by March 2025 (2, 3). The rapid rise in positive cases and high infection rate gained extra attention from the nation in combating the disease (4). It challenged human resource management, facility utilisation, and medical supply management among healthcare providers, leading to emotional distress and burnout (5). The disease's symptoms are highly variable, taking up to 14 days for symptoms to appear after virus exposure, with one-third of infected people remain asymptomatic (6).

In Malaysia, the use of HODS was already common before the pandemic. Studies from 2014 to 2019 showed that many people, including those with chronic diseases such as hypertension, diabetes, and dyslipidaemia, used HODS (7). A local study revealed that 41.9% of respondents had

utilised HODS during the COVID-19 pandemic, and the author highlighted several concerns, such as the concurrent use of HODS with conventional medications, dependence on unreliable information sources, and insufficient consultation with healthcare providers (HCPs) (7). Along with a sense of uncertainty and widespread misinformation, this disease has prompted the population to seek and adopt remedies that promise to prevent the COVID-19 outbreak (8). Online misinformation regarding COVID-19 has undermined the government's efforts to control this novel coronavirus outbreak (9).

Herbal medicines are considered as a category of dietary supplements that encompass herbs, herbal materials, preparations, and products derived from plant parts or plant-based compounds. These contain natural chemicals such as tannins, terpenoids, alkaloids, coumarins, flavonoids, and polyphenols, which have demonstrated effectiveness against harmful microorganisms (10, 11). These compounds are known to inhibit viral enzymes and proteins, aiding in the prevention of viruses from entering and spreading within host cells (12). Historically, natural products and herbal medicines have been used to treat acute respiratory infections and typically exhibit acceptable toxicity levels (13). Their low toxicity further positions them as promising candidates for developing new treatments and alleviating COVID-19 symptoms (13, 14). Furthermore, physicians worldwide expressed considerable interest in using vitamins and mineral supplements to help prevent or treat COVID-19 (11).

During the COVID-19 pandemic, many Malaysians have turned to HODS to strengthen their immunity alongside the national vaccination program that was launched by the Ministry of Health Malaysia in February 2021 (7). In addition to practicing good personal hygiene, people have taken extra preventive measures, such as using HODS, and the usage has even shown an increasing pattern among HCPs (15). It was estimated that 80% of the world's total population in developing countries depends on HODS as their primary health care (16). Compared to the early years of the pandemic, Malaysians were initially sceptical about HODS due to their strong belief in vaccination or modern treatments. However, despite receiving their vaccines, many still contracted COVID-19, which prompted them to place more considerations in HODS products to enhance their immune systems (17).

Understanding the use of HODS during the pandemic is essential for ensuring patient safety and enhancing healthcare delivery. Unregulated or uninformed use of HODS can lead to adverse drug reactions, toxicities, or dangerous interactions with prescribed COVID-19 treatments (18). A systematic review encompassing 62 studies showed that the prevalence of self-medication during COVID-19 ranged from 7.14% to 88.3%. The Singapore's Traditional Chinese Medicine clinics conducted a study and found that 62.65% of patients reported using Chinese Herbal Medicine (CHM) and conventional medications concurrently. Patients using both were 3.65 times more likely to experience adverse events compared to those using only CHM (19).

This widespread self-medication highlighted the need for HCPs to provide guidance and regulate such practices (20). Dependence on unproven remedies may lead to delayed access to appropriate medical care, worsening patient outcomes. Investigating HODS usage can help to identify common misconceptions and misinformation, enabling HCPs to develop targeted educational interventions and promote evidence-based practices to ensure patient safety (21). Therefore, this study aimed to identify the prevalence of HODS use among surveyed COVID-19 survivors at Hospital Hulu Terengganu. It also aimed to evaluate their usage and beliefs regarding HODS consumption and to find the association between demographic variables and HODS use. The findings may help in developing strategies to promote the safe use of HODS among the public.

Methods

Study design

A cross-sectional study was carried out from May to August 2022, involving patients who received COVID-19 treatment at Hospital Hulu Terengganu, which was designated as a fully COVID-19 hospital during the COVID-19 pandemic. Ethical approval was obtained from the MOH Medical Research and Ethics Committee (MREC), and the study was registered in the National Medical Research Register (NMRR-22-01620-JON).

Study population

The inclusion criteria included COVID-19 survivors aged 18 and older who received treatment for COVID-19 at Hospital Hulu Terengganu. The exclusion criteria were patients who were illiterate. Using the single proportion formula for objective 1 (prevalence of HODS use) with an 80% factor of interest and estimating the expected proportion with 5% absolute precision and 95% confidence interval (CI), the minimum required sample size was n=230. However, for objective 3 (association between demographic variables and HODS use), by employing G Power with a significance criterion of alpha=0.05, power=0.80, and effect size=0.668, the minimum sample size needed was n=210. Therefore, final minimum sample size required to complete this study was 230 patients.

Patients' data, including contact numbers, were retrieved from the COVID Operation Centre at Hospital Hulu Terengganu. Approximately 3,000 patients were recorded in the patient registry, and through systematic sampling, every fifth patient was selected. Patients were assured that participation was voluntary and that they could withdraw from the study anytime.

Data collection

During the data collection period, an online survey form was distributed to the selected patients by sending the Google Forms link via the WhatsApp® application. All participants were provided with a written explanation of the research's purpose and methodology at the start of the survey, along with an assurance of confidentiality. Written informed consent was obtained before data collection. Patients' information was displayed, and clicking "next" indicated that the patient had voluntarily consented.

The research tool was a self-administered online questionnaire that was adapted from a validated questionnaire, used with permission from Alyami et al. (22). The questionnaire was translated to Malay to ensure the response rate among the predominantly Malay-speaking targeted population. Following back-to-back translations by two bilingual experts, a pilot study was conducted with 30 patients, yielding a Cronbach's alpha of 0.81. The pilot study indicated that the questionnaire items were clear and that using Google Forms as the survey administration tool was feasible. Patients from the pilot study were excluded from the final data analysis. The survey instrument consisted of a set of questions that took approximately five to ten minutes to complete.

The questionnaire was divided into three parts comprising 28 questions. Part 1 focused on demographic data, covering socio-demographic characteristics, medical history, COVID-19 status, and vaccination details. Part 2 was split into three subsections: the first subsection asked about HODS usage for COVID-19 treatment and was completed by all patients, while the second and third subsections concentrated on reasons for using or not using HODS and were answered only by HODS users and non-HODS users, respectively. These subsections contained closed-ended questions with yes or no responses. Additionally, three specific questions were included for HODS users, and all questions were a mix of closed-ended and open-ended formats. The open-ended question prompted patients to provide details about the types or examples of HODS they had taken during the COVID-19 pandemic. Patients were permitted to submit more than one HODS, allowing them the opportunity to list multiple treatments or remedies used during that time. The final part, entitled 'Belief towards HODS,' included five questions with multiple-choice answers of ‘Yes,’ ‘No,’ ‘Maybe,’ and ‘Not sure’ that should be answered by all respondents.

Statistical analysis

Data were analysed using Statistical Package for Social Sciences (SPSS) version 27 for Windows. Categorical data were presented descriptively, utilising frequencies (n) and percentages, while continuous data were summarised as the mean and standard deviation (SD). Following the completion of data exploration and cleaning, simple logistic regression was performed to examine the relationships between the variables associated with HODS usage. Variables with a p-value below 0.25 in the simple logistic regression were subsequently included in the multiple logistic regression model. Adjusted odds ratios (AOR) and 95% confidence interval (CI) were reported, with a p-value less than 0.05 considered statistically significant.

Results

From the 3,000 patients in the data registry, approximately 500 Google Form links were distributed. By the end of the study period, 341 completed questionnaires were received, resulting in a response rate of 68.2%. Although the target number of distributed questionnaires was 600 (every fifth patient in the data registry), the distribution was halted at 500 because the selected patients had already yielded a response rate exceeding expectation.

Table 1 presents the characteristics of the respondents. The mean age was 32.7 years old ± SD 10.2 years. The majority of the respondents were female (71.3%), Malay (96.2%), and with higher education status (85.0%). Most of them had their first COVID-19 infection (89.7%) and had received at least one dose of vaccination (92.4%). The distribution of HODS and non-HODS users was nearly equal, with 44.9% (n=153) of the patients had used at least one HODS to prevent or manage COVID-19 symptoms.

Table 1: Sociodemographic characteristics between the HODS user and non-HODS user groups

Variable	Total (n=341)	HODS User (n=153)	Non-HODS User (n=188)
Age (years old), mean ± SD	32.7 ± 10.21	33.7 ± 11.47	31.0 ± 9.01
Gender, n (%)			
Male	98 ((28.7)	31(20.3)	67 (35.6)
Female	243 (71.3)	122 (79.7)	121 (64.4)
Marital Status, n (%)			
Unmarried	157 (46.0)	73 (47.7)	84 (44.7)
Married	184 (54.0)	80 (52.3)	104 (55.3)
Race, n (%)			
Malay	328 (96.2)	144 (94.1)	184 (97.9)
Non-Malay	13 (3.8)	9 (5.9)	4 (2.1)
Higher Education, n (%)			
Yes	290 (85.0)	129 (84.3)	161 (85.6)
No	51 (15.0)	24 (15.7)	27 (14.4)
Employment Status, n (%)			
Yes	258 (75.7)	105 (68.6)	153 (81.4)
No	83 (24.3)	48 (31.4)	35 (18.6)
Chronic Illness, n (%)			
Yes	55 (16.1)	32 (20.9)	23 (12.2)
No	286 (83.9)	121 (79.1)	165 (87.8)
Number of COVID-19 Infection, n (%)			
1	306 (89.7)	137 (89.5)	169 (89.9)
More than 1	35 (10.3)	16 (10.5)	19 (10.1)
Vaccination Status, n (%)			
No	26 (7.6)	10 (6.5)	16 (8.5)
At least one dose	315 (92.4)	143 (93.5)	172 (91.5)

Abbreviation: SD = Standard Deviation; HODS = Herbal/Oral Dietary Supplements

Table 2: Reported reasons of HODS usage (n=341)

Reasons for Using and Not Using HODS [a]	n (%)
HODS users (n=153)	
To strengthen the immune system	146 (95.4)
To maintain overall health & wellness	144 (94.0)
To reduce COVID-19 symptoms	138 (89.5)
Inadequate dietary intake and nutritional deficiency	78 (51.0)
Non-HODS users (n=188)	
Satisfied with conventional / modern treatment	152 (80.9)
Concern about its efficacy and adverse effects	139 (74.0)
Less knowledge regarding dietary supplements	105 (55.8)
Dietary supplements are expensive	90 (48.0)

[a] Respondents were allowed to provide more than one response.
Abbreviation: HODS = Herbal/Oral Dietary Supplements

Table 2 presents the reported reasons for HODS usage. For HODS users, the belief that HODS could strengthen their immune system (95.4%, n=146) was the primary reason, followed by the desire to maintain overall health and wellness (94.0%, n=144). Among non-HODS users, the majority reported being satisfied with modern treatment (80.9%, n=152). They also expressed concerns about its efficacy and side effects (74.0%, n=139).

Table 3: Details on HODS usage among users (n=153)

Item	n / n (%)
Who suggested to take HODS, n (%) [a]	
Friends / Relatives	105 (68.6)
Doctor / Dietitian / Pharmacist / Nurse	56 (36.6)
Social media/Website	47 (30.7)
Sources of HODS, n (%) [a]	
Pharmacy	91 (59.5)
Online purchase	45 (29.4)
Home	42 (27.5)
HODS taken, n [b]	
Vitamin C	76
Cloves	50
Honey	49
Lemon	22

[a] Patients were allowed to provide more than one response.
[b] Only the top four products / substances were presented. Patients were permitted to provide multiple responses on the HODS.
Abbreviation: HODS = Herbal/Oral Dietary Supplements

In responding to the question on who suggested HODS, friends and relatives (68.6%, n=105) were the primary motivators for patients to try HODS. Purchase from the pharmacies was the main source of HODS (59.5%, n=91), while nearly one-third of the users obtained HODS from online shopping platforms (29.4%, n=45) and acquiring it from their homes (27.5%, n=42). When asked about the types of HODS they had used, 76 respondents reported taking vitamin C, followed by cloves (n=50) and honey (n=49) (Table 3).

Regarding patients' beliefs about the use of HODS as a protective measure, 76.3% of the patients believed that consuming vitamin C, which is found in citrus, played a role in treating or reducing COVID-19 symptoms, while 50.9% believed that HODS could treat or reduce COVID-19 infection. Nevertheless, 61.4% of respondents disagreed that HODS can prevent the spread of COVID-19 better than social distancing (Table 4).

Table 4: Patients' belief on HODS (n=341)

Item	Yes	No	Maybe	Not sure
Drinking cloves / ginger / garlic helps to increase immunity and reduce the risk of COVID-19 infection	42.7%	24.0%	22.8%	10.5%
The consumption of vitamin C found in citrus has a role in treating / reducing the symptoms of COVID-19	76.3%	7.3%	13.5%	2.9%
Vinegar plays a role in treating or protecting against COVID-19	11.1%	55.0%	12.6%	21.3%
Taking herbal products/ health supplements can prevent the spread of COVID-19 better than social distancing	17.5%	61.4%	11.7%	9.4%
Vitamins and herbs / supplements can treat / reduce COVID-19 infection	50.9%	24.6%	17.0%	7.6%

Abbreviation: HODS = Herbal/Oral Dietary Supplements

The logistic regression analysis is presented in Table 5. Variables with a $p<0.25$ from the simple logistic regression, such as age ($p=0.131$), gender ($p=0.002$), employment status ($p=0.007$), and chronic illness ($p=0.032$), were further analysed using multiple logistic regression.

The multiple logistic regression model showed a statistically significant association between age, gender, and employment status with HODS usage. No interactions or multicollinearity were found among the independent variables in this study; thus, a preliminary final model was obtained. The Hosmer-Lemeshow test, classification table, and area under the curve were also tested for the model, and the assumption was met.

Males, younger individuals, and employed persons were more likely to use HODS as preventive measures against COVID-19 ($p<0.05$) during the pandemic. From this table, we concluded that an increase in age by one year will reduce HODS usage by 3.2% (adjusted OR: 0.97; 95% CI: 0.94-0.99; $p=0.013$). Compared to females, males are 2.8 times more likely to use HODS (adjusted OR: 2.87; 95% CI: 1.66-4.97; $p<0.001$). Employment status is also a predictor of HODS usage. Compared to those who are employed, unemployed individuals are 60% less likely to use HODS (adjusted OR: 0.39; 95% CI: 0.23-0.69; $p=0.001$).

Table 5: Factors associated with HODS use

Variables	Simple Logistic Regression			Multiple Logistic Regression		
	(b)	Crude OR (95% CI)	p-value	(b)	Adjusted OR (95% CI)	p-value[a]
Gender						
Female	0	1.00				
Male	0.78	2.18 (1.33-3.57)	**0.002**	1.06	2.87 (1.66-4.97)	**<0.001**
Age, year(mean)	-0.02	0.99 (0.96-1.00)	**0.131**	-0.32	0.97 (0.94-0.99)	**0.013**
Marital Status						
Unmarried	0	1.00				
Married	0.12	1.13 (0.74-1.73)	0.576			
Higher Education						
Yes	0	1.00				
No	-0.10	0.90 (0.50-1.64)	0.733			
Employment Status						
Yes	0	1.00				
No	-0.70	0.5 (0.30-0.823)	**0.007**	-0.93	0.39 (0.23-0.69)	**0.001**
Chronic Illness						
Yes	0	1.00				
No	0.64	1.90 (1.06-3.41)	**0.032**	0.60	1.81 (0.94-,3.51)	0.077
Number of COVID-19 Infection						
1	0	1.00				
More than 1	-0.04	0.96 (0.48-1.94)	0.915			
Vaccination Status						
No	0	1.00				
At least one dose	-0.29	0.752 (0.331,1.708)	0.496			

[a] Backward LR multiple logistic regression model was applied. Multicollinearity and interaction terms were checked and not found.

Constant 2.614

Hosmer-Lemeshow test, p=0.340; Classification table 64.2%; Area under the ROC curve 0.324.

Abbreviations: OR = odds ratio; CI = confidence interval; HODS = herbal/oral dietary supplements

Discussion

This research investigated the use of HODS for the management or prevention of COVID-19 symptoms among patients living in the suburban of Malaysia. Approximately 45% of our study population were HODS users, which is higher than the rates reported in neighbouring countries (Thailand: 28.6% & Indonesia: 24.4%) (22). Nevertheless, our findings aligned with a local study indicating that 41.9% of participants had used at least one HODS (7). In Saudi Arabia, reported HODS use was lower at about 15%, with a similar prevalence observed in Hong Kong at 19.3% (22). The variations in HODS prevalence across different regions may be attributed to differing sociodemographic profiles and the local cultures of the respondents.

Among the HODS users, 94% agreed that consuming HODS can strengthen their immune system, indicating their confidence with HODS. Patients also consumed HODS to alleviate COVID-19 symptoms, which was consistent with several studies conducted in various regions that have used HODS for general well-being and medicinal purposes for hundreds of years (23, 24). Vitamin C products

were popular food supplements during the COVID-19 outbreak due to their wide availability and favourable safety profile. Almost half of our respondents were convinced that consuming vitamin C, cloves, ginger, and garlic could help to increase immunity and reduce COVID-19 infection (16, 24) However, vitamin C consumption must remain within the recommended daily dietary dosage (25). Apart from vitamin C consumption, a study from Saudi Arabia also suggested that eating garlic may help to increase immunity and reduce the chance of contracting COVID-19 (22).

Despite the popularity of HODS use, our study found that around two-third of patients disagreed that taking herbal products or health supplements is more effective than social distancing in preventing the spread of COVID-19, which aligned with the findings from Alyami et al. (22). Data from 149 countries suggested that implementing different social distancing interventions was associated with an overall reduction in COVID-19 incidence by 13.0% (26). It was believed that maintaining a well-balanced diet and adhering to COVID-19 standard operating procedures would reduce the risk of infection and mitigate the severity of COVID-19 symptoms.

This study revealed that HODS consumption was largely influenced by the opinions from peers and relatives, followed by HCPs. Nonetheless, the information obtained from friends and relatives could be misleading, as they share advice based on their own experiences, which might not be applicable to the patients' unique situations. Consequently, this may nourish the culture of delayed treatment-seeking behaviours among patients and de-optimise the treatment outcomes. Our findings contradicted with those of a local study, which found that social media and websites were the most common sources for HODS (7). Comparatively, around 60% of patients turned to pharmacies for their routine HODS supply, suggesting that healthcare professionals could seize this golden opportunity to provide proper education and recommendations regarding HODS intake. Pharmacists play a key role in assisting patients to make better choices and avoid unnecessary harm.

Despite generally positive belief towards HODS, several safety concerns are important to highlight. In this study, 74.0% of respondents were concerned about the efficacy and side effects of HODS. All drugs carry risks, even though there were believes that HODS are safe and widely used. In Indonesia, with the spike in COVID-19 cases in 2020, people turned to herbal medicines to boost their immunity. The significant increase in HODS usage prompted the Public Health Department to warn that unproven treatment methods can create a false sense of security (26). Due to limited experimental data, the safety and efficacy of HODS cannot be guaranteed. According to a Cochrane systematic review, HODS combined with Western medicine may have improved symptoms and quality of life in SARS-CoV-2 patients, but it might contribute to high rates of polypharmacy and HODS-drug interactions (18). A local Malaysian survey also highlighted that the co-administration of HODS and conventional drugs might have led to interactions affecting the effectiveness or causing adverse effects, which could impact patient outcomes (7).

Speaking of the non-HODS users, 80.9% reported being satisfied with modern treatments. In contrast, only 8.9% expressed satisfaction with modern medicine in a study conducted in Vietnam, where HODS usage was preferred over conventional treatments as they were trusted to be safer and more effective in minor ailments, given their long and rich history of practice among Vietnamese (28). Moreover, HODS had been listed in the National Essential Drug List under the Vietnam Ministry of Health whereby medical practitioners were permitted to legally prescribe these herbal medicines for patient use (28).

HODS use during the pandemic was common among women and the older population, as they were considered vulnerable groups to infection (29, 30). A local study reported that individuals aged 40 years and older were more likely to use HODS (7). In addition, Alhazmi et al. concluded that HODS use was a prevalent phenomenon in Asia region among middle aged (45 to 60 years) and older adults (60 years and over) (29). These findings contrasted with this study which unveiled that younger age was significantly associated with an increase in HODS use ($p=0.013$). Young people today are more health-conscious and may have used HODS to enhance their health during the pandemic. There was also a higher chance of HODS use, if an individual was of male gender and employed. The use of HODS by males and employed individuals could be attributed to health-related motivations, social influences, and financial considerations. Some HODS products available on the market were pricey and could only be afforded by certain social classes in society.

This study has several limitations. Self-reporting was used for data collection, which could introduce various response biases. These self-reported data might either overestimate or underestimate the actual use of HODS. Other than that, online surveys often rely on participants who have access to technology. Therefore, the sample may not represent the broader population, including older or rural demographics who tend to have lower digital literacy levels. This may act as a confounding factor when interpreting age as one of the factors affecting prevalence of HODS use. Another limitation is that this study did not examine the type and form of herbal medicine taken by patients. While the online survey method offers convenience and cost-effectiveness, researchers need to be aware of these potential consequences and take steps to mitigate them, such as enhancing survey design and considering appropriate sampling techniques to ensure the validity and reliability of their research.

Given the widespread use of HODS among COVID-19 survivors and the dependence on social circles for information, several policy and clinical recommendations can be made. Healthcare systems should include routine screening for HODS use during patient consultations. Implementing standardised protocols can assist healthcare providers in identifying unsafe or unnecessary supplement use and to intervene when appropriate. Public health authorities should prioritise developing evidence-based educational materials for both patients and HCPs. These resources should dispel myths about immunity-boosting products, encourage professional consultation, and promote safe usage. Integrating complementary medicine, including HODS, into healthcare training programs would further equip providers with the knowledge to offer informed, non-judgmental guidance. This approach can shift patients away from unreliable sources of information and thus adopt safer health practices.

Future studies should strive to include underrepresented groups, such as older adults, rural residents, and individuals with limited digital access, as the current reliance on online data collection might have led to sampling bias. It may be valuable to explore the role of informal information sources, motivations and satisfaction levels of both users and non-users to support the development of strategies in empowering healthcare providers to deliver accurate guidance, particularly in the community settings. Considering the potential interactions between HODS and modern treatments, future clinical and pharmacological studies are necessary to validate health claims and ensure patient safety. Additionally, the observed demographic trend, where younger, employed males are more likely to use HODS, that contrasted with findings from other regions, highlighted the need for broader sociodemographic research across diverse populations to better understand the influence of cultural, economic, and lifestyle factors on HODS usage.

Conclusion

This study revealed a high prevalence of HODS use among COVID-19 survivors, primarily driven by the desire to boost immunity and maintain overall wellness. HODS usage was significantly higher among younger, male, and employed individuals. Of concern was the reliance on non-professional advice for HODS consumption, despite the majority of products being sourced from pharmacies. These findings underscore a critical opportunity for healthcare professionals, particularly pharmacists, to bridge the information gap. Public health initiatives should prioritise evidence-based education to ensure the safe and rational use of supplements, mitigating the risks of self-medication based on anecdotal suggestions.

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Conflict of Interest Statement

The authors declare that there is no conflict of interest.

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