MERIT RESEARCH JOURNALS
www.meritresearchjournals.org

Merit Research Journal of Medicine and Medical Sciences (ISSN: 2354-323X) Vol. 9(9) pp. 361-368, September, 2021
Available online http://www.meritresearchjournals.org/mms/index.htm

DOI: 10.5281/zenodo.5526438

Original Research Article

COVID-19 and Herbal Remedies, the On-going Debate in Ghana

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Abstract

The coronavirus pandemic has affected many people since its discovery in December 2019. The easiest mode of contracting the virus and the increase in the death rate has resulted in scientists finding an everlasting remedy to control the situation. In the current study, the general knowledge of Ghanaians on the COVID-19 pandemic was examined. Again, the study analysed if Ghanaians support the use of herbal medicines as effective to treat the pandemic. A survey generated with google form was used to gather the views of 104 participants. A Principal Component Factor Analysis (PCFA) grouped the variables into four components: preventive measures, herbal medicines, awareness, and treatment. People's general knowledge of the pandemic reported preventive measures as the highest, followed by awareness and treatment. While Ghanaians recognise the use of herbal medicines as effective in boosting the immune system to fight many diseases, including the COVID-19, they disagree with the submission that herbal medicines are more effective than drugs for treating the coronavirus. The study recommends a thorough clinical investigation in the use of herbal remedies and conventional drugs to determine the effectiveness of treating the pandemic.

Keywords: COVID-19, Conventional drugs, Herbal medicines, Pandemic, Treatment

INTRODUCTION

Over the past five decades, there has been an emergence of different coronaviruses that have caused various human and veterinary diseases (Unhale et al., 2020). Recently, a pandemic called Coronavirus (COVID-19) has originated from Wuhan, China, in December 2019. Research indicates that the coronavirus is made up of a large family of viruses that can infect birds and mammals, including humans and has been responsible for several outbreaks worldwide (World Health Organization, 2020). Before COVID-19, many infectious diseases affected global populations, including the plague, Spanish flu, cholera, swine flu H1N1 (Akin and Gozel, 2020). Despite the deadly nature of these viruses, researchers describe this year`s pandemic as the greatest global public health crisis of the current generation and potentially the dangerous one since the outbreak of the influenza pandemic in 1918 (Sanders et al., 2020).

Fever, dry cough, and shortness of breath are the most common signs and symptoms of COVID-19 among hospitalized patients. It could be spread by asymptomatic, presymptomatic, or symptomatic conditions. The COVID-19 is an infectious disease which primarily affects the lungs. Although the lungs are the target organ of the disease, evidence indicate that the virus can cause damage to the heart, blood vessels, kidneys or the brain (Pan et al., 2020)".

The continuous increase in the number of active cases

and a rise in the death rate is stressing scientists worldwide in their quest to find an effective medication to treat the disease. While several quarters have supported the use of conventional drugs to treat diseases worldwide, others argue that herbal medicines are equally effective in treating the pandemic. This article examines Ghanaians' knowledge of the disease and the effectiveness of herbal medicines as treatment.

Literature Review

Several researchers have studied the nature of viruses. Zhu et al. (2020) confirmed that the novel viruses are similar to the Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) pandemic in 2002-2003 and the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) outbreak in South Korea in 2015. According to Sohrabi et al. (2020), the COVID-19 disease is deadly and has resulted in the death of many people globally. The disease has affected every continent and is considered the largest infectious disease outbreak in the world. Although people survive the disease, it is difficult to battle it as the virus spread at an alarming rate with high prevalence, demanding preventive measures to involve people worldwide (Gralinski and Menachery, 2020).

Nevertheless, the viruses can be transmitted through fluids in the respiratory system such as mucus and coughing and sneezing without covering the nose and mouth that usually disperse droplets into the air (Unhale et al., 2020). Similarly, contact with an infected person through touching and handshaking can also make one contract the virus. Due to the fast spread nature of the viruses, there have been measures and protocols to contain and prevent human to human transmissions. According to Cirrincione et al. (2020), wearing of nose or face mask to serve as a barrier to the droplets can help stop the spread of the virus. Additionally, using at least 70% alcohol-based hand sanitizer, frequent washing of hands with soap under running water and observation of social distance of about one meter have been found helpful to curtail the spread. On the other hand, Wilder-Smith and Freedman (2020) supported that infected persons should be put under quarantine or isolation; individuals must also help promote basic hygiene measures such as the washing of hands regularly with soap under running water, cancellation of public gathering, closure of schools and churches, and locking down of highly populated cities can also help contain the spread of the virus. One challenge facing scientists today is how to find medicines to cure the pandemic.

Of late, there have been ongoing trials of both clinical drugs and traditional medicines to find a cure for the COVID-19 pandemic. Scientists are trying to discover drugs and herbs for their efficacious treatment. Nonetheless, none of the proposed drugs, medicines and herbs have been effective in treating the disease. Significantly, conventional drugs are mostly used in the treatment of diseases, but herbal medicine researchers have opposed the decision (Yang et al., 2020). According to Gao et al. (2020), Chloroquine phosphate, which happened to be an old drug for malaria treatment, is shown to have apparent efficacy and acceptable safety against COVID-19.

On the contrary, clinical evidence from most studies shows that traditional or herbal medicine is beneficially effective in the treatment and prevention of diseases (Yang et al., 2020). Therefore, more high-quality Randomized Controlled Trials (RCTs) are needed to further validate the effectiveness and adverse effects of herbal medicines in treating COVID-19. Regardless, this present study examined people's knowledge of the COVID-19 pandemic under prevention, awareness and treatment using herbal medicines.

Many trials and preventive measures attempts have been made to control the COVID-19 pandemic. Wilder-Smith and Freedman, (2020) hypothesized that closing schools and churches and canceling public gatherings could help minimize the spread of the virus. However, the researchers could not recommend any drugs to treat the virus. In this regard, finding out conventional medicines or herbal remedies to treat the disease is the world's challenge. Gao et al. (2020) contended that conventional drugs such as Chloroquine have a potential broad-spectrum antiviral activity by increasing endosomal pH required for virus or cell fusion and interfering with the glycosylation of cellular receptors of SARS-CoV.

On the other hand, pharmacologic treatment for coronavirus (COVID-19) studies has shown that the most promising therapy is remdesivir (Sanders et al., 2020). The researchers confirmed that the remedisivir is potent in vitro activity against SAR-CoV-2(COVID-19) but has not been approved by the United States Food and Drugs Administration (USFDA). Currently, the drug is being tested in an ongoing randomized trial. On the contrary, although the proposed drugs can help treat the disease, none of them have been approved as the official drug for the treatment by the World Health Organization.

Most countries have also used the traditional medical system (TMS) to cure diseases for centuries. Countries such as China, United States, Nigeria and Ghana have all benefited from herbal medicines to treat diseases (World Health Organization, 2003). Nevertheless, due to the present dominance of the Western Scientific Medical Model, people and healthcare-givers are now starting to rely on and trust TMS as substitutes for conventional scientifically approved therapies with unconventional ones (Firenzuoli and Gori, 2007). Therefore, if conventional drugs do not work in disease treatment, herbal medicines should be trials (Tilburt and Kaptchuk, 2008). Herbal medicines have played a very prominent role in the strategy to contain and treat SARS which is

similar to the current pandemic- COVID-19 (Yang et al., 2020).

When there is an outbreak of a disease, researchers try to find the causes and the solutions. Although the cause of this current pandemic is yet to be known, drugs and medicinal searches go on day in day out. The debate now is the use of conventional or herbal medicine to treat the disease. Despite this, a systematic review and meta-analysis of randomized control trials on herbal medicine for the treatment of COVID-19 were done by Ang et al. (2020). Their findings revealed the significant effects of the combined therapy of herbal medicine with western medicine. This is supported by the fact that herbal medicine may improve the quality of life in SARS-CoV patients (Tang et al., 1999).

In Africa, the battle of COVID-19 has raised many issues on whether to use conventional drugs or herbal medicine. In April 2020, people in Madagascar were given face masks and a small bottle of herbal extract to drink as protection from getting the virus. According to CTVNews.ca (Reihani et al., 2020), although the herbal drink was not tested scientifically and there is no proof that it works against COVID-19, the president enthusiastically promoted it to be taken as herbal remedy to cure the virus. However, this assertion was supported by the fact that herbal medicines are used for the primary health care needs of people across 80% of developed countries in the world (Calixto, 2005).

The situation is not different in Ghana where herbal or traditional medicines are seen as an important component of the people's health care system (Hensel et al., 2015). The indigenous knowledge about medicinal plants to treat diseases is on the ascendancy in recent times in the country. According to Boadu and Asase (2017), herbal medicines have greater efficacy in managing and treat both common and specialized human diseases. In contrast, herbal medicines may contain a particular active agent, which is not present in sufficient quality to elicit a pharmacological action (Glynn and Bhikha, 2019). Despite this, some Ghanaians contend that since some herbs such as ginger, garlic, neem tree and ginseng help treat certain diseases in the community setting, they should be used to contain and cure the disease. Studies indicate that the use of ginger and garlic helps decrease the absorption of the antiretroviral agent saquinavir and is implicated in the onset of hypoglycemia in patients taking chlorpropamide. At the same time, ginseng interferes with warfarin activity, digoxin levels and certain antidepressants (Vaes and Chyka, 2000).

Over the last few months, the argument on the use of herbal or conventional drugs to treat the COVID-19 is still ongoing in many parts of the world. Many people suggest that drugs are most effectively involved in the treatment of diseases since they are tested and have been recommended and approved by the World Health Organization whereas, the proposed herbal medicines are not. Meanwhile, many Ghanaians take herbal medicines to boost the immune system to fight against the COVID-19, while others depend and rely on conventional drugs (Hensel et al., 2015). In this regard, this study examined Ghanaians knowledge of the COVID-19 pandemic under prevention, awareness and treatment and further analysed if people support the use of herbal medicines as an effective treatment for the virus.

Research questions

The following research questions guided the study:

1. What is the knowledge of Ghanaians on the coronavirus pandemic?
2. How do people recognise the use of herbal medicines as effective to treat the COVID-19 pandemic?

METHODOLOGY

A quantitative method was adopted for the current study. This method was deemed appropriate as the researchers purposely wanted to get responses from many participants for statistical tests and to generalize the findings (Creswell and Creswell, 2017). However, Denscombe (2014) maintains that surveys are associated with getting information easily associated with large scale research, covering many people or events. This was chosen because it has the advantage of providing the researcher with a lot of information from quite a large number of individuals (Fraenkel et al., 1993).

On the contrary, the use of the descriptive survey has many disadvantages. Fraenkel and Wallen (Fraenkel et al., 1993) identify what they called “the threefold difficulty” in the use of the descriptive survey. First of all, the researcher has to ensure that the questions to be answered are clear and not misleading. Secondly, the researcher is faced with the challenge of getting the respondents to answer the questions thoughtfully and honestly.

Then finally, the researcher is also faced with the challenge of getting a sufficient number of the questionnaire completed and returned so that meaningful analyses can be made. In this regard, the researchers gathered data at a particular point in time to describe the nature of existing conditions or identify standards against which existing conditions can be compared or to determine the relations that exist between specific events (Cohen et al., 2013).

Questionnaire

The current study employed a quantitative approach to

collect the data. A Questionnaire was used to examine people's knowledge of the COVID-19 pandemic and determine if the use of herbal medicines is effective in treating the virus. Google form was used to develop the questionnaire. The instrument was developed based on the main aims of the study and the literature review. Face validity was done by a senior research fellow at the University of Ghana who is good at designing questionnaires. Informed consent was explained at the introductory part of the questionnaire before the participants voluntarily participated in the study. The proceeded section was on awareness of COVID-19 measured with four items. Treatment of COVID-19 was also measured with four items, prevention of COVID-19 with six items and four items on herbal medicines. The questions were measured with a seven-point Likert scale ranging from strongly disagree (1) to agree (7) strongly. The items and the main factors in the study are presented in table 2. To describe the sample in the study, demographic information of the participants, including age and gender were sought after in the questionnaire.

Participants

Data were collected through the use of Google Forms posted on various social media Platforms-WhatsApp and Facebook. The Google form assisted in observing the COVID-19 protocols and reaching a lot of people with ease and at a reasonable cost supporting the assertion by Vasantha and Harinarayana (2016). The questionnaire was posted for three months periods from the first week in May to the first week in August 2020. The participants were said to participate in the study voluntarily and share the link on other social media platforms. The expectation was to get at least 320 responses from the 16 regions of Ghana, with 20 responses from each region. This approach to reaching the participants was chosen for convenience as almost every Ghanaian is aware of COVID-19 and is contemplating using herbal medicines as an effective treatment. The expectation was to reach as many participants as possible. In line with research ethical issues involving human participants, anonymity and confidentiality were well explained before the main questions started. Additionally, participants were asked to click next if they have fully agreed and understood the conditions explained, and to print a copy of the electronic consent form for future reference. Participants were asked to click next if they are 18 years or older to prevent minnows from participating in the study.

The respondents were thanked at the end of the survey. In total 104 questionnaires representing 32.5% of the expected responses were retained for further analysis.

Data Analysis

SPSS (Statistical Package for Social Sciences) version 23 was the programme used to analyse the data. A Principal Component Factor Analysis (PCFA) with a varimax rotation was conducted to put the items into factors. Cronbach alpha was used to test the reliability of the scales. Afterward, descriptive statistics (means and standard deviations) were employed to answer the research questions.

RESULTS

The participants

In all 104 responses were received from the expected 320 representing 32.5%. Out of the 104 people who participated in the study, many of them were males (66%) and females (33%). More than 71% of the participants were aged from 18to 28, followed by 17.3% from 29to 39 with the remainder 11.5% aged 40 and above. None of the responses contained any missing data.

Measurement Model

PCFA was conducted to determine the validity of the variables used in the study and to further examine if the items shared a common variance. Kaiser- Meyer- Olkin Measure of sampling adequacy was 0.820 above the usually accepted 0.600. Bartlett's Test of Sphericity reported ($X2$ (210)=1150.747, $p<0.001$. The comm-unalities for 17 of the items were above 0.500 confirming the sharing of common variance with the other items. One item-avoiding crowd reported a lower communalities value of .448. The same item reported low factor loadings. Hair et al. (2017), recommended the removal of variables with low factor loadings and communalities. Therefore, avoiding crowds was deleted. PCFA put all the items into four components with 69.5% of the total variance explained. The groupings were named as prevention, herbal medicines, awareness and treatment.

To determine the groupings of the items the results from the rotated component matrix performed with varimax rotation were used and displayed in Table 1.

The knowledge of the people on the coronavirus pandemic

To determine the knowledge of the participants on coronavirus pandemic factors named as awareness, treatment and prevention were compared. From table 3, prevention is the highest knowledge of the people on COVID-19 followed by awareness and treatment. The

Table 1. PCFA Varimax with Kaiser Normalization

Items	Component			
	1	2	3	4
Avoiding handshaking and hugging	.891			
Covid-19 can be prevented by wearing masks	.838			
Using at least 70% alcohol-based hand sanitizer	.818			
Practicing physical and social distancing	.811			
Washing hand with soap under running water	.750			
Avoiding crowds	…			
I recommend herbal medicines for COVID-19		.930		
The government should accept herbal medicines		.884		
Herbal medicines are better than drugs for COVID-19		.821		
Herbal medicine can boost the immune system		.714		
Covid-19 is killing people			.837	
Aware COVID 19 really exist			.827	
COVID can affect everyone			.823	
Covid-19 spread from man to man			.731	
No drug can treat COVID-19				.772
Covid-19 has no cure				.745
Drugs are on trial				.703
No vaccine can treat COVID-19				.702

…=Excluded variable.

The overall Cronbach alpha for the 21 items used was .85. To determine the internal reliability of the scales, Cronbach Alpha reported the following for the four main factors; prevention .91, herbal medicines .88, awareness .83 and Treatment .77.

Table 2. Factors, items, descriptive statistics (Mean-M and standard deviation-SD and Cronbach's alpha-α)

Factors	Items	M	SD	α
Prevention				0.91
	Avoiding handshaking and hugging	6.23	0.97	
	Wearing masks	6.22	1.04	
	practicing physical and social distancing	6.35	0.89	
	Using at least 70% alcohol-based hand sanitizer	6.25	0.93	
	washing hands with soap under running water	6.38	0.94	0.88
Herbal medicines				
	I recommend herbal medicines for COVID-19	5.52	1.47	
	The government should accept herbal medicines	5.53	1.41	
	Herbal medicines are better than drugs for COVID-19	4.94	1.68	
	Herbal medicines can boost the immune system	6.01	1.10	
Awareness				0.83
	Covid-19 is killing people	6.27	1.16	
	Covid-19 really exists	6.42	1.16	
	Covid-19 can affect everyone	6.33	1.32	
	Covid-19 spread from man-man	5.95	1.58	
Treatment				0.77
	Covid-19 has no cure	4.77	1.97	
	No drug can treat COVID-19	5.18	1.83	
	No vaccine can treat COVID-19	5.73	1.58	
	Drugs are on a trial basis	5.93	1.34	

Table 3. Knowledge of the people on Covid-19.

Factors	Mean	Std. Deviation
Awareness	6.24	1.07
Treatment	5.40	1.29
Preventions	6.29	0.83
Grand Mean	**5.98**	

Table 4. The use of herbal medicines to treat COVID-19.

Items	Mean	Std. Deviation
I recommend herbal medicines for COVID-19	5.52	1.47
The government should accept herbal medicines	5.53	1.41
Herbal medicine can boost the immune system	6.01	1.10
Herbal medicines are better than drugs for COVID-19	4.94	1.68
Grand Mean	**5.50**	

high values for means displayed under all the three factors are an indication that the participants are aware of the coronavirus pandemic.

Perception of the use of herbal medicines to treat the coronavirus

To determine whether participants support the use of herbal medicines as effective to treat the pandemic, the mean of individual items were tested. From table 4, the participants confirmed that herbal medicines can boost the immune system with a mean of 6.01. However, herbal medicines are better than drugs for COVID-19 treatment reported the lowest mean among the items with 4.94.

DISCUSSION

The search for medicines to treat the COVID-19 pandemic continues unabated. The present study examined Ghanaians knowledge of the pandemic and the perception of herbal medicines as treatment. The results from the study have revealed that Ghanaians have the highest knowledge of the preventive measures followed by the awareness of the disease. The study again found that people support the use of herbal medicine as effective in boosting the immune system to fight against the coronavirus but question the use of herbal medicines as more effective to treat the coronavirus than drugs. The findings from this study and other similar studies are compared in this section.

The results from the study show that preventive measures measured with- avoiding handshaking and hugging, wearing a face mask, practicing social distancing, using at least 70% alcohol-based sanitizer and frequent washing of hands with soap under running water plays a very prominent role in an attempt to stop the spread of the virus. Among these measures, washing hands with soap under running water recorded the highest mean of 6.38, with wearing of mask recording the least with the value of 6.22. This implies that although people practice the protocols to contain the virus, they practice the handwashing with soap under running water mostly compared to any other practice. Cirrincione et al. (2020) alert that observing the above protocols are relevant to controlling the disease's spread. The acceptance that COVID-19 exists might have accounted for this attitudinal approach-observing the preventive protocols instituted by the WHO and the government.

The participants agreed that the pandemic exists; it is killing many people and can affect every individual if care is not taken. Despite the numerous attempts, scientists and researchers are yet to come out with drugs and medicines to treat the disease. Unfortunately, drugs are on trial basis recorded the highest mean with a value of 5.93 in the treatment factor. This signifies that with the number of conventional drugs and the traditional medicines under investigation, none have been approved as the official remedy for the disease. Tilburt and Kaptchuk (2008) concur that if conventional drugs do not work in disease treatment, there should be herbal medicine trials. Considering this, the ongoing trials of both methods to find a cure for the virus should be applauded rather than the over reliance on conventionally approved therapies. This assertion is inconsistent with the advice and the situational report by Cirrincione et al. (2020) who insists that the proposed herbal medicines are not tested and cannot be relied on as treatment for the disease.

Although the participants demonstrated the awareness of the disease and the desire to follow preventive measures, the number of infected people keeps increasing day in day out. Despite the acceptance of conventional drugs as effective than herbal medicines to treat the disease, some participants still believe in the use of herbal medicine to treat the virus. However, the perception of the use of herbal medicines to treat the virus reveals that herbal medicine can boost the immune system but does not have greater efficacy to cure the disease than drugs. This is somewhat in line with the research conducted by WHO (Boadu and Asase, 2017) who asserts that herbal medicines have greater efficacy to manage and treat both common and specialized human diseases. Therefore, there should be a combination of both conventional and herbal medicines in the treatment of the disease. Also, before herbal remedies are administered, they should be tested by the Food and Drugs Authority for its efficacious component and other side effects.

Limitations of the Study and Direction for Future Research

Participants of 104 out of the population of Ghana poses

a limitation in the sample size used for the study. However, since the questionnaire was posted on social media platforms, there is some form of divergent views in the responses. People residing in different parts of the country might have contributed to the study. However, the region of residence should have been asked in the present study to determine the number of participants on a regional basis.

Again, the use of face validity should have been supported by a pilot study to make the questionnaire more appropriate for the study. Notwithstanding, the application of PCFA to test the sampling adequacy, group the constructs and remove inappropriate items indicate that the questionnaire can be replicated in similar studies.

The current study demands a longitudinal survey involving many people from different parts of the world to make the findings robust. There are a lot of other places in the world where people rely on herbal medicines for treating diseases. Their views on the effectiveness of herbal medicines to treat COVID-19 should have made this research global as coronavirus is a pandemic. Again, interviews involving people who have recovered from the disease using herbal medicines as treatment should have given a good perception of the phenomenon. A qualitative phenomenological analysis to examine the views of such participants should be a good research area in the future.

CONCLUSION

The perception of people on the use of herbal medicines as effective to treat diseases and sicknesses is increasing daily. Despite this belief, many have questioned the efficacy of such remedies as they lack enough clinical backings. The advent of the coronavirus pandemic has widened people's search for effective preventive measures and treatment. From the study, everyone has an in-depth knowledge of the virus and sees the use of herbal remedies and conventional drugs as both effective to help fight but cannot cure the disease. Therefore, it is suggested that much research is done on the efficacy of some of the herbal medicines so that it could be recommended to help fight the pandemic. Governments should liaise up with scientists and herbal practitioners to complement the work of each other in the search for effective medicine. The present study has equally exposed the people's general knowledge on the coronavirus pandemic and what the stake-holders need to do to help people fight against the disease.

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