

# “I don’t want to have anything to do with someone suspected of COVID-19”: a genuine infection avoidance interest or inappropriate concerns related to stigma?

Sulemana Watara Abubakari, Edward Anane Apraku, Solomon Nyame, Francis Agbokey, Samuel Afari-Asiedu, Stephaney Gyaase, Thomas Gyan, Lawrence Gyabaa Febir, Livesy Abokyi, Kwaku Poku Asante

*Kintampo Health Research Centre, Kintampo-Bono East Region, Ghana*

## Abstract

**Background:** Human existence is being challenged by an outbreak of coronavirus disease 2019 (COVID-19) caused by the

Correspondence: Sulemana Watara Abubakari, Research and Development Division, Ghana Health Service, Kintampo Health Research Centre, Box 200, Kintampo-Bono East Region, Ghana. Tel. 0243058540.

E-mail: abubakari.sulemana@kintampo-hrc.org

Key words: COVID-19, avoidance, stigma, discrimination, Kintampo.

Contributions: SWA and EAA drafted the manuscript. All authors contributed to the design of the study. SWA, EAA, SN, FA, SAA, LG and LA were responsible for the conduct of the study. All authors participated in the statistical analyses, interpretation and manuscript revisions. All the authors approved the final version and agreed to be accountable for the study.

Conflict of interest: The authors declare no potential conflict of interest.

Funding: Kintampo Health Research Centre, Research and Development Division, Ghana Health Service provided resources needed for data collection, management and analysis.

Availability of data and materials: The data for this study is available upon reasonable request from the Director of the Kintampo Health Research Centre, Ghana.

Ethics approval and consent to participate: The study was approved by the Kintampo Health Research Institutional Ethics Committee [study ID: KHRCIEC/2020-09]. As a measure to ensure that there was no contact between data collectors and respondents, oral consent was sought from respondents who were within the ages of 18 to 60 years to participate in the study. All preventive protocols and guidelines governing the conduct of research during the pandemic were strictly observed by investigators as directed by the Ministry of Health, and the Ghana Health Service Ethics Review Committee. The data was kept confidential in KHRC databases. No identifiable participant information was associated with the results.

Acknowledgments. The team wishes to acknowledge the useful comments from staff of Kintampo Health Research Centre and field supervisors for their enormous contribution towards the data collection. Also, our sincere gratitude goes to the six districts and their communities for allowing us to collect data from them.

Received for publication: 5 December 2021.

Accepted for publication: 24 June 2022.

This work is licensed under a Creative Commons Attribution NonCommercial 4.0 License (CC BY-NC 4.0).

©Copyright: the Author(s),2023

Journal of Public Health in Africa 2023; 14:2099

doi:10.4081/jphia.2023.2099

virus SARS-CoV-2 that began in Wuhan, China in December 2019. Efforts to avoid the spread of COVID-19 are undermined by the appearance of disease-associated avoidance of infected persons due to reasons such as social stigma and discrimination.

**Objective:** This study seeks to investigate avoidance and discrimination against persons suspected of COVID-19 to help fight the pandemic in a predominantly rural setting in Ghana.

**Materials and Methods:** The study is a cross sectional survey. A random sample of 517 individuals drawn from a health and demographic surveillance system database was used for this study. Participants resided in six contiguous districts and municipalities of predominantly rural setting in the Bono East Region of Ghana.

**Results:** The findings showed that majority (60%) of the respondents agreed that they won’t have anything to do with someone suspected of COVID-19. However, 67% of them were willing to accommodate persons that recovered from the infection. The majority (91%) of respondents agreed that there is a need to adopt tolerant attitude towards persons who recovered from the infection, whilst another 98% also reported the need to show compassion towards persons who recovered from COVID-19.

**Conclusions:** There is the need to pay special attention to avoidance of suspected infected persons due to stigma or any other reason since it is a threat to the fight against the pandemic.

## Introduction

Human existence is being challenged by an outbreak of coronavirus disease 2019 (COVID-19) caused by the virus SARS-CoV-2 was first reported in Wuhan, China in December 2019.<sup>1</sup> The World Health Organization declared COVID-19 as a global pandemic on March 11, 2020.<sup>2</sup> The disease has spread exponentially across the globe, affecting millions of people, with a total global death of about 5.2 million as of November 25, 2021.<sup>3</sup> Africa has since recorded 152,266 deaths as of November 25, 2021.<sup>3</sup> As vaccine for COVID-19 or treatment is not easily accessible,<sup>4</sup> attempts to control the disease have concentrated on preventing the spread of the disease.<sup>5</sup> These attempts included efforts by various governments to apply social distance from one side and public health education to raise people’s understanding of the disease and how to protect themselves.<sup>6</sup>

Efforts to avoid the spread of the disease are undermined by the appearance of disease-associated avoidance of infected persons due to reasons such as social stigma, fear, and anxiety in society.<sup>6</sup> Human fear emerges from concerns about a disease of an unknown cause and potential lethal outcome during outbreaks or pandemics, especially when infection control strategies such as quarantine and isolation are used to protect the population.<sup>6</sup>

Health workers and community member’s stigmatization of infected or suspected infected COVID-19 patients could pose a threat to the fight against the pandemic.<sup>7,8</sup> Community members

who may be anxious about COVID-19 may not provide the necessary support to affected household or community members. The grip of fear of COVID-19 among the population could worsen the psychiatric manifestations across the different strata of the society.<sup>9-11</sup> Studies have suggested that stigma is correlated with a lack of understanding about how the disease spreads, a need to blame others, concerns about sickness and death from the disease, and rumours and misconceptions that spread gossip.<sup>12</sup> Stigma can also make individuals more likely to hide symptoms or disease, prevent them from immediately seeking health care, and prevent people from adopting healthy behaviours.<sup>12</sup>

The emotional, mental and physical health of stigmatized individuals and the communities in which they reside can be negatively affected. Isolation, depression, anxiety, or public humiliation may be encountered by stigmatized individuals. It is essential to stop the stigma in order to make all communities and community members safer and healthier especially those that recovered from the disease. In addressing stigma, it is important to include the right information about COVID-19, counter misconceptions and rumours, as well as create trust with communities.<sup>13</sup> Considering the importance of stigma and discrimination in the fight against COVID-19, this study sought to investigate whether community members would avoid or discriminate against persons suspected to have COVID-19 in a predominantly rural setting in Ghana.

## Materials and Methods

### Study design and population

This paper is part of a larger cross-sectional survey that employed a convergent parallel mixed method using both quantitative and qualitative data collection methods.<sup>14,15</sup> This report covers only an aspect of the quantitative method. The survey was conducted between June 15, 2020, to July 07, 2020.

The study was conducted in six contiguous districts in the Bono East region of Ghana: Kintampo North Municipal (KNM), Kintampo South District (KSD), Techiman South Municipal (TSM), Techiman North District (TND), Nkoranza South Municipal (NSM), and Nkoranza North District (NND) where the Kintampo Health and Demographic Surveillance System (Kintampo-HDSS) administered by the Kintampo Health Research Centre operates. Information about how the Kintampo-HDSS operates has been described in an earlier publication in detail.<sup>16</sup>

The study area has an estimated population of about 430,728 with males (47.8%) and females (52.2%). The various districts constitute; KNM & KSD (163,191 (38%)), NND & NSM (93,805 (22%)), and TND & TSM (173,732 (40%)) of the total population. The study area is served by 9 districts hospitals, 35 health centres, and 214 functional Community-based Health Planning and Services (CHPS). Other health care dynamics of the area are described in other publications.<sup>13</sup> The study setting is largely rural and subsistence farming is the major occupation. The population is multi-ethnic and majority of them reside in rural communities. Other population indicators of the study area have been described in other publications in detail.<sup>16, 17-21</sup>

### Sample size calculation and distribution

Based on a survey that assessed the knowledge, attitudes and preventive practices on Ebola Virus Disease within the Kintampo districts of Ghana, 83% had knowledge on the virus disease. Using a prevalence of 0.83, 95 percent confidence level, and an error margin of 0.0324. The study calculated the sample size using the formula:

$$n = \frac{\alpha^2 \rho(1 - \rho)}{\epsilon^2}$$

where  $\rho$  is the prevalence of the study,  $\alpha$  is the significance level and  $\epsilon$  is the error margin of the study. A sample of 517 is generated when the formula was employed. In order to enhance and prevent sampling biases, the sites were sampled proportionally. The proportional division of the sampling distribution according to the size of each study site is as follows; Kintampo North & South (196 (38%)), Nkoranza North & South (112 (22%)), and Techiman North & South (209 (40%)).

The 517 sample was randomly sampled from the Kintampo-HDSS database. All resident adult members of the population who are registered in the Kintampo-HDSS, aged 18 years and above were eligible to be included in the study. Non-registered resident and registered resident members who were below 18 years were not considered in the sampling.

A close-ended questionnaire was administered to participants by trained interviewers. The questionnaire was pretested before the start of the actual data collection. Each questionnaire consisted of 9 modules including questions to elicit avoidance, discrimination, anxiety and fear.

### Data management and analysis

The questionnaire for data collection was designed using Survey Solutions Version 19.05 and was deployed on android tablets. Data validation checks like branching logics, range and consistencies were incorporated in the design of the data collection tool (This prevented missing data by ensuring that all fields were answered before the data was uploaded). Geographic Position System (GPS) coordinates features were captured automatically to provide evidence that interviews were actually conducted in locations that could be verified. The completed data were synchronized daily unto the database after cross-checking the response for consistency, completeness and accuracy from the tablets. Data was updated with the resolved queries then formatted and sent for statistical analysis using STATA version 14.0. Descriptive statistics such as frequencies and percentages were used to describe the data. Chi-square test was conducted between the main avoidance variable "I will not have anything to do with someone suspected of COVID-19" and selected socio-demographic characteristics of respondents, and also between the main variable for avoidance and other avoidance related variables at a statistically significance level of 0.05. Tables were generated with Microsoft Excel and presented in Word format.

## Results

### Demographic characteristics of participants

The demographic characteristics of the sample compares very well with the HDSS population that it was taken from (Table 1). The majority of the participants were females (55%), and this is similar to the HDSS population (53%) from which the sample was taken. Participants ranged from 18 to 60 years of age with an average age of thirty-nine years, and this is also similar to the adult HDSS population from which the sample was taken. Majority of the respondents were above the age of forty years followed by those within the age group of thirty to forty years. About 39% of the respondents did not have any formal education which compares well with the HDSS population (36%). However, three percent of the respondents have had education up to the tertiary level.

Farming or domestic worker was the main occupation of the respondents with about 43% of them falling into this category. This was followed by trading with clerical or secretarial being the least occupational status. Close to seventy percent of the respondents (68%) were married and less than 1 in 5 respondents (18%) were single. More than half of the respondents interviewed were Muslims.

### Avoidance and discrimination against persons suspected of COVID-19

From the survey about 60% of the respondents agreed that they will not have anything to do with a person suspected of COVID-19. However, about 37% of the respondents disagreed with this assertion as shown in Table 2. On the other hand, a lower proportion of respondents (29%) agreed they will not have anything to do with someone who has recovered from COVID-19 compared to about 60% of respondents agreeing that they will not have anything to do with someone suspected of COVID-19 as shown in Table 2. Again, from Table 2, almost all of the respondents interviewed (98%) affirmed they feel compassionate towards people who have contracted COVID-19. About 67% however agreed they fear to be isolated if suspected to be infected with COVID-19. Half of the respondents interviewed agreed that there is little they can do to help COVID-19 patients. About 91% of the respondents agreed that people within the community need to adopt a far more tolerant attitude towards people that recovered from the COVID-19 infection. Table 2 provides further detailed description of avoidance and discrimination against persons suspected of COVID-19 within the survey area. Other descriptive analysis of avoidance and discrimination by socio-demographic characteristics of respondents are provided in the Tables 3 and 4.

Respondents with some level of education showed willingness to have something to do with a suspected COVID-19 patient than those with no education. About 67% of respondents with no formal education compared to 25% with university education agreed to have nothing to do with suspected COVID-19 patient as shown in Table 3, whilst more males (65%) agreed not to have anything to do with suspected COVID-19 patient compared to females as shown in Table 3.

Respondent's educational level appeared to be associated to one having something to do with recovered COVID-19 patient as shown in Table 3. Older people, forty years and above (61%) agreed not to have anything to do with suspected COVID-19 patients compared to those who are younger Table 4. From Tables 3 and 4, respondents' attitude towards recovered patients appears positive irrespective of gender, age group or educational level.

### Test of statistical significance

From Table 5, a chi-square test results showed that there is no significant relationship between age group and occupation and willingness to associate with persons suspected to have contracted COVID-19, but the educational level of an individual significantly determines whether the person is willing to associate him/herself with persons suspected to have contracted COVID-19. A Chi-square test also showed a strong significant association between "I will not have anything to do with someone suspected of COVID-19" and other avoidance/discrimination variables. "I will not have anything to do with someone suspected of COVID-19" is also significantly associated with "I will not have anything to do with someone who has recovered from COVID-19" and "there is little I can do to help people who have COVID-19. Other strongly significant association between "I will not have anything to do with someone suspected of COVID-19" and other avoidance/discrimination variables are provided in Table 5.

## Discussion

This study has generally shown that there was high-level avoidance of COVID-19 suspected persons. However, it was difficult to understand whether this observation was as a result of a genuine infection avoidance interests or inappropriate concerns related to stigma. The difficulty is borne out of the fact that about 3 in 5 respondents initially said they won't have anything to do with someone suspected of COVID-19, but about 2 in 3 respondents disagreed when they were further asked whether they won't have anything to do with someone that recovered from the infection.

The high-level avoidance of suspected infected person as reported in this study could be associated with the fear that arises from anxiety about COVID-19 and its potential fatalities. Avoidance of suspected COVID-19 infected persons due to stigma or other reasons could lead to increased cases of infection as reported in other studies. Low testing behind West Bengal's high

**Table 1. Basic demographic characteristics (N=517).**

Demographics	Sample
Gender	
Female	282 (54.6)
Male	235 (45.4)
Age group	
Less than 30 years	135 (26.1)
30–40 years	147 (28.4)
Above 40 years	235 (45.5)
Level of education	
None	201 (38.9)
Primary	88 (17.0)
Middle/JSS	122 (23.6)
Technical/SSS	68 (13.2)
Post-middle college	22 (4.3)
University	16 (3.1)
Occupational level	
No employment	62 (12.0)
Clerical/Secretarial	8 (1.6)
Employed Tradesman	27 (5.2)
Farmer/Domestic worker	224 (43.3)
Professional	20 (3.9)
Student	37 (7.2)
Trader/Businessman	130 (25.2)
Other Specify	9 (1.8)
Marital status	
Married	351 (67.9)
Single	91 (17.6)
Living together	25 (4.8)
Separated	21 (4.1)
Widowed	29 (5.6)
Divorced	0 (0)
Religious status	
Christian	217 (42.0)
Muslim	278 (53.8)
Traditional	8 (1.6)
None	14 (2.7)

**Table 2. Avoidance and discrimination of persons suspected of COVID-19 (N=517).**

Statements	n (%)
Won't have anything to do with one suspected to have COVID-19	
Disagree	189 (36.56)
Not Sure	20 (3.87)
Agree	308 (59.57)
Won't have anything to do with one recovered from COVID-19	
Disagree	346 (66.92)
Not Sure	23 (4.45)
Agree	148 (28.63)
There is little I can do to help people who have COVID-19	
Disagree	233 (45.07)
Not Sure	23 (4.45)
Agree	261 (50.48)
Need to adopt tolerant attitude towards those recovered from COVID-19	
Disagree	32 (6.19)
Not Sure	16 (3.09)
Agree	469 (90.72)
Feel compassionate towards those who have contracted COVID-19	
Disagree	5 (0.97)
Not Sure	8 (1.55)
Agree	504 (97.49)
There is little done that can be of help to COVID-19 patient	
Disagree	273 (52.80)
Not Sure	26 (5.03)
Agree	218 (42.17)
Afraid to be isolated from my family if suspected of COVID-19	
Disagree	159 (30.75)
Not Sure	14 (2.71)
Agree	344 (66.54)

**Table 3. Avoidance and discrimination of persons suspected of COVID-19 by educational status and gender.**

Statements	Educational status A					Gender B			
	None n (%)	Primary n (%)	Middle/JHS n (%)	Technical n (%)	University n (%)	Total n (%)	Male n (%)	Female n (%)	Total n (%)
I won't have anything to do with one suspected to have COVID-19									
Disagree	58 (28.9)	31 (35.2)	46 (37.7)	42 (46.7)	12 (75.0)	189 (36.6)	86 (30.5)	103 (43.8)	189 (36.6)
Not sure	9 (4.5)	6 (6.8)	2 (1.6)	3 (3.3)	0 (0.0)	20 (3.8)	13 (4.6)	7 (3.0)	20 (3.9)
Agree	134 (66.7)	51 (58.0)	74 (60.7)	45 (50.0)	4 (25.0)	308 (59.6)	183 (64.9)	125 (53.2)	308 (59.5)
I won't have anything to do with one recovered from COVID-19									
Disagree	124 (61.7)	61 (69.3)	80 (65.6)	67 (74.4)	14 (87.5)	346 (66.9)	175 (62.1)	171 (72.8)	346 (66.9)
Not sure	16 (8.0)	3 (3.4)	2 (1.6)	2 (2.2)	0 (0.0)	23 (4.5)	14 (5.0)	9 (3.8)	23 (4.5)
Agree	61 (30.3)	24 (27.3)	40 (32.8)	21 (23.3)	2 (12.5)	148 (28.6)	93 (33)	55 (23.4)	148 (28.6)
There is little I can do to help people who have COVID-19									
Disagree	73 (36.3)	40 (45.5)	50 (41.0)	59 (65.6)	11 (68.7)	233 (45.1)	121 (42.9)	112 (47.7)	233 (45.1)
Not sure	15 (7.5)	2 (2.3)	5 (4.1)	1 (1.1)	0 (0.0)	23 (4.4)	14 (5.0)	9 (3.8)	23 (4.5)
Agree	113 (56.2)	46 (52.2)	67 (54.9)	30 (33.3)	5 (31.3)	261 (50.5)	147 (52.1)	114 (48.5)	261 (50.5)
Need to adopt tolerant attitude towards those recovered from COVID-19									
Disagree	9 (4.5)	7 (7.9)	13 (10.7)	3 (3.3)	0 (0.0)	32 (6.2)	20 (7.1)	12 (5.1)	32 (6.2)
Not sure	8 (4.0)	5 (5.7)	1 (0.8)	2 (2.2)	0 (0.0)	16 (3.1)	10 (3.6)	6 (2.6)	16 (3.1)
Agree	184 (91.5)	76 (86.4)	108 (88.5)	85	16 (100.0)	469 (90.7)	252 (89.3)	217 (92.3)	469 (90.7)
I feel compassionate towards those who have contracted COVID-19									
Disagree	4 (2.0)	1 (1.1)	0 (0.0)	0 (0.0)	0 (0.0)	5 (1.0)	2 (0.7)	3 (1.3)	5 (1.0)
Not sure	4 (2.0)	2 (2.3)	1 (0.8)	1 (1.1)	0 (0.0)	8 (1.5)	4 (1.4)	4 (1.7)	8 (1.5)
Agree	193 (96.0)	85 (96.6)	121 (99.2)	89 (98.9)	16 (100.0)	504 (97.5)	276 (97.9)	228 (97.0)	504 (97.5)
<b>Total</b>	<b>201 (100.0)</b>	<b>88 (100.0)</b>	<b>122 (100.0)</b>	<b>90 (100.0)</b>	<b>16 (100.0)</b>	<b>517 (100.0)</b>	<b>282 (100.0)</b>	<b>135 (100.0)</b>	<b>517 (100.0)</b>

**Table 4. Avoidance and discrimination against persons suspected of COVID-19 by age group and religious status.**

Statement	Age group A				Religious status B				
	<30 yrs n (%)	30-40 yrs n (%)	>40 yrs n (%)	Total n (%)	Christian n (%)	Muslim n (%)	Tradition n (%)	None n (%)	Total n (%)
I won't have anything to do with one suspected to have COVID-19									
Disagree	52 (38.5)	56 (38.1)	81 (34.5)	189 (36.6)	68 (31.3)	116 (41.7)	2 (25.0)	3 (21.4)	189 (36.6)
Not sure	4 (3.0)	6 (4.1)	10 (4.2)	20 (3.9)	9 (4.2)	11 (4.0)	0 (0.0)	0 (0.0)	20 (3.9)
Agree	79 (58.5)	85 (57.8)	144 (61.3)	308 (59.6)	140 (64.5)	151 (54.3)	6 (75.0)	11 (78.6)	308 (59.5)
I won't have anything to do with one recovered from COVID-19									
Disagree	89 (65.9)	102 (69.4)	155 (66.0)	346 (66.9)	136 (62.7)	195 (70.1)	6 (75.0)	9 (64.3)	346 (66.9)
Not sure	6 (4.4)	4 (2.7)	13 (5.5)	23 (4.5)	7 (3.2)	16 (5.8)	0 (0.0)	0 (0.0)	23 (4.5)
Agree	40 (29.6)	41 (27.9)	67 (28.5)	148 (28.6)	74 (34.1)	67 (24.1)	2 (25.0)	5 (35.7)	148 (28.6)
There is little I can do to help people who have COVID-19									
Disagree	67 (49.6)	75 (51.0)	91 (38.7)	233 (45.1)	83 (38.2)	145 (52.2)	1 (12.5)	4 (28.6)	233 (45.1)
Not sure	1 (0.7)	8 (5.4)	14 (6.0)	23 (4.4)	9 (4.2)	14 (5.0)	0 (0.0)	0 (0.0)	23 (4.5)
Agree	67 (49.6)	64 (43.6)	130 (55.3)	261 (50.5)	125 (57.6)	119 (42.8)	7 (87.5)	10 (71.4)	261 (50.5)
Need to adopt tolerant attitude towards those recovered from COVID-19									
Disagree	13 (9.6)	9 (6.1)	10 (4.3)	32 (6.2)	14 (6.5)	17 (6.1)	0 (0.0)	1 (7.1)	32 (6.2)
Not sure	1 (0.7)	6 (4.1)	9 (3.8)	16 (3.1)	8 (3.7)	7 (2.5)	0 (0.0)	1 (7.1)	16 (3.1)
Agree	121 (89.6)	132 (89.8)	216 (91.9)	469 (90.7)	195 (89.9)	254 (91.4)	8 (100.0)	12 (85.8)	469 (90.7)
I feel compassionate towards those who have contracted COVID-19									
Disagree	0 (0.0)	1 (0.7)	4 (1.7)	5 (1.0)	3 (1.4)	2 (0.7)	0 (0.0)	0 (0.0)	5 (1.0)
Not sure	0 (0.0)	3 (2.0)	5 (2.1)	8 (1.5)	2 (0.9)	5 (1.8)	0 (0.0)	1 (7.1)	8 (1.5)
Agree	135 (100.0)	143 (97.3)	226 (96.2)	504 (97.5)	212 (97.7)	271 (97.5)	8 (100.0)	13 (92.9)	504 (97.5)
<b>Total</b>	<b>135 (100.0)</b>	<b>147(100.0)</b>	<b>235 (100.0)</b>	<b>517(100.0)</b>	<b>217 (100.0)</b>	<b>278 (100.0)</b>	<b>8 (100.0)</b>	<b>14 (100.0)</b>	<b>517 (100.0)</b>

**Table 5. Test of association between "I will not have anything to do with someone suspected to have COVID-19", other stigma related variables and participants' socio-demographics characteristics.**

Variables	Disagree n (%)	Not sure n (%)	Agree n (%)	p-value
Age group				
<30 years	52 (38.5)	4 (3.0)	79 (58.5)	0.89
30-40 years	56 (38.1)	6 (4.1)	85 (57.8)	
>40 years	81 (34.5)	10 (4.3)	144 (61.3)	
Occupation				
Professional	10 (50.0)	0 (0.0)	10 (50.0)	0.063
Clerical	4 (50.0)	0 (0.0)	4 (50.0)	
Trader	58 (44.6)	9 (6.9)	63 (48.5)	
Employed	13 (48.2)	1 (3.7)	13 (48.2)	
Farmer	63 (28.1)	9 (4.0)	152 (67.9)	
Student	13 (35.1)	1 (2.7)	23 (62.2)	
No employment	25 (40.3)	0 (0.0)	37 (59.7)	
Other	3 (33.3)	0 (0.0)	6 (66.7)	
Education				
None	58 (28.9)	9 (4.5)	134 (66.7)	0.006
Primary	31 (35.2)	6 (6.8)	51 (58.0)	
Middle/JSS	46 (37.7)	2 (1.6)	74 (60.7)	
Technical	33 (48.5)	3 (4.4)	32 (47.1)	
Post-Middle	9 (40.9)	0 (0.0)	13 (59.1)	
University	12 (75.0)	0 (0.0)	4 (25.0)	
I will not have anything to do with someone who has recovered from COVID-19				
Disagree	171 (49.4)	6 (1.7)	169 (48.8)	0.001
Not sure	1 (4.4)	11 (47.8)	11 (47.8)	
Agree	17 (11.5)	3 (2.0)	128 (86.5)	
There is little I can do to help people who have COVID-19				
Disagree	142 (60.9)	4 (1.7)	87 (37.3)	0.001
Not sure	4 (17.4)	7 (30.4)	12 (52.2)	
Agree	43 (16.5)	9 (3.5)	209 (80.1)	
People need to adopt a far more tolerant attitude towards people who have recovered from COVID-19 infection				
Disagree	4 (12.5)	1 (3.1)	27 (84.4)	0.001
Not sure	2 (12.5)	6 (37.5)	8 (50.0)	
Agree	183 (39.0)	13 (2.8)	273 (59.6)	
I feel especially compassionate towards people who have contracted COVID-19				
Disagree	1 (20.0)	1 (20.0)	3 (60.0)	0.001
Not sure	1 (12.5)	5 (62.5)	2 (25.0)	
Agree	187 (37.1)	14 (2.8)	303 (60.1)	
There is little done that can be of help to people infected with COVID-19				
Disagree	137 (50.2)	4 (1.5)	132 (48.4)	0.001
Not sure	7 (26.9)	7 (26.9)	12 (46.2)	
Agree	45 (20.6)	9 (4.1)	164 (75.2)	
I am afraid to be isolated from my family and/or the social environment if I'm suspected of COVID-19 infection?				
Disagree	86 (54.1)	2 (1.3)	71 (44.7)	0.001
Not sure	3 (21.4)	4 (28.6)	7 (50.0)	
Agree	100 (29.1)	14 (4.1)	230 (66.9)	

COVID-19 mortality rate in India was attributed to social stigma.<sup>22,23</sup> Avoidance of suspected COVID-19 infected persons or stigmatization is heightened when infection control measures are characterised by isolation and quarantine of suspected and/or infected persons.<sup>6</sup> Such attitude towards suspected infected persons can adversely affect the emotional, mental, and physical health of stigmatized persons and the communities they live in. Stigmatized individuals may experience loneliness, depression, anxiety, or public humiliation that may lead to suicidal ideation. To ensure that all community members live in harmony, safe and healthy, stopping avoidance of COVID-19 infected persons due to stigma or other reasons becomes indispensable.<sup>12</sup> More than two thirds majority of respondents expressed their disagreement with the statement that they won't have anything to do with one recovered from COVID-19. This finding could be attributed to the efforts made on increasing availability of information about COVID-19 transmission and protective strategies by both local and international health bodies. For example, Plan International Ghana in collaboration with a local filmmaker and the Ministry of Health of Ghana produced a video that has been shared on television and social media, showing the harmful effects of stigma or avoidance of COVID-19 survivors, their children and families, and the country as a whole.<sup>24</sup> Over 90% of respondents agreed that they needed to adopt tolerant attitude towards those that recovered from COVID-19. The willingness to adopt a tolerant attitude towards persons that recovered may have high tendency for social integration and reduced harassment at work and other places. This may reduce the psychosocial stress associated with discrimination. The level of information about COVID-19 education on transmission, prevention, as championed by the Ghana Health Service and Ministry of Health may have gone down well with community members. The finding that little could be done to help people with COVID-19 demonstrates high vulnerability among community members, and may indicate a gap in community support for COVID-19 educational materials. However, the finding that majority of people disagreed that there was little done to help COVID-19 patients suggests some level of trust in the health system and other institutions towards the provision of assistance to persons infected with COVID-19.

### Limitations

This study did not measure stigma specifically but provides the opportunity to investigate stigma against COVID-19 suspected persons. Following the findings from this study, we recommend a more in-depth study of COVID-19 stigma. Self-reported method used in this study is also a limitation as respondent may provide socially desirable responses that may bias the results. The study reports on data collected from Kintampo-HDSS catchment area which may not necessarily apply to other areas in Ghana.

### Conclusions

The study has shown the need to pay special attention to avoidance of suspected infected persons due to stigma or any other reason since it is a threat to the fight against the pandemic. Special attention from stakeholders such as Ministry of Health, Ghana Health Service, public health professionals, media and community members is needed to reduce stigmatization since it compounds the burden of the COVID-19 pandemic.

### References

1. Guan W-J, Ni Z-Y, Hu Y, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. *N Engl J Med*. Published online February 28, 2020. doi:10.1056/NEJMoa2002032
2. WHO. WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. Published 2020. Accessed November 13, 2020. <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19-11-march-2020>
3. WHO. WHO Coronavirus (COVID-19) Dashboard. Global Situation. Published 2021. <https://covid19.who.int/>
4. Florindo HF, Kleiner R, Vaskovich-Koubi D, et al. Immune-mediated approaches against COVID-19. *Nat Nanotechnol*. 2020;15(8):630-645. doi:10.1038/s41565-020-0732-3
5. WHO. Coronavirus disease (COVID-19) advice for the public. Basic protective measures against the new coronavirus. World Health Organization. Published online 2020. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>
6. Abdelhafiz AS, Alorabi M. Social Stigma: The Hidden Threat of COVID-19. *Front Public Heal*. 2020;8(August):2-5. doi:10.3389/fpubh.2020.00429
7. Patel BR, Khanpara BG, Mehta PI, Patel KD, Marvania NP. Evaluation of perceived social stigma and burnout, among health-care workers working in covid-19 designated hospital of India: A cross-sectional study. *Asian J Soc Health Behav* 2021;4:156-62
8. Lu M-Y, Ahorsu DK, Kukreti S, Strong C, Lin Y-H, Kuo Y-J, Chen Y-P, Lin C-Y, Chen P-L, Ko N-Y, Ko W-C. The prevalence of posttraumatic stress disorder symptoms, sleep problems, and psychological distress among COVID-19 frontline healthcare workers in Taiwan. *Frontiers Psychiatry* 2021;12:705657.
9. Olashore AA, Akanni OO, Fela-Thomas AL, Khutsafalo K. The psychological impact of COVID-19 on health-care workers in African Countries: A systematic review. *Asian J Soc Health Behav* 2021;4:85-97
10. Rajabimajid N, Alimoradi Z, Griffiths MD. Impact of COVID-19-related fear and anxiety on job attributes: A systematic review. *Asian J Soc Health Behav* 2021;4:51-5
11. Patil ST, Datar MC, Shetty JV, Naphade NM. "Psychological consequences and coping strategies of patients undergoing treatment for COVID-19 at a tertiary care hospital": A qualitative study. *Asian J Soc Health Behav* 2021;4:62-8
12. Dubey S, Biswas P, Ghosh R, et al. Psychosocial impact of COVID-19. *Diabetes Metab Syndr Clin Res Rev*. 2020;14(5):779-788. doi:10.1016/j.dsx.2020.05.035
13. CDC. Reducing Stigma. Coronavirus Disease 2019 (COVID-19). Centers for Disease Control and Prevention. Published 2020. Accessed November 16, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/reducing-stigma.html#:~:text=Stigma is associated with a,others to spread COVID-19.>
14. WHO. Tackling COVID-19 fear and stigma. World Health Organization. Published 2020. Accessed November 16, 2020. <https://www.afro.who.int/news/tackling-covid-19-fear-and-stigma>
15. Meissner H, Creswell J, Klassen AC, Plano V, Smith KC. Best Practices for Mixed Methods Research in the Health Sciences.

- [https://obsrr.od.nih.gov/wp-content/uploads/2016/02/Best\\_Practices\\_for\\_Mixed\\_Methods\\_Research.pdf](https://obsrr.od.nih.gov/wp-content/uploads/2016/02/Best_Practices_for_Mixed_Methods_Research.pdf)
15. Bian H. *Mixed Methods Research*. [http://core.ecu.edu/ofe/statisticsresearch/mixed\\_methods\\_new.pdf](http://core.ecu.edu/ofe/statisticsresearch/mixed_methods_new.pdf)
  16. Owusu-Agyei S, Nettey OEA, Zandoh C, et al. Demographic patterns and trends in Central Ghana: baseline indicators from the Kintampo Health and Demographic Surveillance System. *Glob Health Action*. 2012;5(June 2014):1-11. doi:10.3402/gha.v5i0.19033
  17. Kirkwood BR, Manu A, Tawiah-Agyemang C, et al. NEWHINTS cluster randomised trial to evaluate the impact on neonatal mortality in rural Ghana of routine home visits to provide a package of essential newborn care interventions in the third trimester of pregnancy and the first week of life: Trial protocol. *Trials*. 2010;11:1-11. doi:10.1186/1745-6215-11-58
  18. George S. Antwi-Boasiako FYA-B. Techiman north district, Ghana Statistical Service, October 2014. Published online 2014. [http://www2.statsghana.gov.gh/docfiles/2010\\_District\\_Report/Brong\\_Ahafo/TECHIMAN\\_NORTH.pdf](http://www2.statsghana.gov.gh/docfiles/2010_District_Report/Brong_Ahafo/TECHIMAN_NORTH.pdf)
  19. Shirley Adjeley Sowah GG. Nkoranza South Municipality, Ghana Statistical Service, October, 2014. Published online 2014. [www.statsghana.gov.gh](http://www.statsghana.gov.gh).
  20. Rabiatsu AP, Elijah MJ. Techiman municipality. *Popul Hous census Dist Anal Rep Techiman Munic*. Published online 2010. [https://www2.statsghana.gov.gh/docfiles/2010\\_District\\_Report/Brong\\_Ahafo/TECHIMAN\\_Municipal.pdf](https://www2.statsghana.gov.gh/docfiles/2010_District_Report/Brong_Ahafo/TECHIMAN_Municipal.pdf)
  21. Ewuntomah Akibu Abubu BSD. Nkoranza North district, Ghana Statistical Service. Published online 2014. [http://www2.statsghana.gov.gh/docfiles/2010\\_District\\_Report/Brong\\_Ahafo/NKORANZA\\_North.pdf](http://www2.statsghana.gov.gh/docfiles/2010_District_Report/Brong_Ahafo/NKORANZA_North.pdf)
  22. Hindustan Times. Social stigma, low testing behind WB's high Covid-19 mortality rate: Report. Hindustan Times [Internet]. 2020 May 8. Published 2020. Accessed December 13, 2020. <https://www.hindustantimes.com/kolkata/social-stigma-low-testing-behind-wb-s-high-covid-19-mortality-rate-report/story-VGGBAEy2IXueEplUxOGX3N.html>
  23. NDTV.com. Stigma reason for high COVID-19 mortality rate in Ahmedabad: AIIMS Chief. NDTV.com [Internet]. Press Trust of India; 2020 May 10. Published 2020. Accessed December 13, 2020. <https://www.ndtv.com/india-news/coronavirus-stigma-reason-for-high-covid-19-mortality-rate-in-ahmedabad-aiims-chief-2226177>
  24. Plan Ghana. Addressing stigma against Covid-19 survivors in Ghana. 2020;(August). [https://reliefweb.int/sites/reliefweb.int/files/resources/GHA-COVID\\_19\\_Stigma\\_Reduction\\_Case\\_Study\\_External-Final-IO-Eng-Aug20.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/GHA-COVID_19_Stigma_Reduction_Case_Study_External-Final-IO-Eng-Aug20.pdf)