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Knowledge of Health Care Staffs Regarding Management of Second Waves of Covid-19 at Public Health Facilities at Barona Zone, Southern Ethiopia. 2021. A Descriptive Cross Sectional Study.

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Abstract

Background

During the 2020 pandemic, several countries have seen a two-wave trend of confirmed cases of corona virus disease-19, with the first wave occurring in the spring and the latest second wave occurring in the late summer and autumn. The characteristics of the virus's effects differ between the two periods, according to empirical data. There have been studies of variations in age group and disease severity, while the similarities and differences between the two waves are still largely unknown. These characteristics are compared in this analysis using data from two 3-and-a-half-month periods. The first, from 15 March to 30 December, corresponds to the entire first wave, and the second, from 1 April to 30 May, corresponds to a portion of the second wave, which was still present at the time of writing. During the first period, Patients in the second wave were younger, with a longer hospital stay and a higher case fatality rate than those in the first. There were more infants, pregnant mothers, and young adults in the second wave. Fever, dyspnea, pneumonia, and cough were the most common signs and symptoms in waves, and cardiovascular diseases, type 2 diabetes mellitus, and chronic neurological diseases were the

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most common co morbidities. These findings can aid in understanding the second wave's characteristics, as well as the behavior and danger of SARS-CoV-2 in Ethiopia.

Objectives

To assess the knowledge of management of second wave of Corona Virus (COVID - 19) among Health care Workers at public health facilities at Barona zone, 2021.

Methods

From March 15 to April 15, 2021, an institutional-based cross-sectional analysis was performed. Public health facilities in the Barona zone were included. The most experienced front-runners were selected in proportion from their departments. Data from a self-administered questionnaire was entered into Epi Data, which was then analyzed using SPSS software. There is a discussion of descriptive and inferential statistics, as well as bivariable and multivariable regression analysis.

Results

421 health care staffs involved in the study. The majority (253, 60.1%) of the health care staffs were female. Of the total, 132 (31.4%) subjects were nurses, followed by midwife (105, 24.9%), doctors (106, 25.2%), medical laboratory (27, 6.4%) and pharmacists (51, 12.1%). Of these, education of the health care staffs, majority (240, 57.0%) of the degree, diploma (168,39.9%) and master and above(13,3.1%).health care workers working in hospital(240,57.0%),health centre(168,39.9%)and health post(13,3.1%). 405(96.2%) of the staffs had good knowledge regarding management of second wave of covid19. 16(3.8%) of the health care staffs had poor knowledge regarding management of second wave of covid19. There is association between age, gender, education and work experience with knowledge on health care staff management towards second wave of COVID-19 and there is no association is found between marital status, occupation, and hospital type are all variables to consider. There is a link between age, gender, , education and work experience, but no link exists between profession and marital status, hospital form.

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Conclusion:

The current study found that health-care workers in Ethiopia's Barona zone had previously recognized a significant idea but lacked a good understanding of the second wave COVID-19 pandemic's. Younger age groups, staff nurses, and female staffs all had requirements. Fifty percent of participants said they were unaware of their hospitals, indicating the need for greater universal solidarity.

Keywords: Knowledge, Health care staffs, second wave COVID-19, Public Health Facilities

INTRODUCTION

Corona virus disease-19 (COVID-19), which is caused by the corona virus 2 (SARS-CoV-2) that causes extreme acute respiratory syndrome, has spread throughout the world, posing a serious health threat. In many countries, there has been a two-wave pattern of reported cases, with the first wave occurring in the spring and the second wave occurring in the late summer. COVID-19 began its second wave in Ethiopia in early March 2021[1]. More than 144 million people have been poisoned worldwide, resulting in more than 3066113 deaths. The COVID-19 pandemic in Africa's second wave was more intense than the first. Between February and December 2020, nearly 3 million confirmed COVID-19 cases and over 65,000 deaths were registered across Africa, according to the study.[4] In Africa, the Corona virus has the potential to cause widespread disease and death. In Ethiopia, over 2,000 cases are recorded every day, out of an average of 8,000 tests each day. The country had recorded a total of 200,563 cases and 2,801 deaths as of April 5, 2021. The number of cases in Ethiopia has continued to grow since then, with some ups and downs, and it appears to be stabilizing at the time of writing this article [2].

The overwhelming majority of African countries are feeling the consequences of the second wave and are enacting similar measures. Observational data, on the other hand, shows that this second wave differs from the first in terms of age range and disease severity. [3]. Recognize the value of employee education and training, and make arrangements to include it. Infection prevention protocols must be practiced and implemented by health care practitioners who are well educated. If required, a member of the health-care team or a community-based health-care provider with expertise in infection-prevention and-control education should train health-care

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personnel. Non-clinical workers should be qualified at the very least in respiratory and hand hygiene, including cough etiquette, the safe use of alcohol-based hand sanitizers, and soap and water hand washing, as well as the use of facemasks and social distancing. Workers should be taught proper respiratory and hand hygiene, as well as how to don (put on) and doff (take off) personal protective equipment. PPE disposal; and avoiding contamination of skin, eyes, and the air during the doff, such as long-sleeved isolation gowns, gloves, and eye protection (goggles or removable face shield). Hospital personnel can perform medical clearance, fit tests, and training in the correct usage and safety requirements for N95 respirator masks [4].

Ethiopia, as one of the countries with a lack of qualified human and material resources, is likely to be the most vulnerable to the global second wave COVID-19 pandemic. Allocating limited resources to disease prevention and the introduction of a systematic, evidence-based prevention and treatment protocol at all levels of the health-care system. Priority will be given to the most infected in order to treat and contain the infection in the affected region to prevent it from spreading to other parts of the world. The Ministry of Health has prioritized the creation of a national second wave COVID-19 prevention and treatment guideline to standardize all preventive and treatment activities in Ethiopia [5].

Methodology:

Study area and period

A research was conducted in Ethiopia's Oromia regional state's Barona zone in the south. This zone is located 570 kilometers south of Addis Ababa, Ethiopia's capital city, and south of the country's center. In 2007, Ethiopia's Central Statistics Agency (CSA) conducted a national census, which revealed that 2.5 million people live in the two Zones, with 1.56 million in each (50.4 percent).

In a single zone, there are three hospitals. Three of them, however, are actually serving the city. Barona zone general hospital, Karcha hospital, Malka soda hospital, and health centers are among the facilities.

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The total number of frontline healthcare employees in second wave of COVID-19 is 387, with 69, 287, and 40 doctors, staff nurses, laboratory technicians, midwives, and pharmacists employed in each of the three hospitals.

Research design:

COVID-19-infected frontier health care workers who work in hospitals in the Barona zone and southern Oromia were studied in a facility-based cross-sectional survey.

Population

Source population: The study population was made up of all front-line health-care workers currently employed in hospitals in the Barona zone area and who were available during the data collection period.

Inclusion Criteria: All medical personnel in hospitals in the Barona zone district.

Exclusion Criteria: Staff members who were on annual leave, sick leave, or distribution leave were not exposed to second wave of COVID-19 on the front lines and thus did not volunteer to participate in this review.

Sample Size calculation

The sample size is determined using a standard formula for single population proportions, and the test estimates are calculated by looking at the 95 percent confidence intervals with a margin of error of 5%. There have been no previous studies in the study field. We used a p value of 50%. With a 10% non-response rate, the minimum sample size for this study was 421.

Results

Socio-demographic characteristics of participants

421 staffs interviewed making the response rate to be 100%.The socio-demographic characteristic of the respondents. More than 253 (60.2%) of the respondents were in the Female staffs and male staffs were 168(39.9%).Age group of the staffs146 (34.7%) staffs age group between 20-25 years, 130(30.9 %) were 26-30 years,74(17.6%)were 36-40 years and 71(16.9%) were 31-35 years. Marital status of staffs 305 (72.4 %) of staffs were married, 99 (23.5%) were

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single and 17(4%) were widowed. Profession of the staffs 132 (31.4%) were staff nurse, 105(24.9%) were midwifery, 106 (25.2%) were medical doctor and 51(12.1%) were pharmacist and 27(6.4%) were medical laboratory. Education of the staffs 240(57.0%) were degree programme, 168(39.9%) were diploma and 13(3.1%) were master and above. 240(57.1%) staffs were working in general hospital, 168(39.9%) were health centre and 13(3.1%) were health post. Work experience of the staffs179 (42.5%) were 4 years and above, 115(27.3%) were 3-4 years, 64(15.2%) were 2-3 years and 63(15%) were 1-2 years. (**Table1**).

Assess knowledge of health care staffs regarding management towards second wave of COVID-19

421 staffs interviewed making the response rate to be 100%. Assess knowledge of management towards second wave of COVID-19 respondents is presented in **Table 2:** Patient with fever must wear medical surgical masks with Mean 1.75 and Standard deviation of 0.432.Similarly most common symptoms of covid19 with Mean 1.80 Standard deviation 0.404. Specimen for detecting covid19 obtained from nasopharyngeal with Mean1.82 and Standard deviation 0.383. Health care staffs manages the COVID 19 confirmed patient with Mean1.82 and Standard deviation 0.383 and Manage covid19 confirmed patient with spo2 is maintained above 93% with Mean1.82 and Standard deviation 0.383.prevent covid19 complications among confirmed cases with Mean1.80and Standard deviation 0.404. Confirmed covid19 cases quarantined for 14 days with Mean1.82and Standard deviation 0.385, Confirmed cases arrange bed spacing 1.2 meter with Mean1.82and Standard deviation 0.385, Confirmed Critical cases initiation of antiviral treatment with Mean1.82and Standard deviation 0.385 and Management of covid19 symptoms use of antipyretics and antibiotics with Mean1.77and Standard deviation 0.420, participated in a training course for second wave outbreak management with Mean1.75and Standard deviation 0.433 and Protocol for triage and isolation of suspected cases with Mean1.75and Standard deviation 0.433 (**Table2**).

Assess knowledge of management towards second wave of COVID-19

The overall evaluation of health-care personnel's awareness of second wave covid19 management. According to the pie map, 16 (3.8 percent) of health-care staffs had poor knowledge of second wave of covid19, while 405 (96.2 percent) of health-care staffs had good knowledge of second wave of covid19. (**Figure 1)**

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Factors relevant to health-care staffs management skills in the second wave of COVID-19 period, 2021

One of the considerations used to determine health-care workers' awareness of second wave of COVID-19 is their management. The level of health care workers' management against second wave of covid19 had a statistically significant relationship with their Gender, age , education status and work experience.

The analysis of the study shown that health care staffs male gender 2.401(AOR 0.039, 95%CI :(0.007-0.216) times more likely to have satisfactory knowledge on second wave of covid19 management as compared to those female staffs.

Health care staffs age 31-35 years 8.485(AOR 3.528, 95%CI :(1.438-8.651) times more likely to have satisfactory knowledge on second wave of covid19 management as compared to those age group between 20-25 years.

And health workers who had education master and above 3.528(AOR3.5, 95%CI (1.438-8.651) times more likely to have satisfactory knowledge on second wave of covid19 management as compare to those who had diploma and degree. work experience 4years and above 0.243(AOR3.5, 95%CI (0.052-1.129) Otherwise in this study, no association is found between marital status, occupation, profession and hospital type. (**Table: 3**)

Discussion:

The research study clearly showed that more than half of health care workers (57.2 percent) worked in a hospital environment, according to the survey. COVID-19 was recognized by 52 percent of health-care professionals, and 72 percent were taking appropriate measures to tackle it. Furthermore, according to a study conducted among employees at the Niger Delta University Teaching Hospital in, Nigeria, COVID-19 was well-understood by up to 90% of them in terms of

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prevention and control measures. Approximately 90% of them engage in some kind of practice [6].

Second waves of coronavirusdisease-19: A comparative study in hospitalized patients in Reus, Spain. Two hundred and four patients were hospitalized during the first period, and 264 during the second period. Patients in the second wave were younger and the duration of hospitalization and case fatality rate were lower than those in the first wave. In the second wave, there were more children, and pregnant and post-partum women. These results might help to understand the characteristics of the second wave and the behaviour and danger of SARS-CoV-2 in the Mediterranean area and in Western Europe [7].

In Senegal Study was to analyze health workers' actual and perceived risk in the first hospital faced with managing a community-acquired COVID-19 case. This fear was caused by several exogenous and endogenous factors, including the lack of knowledge of the virus and COVID-19 disease, the feeling of vulnerability due to insufficient availability of personal protective equipment, healthcare professionals' position in relation to the priesthood from the medical profession and the real and perceived risk of putting their family and their entourage in potentially dangerous situations [8].

In Ethiopia to determine risk perception and precautionary health behavior toward coronavirus disease (COVID-19) among health professionals working in selected public university hospitals. A total of 273 health professionals participated in this study. The mean (± SD) age of participants was 31.03 ± 5.11. Study participants' overall mean score of perceived risk was 23.59 ± 4.75. The study participants' mean score of perceived vulnerability (4.01 ± 1.17) was higher than the human immunodeficiency virus, common cold, malaria, and tuberculosis. Regarding precautionary health behavior, the lowest mean score is for wearing gloves 1.82 ± 1.15[9].

In Uganda study was to determine the knowledge of health care staffs in the fight against second wave of COVID-19. Knowledge on COVID-19 symptoms was highest in this order: fever > dry cough > difficulty breathing > fatigue > headache. Knowledge of participants on transmission of second wave COVID-19 was highest in the order of cough drops > contaminated surfaces > person-to-person contact > asymptomatic persons > airborne > zoonotic with no significant

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differences among health care staffs. Health care staffs were all willing to continue using personal protective equipment like masks, and personal practices such as covering the mouth while sneezing and coughing, no handshaking, and washing of hands with no significant differences in the responses [10].

Study was a secondary analysis of data, which was initially collected to determine the level of risk of COVID-19 virus infection among healthcare workers in Ghana. We observed that IPC compliance during healthcare interactions was 88.4% for hand hygiene and 90.6% for Personal Protective Equipment (PPE) usage; IPC compliance while performing aerosol-generating procedures (AGPs), was 97.5% for hand hygiene and 97.5% for PPE usage Generally, healthcare workers' infection prevention and control compliance were high, but this compliance differs across the different groups of health professionals in the treatment centers [11].

Conclusions

The second wave of the COVID-19 pandemic was well-understood by health-care professionals, according to this report. Despite positive reviews from Ethiopia's Ministry of Health and the World Health Organization (WHO), there is still a need for more awareness among junior health-care workers, and other health-care personnel must be represented and included in trainings. In several ways, the health-care workers' preparation for COVID-19's second wave was encouraging, including their knowledge of symptoms, diagnostic protocols, and how to treat patients. Approximately half of the employees believed their company was prepared, with orders, designated areas, and necessary equipment and consumables. Hospitals must be prepared due to a global shortage of infection control supplies.

Abbreviations

WHO-World health organization

COVID-19-Corona Virus 2019

SARS-Severe Acute Respiratory Syndrome

CSA- Central Statistical Agency of Ethiopia

PPE-Personal Protective Equipment

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CI-Confidence Interval

SD-Standard deviation

AOR-Adjusted Odd Ratio

Data Availability

On request, the corresponding author may provide the data used and evaluated in this study.

Ethical clearance and Permission from Respondent

Bule Hora University's College of Health and Medical Sciences' ethics committee gave their approval. A formal letter from Bule Hora University's college of health science was sent to all concerned bodies in order to obtain their cooperation. To secure participants' rights, a clarification letter was attached to each questionnaire. In addition, all participants were invited to participate in the study and were given full details regarding the research purposes. Anonymity and confidentiality were given and retained by consent forms for each participant, as well as the freedom to withdraw at any time during the interview. To obtain the necessary data and consent for publication, each participant gave their oral informed consent.

Conflict of Interest

On the publication of this research paper, there is no conflict of interest.

Contributions of the Authors

All authors contributed to the work described, whether it was in the conception, study design, execution, data collection, analysis, and interpretation, or all of these areas.; contributed to the article's drafting, revision, or critical review; approved the final version to be published; agreed on the journal to which the article was submitted; and acknowledge that you will be held accountable for all aspects of the job.

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Figure 1: Knowledge of health care staffs regarding second wave of covid19

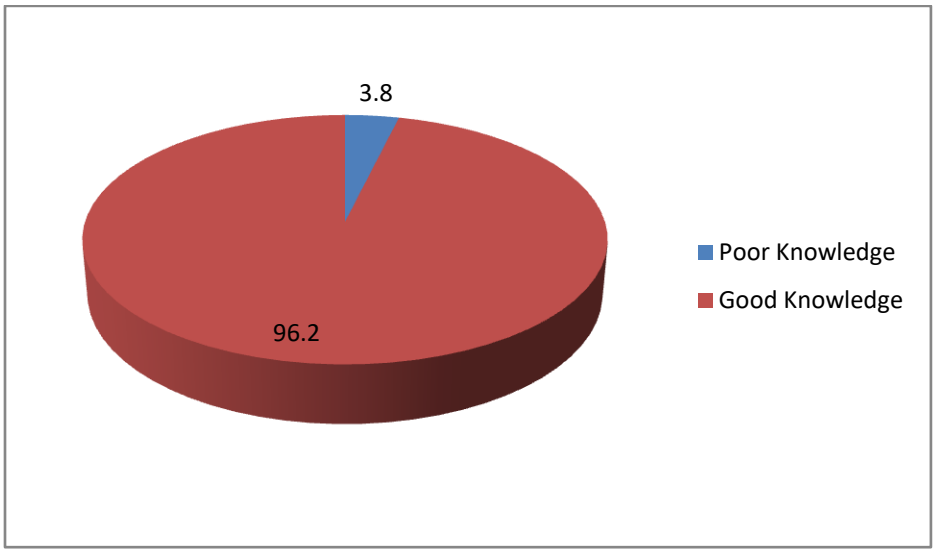

Table. 1: Socio-Demographic characteristics of the participants (N=421)

Characteristics	Gender	Frequency	Percent
Gender	Male	168	39.9
	Female	253	60.1
	Total	**421**	**100.0**
Age	20-25	146	34.7
	26-30	130	30.9
	31-35	71	16.9
	36-40	74	17.6
	Total	**421**	**100.0**
Marital status	single	99	23.5
	married	305	72.4
	widowed	17	4.0

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	Total	**421**	**100.0**
Profession	Nursing	132	31.4
	Medical doctor	106	25.2
	Midwifery	105	24.9
	Medical laboratory	27	6.4
	pharmacist	51	12.1
	Total	**421**	**100.0**
Education	Diploma	168	39.9
	Degree	240	57.0
	Master and above	13	3.1
	Total	**421**	**100.0**
Type of hospital	Health centre	168	39.9
	General hospital	240	57.0
	Health post	13	3.1
	Total	**421**	**100.0**
Work experience	1-2 years	63	15.0
	2-3 years	64	15.2
	3-4 years	115	27.3
	4 years and above	179	42.5
	Total	**421**	**100.0**

Table: 2 Assess knowledge of health care staffs regarding management towards second wave of COVID-19. (N=421)

S.No	Knowledge-Related Statements	Mean	Std. Dev.
1	Medical-surgical masks must be worn for patients with fevers.	1.75	0.432
2	Symptoms of Covid 19's second wave	1.80	0.404
3	Covid19 Detection Specimen	1.80	0.404
4	The COVID 19 confirmed patient is managed by a health care professional	1.82	0.383
5	With spo2, manage confirmed covid19 patients	1.82	0.383
6	Prevent second wave of covid19 complications	1.80	0.404
7	Confirmed second wave of	1.82	0.385

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	covid19 cases quarantined for 14 days		
8	Confirmed cases arrange bed spacing 1.2 meter	1.82	0.385
9	Critical cases initiation of antiviral treatment	1.82	0.385
10	Management of second wave of covid19 symptoms use of antipyretics	1.77	0.420
11	participated in a training course for second wave outbreak management	1.75	0.433
12	Protocol for triage and isolation of suspected cases	1.75	0.433

Table 3: Bivariable and Multivariable regression analysis of factors associated with assess knowledge of health care workers management towards second wave of COVID-19, 2021.

Sl.No.	**Gender**	**CHR(95%CL)**	**AHR(95%CL)**
Gender	Male	0.088(0.020-0.391)	0.039(0.007-0.216) *
	Female	1	1
Age	20-25	2.828(0.943-8.481)	2.401(1.212-4.756)*
	26-30	15.636(1.915-127.678)	7.080(2.944-17.029)
	31-35	8.485(1.033-6.102)	3.528(1.438-8.651)*
	36-40	1	1
Marital status	single	1	1
	married	1.523(0.837-2.772)	
Profession	Nursing	4.057(1.130-14.566)	

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	Medical doctor	1.241(0.474-3.247)	
	Midwifery	0.342(0.139-0.840)	
	Medical laboratory	4.136(0.482-35.533	
	pharmacist	1	1
Education	Diploma	1	1
	Degree	0.680(0.382-1.212)	2.324(1.321-3.456)*
	Master and above	2197.5(0.000)	3.528(1.438-8.651)*
Type of hospital	Health centre	0.528(0.213-1.342)	
	General hospital	1.0455(0.321-2.432)	
	Health post	1	1
Work experience	1-2 years	0.683(0.328-1.424)	0.243(0.052-1.129) *
	2-3 years	1.066(0.471-2.410)	0.172(0.032-1.219)
	3-4 years	1.679(0.798-3.534)	2.708(0.434-16.897)
	4 years and above	1	1

Abbreviations: CI, confidence interval; ***P-Value<0.05**