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Corona virus pandemic response amongst health workers in selected health facilities in Meru County

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ABSTRACT

Aims: The study aimed at determining the Level of knowledge, Preparedness and Response to Corona Virus Pandemic Outbreak among Health Care Workers in Meru County, Kenya.
Study design: A cross-sectional study was adopted to conduct and determine Preparedness, Knowledge and Response of Health Care Workers (HCWs) to COVID-19 pandemic outbreak.
Place and Duration of Study: Sample: Meru County, Igembe South Sub County Health Care Facilities between month of March and June 2020. **Methodology:** A cross-sectional study was conducted among HCWs to determine their Preparedness, Knowledge and Response to COVID - 19 Pandemic outbreak. The study population constituted of health care workers working in Igembe south in Meru County. **Results:** About 87 health care workers of mean age 34± 9 (SD) years with a minimum age of 19 years and maximum age of 70 years were recruited to take part in the study. Among the participants recruited in the study, 51 (58.6%) had bachelor's degree, 30 (34.5%) participants had an ordinary diploma and 6 (6.9%) participants had a certificate level of professional qualification. Most 32 (36.8%) the participants were nurses. Other professional disciplines interviewed were Doctors, Clinicians, Nutritionists, Health Records Officers, Support staff, Social Workers among others. Significant number managers of the Health Care Facilities acknowledged receiving Ministry of Health Guidelines and Protocols on COVID-19 case management. Most (60; 69%) of the participants strongly disagreed that HCWs were trained on Case definition and management of Corona Virus Infections according to WHO guidelines i.e. Nurses (71; 81.6%), Clinical officers (62; 71.3%), Non-Core Health Care Workers (72; 82.8%) were well prepared, trained to handle cases of corona virus infections and associated emergencies. Response to COVID – 19 pandemic indicates that a significant number of (75; 86.2%) of participants strongly disagreed that Health Facilities were equipped with laboratories to test COVID -19, (70; 80.5%) of the participants strongly disagreed that PPEs were available and (70; 80.5%) of the participants strongly disagreed that Isolation and Consultation Rooms with dedicated clinicians are available. Overall a high proportion (73.6%) of the study participants strongly disagreed that they is good response to Corona Virus Pandemic out break interventions. **Conclusion:** Knowledge, Preparedness and Response levels to COVID -19 pandemic infection outbreak was at an average and there is need for continuous professional development (CPD) for HCWs to ensure adoption, maintenance of newly acquired appropriate practices during the COVID-19 pandemic to enhance preparedness and Response to the current and future outbreaks. This creates requisite capacity and skills among Health Care Professionals in their respective areas of practice considering that inadequate knowledge, preparedness and disjointed response which is not only an occupational hazard but a risk factor for poor delivery but also an occupational risk to the workers.

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Introduction

Corona virus pandemic has exerted an unprecedented burden on health care systems, governments and health workers across the world. It has hampered health care delivery globally with far reaching effects in African Countries that are struggling with weak health care systems (WHO, 2020, The World Economic Forum, 2020). First case of the novel coronavirus was reported in Wuhan city Hubei Province of China (WHO, 2020). Since then, the virus has spread across the globe with Kenya confirming over 200,000 cases by July 2022 (Worldometer, 2022). Transmission pathways of Corona virus include person-to-person such as coughing, sneezing, aerosol inhalation as well as contact transmission with nasal or mucus membrane from humans or contaminated surfaces (Peng *et al.,* 2020). Health care workers are the frontline of COVID -19 response persons and they are at a high risk infection. Their exposure is linked to inadequate personal protective equipment (PPEs), exposure to infected patients, poor infection control and work overload (Viswanath and Monga, 2020); Mhango *et al*, 2020; Bai *et al*, 6464). Reports indicates that healthcare workers and patients admitted to health facilities for other medical reasons are more vulnerable to infection from super spreading cases. Since its identification, SARS-CoV-2 has rapidly spread across the globe. COVID-19 is spread by human-to-human transmission through droplet, faeco -oral, and direct contact and has an incubation period of 2-14 days (Backer *et al.,* 2020). Health care workers (HCWs) are at the forefront of the Covid-19 outbreak response and as such are exposed to hazards that put them at risk of infection (Yin *et al.,* 2018). As early as February 2020, scholars had established that transmission of the disease among HCWs is associated with overcrowding, absence of isolation room facilities, and environmental contamination. However, this is likely to be compounded by the fact that some HCWs have inadequate awareness of infection prevention competences (Zhu, 2019). Knowledge of a disease may influence HCWs' attitudes and level of preparedness, and incorrect attitudes and practices directly increase the risk of infection (C R. *et al*., 2016). Health care workers (HCWs) are the primary sector in contact with patients and are an important source of exposure to infected cases in health care settings; thus, HCWs are expected to be at high risk of infection. By the end of January, the WHO and Centers for Disease Control and Prevention (CDC, 2019) had published recommendations for the prevention and control of COVID-19 for HCWs (Yin, 2018). Currently, the prevalence and mortality rates varies considerably among countries in Africa. Some countries have reported high mortality while other countries are yet to report a single death associated with SAR-COV-2. This is possibly due to variations in volumes of air travel, differences in coverage of SARS-CoV-2 testing (Gilbert *et al*., 6464). Health workers have been significantly affected by COVID-19, with 11 449 (1.9%) being infected in 40 countries as at July 2022, since the beginning of the outbreak. Overall, South Africa has been the most affected, with 4, 821 (52%) health workers infected while Guinea Bissau and Mozambique have the highest country specific proportion of health worker infections (WHO, 2021). As countries in Africa step up preparedness for COVID -19 (Gilbert *et al.,* 2020), assessments by WHO points to substantial limitations in response capacity. In particular, there are major shortages of PPEs, human resources, critical care beds and laboratory capacity (W.H.O, 2018). In this study, mapping of available evidence on level of knowledge, response and preparedness to COVID - 19 infections among HCWs was gained to guide future research and policy development.

Methodology

Study design

This was a cross sectional multi - Center study, the study was conducted among health care workers in Meru County, Kenya.

Study Population

The study enrolled HCWs i.e. medical officers, nurses, clinicians, midwives, internship doctors, pharmacists, nutritionists, records officers, laboratory officers and specialists that practice in any of the health facilities within Meru County were included in the study. Data was obtained from health care workers (HCWs) in various cadres by use self-administered questionnaires. The structured questionnaire was validated to address questions about healthcare workers' level of knowledge and preparedness of COVID -19. Knowledge was assessed by questions focusing on COVID - 19 etiology, signs and symptoms, transmission, and risk prevention. Each response was scored as "1" (correct) and "0" (wrong), with scores ranging from 1 to 7. A cut off level of ≤ 4 was considered to indicate poor knowledge about COVID - 19 whereas >4 was considered adequate knowledge about COVID - 19.

Inclusion criteria

Health care workers working within Meru County Government health facilities who consented to participate in the study.

Exclusion criteria

Health Care Workers not working in Meru County and Health Care Workers not consenting to participate in the study

Statistical analysis

Data entry and analyses were performed using SPSS (IBM SPSS Statistics for Windows, version 25.0; IBM Corp., Armonk, NY). Descriptive statistics were used to describe the study variables. Frequency, percentages, and mean scores were used to report the study descriptive analysis. Chi-square test was used to assess the association differences between the groups. Statistical significance was considered for $P < 0.05$.

Ethical Approval

Ethical approval was obtained from Kenya Methodist University-Scientific and Ethical Review Committee (KEMU-SERC). All participants gave informed consent before participating in the study

Results

The study categorized health care workers in two broad categories based on the level of risk to SARS-COV-2 infection. The first category is the health workers with high risk for infection and the other category is health workers with low risk for COVID - 19 infection. About 87 health care workers of mean age 34 ± 9 (SD) years with a minimum age of 19 years and maximum age of 70 years were recruited to take part in the study. Out of the 87 participants, 51 (58.6%) had at least a bachelor's degree, 30 (34.5%) participants had an ordinary diploma and 6 (6.9%) participants had a certificate. Most (32; 36.8%) the participants were nurses. Other professional disciplines included nutritionists, records officers, supporting staff, social workers among others. Slightly half (49; 56.3%) of the participants were females. Most (48;55.2%) of the participants revealed that they had worked in that particular health facility for a period of 1–3 years with a small proportion (6; 6.9%) indicating that they had worked in that health facility for 7 – 9 years. About half (43; 49.4%) of the participants had practiced their professional discipline for more than 5 years. Level of preparedness to COVID - 19 Pandemic was accessed using items in a Likert scale.

Most of the participants (69%) strongly disagreed that they have been trained on Case definition of Corona Virus Infection according to WHO guidelines. Majority (71; 81.6%) of the respondents strongly disagreed that nurses are more equipped to handle cases of COVID -19 using Ministry of Health (MoH) IPC guidelines. Most (62; 71.3%) of the respondents strongly disagreed that clinical officers can easily handle the COVID -19 patient's better using WHO IPC principles of emergency management. Similarly, high proportion (72; 82.8%) of the respondents strongly disagreed that the Non-core hospital staff have been well prepared to COVID -19 pandemic and other emergencies using Ministry of Health IPC guidelines.

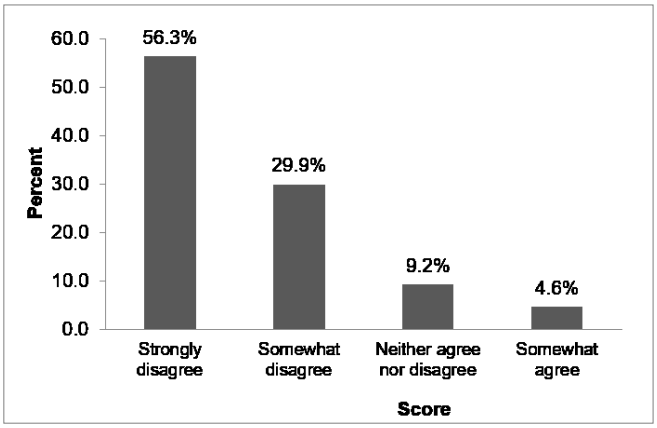

Figure 1: *Preparedness to COVID - 19 Pandemic among Health Workers*

Health Care Workers Knowledge and Response to COVID – 19 Pandemic

Knowledge in relation to COVID -19 Pandemic Response

Knowledge and perceptions of COVID-19 varied across different categories of HCWs. Greater knowledge and inadequate knowledge was differentiated on the basis of attendance of any COVID -19 case management workshop or training since the beginning of the pandemic. Therefore, those who had not been trained on Covid-19 case management at the time of the survey were deemed as having inadequate knowledge. HCWs with greater knowledge of COVID-19 believed that they stood a greater risk of infection with SARS - COV-2 from asymptomatic patients/ clients than from hospitalized patients. This is because most of the inpatients with comorbidities have their vitals already taken and recorded as a precaution for preventing nosocomial spread of SARS -COV-2 infections. Almost half (48.3%) of the participants somewhat agreed that health workers

Indicators of Preparedness and Response	Strongly Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Health Care workers in Meru County Have been Trained on Case definition of Corona Virus Infection according to WHO guidelines	60 (69%)	8 (9.2%)	6 (6.9%)	11 (12.6%)	2 (2.3%)
Nurses are more Equipped to handle cases of Corona Virus using WHO IPC principles of emergency management	71 (81.6)	4 (4.6%)	6 (6.9%)	3 (3.4%)	3 (3.4%)
Clinical officers can easily handle the Corona Virus patient's better using WHO IPC principles of emergency management	62 (71.3%)	9 (10.3%)	6 (6.9%)	8 (9.2%)	2 (2.3%)
The Non-core hospital staff have been well prepared to Corona and other emergencies using WHO IPC principles of emergency management	72 (82.8%)	5 (5.7%)	4 (4.6%)	3 (3.4%)	3 (3.4%)
Diagnostic protocols and Manuals have been well disseminated to health care workers	69 (79.3%)	7 (8%)	4 (4.6%)	3 (3.4%)	4 (4.6%)
Referral System for new cases have been well communicated as per described guidelines	52(59.8%)	10 (11.5%)	10 (11.5%)	12 (13.8%)	3 (3.4%)

Table 1: *Level of Preparedness to COVID-19 Pandemic and Response*

have knowledge of Corona Virus Pandemic. Majority of the respondents (56.3%) strongly disagreed that they are equipped with Knowledge of Severe Corona

Case compared to 7 (8%) respondents who strongly agreed that Corona Virus incubation period is an average of 7 days and maximum of 14 days. Generally, it was observed that diagnostic protocols and Manuals have been well disseminated to health care workers across board. Referral system for new cases has been well communicated as per prescribed guidelines.

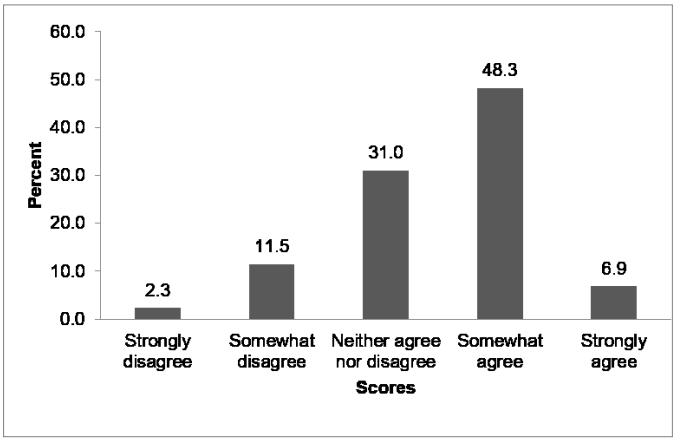

Figure 2: *Level of knowledge of Corona Virus pandemic amongst Health Workers*

Preparedness in Relation to COVID -19 Pandemic Response

A high proportion (70; 80.5%) of the participants strongly disagreed that PPEs are available to protect oneself from infection while attending the Corona Virus suspected cases. Likewise, Most (67; 77.9%) of the participants strongly disagreed that triaging team is equipped with PPE. Majority (70; 80.5%) of the participants strongly disagreed that Isolation and Consultation Rooms with dedicated clinicians are available. Similarly, most (72; 82.8%) of the participants strongly agreed that daily fumigation of Health facilities exist. A high proportion (72; 82.8%) of the participants strongly disagreed that Isolation, consultation rooms, and wards are equipped with oxygen. Most (75; 86.2%) of the participants strongly disagreed that Health Facilities are equipped with laboratories to test COVID - 19. A high proportion (73.6%) of the participants strongly disagreed that they is good response to Corona Virus Pandemic.

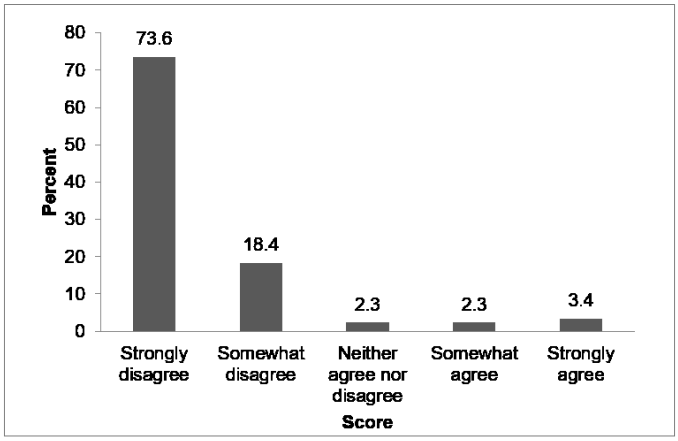

Figure 3: *Preparedness in Relation to COVID -19 Pandemic Response*

Discussion

Health care associated infections in medical institutions happens easily when a new epidemic

occurs. Coronavirus disease 2019 (COVID - 19) poses an important occupational health and safety risk to health care workers (HCWs) attracting immerse global scrutiny.

Therefore, prevention of SARS - COV-2 infections among health care workers in Kenya and the world at large is paramount for effective control of the pandemic. Sustaining safe and quality health care delivery amid the SARS - CoV-2 pandemic is dependent on the health and mental wellbeing of frontline healthcare workers. Front line medical staff faced exhaustion, difficult triage decisions, separation from families, stigma and the pain of losing patients and colleagues, in addition to their own risks of infection. Health - care workers are at increased risk of being exposed to SARS-CoV-2 and could potentially have a role in hospital transmission. Understanding HCWs exposure to COVID-19 virus and how this translates into risk of infection is critical for informing infection prevention and control recommendations. Old age and preexisting health conditions such as hypertension, diabetes mellitus, cardiovascular disease, chronic lung disease, and immunosuppression were important SARS - CoV-2 risk factors identified in this study. Due to the rapidly evolving pandemics and the frequency with which information changes, it is necessary that HCWs are aware of which office or which officer to go for up - to - date guidance on COVID -19 information or consultation. It was observed that the greater the HCWs' knowledge, the more confident they were in response to and management of COVID-19 related cases.

Conclusion

The Health care workers (HCWs) in Meru County face an unprecedented occupational risk of morbidity and mortality owing to SARS-COV-2 pandemic. Generally, there is increased uptake of IPC measures due to improved awareness levels about the risks of SARS-COV-2 infections among HCWs. Knowledge of occupational exposure to asymptomatic SARS - COV-2 infected patients, partial adherence to infection prevention and control (IPC) protocols as required by the ministry of health, and pre-existing Medical conditions put HCWs at risk for nosocomial COVID - 19 infection. Hence, the need for development of sustainable approaches to familiarize health care personnel with technical updates on COVID-19 and provide appropriate tools to assess, triage, test, and treat patients, and to share IPC information with patients and the public.

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Conflict of Interest

There was no conflict of interest that was declared and the author has no competing interests.

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