

## Exploring the Knowledge and Practices (KP) of Health Care Professionals on of Communicable Diseases Notification in Makah-Al Mukarramah at Saudi Arabia 2022

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### Abstract

*Background: A functioning communicable disease surveillance and reporting system has been a serious challenge to developing countries; and as such, effective strategies to strengthen capacity for early disease out- break detection is required. Thus, health-care facility (HCF) preparedness for a prompt and effective response to disease outbreaks needs to be ascertained. In this study, Saudi health-care workers' (HCWs) knowledge of preparedness, perception of the level of preparedness existing in these HCFs, militating factors, and possible ways to improve, were evaluated through qualitative data collection, using focus group discussion and in-depth interview.. Health workforces across all levels of the healthcare system are the main modulators in the effective implementation of disease surveillance system. However, their level of integrated disease surveillance response (IDSR) practice and determinant factors was hardly investigated in Saudi Arabia, epidemiological surveillance of infectious diseases through the mandatory-reporting system is crucial in the planning and evaluation of disease control and prevention program. Aim of the study: To Exploring the knowledge and practices (KP) of health care professionals on of communicable diseases notification in Makah-Al Mukarramah at Saudi Arabia 2022. Methods: A Cross sectional community based study was adopted, was conducted, in September -November 2022, among 200 healthcare workers in the primary healthcare in Makah City, a written questionnaire was developed based on a literature review. The questionnaire tool consists of items that evaluation the knowledge and of practices among health care workers to reporting of communicable diseases Results: most of the participants (32.0%) were in the age group (30-39) years, majority of them males, the marital status most of participants married were (41.0%) Specialty of the health care workers the majority of participant are otolaryngology were (42.0%).Conclusion: The participants were knowledgeable about the risk of communicable diseases outbreaks*

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during MG events (eg, Federation of International Football Association (FIFA) World Cup games 2022) and had a favorable attitude and necessary training to respond to such outbreaks. Regular practice drills are necessary to ensure that all members of the workforce are knowledgeable of the necessary actions to take in emergent high-risk situations.

**Key words:** *Exploring, knowledge, practices (KP) health care professionals, communicable diseases, notification, Makah.*

## **Introduction**

A functioning disease surveillance, notification and reporting system, involves the continuous scrutiny of communicable disease on an individual, local, national and international level.(1) It depends on, but not limited to health care workers which include doctors, nurses, community health extension workers, medical record officers and laboratory technicians both in the public and private sector; to identify, collate, analyses and promptly disseminate data on the occurrence of communicable diseases and health related events of public health significance for public health action.(2)

Clinicians remain indispensable to effective communicable disease reporting because they can suspect and cluster likely diseases based on clinical judgment from symptoms and signs of patients.(3) Also other health care workers are similarly as important, not only in providing support in disease suspicion and laboratory confirmation but also in the collection, collation, analysis, interpretation and timely dissemination of health data. (4,5) . The need for timeliness in reporting and response that requires effective linkages to those with authorized responsibility for disease control imposes additional requirements on health information systems.(6) Delays in every step of reporting epidemic outbreaks and Communicable of public health priority concerns have been linked to poor implementation of the Integrated Disease Surveillance Response Practice (IDSR) system.(7) Many less developed and developing countries have been suffering to implement effective Integrated Disease Surveillance Response Practice systems.(8) Globally there is increasing growth of threat Communicable diseases pose to health security and a significant disaster to the livelihood of people.(9)

The main role of health-care workers (HCWs), as frontline responders in combating and containing the spread of CDs in MG events, depends to a great extent on their knowledge, attitude, and training, especially those working in emergency departments (EDs).(10) Effective preparedness and response in pandemic situations by HCWs requires specialized training and knowledge.(11)

Thus, there is a persistent need for a strategic solution for every public health system, particularly in African and other poor-income settings where infectious and epidemic-liable diseases are national priority diseases.(12) In sub-Saharan Africa, due to the increasing number of diseases disease threats from time to time, effective ways of predicting outbreaks and planning for responses become critically important.(13) Such activities need the functioning system of Integrated Disease Surveillance Response Practice that involves the continuous scrutiny of disease on an individual, local, national, and international level and depends on health professionals practicing in the health-care sector.(14)

This study focuses on both communicable diseases and infection diseases that require long-term care or treatment, excluding mental health use disorders, interventions for communicable diseases health disorders or substance use disorders (15) such conditions disproportionately affect healthcare workers practices. (eg, tuberculosis (TB) rates 20 times higher than general population.(16)

According to the epidemiological assessment infectious diseases through the reporting the evaluation of disease prevention and control programs, in the assurance of appropriate medical therapy, and in the detection of common communicable Disease outbreaks (17). According to the World Health Organization (WHO), the main communicable diseases (CDs) the reportable communicable diseases include Hepatitis A, B & C, influenza, measles, and salmonella and other food borne illnesses.(18) These diseases share four behavioral risk factors: tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol The human, social and economic consequences of communicable diseases are felt by all countries but are particularly devastating in poor and vulnerable populations,(19)

## Literature Review

A study in Saudi Arabia reported that health-care professionals' mean knowledge score about disaster and emergency preparedness was satisfactory (77.5%).<sup>10</sup> However, a cross-sectional study in Yemen reported that only 32.0% had good knowledge, 53.5% had fair, and

14.5% showed poor knowledge about emergency preparedness. The researchers suggested that educational levels may have been a key factor in the knowledge gap.(20)

The reason for low vaccination levels was certainly not due to a lack of information, because in no previous point in history had there been so much discussion about an ongoing pandemic in the media.<sup>98</sup> However, risk communication measures were not effective, especially in regions with high levels of healthcare. Lack of coordinated information via public media created confusion and uncertainty.(21)

Studs in the reported that Qatar is a country that is characterized by its strategic location in the east of the Arabian Peninsula with an estimated total population around 2.8 million. As Qatar will be hosting the 2022 FIFA World Cup games with thousands of people from all around the world expected to attend, the potential risk of communicable diseases outbreaks occurring might be high. Therefore, assessing the preparedness of HCWs for MG events in Qatar is critical for any potential risk of communicable diseases occurring. (22)

A study in Saudi Arabia about the preparedness of ED nurses reported that only 3% had received current training, Similarly study in Southwest Ethiopia . (23,24)

The more important is a source of epidemiological information it helps in early detection of disease outbreaks, so the health authority can plan the preventive measures to control their spread. The best sector in reporting communicable diseases is hospitals; this could be partly due to the awareness of the staff in the hospitals of their responsibility to report communicable diseases. (25)

Study expressed a favorable practices consistent with the study by Nofal et al. (2018), where only 6.3% of the participants indicated no interest in disaster plans. Almost all of our participants (98.1%) as well as 98.4% in the study by Nofal et al. (2018) agreed that hospitals needed to update their communicable diseases. disaster plans regularly, the participants scored high on the importance of preparedness of managerial staff, 99.2% and 93.7%, respectively. These are all reflective of HCWs' favorable practices toward preparedness for responding to communicable diseases, Pandemics arising from mass gathering events.(26)

Healthcare workers (HCWs) face considerable mental and physical stress caring for patients with infectious diseases. They are at higher risk of acquiring and transmitting any virus.(27) and to identify potential associated predictors Millions of pilgrims from various countries come to the city of Makkah Al Mukarramah annually which show greater number of HBV infections.(28) The prevalence among pilgrims was 4.1%, - higher in males (87.5%) and in age group of 40-59 years .(29)

The most prominent defect in the disease data was found to be in the recording of mode of infection, although the mode of infection is very important as it helps in interruption of the disease transmission which is the major step in communicable diseases control, it was recorded only in 13%. The lowest percentage was found to be in polyclinics 1%, followed by private hospitals 8%, governmental hospitals 18% and the highest percentage in PHCCs 40.5%, which is still very low; these defects need more effort to improve.(30)

The next problem was found to be in recording previous vaccination which can help the epidemiologist to find any defects in the vaccine or the immunization technique, but it was recorded only in 29%. The date of symptoms and the date of diagnosis are important for secondary prevention (early diagnosis and prompt treatment) which is a main intervention of disease control.(31)

#### Rationale:

Evaluation the knowledge and of practices among health care workers to reporting of communicable diseases important sector of epidemiological information. It helps in early detection of disease outbreaks, so the health sector can plan the preventive measures to control their spread. This study was conducted evaluation the knowledge and of practices among health care workers the main reasons for under-reporting in Saudi Arabia doctors were accessibility and complexity of the notification form and lack of motivation because of poor feedback, the best sector in reporting communicable diseases is hospitals and primary health sector, this could be partly due to the awareness of the staff in the hospitals and healthcare workers of their responsibility to report communicable diseases. The PHCCs report high result, which is close to the hospital results, possibly because the prevention and control of communicable diseases is one of the elements of primary health care. A survey on 169 doctors in New York suggested that the main reasons for not notifying included the lack of knowledge to report, whether the diseases were modifiable, and reporting procedure too time consuming. The reasons for under-reporting in Spanish doctors included reporting only after confirming diagnosis, reporting procedure too time-consuming, and only reporting severe diseases.

#### Aim of the study:

To Exploring the knowledge and practices (KP) of health care professionals on of communicable diseases notification in Makah-Al Mukarramah at Saudi Arabia 2022

#### Objectives:

To Exploring the knowledge and practices (KP) of health care professionals on of communicable diseases notification in Makah-Al Mukarramah at Saudi Arabia 2022.

### **Methodology:**

#### Study design:

This study is descriptive type of cross-sectional study was conducted among (200) candidates this study included healthcare workers, in Makah Al Mukarramah at Saudi Arabia.

#### Study Area

The study has been carried out in the city of Makah Al-Mokarramah Makah is the holiest spot on Earth. It is the birthplace of the Prophet Mohammad and the principal place of the pilgrims to perform Umrah and Hajj. It is located in the western area in Kingdom of Saudi Arabia and called the Holy Capital. Contains a population around 2 million. This study has been conducted in Makah Saudi Arabia. During the September -November 2022, and it reflects a diversified demographic profile with a considerable portion of the population

comes from rural descent, while others come from an urban one. This difference translates into biological, socioeconomic and lifestyle differences in the Makah population.

#### Study Population

The study has been conducted regarding healthcare workers, in Makah Al Mukarramah. During the September -November 2022 the period of study in 2022

#### Selection criteria:

##### Inclusion criteria

- Healthcare workers in Makah Al Mukarramah.
- All nationalities

##### Exclusion criteria :

No specific exclusion criteria.

#### Sample size

Healthcare workers in Makah Al Mukarramah around , the sample size has been calculated by applying Raosoft sample size calculator based on (The margin of error: 5%, Confidence level: 95%, and the response distribution was considered to be 20%) accordingly the Sample size is (200) after official communication with the health care center in the Makah and adding 10 more to decrease margin of error. After adding 5% oversampling, the minimum calculated sample has been 200. Computer generated simple random sampling technique was used to select the study participants.

#### Sampling technique:

Systematic random sampling technique is adopted. After that, by using random number generator, then simple random sampling technique has been applied to select the health care sector. Also, convenience sampling technique will be utilized to select the participants in the study. By using systematic sampling random as dividing the total students by the required sample size; (200 ).

#### Data collection tool

The self-administered questionnaire is designed based on previous studies and frameworks to evaluation the knowledge and of practices among health care workers to reporting of communicable diseases in Makah . The questionnaire has been developed in English. The questions were first pre-tested and were revised and finalized after it has been pilot tested. Before completing the survey, participants were required to indicate their consent using a forced response question followed by the survey questionnaires. The survey is estimated to take 6 min to complete .

To collect the information, a set of questions were constructed and developed. All questions were closed-ended, with tick boxes provided for responses; participants answered the questionnaires from the September -November 2022 the period of study in 2022.

The questionnaire consisted of questions that

First part General and Socio demographic information. These variables included contact data (email or mobile phone number),(age, gender, Sources of information). Other variables were education level, economic level.

A questionnaire has been developed that had Socio demographic data and questions related to knowledge. The two senior faculty members checked the questionnaire's validity and comprehension, and it was revised according to their suggestions. A pilot study has been conducted on 20 secondary students to check the questionnaire's understanding and responses further, and its Cronbach's alpha was 0.75. The results of the pilot study were not included in the final analysis.

The Knowledge of primary healthcare workers regarding the practices among health care workers reporting of communicable diseases as per each topic/question, and also as per each response/answer . Data entry and analysis were carried out using the Statistical Package for the Social Sciences. Pearson’s Chi-square tests were performed to explore if there is any significant association between the knowledge and awareness level of the high school students and their (i) gender, (ii) age, and (iii) level of education.

Data collection technique:

Researcher has been visits the selected centere after getting the approval from the ministries of health. The researcher has been obtained permission from participants.

After the arrival of the participants has been explained the purpose of the study to all participants attending .

Data entry and analysis:

The Statistical Package for Social Sciences (SPSS) software version 24.0 has been used for data entry and analysis. Descriptive statistics (e.g., number, percentage) and analytic statistics using Chi-Square tests ( $\chi^2$ ) to test for the association and the difference between two categorical variables were applied. A p-value  $\leq 0.05$  has be considered statistically significant.

Pilot study

A pilot study has been conducted in the same sector due to the similarity to the target group using the same questionnaire to test the methodology of the study. As a feedback, the questionnaire has been clear and no defect has been detected in the methodology

Ethical Approval

This study was approved from regional research center in Makah. Each participant gave a verbal consent prior to recruitment and confidentiality was assured for each situation.

Budget: Self-funded

## Results

Table 1 Distribution of characteristics of primary doctors participated in this study(n=200)

|                       | N   | %  |
|-----------------------|-----|----|
| <b>Age</b>            |     |    |
| <20                   | 81  | 27 |
| 30-39                 | 96  | 32 |
| 30-49                 | 72  | 24 |
| >50                   | 51  | 17 |
| <b>Gender</b>         |     |    |
| Male                  | 183 | 61 |
| Female                | 117 | 39 |
| <b>Marital status</b> |     |    |
| Unmarried             | 84  | 28 |
| Married               | 123 | 41 |
| Divorced              | 48  | 16 |

|   |     |    |
|---|-----|----|
| Widowed   | 45  | 15 |
| Specialty of the health care workers                  |     |    |
| General Internal Medicine                             | 93  | 31 |
| Otolaryngology  | 126 | 42 |
| Pediatrics  | 36  | 12 |
| Obstetrics and Gynecology                             | 30  | 10 |
| Urology   | 15  | 5  |
| Years of practice                                     |     |    |
| < 7 years   | 93  | 31 |
| 7–10 years  | 72  | 24 |
| 11–15 years   | 117 | 39 |
| > 15 years  | 18  | 6  |
| Duration of completed years working in the PHC system |     |    |
| < 5   | 111 | 37 |
| 5–10  | 84  | 28 |
| > 10  | 66  | 22 |
| 20 and above  | 39  | 13 |
| Primary health care                                   |     |    |
| Governmental  | 123 | 41 |
| Private   | 84  | 28 |
| Military  | 93  | 31 |
| Years of practice at medical center                   |     |    |
| < 5   | 93  | 31 |
| 5–10  | 66  | 22 |
| > 10  | 141 | 47 |

Table 1 shows that most of the participants (32.0%) were in the age group (30-39) years follow by the age<20 were (27.0%) followed by (30-49) years were (24.0%) but >50 were (17.0%) , the majority of them males was higher compared to female (61.0% and 39.0%) , regarding the marital status most of participants married were (41.0%) while unmarried were(28.0%) but divorced were (15.0%), regarding Specialty of the health care workers the majority of participant are otolaryngology were (42.0%) while General Internal Medicine were(31.0%) while Pediatrics were (12.0%), regarding the duration of completed years working in the PHC system majority of participant <5years were (37.0%) while 5-10 were (28.0%) followed by > 10 were (22.0%) , regarding the Primary health care majority of participant governmental were (41.0%) while military were (31.0%), regarding Years of practice the majority of participant are <10 years were(47.0%) while <5 years were (31.0%) while 5–10 years practitioner were (22.0%)

Table 2: Distribution of Knowledge among health care workers to reporting of communicable diseases in Saudi Arabia

|  | N   | %  |
|--|-----|----|
| Ever diagnosed reportable communicable diseases                                      |     |    |
| No   | 123 | 41 |
| Yes  | 177 | 59 |
| Ever reported reportable communicable diseases (Among those who have ever diagnosed) |     |    |
| No   | 126 | 42 |
| Yes  | 174 | 58 |
| Number of times of reporting   |     |    |
| 1 time   | 84  | 28 |
| 2 times  | 120 | 40 |
| 3 times  | 57  | 19 |
| More than 3 times  | 39  | 13 |
| Methods for reporting  |     |    |
| Fax report sheet to Local Health Department  | 30  | 10 |
| Internet report to Center of Disease Control   | 114 | 38 |
| Both   | 120 | 40 |
| Others   | 36  | 12 |
| Reasons for not reporting (Among non-reporting doctors and healthcare workers)       |     |    |
| Don't want to violate the patient's privacy  | 84  | 28 |
| Reporting procedure is troublesome   | 234 | 78 |
| Not sure whether the diagnosed disease is reportable                                 | 246 | 82 |
| No need to report because patients have been treated                                 | 180 | 60 |
| No need to report because prognosis of the disease is good                           | 93  | 31 |
| No need to report because the disease is not highly contagious                       | 126 | 42 |
| Don't know the reporting procedure   | 183 | 61 |
| Request by patients not to report  | 126 | 42 |
| Thought that other healthcare workers would report                                   | 90  | 30 |
| Others   | 33  | 11 |



Table (2) shows regarding the Ever diagnosed reportable communicable diseases the most of participant in answer Yes were (59.0%) while No were (41.0%). Regarding Ever reported reportable communicable diseases (Among those who have ever diagnosed) the most of participant answer Yes were (58.0%) while No were (42.0%), regarding Number of times of reporting the most of participant answer 2 times were (40.0%) while 1 time were (28.0%) but 3 times were (19.0%) , regarding methods for reporting the most of participant both fax report sheet to Local Health Department and internet report to Center of Disease Control were (40.0%) while internet report to Center of Disease Control were (38.0%), regarding reasons for not reporting (Among non-reporting doctors and healthcare workers) the most of participant not sure whether the diagnosed disease is reportable were (82.0%) followed by reporting procedure is troublesome were (78.0%) while don't know the reporting procedure were (61.0%), followed by no need to report because patients have been treated were (60.0%), but Request by patients not to report were (42.0%) and No need to report because the disease is not highly contagious were (42.0%) .

Table 3: Distribution of Knowledge about the Mortality and Morbidity of communicable diseases among primary healthcare workers in Makkah Cite .

|   | N   | %  |
|---|-----|----|
| Mortality and Morbidity of communicable diseases among primary healthcare workers |     |    |
| Lower Respiratory Infections  | 87  | 29 |
| diarrhoeal Diseases   | 93  | 31 |
| HIV/AIDS  | 84  | 28 |
| Tuberculosis  | 117 | 39 |
| Malaria   | 132 | 44 |
| Measles   | 63  | 21 |
| Neglected Diseases  | 117 | 39 |
| Sexually Transmitted Infections   | 87  | 29 |
| Polio   | 81  | 27 |
| Other Infectious Diseases   | 126 | 42 |
| Emerging Infectious Diseases  | 93  | 31 |

Table (3) shows regarding the Mortality and Morbidity of communicable diseases among primary healthcare workers, regarding the most of participant malaria were ( 44.0%) followed by other Infectious diseases were(42.0%) , regarding neglected diseases were (39.0%) but diarrheal Diseases were (31.0%) while Tuberculosis were (39.0%) also regarding Sexually Transmitted Infections were(27.0%) but Polio were (26.0%) .

Table 4 : Distribution of practices among health care workers to reporting of communicable diseases in Saudi Arabia

|   | Yes |    | No  |    | Chi-square     |         |
|---|-----|----|-----|----|----------------|---------|
|   | N   | %  | N   | %  | X <sup>2</sup> | P-value |
| If you know the disease is reportable and there is an easy and convenient method to report, you are willing to report | 93  | 31 | 207 | 69 | 43.320         | <0.001* |

|  |     |    |     |    |         |         |
|--|-----|----|-----|----|---------|---------|
| Reporting communicable diseases is one of the public health responsibilities of a doctor   | 126 | 42 | 174 | 58 | 7.680   | 0.006*  |
| It would be helpful to the safety of your practice if communicable disease reporting could be comprehensively completed by every doctor. | 81  | 27 | 219 | 73 | 63.480  | <0.001* |
| Reporting communicable diseases has been an important emphasis in your previous medical training   | 117 | 39 | 183 | 61 | 14.520  | <0.001* |
| A patient is less likely to be reported if his or her diagnosis is difficulty to be confirmed.   | 93  | 31 | 207 | 69 | 43.320  | <0.001* |
| Failing to report suspected cases is against the law   | 84  | 28 | 216 | 72 | 58.080  | <0.001* |
| If you are too busy to report, you would ask the nurse in the clinic to assist you in reporting.   | 111 | 37 | 189 | 63 | 20.280  | <0.001* |
| A good reward system will increase your willingness to report  | 99  | 33 | 201 | 67 | 34.680  | <0.001* |
| Most local medical PHCWs respect the importance of reporting communicable diseases   | 234 | 78 | 66  | 22 | 94.080  | <0.001* |
| You are less likely to report if the disease is less severe  | 123 | 41 | 177 | 59 | 9.720   | 0.002*  |
| Penalty for not reporting will increase your willingness to report   | 69  | 23 | 231 | 77 | 87.480  | <0.001* |
| Reporting communicable diseases without the consent of patients will violate their privacy   | 252 | 84 | 48  | 16 | 138.720 | <0.001* |
| You are usually too busy to report communicable diseases.  | 264 | 88 | 36  | 12 | 173.280 | <0.001* |
| Reporting communicable diseases is time consuming and should not be done by hasty PHCWs  | 147 | 49 | 153 | 51 | 0.120   | 0.729   |

Table 4 Regarding distribution of practices among health care workers to reporting of communicable diseases show regarding if you know the disease is reportable and there is an easy and convenient method to report, are you willing to report the majority of participant answer No were (69.0%) followed by answer Yes were (31.0%) while a significant relation were P-value=0.001 and  $X^2$  43.320 , regarding reporting communicable diseases is one of the public health responsibilities of a doctor the majority of participant answer No were (58.0%) followed by answer Yes were (42.0%) while a significant relation were P-value=0.001 and  $X^2$  7.680, regarding It would be helpful to the safety of your practice if communicable disease reporting could be comprehensively completed by every doctor the majority of participant answer No were (73.0%) followed by answer Yes were (27.0%) while a significant relation were P-value=0.001 and  $X^2$  63.480, regarding reporting

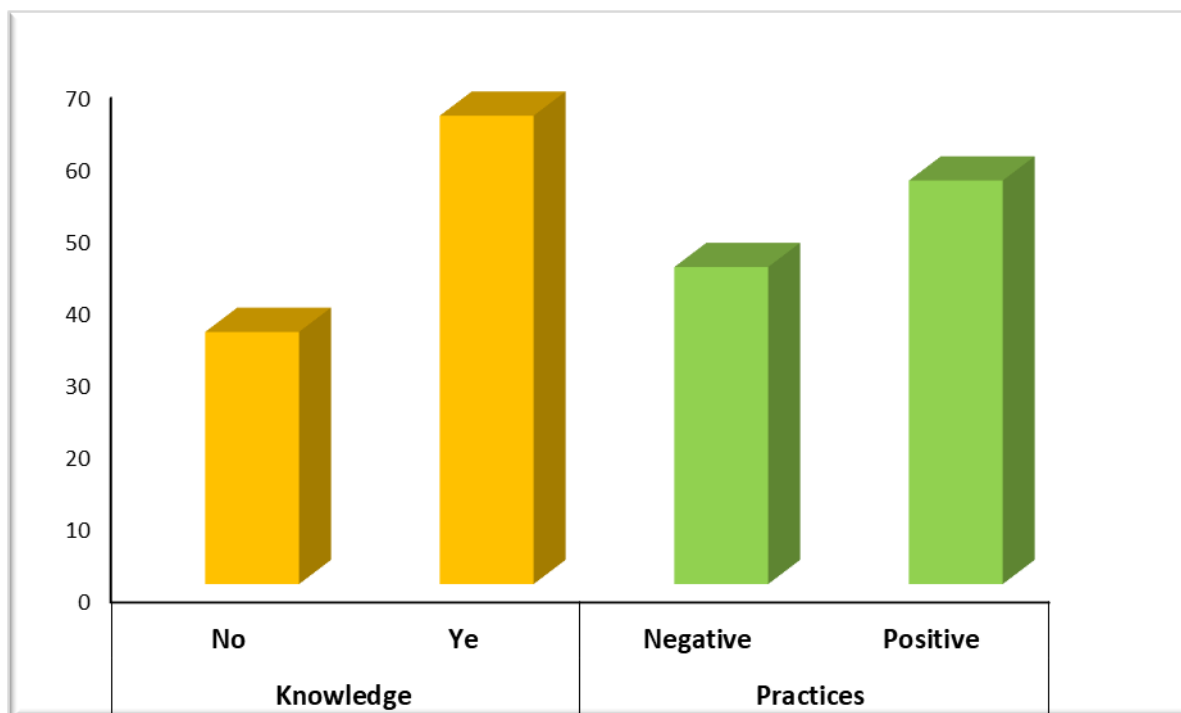
communicable diseases has been an important emphasis in your previous medical training the majority of participant answer No were (61.0%) followed by answer Yes were (39.0%) while a significant relation were P-value=0.001 and  $X^2$  14.520, regarding patient is less likely to be reported if his or her diagnosis is difficulty to be confirmed the majority of participant answer No were (69.0%) followed by answer Yes were (31.0%) while a significant relation were P-value=0.001 and  $X^2$  43.320, regarding Failing to report suspected cases is against the law the majority of participant answer No were (72.0%) followed by answer Yes were (28.0%) while a significant relation were P-value=0.001 and  $X^2$  58.080, regarding If you are too busy to report, you would ask the nurse in the clinic to assist you in reporting the majority of participant answer No were (63.0%) followed by answer Yes were (37.0%) while a significant relation were P-value=0.001 and  $X^2$  20.280, regarding good reward system will increase your willingness to report the majority of participant answer No were (67.0%) followed by answer Yes were (33.0%) while a significant relation were P-value=0.001 and  $X^2$  34.680, regarding most local medical PHCWs respect the importance of reporting communicable diseases the majority of participant answer Yes were (78.0%) followed by answer No were (22.0%) while a significant relation were P-value=0.002 and  $X^2$  94.080, regarding are less likely to report if the disease is less severe the majority of participant answer No were (59.0%) followed by answer Yes were (41.0%) while a significant relation were P-value=0.001 and  $X^2$  9.720, regarding Penalty for not reporting will increase your willingness to report the majority of participant answer No were (77.0%) followed by answer Yes were (23.0%) while a significant relation were P-value=0.001 and  $X^2$  87.480, regarding reporting communicable diseases without the consent of patients will violate their privacy the majority of participant answer Yes were (84.0%) followed by answer No were (16.0%) while a significant relation were P-value=0.001 and  $X^2$  138.720, regarding usually too busy to report communicable diseases the majority of participant answer Yes were (88.0%) followed by answer No were (12.0%) while a significant relation were P-value=0.001 and  $X^2$  173.280, regarding reporting communicable diseases is time consuming and should not be done by hasty PHCWs the majority of participant answer Yes were (88.0%) followed by answer No were (12.0%) while no significant relation were P-value=0.729 and  $X^2$  120.

Table 5 : Distribution of knowledge and practices among health care workers to reporting of communicable diseases in Saudi Arabia .

|                  | N   | %  | $X^2$  | P-value |
|------------------|-----|----|--------|---------|
| <b>Knowledge</b> |     |    |        |         |
| No               | 105 | 35 | 26.403 | <0.001* |
| Ye               | 195 | 65 |        |         |
| <b>Practices</b> |     |    |        |         |
| Negative         | 132 | 44 | 4.083  | 0.0433* |
| Positive         | 168 | 56 |        |         |

Table 5 regarding distribution of knowledge and practices among health care workers to reporting of communicable diseases the most of participant answer Yes were (65.0%) followed by No were (35.0%) while a significant relation were < P-value= 0.001 and  $X^2$  26.403 regarding the practice the majority of participant answer positive were (56.0%) while negative were (44.0%) and a significant relation while P-value= 0.0433 and  $X^2$  4.083 while Range( 1-20 ) and Mean± SD (12.603±4.288).

Figure 1 Distribution of knowledge and practices among health care workers to reporting of communicable diseases in Saudi Arabia



## Discussion

To our knowledge, this is the first study to Evaluation the knowledge and of practices among health care workers to reporting of communicable diseases , the aim of the study is to exploring the knowledge and practices (KP) of health care professionals on of communicable diseases notification in Makah-Al Mukarramah at Saudi Arabia 2022.in our study evaluate the prompt and effective response to communicable diseases outbreaks during MG events requires that frontline HCWs have the correct knowledge, adequate training, and proper attitude about CDs and outbreaks and especially those working in EDs .(20) It is also necessary for EDs to have the necessary preparedness to effectively and promptly respond to such drastic situations. In the present study shows that most of the participants (32.0%) were in the age group (30-39) years, majority of them males was higher compared to female (61.0% and 39.0%) , specialty of the health care workers the majority of participant are otolaryngology were (42.0%) while General Internal Medicine were(31.0%), the duration of completed years working in the PHC system majority of participant <5years were (37.0%), the Primary health care majority of participant governmental were (41.0%), majority of participant are <10 years were(47.0%) .(See table 1)

An essential condition of preparedness to communicable diseases outbreaks is a basic understanding of relevant concepts such as disasters, pandemics, and influenza. The results of this study showed a high percentage of correct knowledge of the concepts of pandemic and disaster, but moderate knowledge about communicable diseases were (65.0%). This is consistent with the study by Berhanu et al. (2016) where the majority of their health-care professional participants (85.1%) were able to correctly describe the concept of communicable diseases .(32) On the other hand, in a study in Yemen about the knowledge and attitude of health-care professionals, 68% had poor to fair knowledge. in our study knowledge and practices among health care workers to reporting of communicable diseases the most of participant answer Yes were (65.0%) followed by No were (35.0%) while a significant relation were < P-value= 0.001 and X<sup>2</sup> 26.403 (See table 2,3,5)

While most of the healthcare workers agreed that reporting communicable diseases has been an important emphasis in their training, this study suggested that the misperception about reporting may be the main reason why some healthcare workers report and the others do not even if they know the diseases are reportable. Higher portions of the non-reporting healthcare workers practices considered that reporting without the consent would violate patients' privacy and were less likely to report unconfirmed cases. (33) Although reporting does not avoid violation of patient's privacy, according to communicable disease control Act, it is the responsibility of the all healthcare workers to report suspected cases to the competent health sector in the locality. Furthermore, a case can be reported even if the diagnosis was only speculative or even if the patient has already been treated. (22)

The misconception may lead to the fact that the non-reporting healthcare workers were less likely to ask nurses in the clinic to assist the reporting even though they considered themselves too busy and the procedure too time-consuming. The non-reporting doctors also seemed to be less interested in receiving feedback of disease epidemic information from the government. It suggested that non-reporting doctors were less likely to be motivated and probably less concerned with public health or disease epidemic issues.(35) in our the practice the majority of participant answer positive were (56.0%) while negative were (44.0%) and a significant relation while P-value= 0.0433 and X<sup>2</sup> 4.083 while Range( 1-20 ) and Mean± SD (12.603±4.288).(See table 4,5)

Given the fact that some infectious diseases awareness about the mortality and morbidity of communicable diseases among primary healthcare workers such as Lower Respiratory Infections

Diarrhoeal disease, HIV/AIDS, tuberculosis , malaria, measles, neglected diseases, sexually transmitted Infections, polio, other infectious diseases, emerging Infectious diseases, considerable proportion of the communicable diseases might not be correctly recognized as reportable by healthcare workers. in our study shows regarding the Mortality and Morbidity of communicable diseases among primary healthcare workers, regarding shows regarding the Mortality and Morbidity of communicable diseases among primary healthcare workers, regarding the most of participant malaria were ( 44.0%) followed by other Infectious diseases were(42.0%) , regarding neglected diseases were (39.0%) but diarrheal Diseases were (31.0%) while Tuberculosis were (39.0%) also regarding Sexually Transmitted Infections were(27.0%) but Polio were (26.0%) .(See table 3)

## Conclusion

The health care workers are faced with multiple challenges including personal limitations across the different which create gaps and therefore prevent effective and uniform communicable disease reporting. So, in order to close these gaps, focus should be on developing strategies that secure political commitments, adequate and equitable funding for the communicable disease reporting process including regular staff remuneration and also, strategies that involve regular training programs. It is also imperative to recruit more skilled HCWs, especially nurses, who will be responsible for conducting regular supportive supervisions for the less-skilled healthcare personnel. This will equally improve the human resources for health mix in the PHC facilities.

## References:

1. Lar, L. A., Afolaranmi, T. O., Tagurum, Y. O., Uzochukwu, B., & Zoakah, A. I. (2015). Challenges of integrated disease surveillance response reporting among healthcare personnel in Mangu, Plateau State, Nigeria. *Journal of Public Health and Epidemiology*, 7(4), 108-113.
2. Subramanian, G. C., Arip, M., & Subramaniam, T. S. (2017). Knowledge and risk perceptions of occupational infections among health-care workers in Malaysia. *Safety and health at work*, 8(3), 246-249.

3. Meckawy, R., Stuckler, D., Mehta, A., Al-Ahdal, T., & Doebbeling, B. N. (2022). Effectiveness of early warning systems in the detection of infectious diseases outbreaks: a systematic review. *BMC public health*, 22(1), 1-62.
4. Marmot, M., & Bell, R. (2019). Social determinants and non-communicable diseases: time for integrated action. *Bmj*, 364.
5. Galoni, C., Carpenter, G. S., & Rao, H. (2020). Disgusted and afraid: Consumer choices under the threat of contagious disease. *Journal of Consumer Research*, 47(3), 373-392.
6. El Khatib, M., Hamidi, S., Al Ameer, I., Al Zaabi, H., & Al Marqab, R. (2022). Digital disruption and big data in healthcare-opportunities and challenges. *ClinicoEconomics and Outcomes Research*, 563-574.
7. Yusuf, A., Oljira, L., Mehadi, A., & Ayele, B. H. (2023). Integrated disease surveillance response practice and associated factors among health professionals working in public hospitals in West Hararghe Zone, Eastern Oromia, Ethiopia: multi-center cross-sectional study. *Journal of Multidisciplinary Healthcare*, 1111-1126.
8. Saleh, F., Kitau, J., Konradsen, F., Mboera, L. E., & Schiøler, K. L. (2021). Assessment of the core and support functions of the integrated disease surveillance and response system in Zanzibar, Tanzania. *BMC Public Health*, 21, 1-12.
9. Andrade, E. L., Cordova, A., Schagen, C. R. V., Jula, M., Rodriguez-Diaz, C. E., Rivera, M. I., & Santos-Burgoa, C. (2022). The impact of Hurricane Maria on individuals living with non-communicable disease in Puerto Rico: the experience of 10 communities. *BMC public health*, 22(1), 2083.
10. Díaz-Agea, J. L., Orcajada-Muñoz, I., Leal-Costa, C., Adánez-Martínez, M. G., De Souza Oliveira, A. C., & Rojo-Rojo, A. (2022, February). How did the pandemic affect communication in clinical settings? A qualitative study with critical and emergency care nurses. In *Healthcare* (Vol. 10, No. 2, p. 373). MDPI.
11. Liu, Q., Luo, D., Haase, J. E., Guo, Q., Wang, X. Q., Liu, S., ... & Yang, B. X. (2020). The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. *The Lancet Global Health*, 8(6), e790-e798.
12. Fritz, M., & Fromell, H. (2022). How to dampen the surge of non-communicable diseases in Southeast Asia: insights from a systematic review and meta-analysis. *Health policy and planning*, 37(1), 152-167.
13. Brown, M. E., Mugo, S., Petersen, S., & Klauser, D. (2022). Designing a pest and disease outbreak warning system for farmers, agronomists and agricultural input distributors in East Africa. *Insects*, 13(3), 232.
14. Gould, D., Hawker, C., Chudleigh, J., Drey, N., Gallagher, R., & Pursell, E. (2021). Survey with content analysis to explore nurses' satisfaction with opportunities to undertake continuing professional education in relation to aseptic technique. *Nurse Education Today*, 98, 104749.
15. Zaçe, D., Hoxhaj, I., Orfino, A., Viteritti, A. M., Janiri, L., & Di Pietro, M. L. (2021). Interventions to address mental health issues in healthcare workers during infectious disease outbreaks: a systematic review. *Journal of psychiatric research*, 136, 319-333.
16. Hochstatter, K. R., Akhtar, W. Z., Dietz, S., Pe-Romashko, K., Gustafson, D. H., Shah, D. V., ... & Westergaard, R. P. (2021). Potential influences of the COVID-19 pandemic on drug use and HIV care among people living with HIV and substance use disorders: experience from a pilot mHealth intervention. *AIDS and Behavior*, 25(2), 354-359.
17. Morojele, N. K., Shenoi, S. V., Shuper, P. A., Braithwaite, R. S., & Rehm, J. (2021). Alcohol use and the risk of communicable diseases. *Nutrients*, 13(10), 3317.
18. Luna, F., & Luyckx, V. A. (2020). Why have non-communicable diseases been left behind?. *Asian Bioethics Review*, 12(1), 5-25.
19. McNamara, K. F., Biondi, B. E., Hernández-Ramírez, R. U., Taweh, N., Grimshaw, A. A., & Springer, S. A. (2021, August). A systematic review and meta-analysis of studies evaluating the effect of medication treatment for opioid use disorder on infectious disease outcomes. In *Open forum infectious diseases* (Vol. 8, No. 8, p. ofab289). US: Oxford University Press.
20. Naser, W. N., & Saleem, H. B. (2018). Emergency and disaster management training; knowledge and attitude of Yemeni health professionals-a cross-sectional study. *BMC emergency medicine*, 18(1), 1-12.
21. World Health Organization. (2021). Report of the joint United Nations high-level mission on non-communicable diseases and tuberculosis, Nigeria, 24-28 February 2020.
22. Coyle, P. V., Chemaitelly, H., Kacem, M. A. B. H., Al Molawi, N. H. A., El Kahlout, R. A., Gilliani, I., ... & Abu-Raddad, L. J. (2021). SARS-CoV-2 seroprevalence in the urban

- population of Qatar: An analysis of antibody testing on a sample of 112,941 individuals. *IScience*, 24(6).
23. Brinjee, D., Al Thobaity, A., Almalki, M., & Aalahmari, W. (2021). Identify the disaster nursing training and education needs for nurses in Taif City, Saudi Arabia. *Risk Management and Healthcare Policy*, 2301-2310.
  24. Tsegaye, D., Shuremu, M., Oljira, D., Dubale, S., Befekadu, G., & Bidira, K. (2021). COVID-19 related knowledge and preventive practices early in the outbreak among health care workers in selected public health facilities of Illu aba Bor and Buno Bedelle zones, Southwest Ethiopia. *BMC Infectious Diseases*, 21(1), 1-11.
  25. Mao, K., Zhang, K., Du, W., Ali, W., Feng, X., & Zhang, H. (2020). The potential of wastewater-based epidemiology as surveillance and early warning of infectious disease outbreaks. *Current Opinion in Environmental Science & Health*, 17, 1-7.
  26. Nofal, A., Alfayyad, I., Khan, A., Al Aseri, Z., & Abu-Shaheen, A. (2018). Knowledge, attitudes, and practices of emergency department staff towards disaster and emergency preparedness at tertiary health care hospital in central Saudi Arabia. *Saudi medical journal*, 39(11), 1123.
  27. Busola, A., Odugbemi Babatunde, A., Kuyinu Yetunde, A., Wright Ololade, K., Bakare Omowunmi, Q., Adeyinka, A., ... & Odusanya Olumuyiwa, O. Healthcare Workers' Perception of Government's Response to the Covid-19 Outbreak in Lagos, South-west, Nigeria.
  28. Alsubhi, A. E., Alzahrani, N. E. A., Almajnooni, N. M., Almajnooni, F. M., Zamzami, R. A., Alzahrani, A. H., ... & Al, K. S. S. Assessment the knowledge among male primary intermediate and secondary School teachers about Hepatitis B at Makkah Al Mukarramah in Saudi Arabia 2021
  29. Hossain, M. M., Tasnim, S., Sharma, R., Sultana, A., Shaik, A. F., Faizah, F., ... & Bhattacharya, S. (2019). Digital interventions for people living with non-communicable diseases in India: A systematic review of intervention studies and recommendations for future research and development. *Digital health*, 5, 2055207619896153.
  30. Chew, Q. H., Wei, K. C., Vasoo, S., Chua, H. C., & Sim, K. (2020). Narrative synthesis of psychological and coping responses towards emerging infectious disease outbreaks in the general population: practical considerations for the COVID-19 pandemic. *Singapore medical journal*, 61(7), 350.
  31. Wei, F., Gaisa, M. M., D'Souza, G., Xia, N., Giuliano, A. R., Hawes, S. E., ... & Clifford, G. M. (2021). Epidemiology of anal human papillomavirus infection and high-grade squamous intraepithelial lesions in 29 900 men according to HIV status, sexuality, and age: a collaborative pooled analysis of 64 studies. *The Lancet HIV*, 8(9), e531-e543.
  32. Berhanu, N., Abrha, H., Ejigu, Y., & Woldemichael, K. (2016). Knowledge, experiences and training needs of health professionals about disaster preparedness and response in southwest Ethiopia: a cross sectional study. *Ethiopian journal of health sciences*, 26(5), 415-426.
  33. Voidazan, S., Albu, S., Toth, R., Grigorescu, B., Rachita, A., & Moldovan, I. (2020). Healthcare associated infections—a new pathology in medical practice?. *International journal of environmental research and public health*, 17(3), 760.
  34. Rijnders, B. J., Schauwvlieghe, A. F., & Wauters, J. (2020). Influenza-associated pulmonary aspergillosis: a local or global lethal combination?. *Clinical Infectious Diseases*.
  35. Ying, M., Lu, B., Pan, J., Lu, G., Zhou, S., Wang, D., ... & Shu, J. (2020). COVID-19 with acute cholecystitis: a case report. *BMC infectious diseases*, 20(1)