

Assessment the Knowledge of primary healthcare workers practices, knowledge, diagnosed and attitude to reporting of communicable diseases at Makkah Al Mukarramah in Saudi Arabia 2022

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Abstract

Background:

In Saudi Arabia, the prevalence of communicable illnesses is increasing, and requests for the treatment of a few of these diseases to be integrated into basic healthcare (PHC) have not abated. Clinical healthcare workers (HCWs) in PHC facilities in low-resource settings may provide cost-effective treatments for the prevention and control of communicable illnesses. Saudi Arabia is one of the world's biggest and most ethnically and culturally diverse mass gatherings. In order to prepare and respond to risks from infectious diseases effectively, timely information management is ensured via the deployment of suitable surveillance systems. Identify, describe, and evaluate clinical trials of healthcare professionals' treatments for the management of both communicable and non-communicable illnesses that call for long-term care or treatment. **Aim of the study:** To evaluate the behaviors, knowledge, diagnosis, and reporting attitudes of primary healthcare providers in Makkah Al Mukarramah, Saudi Arabia, in 2022 **Methods:** A Cross sectional community-based study was adopted, was conducted, in October -November 2022, among 200 healthcare workers in the primary healthcare in Makkah City, a written questionnaire was developed based on a literature review. The questionnaire tool consists of items that assess knowledge in primary healthcare workers practices, diagnosed and attitude to reporting of communicable diseases **Results:** reveals that the majority of participants (37.0%) were in the 30–49 age range, the majority of them were men (59.0%), and the majority of participants were married (59.0%). Specialty of the health care workers the majority of participant are registered nurse/public health nurse were(33.0%) while medical doctor practitioner were(29.0%).**Conclusion:** The implementation of warning systems is necessary for the control of infectious diseases. This is the first systematic review that specifically focuses on communicable diseases that require long-term care or treatment management for primary health care workers. International engagement is important to improve infectious diseases surveillance

and to prevent disease transmission and the globalization of infectious agents, which could undermine global health security.

Keywords: Assessment, knowledge, PHCWs, diagnosed, attitude, School, reporting, communicable, diseases, Makkah.

Introduction

In high-income nations, the incidence of communicable illnesses is rising. [1] Infection, presence, and proliferation of pathogenic (disease-causing) biologic organisms in a specific human or other animal host are the causes of communicable diseases, commonly referred to as infectious diseases or transmissible diseases. a person to another, an animal to a human, a surface or food to a person, etc. [2] . Direct touch with a sick individual is one way that diseases may be spread while flying. respiratory droplets from a sick person's coughing or sneezing transmit the disease. [3] A higher rate of morbidity and death is linked to the presence of communicable illnesses. Compared to the general population, social isolation, socioeconomic deprivation,[4] hardship throughout life, and environmental and behavioral risk factors characteristic of communicable illnesses all contribute to an elevated occurrence of a variety of health issues. [5] With the exception of mental health use disorders, treatments for communicable illnesses health disorders, and drug use disorders, this research focuses on infectious diseases and communicable diseases that need long-term care or treatment. [6] The practices of healthcare personnel are particularly impacted by such situations. (For instance, TB rates are 20 times greater than those of the general population. [7]

The reporting of disease prevention and control program evaluations, the assurance of adequate medical care, and the identification of frequent communicable disease outbreaks are all ways that infectious illnesses are reported and evaluated, according to epidemiological assessments [8]. The principal reportable communicable diseases (CDs) include Hepatitis A, B, and C, influenza, measles, salmonella, and other food-borne infections, according to the World Health Organization (WHO). [9] There are four behavioral risk factors for these illnesses: poor eating, inactivity, usage of cigarette products, and alcohol misuse All nations are affected by the human, social, and economic costs of communicable illnesses, but impoverished and vulnerable communities suffer the most. [10] direct contact with a sick person respiratory droplet spread from a sick person coughing or sneezing contact with blood or other body fluids inhaling airborne viruses or bacteria contact with a contaminated surface or object contact with insects or

animals that can bite and spread the disease consumption of contaminated food or water [11] Doctors and other primary healthcare providers must report instances of modifiable illnesses to regional or national responsible authorities in accordance with Saudi Arabia's Communicable Disease Control Act, either in whole or in part. According to research from Saudi Arabia [12], Australia [13], and the UK [10], almost half of primary care physicians and other healthcare professionals were well-informed on the law governing infectious diseases and their responsibility to report. [14]

Lack of knowledge of the reporting requirements was the most common reason for doctors not complying with reporting requirements [15]. This was followed by a negative attitude toward reporting, misconceptions that may result from a lack of knowledge of the reporting system, and insufficient reward for reporting or penalty for not reporting. The accessibility and complexity of the notification form, as well as a lack of motivation caused by inadequate feedback, were the primary contributors to the low reporting rate among Saudi Arabian medical professionals [16].

Literature Review

The more reliable a source of epidemiological information is, the more significant it is. It assists in the early discovery of disease outbreaks, which enables the health authority to prepare the preventative actions necessary to stop the spread of the illness. Hospitals are the most effective sector in terms of reporting infectious illnesses. This may be partially attributable to the fact that hospital workers are aware of the obligation it is for them to report communicable diseases. [17] It is very unlikely that a lack of knowledge was the cause of poor vaccination rates, given that there has never been a time in history when there has been as much coverage in the media on a pandemic that is still active. 98 However, risk communication techniques were not seem to be successful, even in places with advanced medical infrastructure. Confusion and ambiguity arose as a result of a lack of coordinated information provided by public media. [18]

Countries with high incomes have a responsibility to assist nations with substandard healthcare infrastructures. This includes preventing the importation of measles from nations with low rates of population coverage as well as from high-risk groups that refuse to get vaccinated due to their religious beliefs or for other reasons. [19],

It is possible that one of the reasons why primary health care focuses on the prevention and control of communicable illnesses as one of its components, the PHCCs report an infection rate of 83%, which is close to that of hospitals. In contrast to a prior research that evaluated a

reporting system in the United States and found that only sixty percent of hospitals participated in the reporting, this study found that more than eighty percent of hospitals did participate. [20] According to Sims et al. (2020), which was conducted in New South Wales, the PHCCs reported 20% of the instances; however, in the current research, the forms with positive cases out of all positive forms were completed by PHCCs at a rate of 18%. Around ninety percent of all of the sectors made reference to the administrative data. [21]

When caring for patients who have infectious illnesses, healthcare workers (HCWs) are subjected to a significant amount of emotional and physical strain. They have an increased likelihood of contracting and passing on any virus that may be present. [22] as well as to locate possible factors that might be related predictors. Annually, millions of pilgrims from a wide variety of nations make their way to the city of Makkah Al Mukarramah, which has been linked to a higher incidence of HBV infections. [23] The frequency was 4.1% among the pilgrims, and it was highest in men (87.5%), as well as in those aged 40 to 59 years old. [20]

Although the mechanism of infection is highly essential as it aids in stoppage of the disease transmission, which is the primary step in the control of communicable illnesses, it was only documented in 13% of the cases in the disease data. This was determined to be the most prevalent fault in the disease data. The percentage of defects found in polyclinics was found to be the lowest at 1%, followed by private hospitals at 8% and governmental hospitals at 18%. The percentage of defects found in PHCCs was found to be the highest at 40.5%, which is still a very low number; these defects require more effort to improve. [24]

The second issue was that only 29% of people documented any prior vaccinations, which may have helped epidemiologists identify any flaws in the vaccine or immunization process. When it comes to secondary prevention (early diagnosis and rapid treatment), which is a key component of illness control, the dates of the onset of symptoms and the diagnosis are crucial. [25]

Rationale:

An important area of epidemiological information is knowledge, diagnosis, and reporting behavior of communicable illnesses. In order for the health sector to organize the preventative actions to stop their spread, it aids in the early identification of illness outbreaks. This research was carried out in Makkah Al Mukarramah, Saudi Arabia, to evaluate primary healthcare providers' behaviors, knowledge, diagnoses, and attitudes about reporting communicable infections. Hospitals and primary healthcare are the best sectors for reporting communicable

illnesses; this may be in part because hospital personnel and healthcare professionals are aware of their need to do so. The fact that primary health care includes the prevention and management of communicable illnesses may explain why the PHCCs report high outcomes that are comparable to hospital findings.

Aim of the study:

To evaluate the behaviors, knowledge, and attitudes of primary healthcare professionals regarding the reporting of communicable illnesses in Makkah Al Mukarramah, Saudi Arabia, in the year 2022.

Objectives:

To evaluate the primary healthcare professionals' behaviors, levels of knowledge and diagnosed conditions, as well as their attitudes toward the reporting of communicable illnesses in Makkah Al Mukarramah in Saudi Arabia in 2022.

Methodology:**Study design:**

This research is a descriptive kind of cross-sectional study that was performed among 200 applicants. This study comprised healthcare professionals, and it was carried out at primary healthcare centers (PHC) in Makkah Al Mukarramah.

Study Area

The city of Makkah Al-Mokarramah served as the location for the research that was conducted. The holiest place on Earth is located in Makkah. It is the primary location for travelers to undertake the religious rites of Umrah and Hajj since it is the birthplace of the Prophet Muhammad. It is referred to as the Holy Capital and is situated in the western region of the Kingdom of Saudi Arabia. Approximately 2 million people call this place home. This research was carried out at the main health care clinics located in Makkah, which are located in Makkah, Saudi Arabia. During the months of October and November in 2022, and it displays a diverse demographic profile, with a sizeable section of the population having rural ancestry and others having urban ancestry. The population of Makkah exhibits distinctions in terms of their biology, social status, and way of life as a direct result of this distinction.

Study Population

In Makkah Al Mukarramah's primary healthcare centers (PHC), a research on healthcare professionals was undertaken. During the research period in 2022, which runs from October to November

Selection criteria:**Inclusion criteria**

- Healthcare workers in primary healthcare centers (PHC) in Makkah Al Mukarramah.
- All nationalities

Exclusion criteria :

No particular exclusion standards.

Sample size

Workers at primary healthcare centers (PHC) in and around Makkah Al Mukarramah who provide medical services.

The sample size was determined by using the Raosoft sample size calculator, with the following parameters taken into consideration: (the margin of error was set at 5%, the confidence level was set at 95%, and the response distribution was assumed to be 20%) In light of this, the sample size in primary healthcare centers (PHC) has been determined to be two hundred (200), and this number was arrived at following an official communication with the primary healthcare center in Makkah, to which an additional ten people were added in order to reduce the margin of error. Following the addition of an oversampling factor of 5%, the smallest sample size that could be determined was 200. The participants in the research were selected using a method of simple random selection that was created by a computer.

Sampling technique:

The method of systematic random sampling is used in this study. Following then, a random number generator was used, and after that, a method called simple random sampling was used in order to choose the PHC. In addition to this, the sampling of participants for the research will be done using the method of convenience sampling. By using methods such as systematic sampling and randomization, such as dividing the total number of students by the number of samples needed; (200).

Data collection tool

The questionnaire is meant to be self-administered and is based on past research and frameworks to evaluate awareness about communicable illnesses in Makkah, as well as attitudes toward reporting of such disorders. English is the language used in the development of the questionnaire. After undergoing preliminary testing, the questions were later changed and then finally approved for use in the pilot test. Following the completion of the survey questions, participants were given a forced answer question that required them to declare their agreement before moving on to the rest of the survey. It is anticipated that completing the survey will take 6 minutes.

It was decided to create and develop a series of questions in order to gather the information. All of the questions were of a closed-ended nature, and participants were given checkboxes to indicate their choices. The questionnaires were sent to the participants between October and November in the year 2022.

The questions in the questionnaire included the following:

First part information that is general and socio-demographic. Contact information (email or cell phone number) was among these characteristics (age, gender, Sources of information). Other factors were economic status and educational attainment.

A questionnaire including sociodemographic information and knowledge-related questions has been constructed. The validity and intelligibility of the questionnaire were reviewed by the two senior faculty members, and it was amended in accordance with their recommendations. Twenty secondary students were used in a pilot research to test the questionnaire's comprehension and replies; the Cronbach's alpha for this study was 0.75. The final analysis did not incorporate the pilot study's findings.

The knowledge of primary healthcare workers about the diagnosis and management of communicable illnesses according to each subject or inquiry, as well as the knowledge of primary healthcare workers regarding each response or answer. Utilizing the Statistical Package for the Social Sciences, both the data input and analytic processes were carried out. The Pearson's Chi-square tests were carried out in order to investigate whether or not there is a statistically significant correlation between the students' levels of knowledge and awareness and their (i) gender, (ii) age, and (iii) degree of education. These variables were included in the study.

Data collection technique:

After receiving permission from the relevant ministries of health, the researcher has started visiting the primary healthcare centers that were chosen. The researcher has the participants' approval to go forward with the study.

After everyone had arrived for the study, the researchers went through the objectives of the study with each and every participant that was there.

Data entry and analysis:

For both the input and analysis of data, the software known as the Statistical Package for the Social Sciences (SPSS) version 24.0 was used. We used both descriptive statistics (such as number and percentage) and analytical statistics, namely Chi-Square tests (χ^2), to test for the connection and the difference between two categorical variables. A p-value ≤ 0.05 is required in order to be regarded as statistically significant.

Pilot study

Due to the similarities between the pilot group and the target population, a pilot research was carried out in the same industry using the same questionnaire in order to evaluate the methods for the main study. According to the responses, the questionnaire was easy to understand, and there were no problems found with the technique.

Ethical Approval

The regional research center in Makkah gave its clearance to proceed with this project. Before they were recruited, all of the participants provided their verbal agreement, and confidentiality was maintained in every circumstance.

Budget: Self-funded**Results**

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

	N	%
Age		
<20	69	23
30-39	66	22
30-49	111	37
>50	54	18
Gender		

Male	177	59
Female	123	41
Marital status		
Unmarried	69	23
Married	177	59
Divorced	30	10
Widowed	24	8
Specialty of the health care workers		
Medical doctor	87	29
Registered nurse/public health nurse	99	33
Community Health Officer (CHO)	36	12
Senior healthcare workers	48	16
Community Health Extension Worker (CHEW)	30	10
Years of practice		
< 7 years	87	29
7–10 years	87	29
11–15 years	99	33
> 15 years	27	9
Duration of completed years working in the PHC system		
< 5	96	32
5–10	114	38
> 10	57	19
20 and above	33	11
Primary health care		
Governmental	117	39
Private	63	21
Military	120	40

The majority of participants (37.0%) were in the 30–49 age range, followed by those under 20 (23.0%), according to Table 1. the majority of them males was higher compared to female(59.0% and 41.0%) , In terms of marital status, the majority of participants (59.0%) were married, while just 23.0% were not. regarding Specialty of the health care workers the majority of participant are registered nurse/public health nurse were(33.0%) while medical doctor practitioner were(29.0%), regarding Years of practice the majority of participant are 11–15 years were(33.0%) while <7years and7–10 years practitioner were(29.0%), With respect to the total number of years spent working in the PHC system that have been finished, majority of

participant 5–10 were (38.0%) while <5 were (32.0%), regarding the Primary health care majority of participant Military were (40.0%) while governmental were (39.0%).

Table 2: Knowledge of primary healthcare professionals in Saudi Arabia about the identification and prevention of communicable illnesses

	N	%
A history of reported communicable illnesses		
No	108	36
Yes	192	64
Previously recognized communicable illnesses (Among those who have ever diagnosed)		
No	93	31
Yes	207	69
The frequency of reporting		
1 time	93	31
2 times	126	42
3 times	45	15
More than 3 times	36	12
Reporting techniques		
Send a report sheet by fax to the local health department	24	8
Center for Disease Control internet report	96	32
Both	165	55
Others	15	5
factors that prevent reporting (Among non-reporting doctors and healthcare workers)		
Not wanting to intrude on the patient's privacy	96	32
The reporting process is difficult.	225	75
Not sure whether the identified illness has to be reported	201	67
No need to report since patients have already received care.	192	64
Because the prognosis for the sickness is favorable, there is no need to report.	108	36
Due to the disease's low contagiousness, there is no need to disclose anything.	102	34
unaware of the reporting process	177	59
Patients' request to not report	147	49
believed that other medical professionals would report	96	32
Others	36	12

Table (2) shows regarding the Ever diagnosed reportable communicable diseases the most of participant in answer Yes were (64.0%) while No were (36.0%). When asked whether they had ever reported any communicable illnesses (among those who had ever been diagnosed), the majority of participants said "yes" (69.0%), while the least number said "no" (31.0%), While regarding Number of times of reporting the most of participant answer 2 times were (42.0%) while 1 time were (31.0%), regarding Methods for reporting the most of participant. In terms of reasons for not reporting (among non-reporting doctors and healthcare workers), the majority of participant Reporting procedure is troublesome were (75.0%). Both fax report sheet to Local Health Department and internet report to Center of Disease Control were (55.0%) while internet report to Center of Disease Control were (32.0%). While 67.0% of respondents were unsure of whether the identified illness should be reported, followed by 64.0% of respondents who said there was no need to do so since the patient had received treatment, and 14.0% of respondents who said they were unaware of the reporting process.

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	75	25
Diarrhoeal Diseases	90	30
HIV/AIDS	99	33
Tuberculosis	81	27
Malaria	135	45
Measles	78	26
Neglected Diseases	102	34
Sexually Transmitted Infections	66	22
Polio	69	23
Other Infectious Diseases	111	37
Emerging Infectious Diseases	117	39

Table (3) shows regarding the Mortality and Morbidity of communicable diseases among primary healthcare workers, regarding the most of participant malaria were(45.0%) while regarding Emerging Infectious Diseases were (39.0%) followed by Other Infectious Diseases were(37.0%) but Neglected Diseases were (34.0%) while HIV/AIDS were (33.0%) also regarding diarrhoeal Diseases while Tuberculosis were(27.0%) but Measles were (26.0%)

Table 4 Distribution of relation of attitude primary healthcare workers to the use of communicable disease reporting system in Saudi Arabia.

	Yes		No		Chi-square	
	N	%	N	%	X ²	P-value
You are willing to report a sickness if you are aware that it may be reported and there is a simple and practical way to do so.	87	29	213	71	52.920	<0.001*
One of a doctor's duties in terms of public health is to report communicable infections.	99	33	201	67	34.680	<0.001*
If all doctors could complete the communicable illness reporting form completely, it would assist ensure the security of your practice.	90	30	210	70	48.000	<0.001*
Your prior medical training placed a lot of focus on reporting communicable illnesses.	108	36	192	64	23.520	<0.001*
If a patient's diagnosis is difficult to confirm, there is a lower likelihood that they will be reported.	87	29	213	71	52.920	<0.001*
It is illegal to keep a suspected instance from being reported.	66	22	234	78	94.080	<0.001*
You would ask the clinic nurse to help you report if you were too busy to do so.	90	30	210	70	48.000	<0.001*
Your willingness to report will rise with a good rewards system.	96	32	204	68	38.880	<0.001*
The majority of PHCWs in local medicine recognize the significance of reporting communicable infections.	216	72	84	28	58.080	<0.001*
If the sickness is not as severe, you are less likely to disclose it.	117	39	183	61	14.520	<0.001*
If there are consequences for not reporting, you'll be more likely to do so.	60	20	240	80	108.000	<0.001*
Patients' privacy will be violated if communicable illnesses are reported without their permission.	246	82	54	18	122.880	<0.001*
Usually, your schedule prevents you from reporting communicable infections.	216	72	84	28	58.080	<0.001*
It takes time to report communicable infections, hence PHCWs should not rush this process.	135	45	165	55	3.000	0.083

Table 4 shows how attitudes of primary healthcare professionals relate to the utilization of a system for reporting communicable diseases. This table asks respondents if they are aware that the illness in question is reportable and whether they believe there is an easy and simple way to report it. You are prepared to provide a report, correct? One of a doctor's obligations with regard

to public health is to report instances of communicable illnesses. If all of the doctors in your practice were able to provide accurate reports on infectious diseases, it would be beneficial to the overall safety of your practice. During your prior medical training, you likely placed a significant focus on the reporting of communicable infections. When a patient's diagnosis is difficult to confirm, there is a decreased likelihood that the patient will be reported. It is a violation of the law to withhold information on suspected instances. You might ask the nurse working at the clinic to help you in reporting if you find that you are too busy to do it on your own. Your willingness to report will rise as a direct result of an effective incentive system, show respectively a significant relation in all items were $P\text{-value}=0.001$ and respectively $X^2=(52.920, 34.680, 48.000, 23.520, 52.920, 94.080, 48.000, 38.880)$ increase in answer No were respectively (71.0%, 67.0%, 70.0%, 64.0%, 71.0%, 78.0%, 70.0%, 68.0%) also regarding the You are less likely to report if the disease is less severe a significant relation were $P\text{-value}=0.001$ and respectively $X^2=14.520\%$ increase in answer No were 61.0% also regarding Your propensity to report will grow as a result of the penalty for failing to do so, there was a substantial association of $P\text{-value}=0.001$ and respectively $X^2=108.000\%$ increase in answer No were 80.0% , regarding the reporting communicable illness is time consuming and should not be conducted by hasty PHCWs were no significant relation $P\text{-value}=0.083$ and respectively $X^2=3.000\%$ increase in answer No were 55.0% .

Regarding the majority of local medical PHCWs recognize the benefit of reporting communicable illnesses, reporting such diseases without patients' agreement would breach their privacy, and you are typically too busy to report such diseases were respectively a significant relation were $P\text{-value}=0.001$ and respectively $X^2=58.080\%$, 122.880 % , 58.080% increase in answer Yes were 72.0%, 82.0%, 72.0%.

Discussion

To our knowledge, this is the first research to evaluate the behaviors of primary healthcare professionals, as well as their understanding of communicable illness diagnosis and reporting attitudes, in Saudi Arabia. The project's objective is to evaluate these practices in Makkah Al Mukarramah in 2022. In the current study, it was found that the majority of participants (37%) were in the 30–49 age range, that the majority of the participants (59%) were married, that the majority of participants (33%) were registered nurses or public health nurses, and that the majority of participants (29%) were medical doctor practitioners. (see table 1)

According to Wang, et al. (2020), this study's response rate was noticeably greater than those of previous research. By delivering questionnaires to clinics that were chosen at random, selection bias was minimized. Non-responders may not have the same views on infectious disease monitoring as the respondents, or they may just be too busy or overworked to respond[26]. Even though many clinics may be administered by healthcare professionals in the majority of situations, only one doctor was seeing patients at a given moment in the clinics during our visit, even if there were other physicians volunteering to treat patients. [27]

According to Parmar et al. (2021) this lessened the possibly significant bias. Similar to those found in other studies, the most frequent excuses given for not reporting in this study include: (1) not wanting to invade the patients' privacy; (2) the reporting procedure is troublesome; (3) not knowing whether the disease is reportable; and (4) the patients have already received treatment [28].

Lack of information regarding the components of notification and how or to whom to notify was listed by Jones, et al. (2018) as one of the additional reasons why physicians failed to report [29]. Doctors' assumptions that someone else will report, their concerns about the effort involved in reporting, their lack of compensation for doing so, the fact that notifications are not followed up on, the difficulty and complexity of the notification forms, their lack of motivation as a result of receiving subpar feedback, and their belief that reporting these diseases is a pointless endeavor have all been linked to low compliance [22].

Regarding whether or not they had ever been diagnosed with a reportable communicable illness, our research indicated that the majority of participants (64.0%) gave the affirmative response. Ever reported reportable communicable diseases (Among those who have ever diagnosed) the majority of participants answered yes (69.0%), and when asked about the number of times they reported, the majority of participants answered twice (42.0%). When asked about the methods for reporting, the majority of participants answered both faxing a report sheet to the local health department and reporting online to the Center for Disease Control (55.0%). Finally, when asked about the reasons for not reporting (Among non-reporting doctors and healthcare workers), the majority of participants The reporting technique is cumbersome, as indicated by 75.0% of the respondents. (See table 2)

This study suggested that the misperception about reporting may be the primary reason why some healthcare workers report while others do not even if they are aware that the diseases are

reportable. While the majority of healthcare workers agreed that reporting communicable diseases has been an important focus in their training, the majority of healthcare workers also agreed that reporting communicable diseases has been an important emphasis in their training. Higher proportions of the healthcare worker practices that did not report believed that reporting without the agreement of patients would breach patients' privacy and were hence less inclined to disclose unconfirmed incidents. [30] According to the Communicable Disease Control Act, it is the duty of all healthcare personnel to report suspicious instances to the competent health sector in the region. This obligation exists despite the fact that reporting does not prevent a breach of a patient's right to privacy. In addition, it is possible to submit a case even if the diagnosis was merely tentative or if the patient has previously been treated for the condition in question. [31]

The misconceptions may have contributed to the fact that the healthcare workers who did not report the incident were less likely to ask the nurses working in the clinic for assistance with the reporting process, despite the fact that they perceived themselves to be too busy and the procedure to be too time-consuming. The physicians who did not report cases also seemed to have less of an interest in obtaining feedback from the government on information regarding illness epidemics. It found that non-reporting physicians had a lower likelihood of being motivated and were presumably less concerned with concerns relating to public health or disease epidemics. [32]

Given the fact that some infectious diseases awareness about the mortality and morbidity of communicable diseases among primary healthcare workers such as tuberculosis, Lower Respiratory Infections, sexually transmitted Infections Diarrhoeal disease, HIV/AIDS, malaria, measles, neglected diseases, polio, other infectious diseases, emerging Infectious diseases, There is a substantial risk that healthcare professionals may miss the diagnosis of a substantial number of the communicable illnesses in their patients. in our study shows regarding the Mortality and Morbidity of communicable diseases among primary healthcare workers, regarding the most of participant malaria were(45.0%) while regarding Emerging Infectious Diseases were (39.0%) followed by Other Infectious Diseases were(37.0%) but Neglected Diseases were (34.0%) while HIV/AIDS were (33.0%) also regarding diarrhoeal Diseases while Tuberculosis were(27.0%) but Measles were (26.0%)(See table 3)

Conclusion

The healthcare professionals working at PHC facilities in the have a limited understanding of the measures that may be taken to prevent and manage certain communicable diseases. The cadre of health care workers, location, number of years spent practicing with a professional certificate, and number of people who have attended communicable disease training courses are the primary factors that determine acceptable knowledge. Accordingly, the authors suggest that training and retraining programs on how to prevent and manage the chosen communicable illness should be implemented in primary healthcare institutions. These programs should adhere to the appropriate WHO protocols and standards. It is also essential to hire more professional healthcare workers, particularly registered nurses, who will be accountable for providing routine supporting supervisions to individuals in the healthcare industry with lower levels of expertise. This would also boost the diversity of the human resources for health that are available in the PHC institutions.

References

1. Marmot, M., & Bell, R. (2019). Social determinants and non-communicable diseases: time for integrated action. *Bmj*, 364.
2. 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.
3. Emadi, M., Delavari, S., & Bayati, M. (2021). Global socioeconomic inequality in the burden of communicable and non-communicable diseases and injuries: an analysis on global burden of disease study 2019. *BMC public health*, 21(1), 1-13.
4. Dhand, R., & Li, J. (2020). Coughs and sneezes: their role in transmission of respiratory viral infections, including SARS-CoV-2. *American journal of respiratory and critical care medicine*, 202(5), 651-659.
5. Lago-Peñas, S., Rivera, B., Cantarero, D., Casal, B., Pascual, M., Blázquez-Fernández, C., & Reyes, F. (2021). The impact of socioeconomic position on non-communicable diseases: what do we know about it?. *Perspectives in Public Health*, 141(3), 158-176.
6. 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.

7. 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.
8. 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.
9. Luna, F., & Luyckx, V. A. (2020). Why have non-communicable diseases been left behind?. *Asian Bioethics Review*, *12*(1), 5-25.
10. 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.
11. Bintabara, D., & Ngajilo, D. (2020). Readiness of health facilities for the outpatient management of non-communicable diseases in a low-resource setting: an example from a facility-based cross-sectional survey in Tanzania. *BMJ open*, *10*(11), e040908.
12. Al-Amoud, M. M., Alomary, S. A., Omar, D. I., & Aldahman, R. A. (2021). Evaluation of older people health passport implementation at primary health care centers in Saudi Arabia. *Saudi Medical Journal*, *42*(10), 1125-1135.
13. Grunseit, A. C., Howse, E., Bohn-Goldbaum, E., Mitchell, J., & Bauman, A. E. (2021). Changes in Australian community perceptions of non-communicable disease prevention: a greater role for government?. *BMC public health*, *21*(1), 1-12.
14. Albelbeisi, A. H., Albelbeisi, A., El Bilbeisi, A. H., Taleb, M., Takian, A., & Akbari-Sari, A. (2021). Barriers toward the practice of healthy behaviors among patients with non-communicable diseases in Gaza Strip, Palestine. *SAGE Open Medicine*, *9*, 20503121211029179.
15. Zortea, T. C., Brenna, C. T., Joyce, M., McClelland, H., Tippet, M., Tran, M. M., ... & Platt, S. (2020). The impact of infectious disease-related public health emergencies on suicide, suicidal behavior, and suicidal thoughts. *Crisis*.
16. Ghio, D., Lawes-Wickwar, S., Tang, M. Y., Epton, T., Howlett, N., Jenkinson, E., ... & Keyworth, C. (2021). What influences people's responses to public health messages for

- managing risks and preventing infectious diseases? A rapid systematic review of the evidence and recommendations. *BMJ open*, 11(11), e048750.
17. 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.
 18. World Health Organization. (2021). *Responding to non-communicable diseases during and beyond the COVID-19 pandemic: examples of actions being taken by selected members of the United Nations Inter-Agency Task Force on the prevention and control of non-communicable diseases* (No. WHO/2019-nCoV/Non-communicable_diseases/Actions/2021.1). World Health Organization.
 19. Allen, A., & Butler, R. (2020). The Challenge of Vaccination Hesitancy and Acceptance: An Overview. In *Meeting the Challenge of Vaccine Hesitancy* (pp. 48-86).
 20. 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.
 21. Sims, N., & Kasprzyk-Hordern, B. (2020). Future perspectives of wastewater-based epidemiology: monitoring infectious disease spread and resistance to the community level. *Environment international*, 139, 105689.
 22. 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.
 23. Alsubhi, A. E., Alzahrani, N. E. A., Almajnoony, 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.
 24. 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.
25. 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.
26. Wang, Y. J., Li, Z. X., Gu, H. Q., Zhai, Y., Jiang, Y., Zhao, X. Q., ... & Zhao, J. Z. (2020). China stroke statistics 2019: a report from the National center for healthcare quality management in neurological diseases, China national clinical research center for neurological diseases, the Chinese stroke association, National center for chronic and non-communicable disease control and prevention, Chinese center for disease control and prevention and Institute for global neuroscience and stroke collaborations. *Stroke and vascular neurology*, 5(3).
27. Houghton, C., Meskell, P., Delaney, H., Smalle, M., Glenton, C., Booth, A., ... & Biesty, L. M. (2020). Barriers and facilitators to healthcare workers' adherence with infection prevention and control (IPC) guidelines for respiratory infectious diseases: a rapid qualitative evidence synthesis. *Cochrane Database of Systematic Reviews*, (4).
28. Parmar, P. K., Rawashdah, F., Al-Ali, N., Al Rub, R. A., Fawad, M., Al Amire, K., ... & Ratnayake, R. (2021). Integrating community health volunteers into non-communicable disease management among Syrian refugees in Jordan: a causal loop analysis. *BMJ open*, 11(4), e045455.
29. Jones, C. P. L., Fawker-Corbett, J., Groom, P., Morton, B., Lister, C., & Mercer, S. J. (2018). Human factors in preventing complications in anaesthesia: a systematic review. *Anaesthesia*, 73, 12-24.
30. 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.
31. Rijnders, B. J., Schauwvlieghe, A. F., & Wauters, J. (2020). Influenza-associated pulmonary aspergillosis: a local or global lethal combination?. *Clinical Infectious Diseases*.

32. 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