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**Examining the Role of Healthcare Professionals in Managing  
Chronic Diseases Among Pilgrims during Hajj and Umrah: A  
Cross-Sectional Study**

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## **abstract**

**Background:** Hajj and Umrah pilgrimages bring millions of persons annually and present certain health concerns, especially among chronic diseased individuals. Management of such health issues becomes vital to ensure the safety and wellness of the pilgrims.

**Aim:** The study aims to assess the knowledge and awareness existing among health professionals about chronic illnesses that are prevalent among pilgrims during Hajj and Umrah. The study also seeks to assess their attitudes and views toward their role in addressing health needs and evaluating their preparedness and training to address health emergencies regarding chronic disease care in mass gatherings.

**Method:** A cross-sectional study design was performed to fulfill the quantitative data-gathering aspect of the study, structured questionnaires working. The target population included various health workers who were surveyed at pharmacies, airports, and pilgrimage sites; it revealed knowledge, attitude, practice, and health behavior levels on health challenges pilgrims are faced with. Pretesting of the structured questionnaire for reliability included health knowledge, preventive practices, and demographic data to allow comprehensive interpretation.

**Conclusion:** Findings from this research will contribute to an improved understanding of health professionals' awareness, preparedness, and attitudes regarding chronic disease management in pilgrims during the Hajj and Umrah. These insights will help to devise better health strategies and interventions to improve the care given to pilgrims, thus ultimately making the pilgrimage safer for all.

## **Introduction**

Millions of Muslims from around the globe travel to Mecca and Madinah, Saudi Arabia, to undertake Hajj on specific days in the final month of the Islamic calendar (Aljohani et al., 2022). In contrast, Umrah may be undertaken at any time of the year, and thousands of pilgrims travel to these holy cities (Aljohani et al., 2022). This mass gathering presents severe public health issues, particularly regarding infection control, since this huge number of pilgrims converging at a small geographical space during Hajj provides a platform for the spread of infection. These pilgrims are of an older age group and present with underlying medical disorders that require personalized medical care and pharmaceutical care (Mushi et al., 2021).

There have been documented cases of some infectious diseases during Hajj such as respiratory tract infections like seasonal influenza, meningococcal disease, lower respiratory infections, and tuberculosis, as well as hepatitis A, B, and C (Goni et al., 2020). Among these, upper respiratory tract infections (URTIs) are the most common affliction of the pilgrims (Yezli et al., 2021). The principal bacterial pathogens have been considered to be *Haemophilus influenza* and *Staphylococcus aureus*, while it has been proved that human rhinoviruses cause most viral respiratory infections in infected pilgrims. (Bokhary et al., 2020). The influenza is usually caused by various strains each year, which significantly impacts pilgrims. Also, the mass gathering setup of Hajj facilitates the spread of food- and water-borne diseases with gastroenteritis and diarrhea among the visitors being prevalent (Yezli et al., 2021).

Due to high bacterial and viral infection risks of Hajj, maximum pharmaceutical services are indicated on all levels but particularly in medical facilities where the pilgrims could receive the same conveniently. It is an essential role that the healthcare professionals have during

pilgrimage as they stay clear of infection, offer pharmaceutical services, and dissolve myths concerning utilization of medicine and especially antibiotics use to limit infection risk by reducing bacterial resistance. They also provide necessary vaccinations and counseling about preventive measures such as screening and vaccination. Poor knowledge among health workers, however, can limit effective counseling and appropriate treatment. This is particularly significant in most developing countries, where patients, especially those suffering from respiratory tract infections, are more likely to seek advice from pharmacists rather than doctors due to socioeconomic factors (Syed et al., 2023). As there were no recent investigations that examine healthcare professionals' readiness for the flow of pilgrims during Hajj and Umrah seasons, it is in pursuit of this lacuna that the current study endeavours to evaluate the attitudes, knowledge, and perceptions of healthcare professionals concerning the management of chronic diseases by pilgrims. The study aims to investigate also the prevalence of common diseases with Hajj, as well as the medication-dispensing trend among healthcare practitioners

**Problem statement:**

Hajj and Umrah pilgrimages attract enormous numbers of pilgrims with accompanying health issues attributed to the congregation of large populations bounded within a small geographic area. The deployment of these events increases infectious disease risks, especially in pioneering elderly with a number of chronic ailments that require efficient and regular management. The crowd consists of individuals that have come from distant places with different health standards, and it is the problem of such high numbers that throws up the issue of disease transmission, whether by respiratory or gastrointestinal means. More so, there is little accessibility of healthcare and professional advice to such pilgrims who also as foreigners may not have fully recognized the health system within Saudi Arabia. It is

therefore of great importance to assess how healthcare professionals perform along this continuum of concern in terms of their knowledge, attitude, and preparedness to manage chronic and new health events during the pilgrimage seasons. Further, the efficacy of healthcare service providers in meeting pilgrims' health needs is usually compromised by unsuitable training and the appreciation of issues arising from mass gatherings. Disparities in quality care may arise when health workers are unequipped with the right knowledge in advising and treating patients, especially during cases of self-medication or misuse of antibiotics. Misconceptions on diseases and their management will also lead to sub-optimal treatment outcomes that can aggravate public health problems like antibiotic resistance. Among pilgrims, many of them are reported to have access to medical practitioners for respiratory diseases and other conditions; however, this fact does not take away the fact that there are no recent studies on the competency and preparedness of such practitioners, thus putting doubt whether they could actually deliver services of quality. Hence, it is important to assess the knowledge and attitude of healthcare workers towards chronic conditions developing during annual pilgrimages of Hajj and Umrah and drug dispensing patterns prevailing in such cases for improved entry into health and better health outcomes for this vulnerable population.

### **Significance of the Study**

The undertaken study is truly significant in the realms of public health and health provision in circumstances marked by high population density such as Hajj and Umrah, which, respectively, attract millions of pilgrims from all walks of life, each holding potential distinctions in their health status. Knowing the knowledge, attitude, and perception of health care personnel regarding chronic disease management and infection control will enable the outputs from the study to yield important information on the training and preparedness gaps

that exist. Such gaps in awareness should be put into perspective, with implications not only for improving the quality of care services onboard provided to the pilgrims but also in factoring into the development of good public health strategies to deal with the specific hurdles posed by mass-gathering settings. The findings of this work will then inform the tailoring of training interventions designed for healthcare professionals on the competencies and skills necessary to manage and counsel clients with chronic illness in the pilgrimage setting with all complexities surrounding care provision therein. This will, at the end of the day, yield a better health outcome for pilgrims and lessen the burden of infectious disease thereby contributing to establishing a healthier and safer pilgrimage journey. The significance of this study further transcends the immediate short view toward the Hajj and Umrah perspective and forwards the contribution into the broader agenda of global health and infectious disease control.

Furthermore, the findings from the present research would also help in building effective public health management for such mass gatherings by empowering the incorporation of holistic health care interventions prioritizing preventive care and timely interventions. In that sense, as far as the study objectives are concerned, the next thing to explore is prescription behavior regarding medications from healthcare practitioners that can throw further light on the current practices and the problems requiring improvement. The work will further argue about the presence of misinterpretation, self-medication, and misuse of antibiotics within that health-care setting, making these subjects well known and bring health care workers together to establish guidelines and procedures to promote safe and effective pharmaceutical care.

### **Study Aims**

1. To Assess Knowledge and Awareness: To determine the knowledge and awareness of healthcare professionals regarding common chronic illnesses among pilgrims during Hajj and Umrah, such as symptoms, risk factors, and management options recommended.

2. To Examine Attitudes and Perceptions:

To examine the attitudes and perceptions of health workers regarding their role in meeting the health needs of pilgrims, in particular for communicable disease and chronic illness management.

3. To Evaluate Preparedness and Training: To measure the level of preparedness and training provided to healthcare professionals in managing health emergencies and chronic disease care in the context of mass gatherings.

### **Research Questions**

1. How acquainted are healthcare professionals with chronic diseases that are usually seen to trouble pilgrims coming for Hajj and Umrah?

2. What are the perceptions of healthcare professionals concerning their role for the health needs of the pilgrims, specifically regarding chronic conditions and infection prevention?

3. What are the training and preparedness given for the handling of health conditions during mass gathering events such as Hajj and Umrah?

### **Hypotheses of the Study**

There are many hypotheses built into the study that would target the relationship between attitudes, knowledge, and practices of healthcare professionals in regard to control of chronic diseases among Hajj and Umrah pilgrims. The first hypothesis states that there exists a wide

gap in the knowledge of healthcare professionals concerning control of chronic diseases prevalent among Hajj and Umrah pilgrims and with harmful effects on health outcomes. This knowledge gap can negatively affect the quality of care given to pilgrims and increase their health risk. The second hypothesis states that there are more positive attitudes and perceptions toward the care of pilgrims among professionally trained in infectious disease control healthcare workers than those that are outside of such training. This indicates that certain education and training need to be included to encourage the confidence and energy of healthcare workers in performing with patients.

### **Literature review:**

The situation surrounding Hajj and Umrah continues to grow in relating to millions of pilgrims who travel to Saudi Arabia every year, raising public health issues related to health problems and preventive measures in these populations. The cross-sectional study performed by Alghadeer et al. (2023) evaluated the knowledge, attitude, and perception of community pharmacists (CPs) regarding health-related problems of the pilgrims. The study demonstrated that most of the CPs possessed adequate knowledge concerning common ailments such as influenza, food poisoning, and gastroenteritis, which contribute to the majority of cases during the Hajj seasons. Most CPs were aware of the need for vaccination among pilgrims, particularly among elderly ones, and had reasonably good knowledge of the vaccines that are required by the Saudi Ministry of Health. However, some knowledge gaps concerning less-familiar ones emerged, namely the polio vaccine (Alghadeer et al., 2023). Ridda et al. (2021) have stated that the public health issue preparedness for events such as Hajj and Umrah is important.

These authors provided a model that included risk assessment, public health surveillance, and emergency planning to protect the individuals in attendance. They stated that such events

are unique in that health strategies must respond to the particular risks posed as a result of infectious diseases. Additionally, they highlighted the need for involvement from health professionals and visitors to promote good public health during the pilgrimage, including healthy dialogue about the risk of illness and expectation of vaccination (Ridda et al., 2021). Another study by Tobaiqy et al. (2021) focused on preventive measures used by Umrah pilgrims who received training on vaccination and health education.

The study results showed that a large number of pilgrims had received some vaccinations in preparation for travel; however, many more had forgone receiving compulsory vaccines, meningitis and poliomyelitis being among those. Additionally, the study associated health education with preventive practices, such as wearing face masks in public (Tobaiqy et al., 2021). Maintaining these health and safety measures during mass events is also challenging, an issue discussed by Taibah et al. (2020), who examined impediments to Hajj pilgrims adopting health-promoting behavior.

They further focused on limitations such as language and limited accessibility to health centers as the limitations facing pilgrims in practicing recommended health behaviors. Most of the pilgrims, about half of them, reported practicing primary health measures by themselves, revealing the need for promoting the health communication strategies directed toward local governments and pilgrims (Taibah et al., 2020). Furthermore, Goni et al. (2019) evaluated knowledge, attitudes, and practices among Malaysian pilgrims towards the prevention of respiratory tract infection (RTI) for Hajj and Umrah. The study evidenced high levels of participants' knowledge but with unequal knowledge of preventive measures and practice, indicating the need for increased health education campaigns to fill the gap between practice and knowledge (Goni et al., 2019).

Last but not least, Alqahtani et al. (2019) conducted qualitative studies of Australian Hajj travel agents' health information and the advice they provide to pilgrims. The study found that travel agents knew about some health risks but were not very familiar with respiratory infections and vaccines for them. The study finds that improving travel agents' awareness of pilgrims' health risks can enhance the communication of critical health information to Hajj travelers (Alqahtani et al., 2019). Collectively, these studies emphasize the importance of sensitizing both the pilgrims and the healthcare workers to health hazards and preventative measures in Hajj and Umrah. The recurring identification of knowledge gaps of some vaccines and prevention techniques highlights the urgency of continuous public health interventions particularly focused on these mega religious gatherings.

### **Theoretical Framework of the Study**

Research for the present study was mostly grounded in the Health Belief Model (HBM) and the Knowledge-Attitude-Practice (KAP) Model. The HBM is a powerful tool for assessing the complex factors that emerge in the completed intervention involving health professionals and their management of chronic disease in pilgrims on Hajj and Umrah. This perspective would imply that a person's health behavior is determined by beliefs regarding susceptibility to the disease condition, severity of the condition, perceived benefits of certain preventive measures, and perceived barriers to taking those measures. In this study, the perceptions of healthcare workers will be key determinants of their attitude and behavior towards managing chronic diseases. (Green, Murphy & Gryboski 2020). For instance, if clinicians are not aware of the danger posed by treating chronic disease among mass congregations or believe that they will not be able to handle resulting complications to the health of the patient, then their drive for providing the best treatment will be absent. By probing these assumptions, the study

can establish what facets interventions need to address in order to enhance awareness and readiness among clinical staff.

In addition to the Health Belief Model, the Knowledge-Attitude-Practice (KAP) Model\*offers a comprehensive paradigm for describing the interplay among what healthcare workers know, their perception of such knowledge, and the practices that they ultimately utilize. The model emphasizes the mutual dependence of knowledge, attitudes, and behaviors as determinants of health-related action. With this research, it is necessary to assess to what level knowledge that healthcare providers have about management of chronic disease during mass pilgrimages can be applied to their attitudes in order to provide appropriate care and, ultimately, practice. (Liao, Nguyen & Sasaki 2022). For example, a healthcare provider who understands the risks posed by chronic diseases will have positive attitudes towards appropriate patient management, which will have an effect in their practice. Therefore, the KAP Model will be employed to identify gaps between the three elements and direct to specific areas of improvement through accurate education interventions.

Combining lessons learned from the Health Belief Model and the KAP Model will produce a valid and pluralistic understanding of determinants of healthcare professionals' behavior in Hajj and Umrah. This dual methodology targets both cognitive (belief and knowledge of health dangers) and utilitarian (existent care practice) aspects, with this providing a complex evaluation of the healthcare environment in these mass religious events. Targeting the lack of beliefs and knowledge gaps among health professionals, the study will aim at establishing targeted training modules with the capacity to alter existing attitudes and improve the care practice. Ultimately, this theoretical underpinning will not only enlighten the complexity of healthcare at mass gatherings but also inform strategic interventions that may optimize the

readiness and response potential of health workers, which would translate into enhanced health outcomes for pilgrims.

## **Methodology**

Data of studies under review were, for the most part, acquired via cross-sectional studies where questionnaires were employed solely as data collection tools, permitting the assessment of the knowledge, attitudes, practices, and health behaviors of the various stakeholders involved in Hajj and Umrah at one time. Cross-sectional design was found particularly useful in obtaining data rapidly from large groups of participants and, therefore, could be viewed as a snapshot of a situation concerning health-related awareness and practices during such important religious festivities.

### **The study population and sampling method**

The study population encompasses all the healthcare professionals who manage the health needs of pilgrims during Hajj and Umrah. This includes doctors, nurses, pharmacists, and paramedics. A purposive sampling method will be employed for recruitment from pharmacies, airports, and sites of pilgrimage to make the sample a representative of the actual interactions with pilgrims.

### **Data Collection Methodology**

The structured questionnaires will serve as the main means of data collection. The questionnaire will have various sections that will collect information on health knowledge, attitudes, and perceptions on chronic disease management, plus demographic data. Focus group discussions may also be used in hopes of informing qualitative data from some selected

healthcare practitioners. These quantitative (surveys) and qualitative methods combined (focus groups) will be giving a full understanding of the issues at hand.

### **Study Tools**

The main tool used for data collection was a structured questionnaire consisting of several sections, addressing specific research objectives. The structured questionnaire was first pre-tested for reliability and completeness to encompass several areas such as:

- Health Knowledge: The level of knowledge of the participants regarding ordinary health illnesses and recommended vaccinations.
- Preventative Practices: Questions on pilgrims' and health care workers' assumed behavior and practice during pilgrimage.
- Demographic Data: Collecting background data, including age, sex, education level, and health status, so that it is possible to understand the determinants of knowledge and practices better.

### **Data Analysis Techniques**

The quantitative data gathered from the questionnaires will be analyzed using some statistical software such as SPSS or R to generate descriptive statistics, correlations, and possible differences between groups. Transcriptions and thematic analysis will use qualitative data gathered in focus groups to derive key themes and patterns regarding healthcare professionals' perceptions and experiences in managing health in the context of pilgrimages.

### **Ethical Considerations**

Ethical approval will be sought from the Institutional Review Board (IRB) before conducting the study. Informed consent will be required from participants because they should know what the research entails and a right to withdraw from it anytime. Confidentiality will be assured by anonymizing data and securely storing questionnaires to protect people's identities.

### **Expected Outcomes**

The level of knowledge and preparedness from healthcare professionals regarding chronic disease management are some findings expected in the outcome. Gap identification in training and awareness will be expected, as well as implications for health policy and opportunities for improving healthcare delivery within this unique context.

### **Study Limitations**

The study's scope is limited to healthcare professionals who may directly deal with Hajj and Umrah pilgrims. Limitations include biases in responding; where participants might not be able to divulge some aspects of their knowledge or practice due to social desirability. Also, being cross-sectional, the design limits cause-effect inferences. There may be logistical accommodation at various pilgrimage sites during peak seasons. Even though cross-sectional surveys by questionnaires provide valuable information, they have some inherent limitations:

- Sampling Bias: Excessive reliance on convenience sampling may lead to biases since the sampled population may not provide an accurate representation of the overall pilgrim population. Participants may share similar characteristics that are not representative of the variety of all pilgrims.

- Self-Reported Measures: The data collected were self-reported, and this can create discrepancies between stated behaviors and the actual actions of participants or perception. This will impact the consistency of outcomes on health habits and compliance with indicated guidelines.
- Causal Inferences: The cross-sectional design doesn't enable researchers to establish causality or temporal association between behaviors and knowledge. Associations can only be quantified, not the factors influencing others.
- Variability in Understanding: Participant variations in health literacy can create different meanings for the questions, which can impact the reliability of the responses

**A detailed timeline for the research study is given below:**

Phase 1: Literature Review and Preliminary Ground Work (month 1)-Includes reviewing all literature pertinent to the research and designing the questionnaire.

Phase 2: Ethical Approval (months 2-3): Application submission and observe the required time for obtaining all approvals.

Phase 3: Data Collection (Months 4-5) includes administering surveys and running focus groups.

Phase 4: Data Analysis (Month 6): Quantifying and Qualifying data analysis.

Phase 5: Reporting Findings (months 7-8): Writing research findings, dissemination.

**Budget (if applicable)**

The costs incurred would include:

Data Collection Material: Printing questionnaires and supplies for focus group (\$200).

Travelling Expenses: Transportation to the pilgrimage sites and pharmacies (\$500).

Data Analysis Software: Licensing fees for statistical software (\$150).

Miscellaneous Expenses: Refreshments for focus group discussions, participant incentives (\$250).

Total Estimated Budget: \$1,100.

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