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Review

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Abstract

The Hajj pilgrimage to Mecca, Saudi Arabia, is one of the largest annual mass gatherings in the world, and has a strong impact on international public health. This paper presents an overview from a systematic search of the published literature on health risks and services in the Hajj for 2005–2014, with the aim of providing health policy recommendations to prevent health risks. Of the 335 studies initially identified, 60 met the inclusion criteria for the review. Studies identified were diverse in methodology and focus. The results were classified into 3 main categories: communicable diseases, noncommunicable diseases and health services. Although, improvement was observed throughout the years, there are always new public health challenges in each Hajj season. There is a need to improve health management of the Hajj, particularly by strengthening international collaboration.

Keywords: communicable diseases, Hajj, health services, noncommunicable diseases, public health.

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Introduction

The Hajj pilgrimage is one of the greatest mass gatherings in the world, and presents unique public health challenges. Millions of Muslims from around the world gather annually to perform the Hajj pilgrimage in Mecca, in Saudi Arabia (Figure 1). Hajj is one of the 5 pillars of Islam; therefore, it is mandatory for all Muslims, who are physically and financially capable, to make the journey to Mecca once in a lifetime.

The season of the Hajj varies, due to its adherence to the Islamic lunar calendar. The Hajj takes place in month 12 of the lunar calendar, for 5 days, from days 8 to 12. In the last decade, the pilgrimage has taken place in fall and winter, having occurred in January 2005, and advancing to October 2013. These months have been associated with winter diseases. As the lunar calendar advances over the next decade, the Hajj will take place in summer months, and different diseases will be dominant.

Pilgrims performing the Hajj are predisposed to diverse and significant health risks, due to the limited time and confined geographical area of the event, and the large numbers of people, with population densities among the millions of participants, reaching 7 persons/m2 (1).

The activities of the Hajj are now summarized, to provide context for the consideration of the attendant health aspects. Around 2 million Muslims arrive in Mecca. On day 1, the pilgrimage starts at the Grand Mosque with the ritual of Tawaf, circling 7 times around the central building (Kaaba). It then continues with the ritual of Saee, running 7 times between 2 small hills (Safa

and Marwah) near the Grand Mosque and proceeding to Mina where they spend the whole night. On day 2, the pilgrims go to the plain of Arafat, about 8 miles east of Mecca, to perform what is called the Standing at Arafat; an afternoon of prayer and contemplation that is considered the highlight of the Hajj. After sunset, the pilgrims travel back towards Mecca, stopping to spend the night in Muzdalifa. On day 3, the pilgrims perform the ritual of Ramy Aljamrat, which involves throwing stones at a pillar in Mina, a neighbourhood in Mecca, and creates the densest crowds during the Hajj. Following that, pilgrims sacrifice an animal (a camel, cow or sheep). On days 4 and 5, pilgrims stay in Mina. On day 5, they move from Mina to Mecca, perform the final farewell ritual of Tawaf and Saee, and then leave Mecca.

The Saudi government provides free healthcare services for all pilgrims. In 1437 (Islamic calendar) (2016 Gregorian calendar), the healthcare system consisted of 27 hospitals with a total capacity of 5038 beds, and 154 health centres (2). The healthcare system, which is operated by 26 421 domestic employees in addition to international visiting healthcare practitioners, provides curative and preventive services. The preventive services include infectious disease surveillance, outbreak investigations, mass vaccinations, mass administration of prophylactic medications, environmental health services, and health education. The health education activities include awareness campaigns, distribution of pamphlets to arriving pilgrims, and establishing toll-free telephone lines operated by trained healthcare providers. The data reported from different departments in hospitals and primary care centres, in addition to the surveillance data, feed the electronic web-based healthcare surveillance network at the Command and Control Center in Mecca, and are published in the annual statistical book of the Saudi Ministry of Health (2,3).

In 2006, The Lancet published a review entitled: “Health risks at the Hajj” (4). Since then, some trends in health risks have changed; for example, several emerging infectious diseases have arisen, such as influenza A H1N1, severe acute respiratory syndrome and Middle East respiratory syndrome (MERS) (3), and new policies to control health risks in the Hajj have been implemented, such as administering polio vaccine to pilgrims on arrival in Saudi Arabia, and reducing Hajj quotas for foreign and domestic pilgrims in 2013 (3). The present study presents an updated comprehensive review about the health issues in the Hajj, with the aim of providing policy recommendations to prevent these risks.

Methods

Search strategy

A search was conducted for English-language publications in PubMed, Embase and CINAHL for 2005–2014 using the keywords: “Hajj”, “Haj”, “Hadj”, “pilgrimage” and “pilgrims”. We also searched the reference lists of all the identified publications for additional sources. These searches yielded 335 publications (Figure 2).

Eligibility of studies

We included studies that addressed health aspects of the Hajj. All articles described as original, research, or leading articles were included. No restriction on the type of study design was made. No attempt was made to score methodologies due to the heterogeneous nature of the included studies. In addition to excluding the studies with a sample size **Analysis**

Each of the eligible publications was carefully read, and 9 key data elements were extracted: authors, objectives, year of the Hajj, study design, population, data collection, sampling methods, sample size, and results (Table 1 online). The findings were then organized into coherent themes using a narrative review approach, which identified common elements in the studies. Due to the heterogeneity of the studies included in this narrative review, a qualitative method to consolidate the data was used and not quantitative (statistical) methods. The information about certain diseases was gathered from different publications and then reported in one place.

Results

The 60 papers fulfilling the eligibility criteria represented studies that were variable in their scope and methodology. The results were classified into 3 main categories: communicable diseases, noncommunicable diseases, and Hajj health services.

Communicable diseases

Meningococcal disease

Crowded conditions are a risk factor for the carriage and transmission of Neisseria meningitides, and the Hajj has been associated with outbreaks of invasive meningococcal disease. During the 2000 and 2001 Hajj pilgrimages, Saudi Arabia experienced 2 large outbreaks of invasive meningococcal disease that led to global spread of N. meningitides serogroup W-135 (5). Studies from Oman, Sudan, United States of America, Brazil and Turkey showed that the risk of becoming infected by the Hajj clone N. meningitides W135 spread beyond the borders of Saudi Arabia (6–10). Meningococcal disease outbreaks are likely during the Hajj, and they have high fatality rates and associated medical costs; therefore, preventive measures are needed to control its transmission. These include prescriptions of a single dose of 500 mg ciprofloxacin to all pilgrims before arrival back in their home country (11).

Respiratory tract infection

Many studies showed that respiratory diseases are the most common cause of outpatient department visits during the Hajj, accounting for 41–60.8% of visits (12–15). In the Ear, Nose and Throat (ENT) clinic alone, upper respiratory tract infections (URTIs), including pharyngitis,

viral URTI, and tonsillitis, represented 85.2% of the total diagnoses (16). In a study of 250 international pilgrims, 25.6% of them developed URTI (13). Another study among domestic pilgrims showed that 39.8% of them developed URTI (17). In a French study, 16.6% of French pilgrims experienced fever during their stay in Saudi Arabia and 60.6% had a cough (18). In a Malaysian study of 394 pilgrims, 95.2% had respiratory symptoms (19).

Comorbidity is one of the risk factors for development of URTI. In pilgrims who suffered from comorbidity, there was a significant association with longer duration of cough ($P = 0.041$), longer duration of sore throat ($P = 0.048$), and severe influenza-like illness requiring admission to hospital for further treatment ($P = 0.016$) (20).

Several studies evaluated the type of pathogens causing respiratory infections among pilgrims (21–24). One study confirmed that acute respiratory infections were caused by influenza virus (IV) or respiratory syncytial virus (RSV) (21). Influenza A virus (IAV) H3 accounted for 54% of the virus-positive samples, followed by RSV (24%), influenza B virus (IBV) (19%) and IAV H1 (3%). Alborzi et al. (23) showed that 32.5% of pilgrims had viral pathogens: IV in 9.8%, parainfluenza virus in 7.4%, rhinovirus in 5.9%, adenovirus in 5.4%, enterovirus in 2%, RSV in 1.6%, and concurrent infection with 2 viruses in 0.4%. Pathogenic microorganisms were identified from throat swabs in 29.1% of cases; bacteria represented 18.8% and viruses 11.1%; isolated agents included streptococci in 11.5% of cases, meningococci in 7.3%, RSV in 3.1%, IAV H1N1 in 3.1%, IBV Sichuan in 2.1%, IAV H3N2 in 1.7%, and IBV Hong Kong in 1.1% (25).

Pneumonia was confirmed in 53.9% of pilgrims, 94% of whom were aged > 50 years, with Candida albicans being the most frequent pathogen (28.7%), followed by Pseudomonas aeruginosa (21.8%), Legionella pneumophila (14.9%) and Klebsiella pneumoniae (9.2%) (26). Pneumonia is one of the leading causes of hospitalization of pilgrims in Mecca, especially among elderly people, accounting for 19.7%, 22.0% and 27.2% of all intensive care unit (ICU) admissions during the Hajj of 2003, 2004 and 2012 respectively (27–29). Pneumonia was also the leading cause of severe sepsis and septic shock among pilgrims admitted to the ICU, and Gram-negative organisms were the most frequently isolated pathogens in this subset of patients (30). About 69% of the patients received symptomatic treatment and oral antibiotics, and 27.5% required intravenous antibiotics (31).

In contrast, the prevalence of MRSA among the Hajj pilgrims was low (1.46%) in comparison with most community-based studies (32).

The annual risk of tuberculosis (TB) is 3 times higher in Mecca than the national average in Saudi Arabia (12). This situation is not surprising, because > 50% of pilgrims come from TB-endemic countries. Wilder Smith et al. showed that the TB infection rate was 10% among Hajj pilgrims, which is higher than the reported incidence of 1.8% in general travellers to TB-endemic areas (12). TB during the Hajj has the potential to be a source of TB upon return of pilgrims to their home countries.

Some preventive measures are associated with reduced risk of respiratory illness, such as practicing social distancing, hand hygiene, contact avoidance, and washing the throat and mouth with salt water (30, 33). However, the high prevalence of respiratory symptoms among Hajj pilgrims indicates that more preventive measures are needed (34). The Saudi Ministry of Health recommends the use of facemasks to decrease the risk of respiratory infections. Studies show an increased rate of infections associated with intermittent or non-use of facemasks, compared to using facemasks all the time (13, 17, 35). The Ministry also recommends administration of the seasonal influenza vaccine. Unvaccinated pilgrims contracted IV significantly more frequently than did vaccinated pilgrims (16.5% vs 9.2%) (23).

Diarrhoeal diseases

Cholera and traveller's diarrhoea are common during the Hajj (36). Although few studies have documented the incidence and etiology of cholera during the Hajj, the last case reported was in 1989. Since then, no outbreak has been reported despite the fact that outbreaks occurred in countries from where pilgrims came.

Despite the fact that conditions during the Hajj are theoretically predisposing to hepatitis A, no study has quantified the burden of the disease during the Hajj (37).

A study by Aljasser et al. (35) reported that 9.3% of pilgrims experienced diarrhoeal symptoms during the Hajj period. In contrast, a study conducted among French pilgrims, reported that only 4.5% suffered from diarrhoea and 2.4% from vomiting (38). Gautret et al. (39) evaluated the French pilgrims' potential risk for diseases associated with raw camel milk; only 8.2% of pilgrims had drunk camel milk before. Although 13.9% of these pilgrims knew that drinking raw camel milk could cause diseases, 40.6% would drink it if it were given during the Hajj. The study recommends that Hajj pilgrims be cautious about consuming unpasteurized dairy products. Saeed et al. (40) investigated the occurrence of diarrhoea among Afghani pilgrims before, during and after the Hajj and found that it remained constant over time.

Emerging infectious diseases

Emerging infectious diseases are of special concern in Hajj health care. Alkhumra virus infection is one of the many examples of these new threatening infections (41). Alkhumra virus infection, which is a haemorrhagic fever, was found in Saudi Arabia for the first time in 1995. During the Hajj of 2001–2003, 37 cases were identified, with a fatality rate of 25%. The disease appeared to be transmitted from goats or sheep to humans via mosquito bites, or by any direct contact with these animals (41). Therefore, to reduce the risk of infection, restrictions are needed for the entry of goats and sheep to the holy sites.

In 2009, IAV H1N1 presented a potentially massive threat to Hajj pilgrims, mainly because Saudi Arabia ranked fourth in probable swine flu cases and deaths in the Eastern Mediterranean Region (42,43). Moreover, a large number of pilgrims were from resource-limited countries; therefore, only a minority of pilgrims was likely to have had access to IAV H1N1 vaccine before they travelled to Saudi Arabia for the Hajj (42). In France, some members of the Muslim community do not receive nationally provided preventive health care, due to inequities (44). Furthermore, the acceptance rate for vaccination is low even with when resources are available (45). Among pilgrims performing the Hajj, reluctance to receive prophylaxis or preventive care can increase the risk of transmitting and acquiring infectious diseases. Somewhat surprisingly, even when administered, seasonal influenza vaccine is reported to be insufficiently protective against influenza among Hajj pilgrims (46), and another study to verify this evidence is recommended. Healthcare workers (HCWs) during the Hajj season of 2009 reported a low rate of vaccination against pandemic IAV H1N1 (22%) (43). In contrast, they reported high rates of maintaining hand hygiene (98%), cough etiquette (89%) and wearing a facemask (90%). None of the HCWs had influenza A H1N1. Another study conducted in Hajj 2009 showed that among 3133 pilgrims, 3 cases of influenza A (H1N1) were identified (47). Among Iranian pilgrims, 5 cases of influenza A (H1N1) were identified (48,49). The low prevalence of pandemic influenza A (H1N1) during Hajj pilgrimages may be the result of procedures implemented by Saudi authorities, including rapid implementation of a pandemic H1N1 vaccination programme that targeted all medical personnel and vulnerable populations, including young children, older adults and pregnant women (50). Other measures included thermal screening equipment to detect febrile passengers arriving at Saudi Arabian airport terminals (51) and a 24-hour specialized ENT clinic to address emergency cases and possible pandemic H1N1 cases, and to reduce pressure on the emergency department (50).

In the 2013 Hajj season, a cohort of 5235 pilgrims was screened for nasal carriage of MERS-related coronavirus (MERS-CoV). No case of MERS-CoV nasal carriage was detected by 2 reverse transcription polymerase chain reactions (52). In response to the MERS-CoV situation, the Saudi Ministry of Health and the US Centers for Disease Control and Prevention (CDC) recommended that people with chronic diseases (such as heart, respiratory and kidney disease, and diabetes), elderly people, and pilgrims with immune deficiency, malignant diseases, and terminal illnesses, in addition to children and pregnant women, postpone their performance of the 2013 Hajj for their own safety (52).

Reporting outbreaks of infectious disease allows Saudi Arabia to take the necessary measures to prevent spread of such disease among pilgrims during the Hajj. Laxminarayan et al. (53) have shown that incentives, if not restricted to financial assistance, can modify reporting decisions, particularly when the burden of disease is low. New policies have been implemented in response to emerging infectious diseases, such as administering polio vaccine to pilgrims on arrival in Saudi Arabia, reducing Hajj quotas for foreign and domestic pilgrims in 2013, and strengthening the surveillance system for infectious diseases with involvement of international agencies (3).

Noncommunicable diseases

Pre-existing chronic illness

Pilgrims with pre-existing cardiac diseases are at high risk of physical stress that leads to ischaemia. Cardiovascular diseases are the most common cause of death during the Hajj, accounting for 66% of all deaths according to Pane et al. (54). Furthermore, that study also reported that cardiovascular disease accounted for 63.6% of ICU admissions, and was the second most common cause for admission to hospital (12.3%) (27,28). These high rates may have been due to the high number of elderly people with chronic diseases among the pilgrims (28). Another study conducted in the ICU reported that 37.3% of cases admitted to ICU were pilgrims who were critically ill due to cardiovascular diseases (23.6% with myocardial infarction) (55). Therefore, pre-Hajj functional assessment should be carried out to identify patients at a high risk of mortality from cardiovascular diseases (56). A cohort study conducted among Iranian pilgrims in the 2007 Hajj showed that 17 first-ever strokes occurred in the pilgrims (5 men and 12 women) (57).

Among all hospital admissions, nephrological diseases accounted for 2% (58). Such conditions have good outcomes and do not need special care. This aspect of inpatient care does not seem to need special interventions or recommendations.

Trauma

The mass movement of millions of pilgrims from one ritual place to another, in a short time and in a small area, significantly increases the risk of trauma. Numerous accidents and injuries face Hajj pilgrims, such as falling, sliding, stampede, and traffic accidents (59). Most of the traumas usually occur during the rituals of Tawaf, Saee and Ramy al-jamarat (59). Trauma accounted for 9.4% (27) of hospital admissions and 6.4% (28) of ICU admissions. The incidence of head and eye injuries during Ramy al-jamarat in 2005 was significantly lower than in 2004 (60). This improvement may have been due to the changed structure of Ramy al-jamarat in Hajj 2005. In contrast, the rate of all-cause fractures in 2005 was higher than in 2004 among Iranian pilgrims, perhaps because of increased overcrowding (60). Fire may also be considered among the

causes of traumatic injuries. The incidence of burns was about 40/10 000 (59). However, cooking food is not allowed at Mina, and smoking is forbidden during the Hajj by Islamic teaching, thus reducing the risk of fires.

Surgery

Surgical problems, either acute surgical emergency or precipitation of chronic disease, are not uncommon during the Hajj season. In a study conducted in 2003 and 2004, 177 patients were admitted to a surgical ward (61). Most of the patients were male (78.5%), and the mean age of patients was 52.7 years; however, 41% of patients were aged > 60 years (61). The most common causes of admission were acute appendicitis and diabetic foot, followed by traumatic injuries and obstructed hernias (61). Nearly half of the patients (49.1%) received surgical treatment, while 39% were managed conservatively, and 11.3% of patients left the hospital against medical advice (61).

Heat injury

Heat stress is one of the main complaints among Hajj pilgrims (62). The high air temperatures, sun exposure, and heat dissipated from the large number of people and vehicles all contribute to the problem of heat stress. The highest incidence of heat fatalities occurred when the maximum air temperature reached 48.7°C. In recent years, the incidence of heat stroke and exhaustion has been low, which is probably due to improvement in climatic conditions since the Hajj seasons have been occurring in the winter. It is important to minimize heat exposure by developing awareness of the signs and symptoms of heat stress, avoiding excessive sun exposure by using umbrellas and seeking shade, wearing sun block creams, and drinking adequate fluid. There are some preventative measures already established by the Saudi authorities, such as making drinking water available for all pilgrims, and providing water mist sprayers that operate regularly in the places were the Hajj rituals are performed (62).

Hajj health services

The Saudi Ministry of Health provides free health services for all pilgrims during the Hajj period. However, few studies have investigated these services, and they are mostly limited to hospital settings.

A study conducted to evaluate the effect of infection control practice in all the hospitals in Mecca during the Hajj from 2003 to 2006, showed some deficiencies, including lack of infection control units, infection control committees, infection control educational activities and surveillance systems, and a shortage of staff (63). However, these deficiencies were improved in the subsequent audits. Another study in 2003 assessed knowledge, attitude and practice, related to infection control among HCWs in hospitals and primary care centres during the Hajj (64). There

was noticeable deficiency in knowledge concerning important infection control measures. A different study addressing the knowledge of HCWs about preventive measures for communicable diseases among pilgrims in 2011 showed that most of the participants had good knowledge about meningococcal meningitis, except for preventive measures applied to infants and children (65). Madani et al. found that the meningococcal and hepatitis B vaccination coverage level among HCWs in the Hajj was below the accepted standard, and that the influenza vaccination level was remarkably low (66). The authors recommended developing strategies to improve vaccination coverage among HCWs, and that these strategies should be practiced by all healthcare facilities in Saudi Arabia.

Patient satisfaction is an essential factor in evaluating the quality of healthcare services. Only 1 study assessed pilgrims' satisfaction with the ambulatory health services at the Hajj. An overall level of acceptable satisfaction was reported by 82% of respondents; the score was 61.5 of 75 points (67). The lowest level of satisfaction was reported for physicians' services, which were identified as needing special attention to improve pilgrims' satisfaction. More studies are needed to evaluate the Hajj health services, and make recommendations for their improvement.

Future of health care at the Hajj

The Saudi Ministry of Health takes the Hajj season seriously. It starts to plan for the next season immediately after finishing the current season by gathering feedback from local and international health agencies (3), and publishes annually public health recommendations and regulations to prevent and control health threats during the Hajj. The Saudi authorities do not currently directly supervise implementation of the strict Hajj health regulations outside its borders. Instead they depend on pilgrims' host countries for that task. For example, each pilgrim should provide a valid vaccination certificate to obtain a Hajj visa. However, it is not known who could ensure that the certificate is valid. Two Saudi studies (68, 69), 6 years apart, showed that 44–46.5% of pilgrims did not take their required meningitis vaccine during the recommended period (10 days–3 years before arrival on the Hajj), and therefore may have become a potential source of infectious disease. To overcome such a problem, the Saudi authorities could help to ensure Hajj health regulations are implemented by strengthening the public health systems in pilgrims' host countries. This could come in the form of outreach training programmes for public health professionals, healthcare providers, and health system research projects as part of what is known as global health diplomacy.

The Hajj is a unique opportunity to apply the concept of global health diplomacy, and the benefits from international collaboration and cooperation. Global health diplomacy is crucial to managing health hazards in international health settings such as the Hajj, and decreases the risk of pandemics by planning cross-border vaccination programmes, developing visa quotas, providing international disease outbreak surveillance, and arranging rapid repatriation. One example of global cooperation is that between the Saudi Ministry of Health, World Health

Organization, and the US CDC, in response to the threat of pandemic influenza A H1N1, which overlapped with the Hajj in 2009. The efforts by these organizations to decrease pandemic influenza A H1N1 resulted in the creation of one of the largest, real-time mobile database systems in the world, which was designed to detect disease in real time at any mass gathering. In 2012 the conventional paper-based information system was converted into a digital system to facilitate rapid data sharing with international agencies (3).

Health authorities in the countries of origin must provide information to their Hajj pilgrims on the potential health hazards and preventive measures for each. For example, pilgrims should be provided with information on infectious disease symptoms, modes of transmission, complications and preventive measures. Moreover, Hajj pilgrims should be informed about the items and foods that are not allowed in Saudi Arabia, such as the ban on fresh food, which is in place to reduce the spread of food-borne infections during the Hajj. In addition, they should prepare their pilgrims to take precaution against influenza, by taking the vaccine, as the Hajj season is moving towards winter. Several initiatives, including the establishment of the Global Center for Mass Gathering Medicine (3), are in place to learn from and share the Saudi experience in managing the mass-gathering-related public health aspects of the Hajj, since much robust expertise has been gained. Moreover, there is an initiative to establish a University of Hajj, with an international research centre that provides education and training to improve Hajj services. This proposed university could also facilitate sharing Saudi experience with health systems around the world, thus strengthening the Hajj health system (70).

The limitations of the present study were restriction to English-language articles, the dependence on 3 databases only, and not searching the grey literature (e.g., masters and doctoral theses).

Conclusion

Among the lessons learned from this review are, the need for large-scale scientific studies to quantify the burden of infectious diseases such as hepatitis A, B and C. Despite the absence of infectious disease outbreaks during Hajj in recent years, emerging infectious diseases represent a threat in the light of the expected increasing number of pilgrims after the completion of construction in the Grand Mosque and the sacred areas of the Hajj. The vast development in infectious disease surveillance after the development of the web-based healthcare network is a welcome achievement of the Saudi Ministry of Health. The optimal utilization of the collected data is yet to be achieved. The existing international collaboration needs to be strengthened and expanded.

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Competing interests: None declared.

Problèmes de santé pendant le pèlerinage du Hadj : examen de la littérature

Résumé

Le pèlerinage du Hadj à La Mecque, en Arabie saoudite, l’un des plus grands rassemblements de masse annuels au monde, a un fort impact sur la santé publique internationale. Le présent article présente une vue d’ensemble à partir d’une recherche systématique dans la littérature publiée sur les risques sanitaires et les services de santé durant le Hadj pour la période 2005-2014, dans le but de fournir des recommandations de politique sanitaire en vue de prévenir les risques sanitaires. Sur les 335 études identifiées initialement, 60 répondaient aux critères d’inclusion fixés pour l’examen. Les études recensées étaient diverses sur le plan de la méthodologie et de l’orientation. Les résultats sont classés en trois grandes catégories : maladies transmissibles, maladies non transmissibles et services de santé. Bien que des améliorations aient été observées au fil des années, il existe toujours de nouveaux défis de santé publique à chaque saison du Hadj. Il est nécessaire d’améliorer la gestion sanitaire du Hadj, en particulier en renforçant la collaboration internationale.

مسائل صحية في الحج: استعراضٌ للأدبيات

مي الدوسري، عبد الله الجودي، ديفيد شيلينتانو

الخلاصة

يُعدّ الحج إلى مكة المكرمة، بالمملكة العربية السعودية، أحد أكبر التجمعات الحاشدة
السنوية في العالم، وله تأثير قوي على الصحة العامة الدولية . وتقدم هذه المقالة نظرة
عامة من واقع بحث منهجي في الأدبيات المنشورة عن المخاطر والخدمات الصحية في الحج خلال
الفترة من 2005 إلى 2014 ، بهدف تقديم توصيات تتعلق بالسياسات الصحية من أجل الوقاية من
المخاطر الصحية . ومن بين 335 دراسة حُدِّدت في البداية، توفرت معايير الشمول
بالاستعراض في 60 دراسة . وكانت الدراسات المُحدَّدة متنوعة من حيث المنهجية والتركيز .
وصُنِّفت النتائج إلى ثلاث فئات رئيسية، ألا وهي : الأمراض السارية، والأمراض غير
السارية، والخدمات الصحية . وعلى الرغم من التحسن الملحوظ على مر السنين، توجد دائماً
تحديات جديدة تتعلق بالصحة العامة في كل موسم حج . وتوجد حاجة إلى تحسين إدارة الشؤون
الصحية في الحج، لا سيما من خلال تعزيز التعاون الدولي .

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12 / 17

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