

DISEASE PATTERNS AMONG HAJJ PILGRIMS ATTENDING MEDICAL FACILITIES OF PAKISTAN HAJJ MEDICAL MISSION 2016 (1437 HIJRI)

Waseem Raja, Asif Aziz*, Tathir Baqir Hassan**, Meezan Jalil***, Inam Ullah Niazi****, Naveed Jawaid*****, Muhammad Tariq*****

144 Medical Battalion Goma Siachin Glacier Pakistan, *Armed Forces Institute of Cardiology/National University of Medical Sciences (NUMS) Rawalpindi Pakistan, **DMS Log Mangla Pakistan, ***PAF Hospital Lahore Pakistan, ****Combined Military Hospital Bahawalpur/National University of Medical Sciences (NUMS) Pakistan, *****93 MDU Multan Pakistan, *****68 Medical Battalion Okara Pakistan

ABSTRACT

Objective: The purpose of this study was to determine the frequency of different diseases among Pakistani Hajj pilgrims attending the medical facilities of Pakistan Hajj Medical Mission during Hajj 2016 (1437 hijri).

Study Design: A descriptive cross sectional study.

Place and Duration of Study: Pakistan Hajj Medical Mission hospitals and dispensaries at Makkah Mukkarrmah, Medina Munawwarah and Jeddah, from 10th Aug 2016 to 5th Oct 2016.

Material and Methods: All Pakistani Hajj pilgrims reporting to various Pakistan Hajj Medical Mission Hospitals and dispensaries at Makkah, Medina and Jeddah were included in the study. A universal sample of all patients reporting to the Hajj medical mission (A total of 184,496 OPD visits) was used. The patient were initially assessed in Emergency Reception(ER) by medical officers and then referred to respective specialists if required. A specially designed proforma having information regarding name, age, disease and its duration was prepared and filled for each patient separately. A second hospital/dispensary visit of the Hajj pilgrim was considered separately on a new proforma. SPSS version 17 was used to analyze the data.

Results: There were a total of 184,496 OPD (Out Patient Department) visits by Pakistani Hajj pilgrims during the study period. Age of the patients ranged from 20-96 years, 74.5% (n=137, 449) were male and 25.5% (n=47047) were female. Number of patients suffering from various diseases and their percentage in order of frequency was; respiratory diseases 29% (n=53187), musculoskeletal disorders 18% (n=33838), gastrointestinal diseases 15% (n=26696), Ear Nose and Throat (ENT) diseases 8% (n=14448), skin disorders 6% (n=10937), eye disease 3% (n=4530), mouth and dental diseases 3% (n=6101), wounds, fractures and burns 3% (n=6186), cardiovascular diseases 2% (n=4433), gynecological disorders 2% (n=4357), infectious disease 1% (n=1055), minor surgeries <1% (n=620), psychiatric disorders <1% (n=40) and other miscellaneous complaints 5% (n=9889).

Conclusion: Respiratory illness was the commonest disease among Pakistani Hajj Pilgrims while musculoskeletal and gastrointestinal complaints were also high. This study helps to identify the common diseases encountered during Hajj Medical Mission and may aid in the better preparedness of such missions in future.

Keywords: Medical mission, Religious missions, Respiratory illness.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Hajj is the biggest annual religious ritual in the world, and also an obligation to be carried out at least once in the lifetime of every physically, psychologically and financially stable Muslim. Each year, millions of Muslims from over 170 countries perform it¹. More than 150,000 Pakistani

Pilgrims also travel to Saudi Arabia each year for Hajj and this year this number was 143,000². The rituals performed during Hajj include Tawaf (a walk around Kaaba) followed by the Sa'i which consists of a walk between two hills (Safa and Marwa) seven times, each with a distance of about 450 m to a total of 3.15 km, a 14.5 km journey to the desert Arafat, a night spent under open sky at Muzdalifah and stones to be thrown the following day at Jamarat, Mena (about 5 km from Makkah). This extraordinary mass gathering poses various health risks, both

Correspondence: Dr Waseem Raja, House No 3 Lane No 1 Askari 13 Adyala Road Rawalpindi Pakistan

Email: vazim9@hotmail.com

Received: 11 Oct 2016; revised received: 29 Nov 2016; accepted: 21 Mar 2017

communicable and non-communicable. Non-communicable hazards of the Hajj include stampede, road traffic accidents, fire-related burn injuries and accidental hand injury during animal slaughter. Some of the communicable hazards include various respiratory tract infections, meningococcal meningitis, gastroenteritis, acute viral hepatitis. Many variables predispose pilgrims to become ill. Some of these factors are: overcrowding, stresses, dietary changes, sleep habits, over-enthusiastic exertions, pre-Hajj comorbidities, older age and strenuous physical efforts³. During Hajj season commonest cause for admission in a surgery ward is trauma cases⁴ while in medical wards the reason was pneumonia⁵. Various respiratory infections include different strains of influenza virus, bacterial pneumonia, whooping cough,

the quality of care provided to the Hajj Pilgrims and may prevent unnatural disease related deaths.

MATERIAL AND METHODS

This study was conducted prospectively from 10th August 2016 to 5th October 2016 (1437 Hijri). All Pakistani Hajj pilgrims reporting to various dispensaries and hospitals of Pakistan Hajj Medical Mission, at Makkah Mukkarrmah, Medina Munawwarah and Jeddah, were included in the study. Pakistan Hajj Medical mission had established two hospitals (each 40 bedded hospital at Makkah and Medina) and 11 dispensaries (8 in Makkah, 2 in Medina and 1 in Jeddah). Resident Pakistanis and Hujjaj of other countries reporting sick were excluded from the study. Medical officers attended the patients at

Table: Summary of the patients treated at Pakistan Hajj Medical Mission 2016.

Category	Number (n)	Percentage (%)
Total Patients	184,496	100
Patients treated as outdoor cases	180,872	98
Admitted in Hajj Mission	3624	2
Referred to Saudi Hospitals	608	<1

mycobacterium tuberculosis respiratory syncytial viruses (RSV) adenoviruses and Middle East Respiratory Syndrome Coronavirus (MERS-CoV (which appeared in Saudi Arabia in 2012⁶. Recently, dengue fever, Alkhumra hemorrhagic fever, and Rift Valley fever have also emerged but no case of MERS-coronavirus, appeared in Saudi Arabia after 2012 Hajj season⁷. Prior to the recent dominance of respiratory infection in hospital admissions during the holy month, cholera and meningitis were the principal causes of morbidity and mortality. The better and improved hygiene, health care and education can be credited for the current reduction in incidence of these infectious diseases. The aim of this study was to determine the frequency of different medical problems which are faced by Pakistani Hajj Pilgrims for which they report to our dispensaries and hospitals during Hajj season. This may help to improve and rationalize the preparedness of future Hajj Missions, improve

dispensaries and referred the required cases to our main hospitals in Makkah and Medina. Both main hospitals were adequately equipped with specialists and electro medical equipment to cater for the incoming patients and limited stay facilities. The patients requiring advanced medical treatment or extended hospitalization were shifted to tertiary care Saudi hospitals in Makkah and Medina. A specially designed proforma was made and filled for each patient separately. This proforma included demographic features like age and gender of the patient, diagnosis and duration of the disease. Diagnoses of all the patients were mostly made clinically but help was taken from basic available laboratory facilities. The Statistical Program for Social Sciences (SPSS) Version 17 (SPSS Inc. Chicago, IL, USA) was used for all statistical analysis and frequencies and percentages of the collected data were calculated.

RESULTS

There were a total of 184,496 OPD (Out Patient Department) visits by Pakistani Hajj pilgrims during the study period in Hajj season 2016 (1437 Hijri), out of which 74.5% (n=137, 449) were male and 25.5% (n=47047) were female. Age of the patients ranged from 20-96 years. Out of all, 3624 patients were admitted in Hajj mission hospitals, 608 were referred to tertiary care Saudi hospitals while rest were given treatment in the outdoor (table).

Number of patients suffering from various diseases and their percentage in order of frequency was; respiratory diseases 29% (n=53187), musculoskeletal disorders 18%

acute exacerbations of preexisting asthma and Chronic Obstructive Pulmonary Disease) was the commonest illness (29%, n=53187) followed by musculoskeletal disorders (like multiple aches and pains, knee pain, exacerbation of preexisting osteoarthritis of knees) 18% (n=33838) and gastrointestinal diseases (nausea, vomiting, food poisoning, cholecystitis, appendicitis, intestinal obstruction, decompensation of chronic liver disease) gastrointestinal disorders, 15% (n=26696) (fig-2).

The number and percentages of patients suffering from various illnesses in different hospitals and dispensaries of Makkah, Medina and Jeddah are shown the fig-3, 4 and 5.

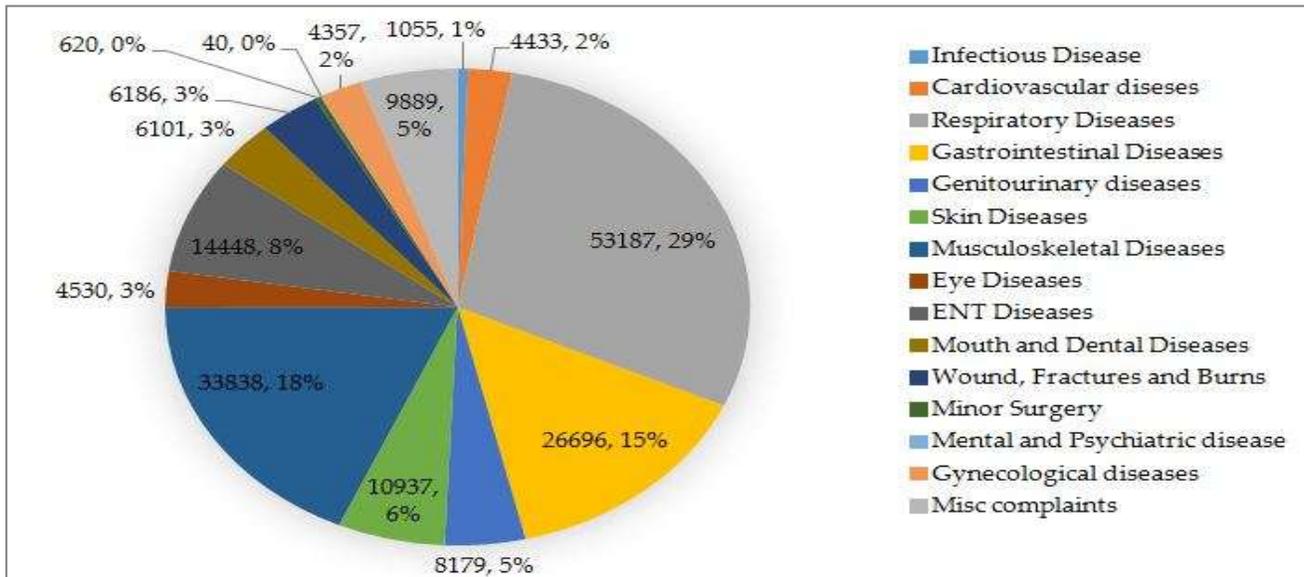


Figure-1: Pattern of diseases reported at Pakistan Hajj Medical Mission 2016.

(n=33838), gastrointestinal disorders 15% (n=26696), ENT diseases 8% (n=14448), skin disorders 6% (n=10937), eye disease 3% (n=4530), mouth and dental diseases 3% (n=6101), wounds, fractures and burns 3% (n=6186), cardiovascular diseases 2% (n=4433), gynecological disorders 2% (n=4357), infectious disease 1% (n=1055), minor surgeries <1% (n=620), psychiatric disorders <1%, other miscellaneous diseases 5% (n=9889) (n=40) (fig-1).

Chest diseases (including pneumonia, nonspecific influenza like illness, febrile cough,

Maximum number of patients were attended in Makah (n=159412, 86.4% of total) followed by Medina(n=17632, 9.55%) and Jeddah (n= 7452, 4.03%).

DISCUSSION

Hajj creates a unique medical situation as huge number of Muslims from around the globe come to perform it. Any preexisting medical conditions, old age, hot and humid weather, overcrowded places, inadequate food intake and strenuous physical activity to perform Hajj rituals expose pilgrims to many illnesses. Pakistan Hajj

Medical Mission is established each year to provide basic and emergency medical services to Pakistani Hujjaj and it also ensures urgent referrals to specialist Saudi hospitals in required cases.

The commonest problem for visiting the medical facilities of Hajj Medical Mission in our study was respiratory complaints followed by

A study carried out on Pakistani Hujjaj by Qureshi et al showed good efficacy of influenza vaccine in preventing as well as lessening the severity of the symptoms¹⁰. It is documented that 1 in 3 pilgrims will experience respiratory symptoms. Typical symptoms are cough, sputum production, sore throat, hoarseness of voice, rhinorrhea, fever and malaise. Cough usually

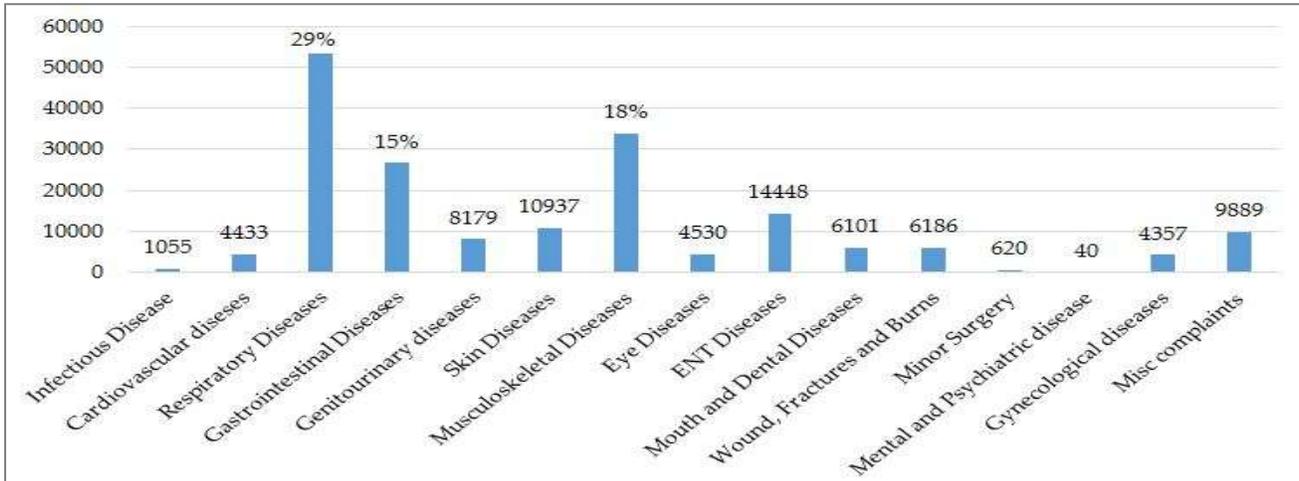


Figure-2: Break down of patients of various diseases reporting to Pakistan Hajj Medical Mission 2016 of all patients.

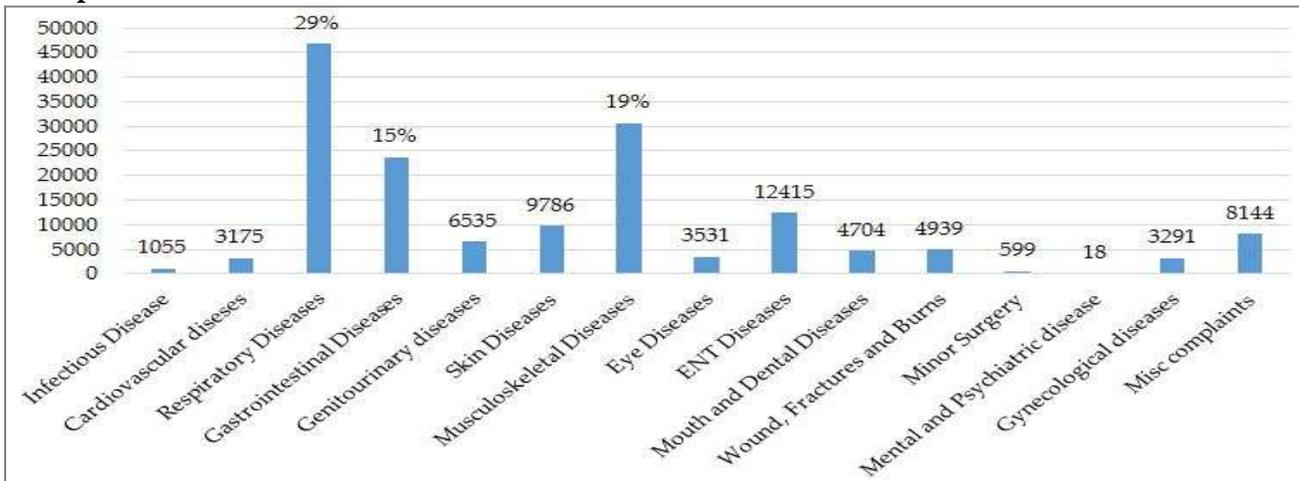


Figure-3: Patients of various diseases attending Makkah hospital and dispensaries.

musculoskeletal disorders and gastrointestinal ailments. Several international studies have also documented respiratory illnesses being the commonest problem encountered among Hajj pilgrims⁸. Influenza virus is the commonest cause of upper respiratory tract infection during Hajj despite its extensive immunization programme⁹.

persists for a long time. Respiratory infections could be complicated by exacerbations of asthma, chronic obstructive pulmonary disease, sinusitis and pneumonia. Cough was the most frequent presenting complaint in our hospitals and most of the Hajj pilgrims were seeking medical attention for this reason. A study on French Hajj pilgrims

also showed cough as the most frequent reason for hospital visits¹¹ and in this study 60.6% of the patients had cough. Other than being the commonest cause of hospital visits, pneumonia has also been shown to be responsible for the second (after cardiovascular disease) greatest number of deaths during Hajj.

There are few studies with contradictory

followed by trauma with 26.55% and finally renal failure in need of dialysis with 12.43%. This contradiction in results is probably due to the different type of setups in which studies were carried out; these two studies have reported the diseases pattern among admitted patients during Hajj season in a tertiary care hospital in Makkah, while our study is reporting data from dispensaries and basic hospitals of Pakistan Hajj

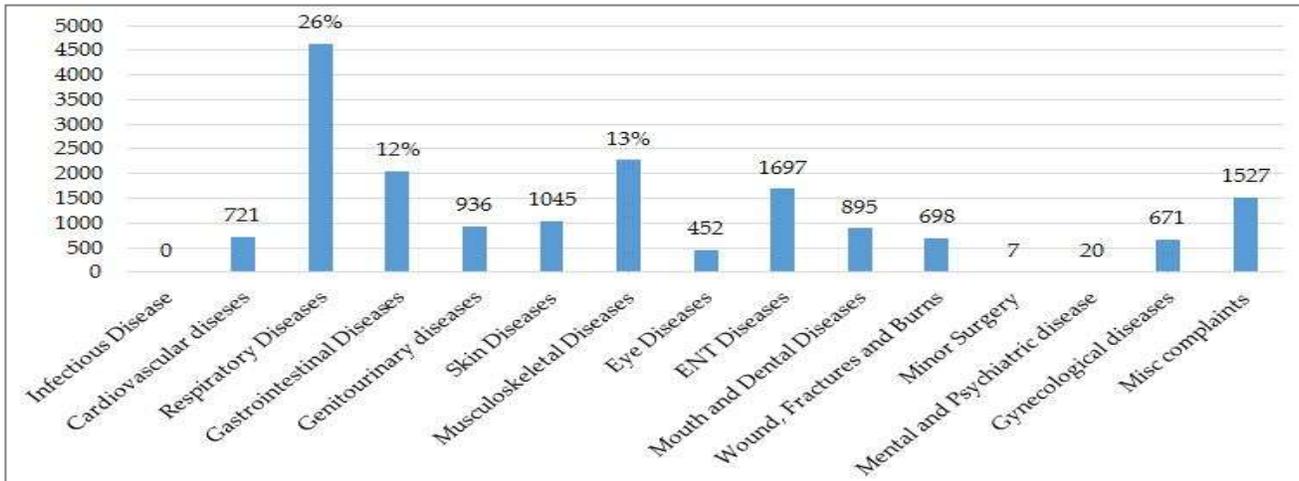


Figure-4: Patients of various diseases attending Medina hospital and dispensaries.

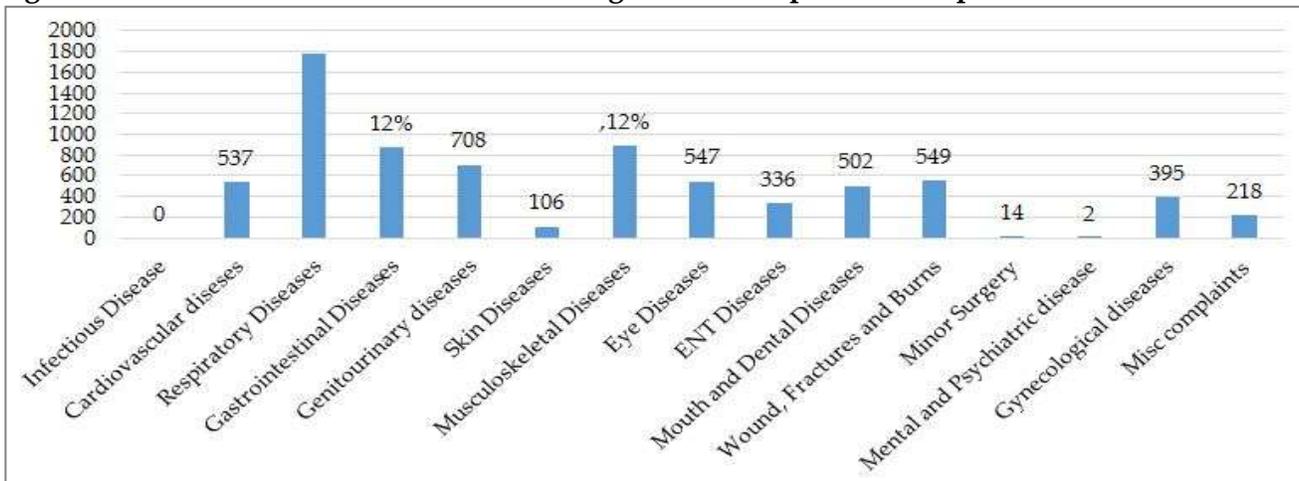


Figure-5: Patients of various diseases attending Jeddah dispensary.

results as well. Khan et al reported that the four commonest reasons for admission during Hajj season were diabetes mellitus (31.9%), hypertension (37.2%), cardiac diseases (31.8%) and chronic lung diseases (14.9%)¹². Similarly another Iranian study¹³ reported most of the Hajj pilgrims admitted to a tertiary care facility were due to cardiovascular diseases with 38.6%,

Medical Mission. We have also documented that a large number of Pakistani Hujjaj complained of musculoskeletal problems which included both the exacerbation of preexisting disease but mostly these were multiple body aches and joint pains secondary to strenuous physical activity. A study from Iran showed that 18.6% of Iranian Hujjaj suffered from musculoskeletal complaints¹². ENT

complaints mostly comprised of infections of upper respiratory tract, cough and rhinorrhea. Food poisoning was the commonest gastrointestinal problem encountered in our study. It is documented in literature that salmonella species is the most important pathogen, but due to the extensive effort carried by the health authorities to prevent or eradicate communicable diseases, new pathogens are now emerging such as Escherichia coli (E.coli) and Norwalk like viruses. During the hajj of 1986, gastroenteritis has been the most common reason of hospital admissions. A previous study carried out during 2002 indicated diarrhea as the third reason of hospital admissions among hajjis¹⁴. Skin diseases were also frequent complaints with 6% of total patients reporting with skin complaints. Another study from Hajj medical mission Pakistan in 2009 showed that discoid eczema was the most frequent skin diagnosis followed by pompholyx, asteatotic eczema and atopic eczema¹⁵. Only 2% (n=4433) of the total OPD patients reported with cardiovascular complaints. But it has been observed that over the past few years cardiovascular diseases is emerging as an important cause both of intensive care unit (ICU) admissions and of mortality during Hajj. Pilgrims with relatively old age and high prevalence of cardiovascular diseases are among the travelers. Changes in living conditions, environment and lifestyle, stress and fatigue can cause or aggravate cardiac events in such a trip. Also, discontinuation or irregular taking of medications is an important factor in these cases¹³. A total of forty patients presented with features of insomnia and anxiety. We did not address the specific type of mental disorders in our study but neurosis, stress-related and somatoform disorders followed by mood disorders were the most frequent psychiatric problems during Hajj³. Infectious diseases comprised of 1% (n=1055) of the total ailments reported and common diseases among this category were malaria, typhoid and acute viral hepatitis.

This is a descriptive cross sectional study with main focus on determining the frequency of various ailments and classifying these complaints into different systems like respiratory, gastrointestinal and musculoskeletal systems. The issue of diagnosis has not been addressed and validated by independent observers. Additionally various diseases of each system like gastrointestinal tract or respiratory have not been discussed in detail as it was beyond the scope of this study and sample size was quite large as well.

Hajj presents a unique challenge as an increasing number of humans become more mobile. Doctors all around the globe must be aware of the common disease patterns, potential risks of disease transmission and suggest appropriate strategies, which can be applied before departure and implemented in the field. International collaboration is required in planning vaccination campaigns, arranging rapid repatriation of sick Hujjaj, managing health hazards at the Hajj and providing care beyond the holy sites. The Saudi Ministry of Hajj (MoH) every year publishes the Hajj requirements for the upcoming Hajj season. These requirements need to be followed meticulously to ensure safe Hajj for all pilgrims¹⁶. Further studies should be conducted to provide detailed breakdown of patients suffering from various ailments, patients referred to tertiary care centers patients as well as their outcome and causes of mortality among Pakistani Hajj pilgrims.

CONCLUSION

Respiratory diseases remain the commonest reported illness among Pakistani Hajj pilgrims, followed by musculoskeletal and gastrointestinal diseases.

RECOMMENDATION

Surveillance of behavioral risk factors, devising new intervention strategies, proposing new policies and regulations, correct trainings and conforming to health recommendations, more enthusiastic implementation of preventive measures like hand hygiene, wearing face masks

and more effective influenza vaccination may help to reduce the risk of respiratory as well as other common diseases. The present data may help the future Hajj medical missions in anticipating the burden and type of patients and accordingly better preparedness of medical support plan which ultimately will improve the healthcare facilities provided to Pakistani Hujjaj.

ACKNOWLEDGEMENT

The authors acknowledge the untiring and relentless efforts of all the doctors and staff of Hajj Medical Mission 2016 in providing the best possible medical services to Pakistani Hujjaj as well as collection of this data.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

REFERENCES

1. Hasan G, Moabber H, Alyamani A, Sayeed A, Altatar F. Study on risk factors (predisposing factors) for poor diabetes control during Hajj (1436/2015) in people with diabetes. *Pakistan journal of medical sciences* 2016; 32(5): 1092-6.
2. Editors. 143,000 Pakistani pilgrims to perform Hajj this year Pakistan: *Geo News*; 2016 [cited 2016]. Available from: <https://www.geo.tv/latest/103174-143000-pilgrims-to-perform-Hajj-this-year>.
3. Meysamie A, Ardakani HZ, Razavi SM, Doroodi T. Comparison of mortality and morbidity rates among Iranian pilgrims in Hajj 2004 and 2005. *Saudi medical journal* 2006; 27(7): 1049-53.
4. Mortazavi SM, Torkan A, Tabatabaei A, Shamspour N, Heidari S. Diseases Led to Refer Iranian Pilgrims From Hajj in 2012. *Iranian Red Crescent medical journal* 2015; 17(7): e12860.
5. Benkouiten S, Charrel R, Belhouchat K, Drali T, Nougairède A, Salez N, et al. Respiratory viruses and bacteria among pilgrims during the 2013 Hajj. *Emerging infectious diseases* 2014; 20(11): 1821-7.
6. Alzeer AH. Respiratory tract infection during Hajj. *Annals of thoracic medicine* 2009; 4(2): 50-3.
7. Salmon-Rousseau A, Piednoir E, Cattoir V, de La Blanchardiere A. Hajj-associated infections. *Medecine et maladies infectieuses* 2016; 46(7): 346-54.
8. Razavi SM, Sabouri-Kashani A, Ziaee-Ardakani H, Tabatabaei A, Karbakhsh M, Sadeghipour H, et al. Trend of diseases among Iranian pilgrims during five consecutive years based on a Syndromic Surveillance System in Hajj. *Medical journal of the Islamic Republic of Iran* 2013; 27(4): 179-85.
9. Barasheed O, Rashid H, Heron L, Ridda I, Haworth E, Nguyen-Van-Tam J, et al. Influenza vaccination among Australian Hajj pilgrims: uptake, attitudes and barriers. *Journal of travel medicine* 2014; 21(6): 384-90.
10. Qureshi H, Gessner BD, Leboulleux D, Hasan H, Alam SE, Moulton LH. The incidence of vaccine preventable influenza-like illness and medication use among Pakistani pilgrims to the Haj in Saudi Arabia. *Vaccine* 2000; 18(26): 2956-62.
11. Gautret P, Yong W, Soula G, Gaudart J, Delmont J, Dia A, et al. Incidence of Hajj-associated febrile cough episodes among French pilgrims: a prospective cohort study on the influence of statin use and risk factors. *Clinical microbiology and infection: the official publication of the European Society of Clinical Microbiology and Infectious Diseases* 2009; 15(4): 335-40.
12. Khan NA, Ishag AM, Ahmad MS, El-Sayed FM, Bachal ZA, Abbas TG. Pattern of medical diseases and determinants of prognosis of hospitalization during 2005 Muslim pilgrimage Hajj in a tertiary care hospital. A prospective cohort study. *Saudi medical journal* 2006; 27(9): 1373-80.
13. Sadeghi S, Heidari A, Fazli H, Rezaei M, Sheikhzadeh J. The Most Frequent Causes of Hospitalization of Iranian Pilgrims in Iraq During a 5-Month Period in 2012, and Their Outcome. *Iranian Red Crescent medical journal* 2015; 17(11): e12862.
14. Emamian MH, Mohammad Mohammadi G. An Outbreak of Gastroenteritis Among Iranian Pilgrims of Hajj during 2011. *Iranian Red Crescent medical journal* 2013; 15(4): 317-9.
15. Raza N, Syed A, Ahmad J. Frequency and pattern of dermatological diseases among Pakistani Hujjaj during Hajj-1429 (2008). *J Pak Assoc Derma* 2009; 19(3): 131-5.
16. Memish ZA. The Hajj: communicable and non-communicable health hazards and current guidance for pilgrims. *Euro surveillance: bulletin European sur les maladies transmissibles =European communicable disease bulletin* 2010; 15(39): 19671.