



## MANAGEMENT OF DIABETES AND HYPERTENSION PATIENTS DURING HAJJ PILGRIMAGE

Roland Helmizar<sup>1</sup>, Dessy Abdullah\*<sup>2</sup>, Prima Adelin<sup>3</sup>, Lidia Dewi<sup>4</sup>, Boy  
Hutaperi<sup>5</sup>, Elfi Yulfienti<sup>6</sup>, Chandra Adilla<sup>7</sup>

<sup>1,2,3,4,5</sup> Universitas Baiturrahmah

Email: [dessyabdullah@fk.unbrah.ac.id](mailto:dessyabdullah@fk.unbrah.ac.id)

### **Abstract**

*The Hajj, the annual Islamic pilgrimage to Mecca, is a significant event that poses unique challenges for individuals with chronic medical conditions, such as diabetes and hypertension. Diabetes, in particular, has been identified as a leading cause of morbidity and mortality during the Hajj. Patients with diabetes face a variety of logistical and environmental hurdles that can complicate their disease management, including exposure to extreme heat, lengthy periods of physical exertion, and difficulties in accessing and storing their medications. Approximately 20% of pilgrims with underlying illnesses who visit Mecca are diabetic, and these individuals are at an increased risk of developing serious complications, such as diabetic ketoacidosis, non ketotic hyperosmolar state, and hypoglycemia-induced fatigue or unconsciousness. Method: Implementation of community service activities. The planning stage begins with identifying problems and coordinating with related parties, there is a problem identification stage, an analysis is carried out related to diabetes and hypertension, and provides education related to hypertension and diabetes, and discussions with pilgrims. the results of the pilgrims' meeting understand well so that it can be concluded from this activity that pilgrims suffering from diabetes and hypertension can independently manage their treatment regimen and life style during the pilgrimage*

**Keywords:** diabetes, hypertension, pilgrims, hajj

### **INTRODUCTION**

Diabetes, in particular, has been identified as a leading cause of morbidity and mortality during the Hajj. Patients with diabetes face a variety of logistical and environmental hurdles that can complicate their disease management, including exposure to extreme heat, lengthy periods of physical exertion, and difficulties in accessing and storing their medications. Approximately 20% of pilgrims with underlying illnesses who visit Mecca are diabetic, and these individuals are at an increased risk of developing serious complications, such as diabetic ketoacidosis, nonketotic hyperosmolar state, and hypoglycemia-induced fatigue or unconsciousness. (1) In addition to the risks posed by diabetes, hypertensive pilgrims must also contend with the physical demands of the Hajj, which can exacerbate their condition and lead to adverse events.

To effectively mitigate the health risks faced by diabetic and hypertensive pilgrims during the Hajj pilgrimage, a comprehensive and multifaceted approach to patient management is essential. This should involve thorough medical evaluations, tailored educational guidance, and the implementation of proactive measures to address the unique challenges encountered during the pilgrimage. Before embarking on the Hajj, all diabetic and hypertensive patients should undergo a complete biochemical evaluation to assess their current health status and identify



any potential issues that may require special attention. Patients should also be provided with detailed instructions on the importance of carrying out their medical history, summaries of their current treatment regimens, and emergency snacks or medications to manage acute complications. For diabetic patients, the dosage of insulin and sulfonylurea medications may need to be adjusted to reduce the risk of hypoglycemia. (2). Given the diversity of pilgrims and the potential language barriers, healthcare providers and organizers of the Hajj pilgrimage must collaborate to ensure that all participants, regardless of their linguistic or cultural background, have access to the necessary medical support and resources. This may involve the use of mobile translation applications or the provision of basic language training to healthcare personnel to facilitate effective communication during emergencies. By implementing these comprehensive strategies, healthcare providers can help to ensure the safety and well-being of diabetic and hypertensive pilgrims during the Hajj, reducing the risk of adverse health outcomes and improving the overall experience of this sacred journey(1)

To effectively mitigate the challenges faced by diabetic and hypertensive pilgrims during the Hajj, a comprehensive preparatory process is essential. Before embarking on the pilgrimage, these individuals should undergo thorough medical evaluations, including a complete biochemical assessment to determine their current health status and identify any potential issues that may require special attention. This evaluation should also inform the provision of tailored educational guidance to help the pilgrims better manage their conditions during the Hajj. (3) As part of this preparatory process, diabetic and hypertensive pilgrims should be instructed on the importance of carrying their relevant medical history and treatment regimen summaries, as well as emergency snacks or medications to address acute complications. For diabetic patients, their insulin and sulfonylurea medication dosages may need to be carefully adjusted to reduce the risk of hypoglycemia, a potentially life-threatening complication. (4) Additionally, maintaining proper hydration and foot care is crucial for these individuals to prevent further health issues, such as infections and other complications, during the physically demanding Hajj rituals. By implementing these proactive measures, healthcare providers can help ensure that diabetic and hypertensive pilgrims are well-equipped to safely navigate the unique challenges presented by the Hajj pilgrimage(5) Through comprehensive medical evaluations, tailored education, and the provision of essential medical resources, these individuals can be empowered to effectively manage their chronic conditions during the physically and environmentally demanding rituals of the Hajj. This comprehensive approach, which addresses both the logistical and medical needs of these pilgrims, can ultimately enhance their overall experience and sense of well-being as they undertake this sacred journey, allowing them to focus on the spiritual and communal aspects of the pilgrimage without undue health concerns.(6) Additionally, close collaboration between healthcare providers and organizers of the Hajj pilgrimage is crucial to ensure that all participants, regardless of their linguistic or cultural background, have access to the necessary medical support and resources. This may involve the use of mobile translation applications or the provision of basic language training to healthcare personnel to facilitate effective communication during emergencies, further improving the safety and well-being of these vulnerable pilgrims(4). As part of this preparatory process, diabetic and

hypertensive pilgrims should be instructed on the importance of carrying their relevant medical history and treatment regimen summaries, as well as emergency snacks or medications to address acute complications. For diabetic patients, their insulin and sulfonylurea medication dosages may need to be carefully adjusted to reduce the risk of hypoglycemia, a potentially life-threatening complication. Additionally, maintaining proper hydration and foot care are crucial for these individuals to prevent further health issues, such as infections and other complications, during the physically demanding Hajj rituals.(7)

**MATERIALS AND METHODS**

The implementation of community service activities is carried out in several stages, namely planning, implementation and evaluation. The planning stage begins with identifying problems and coordinating with related parties, which in this case are the partners at the community service location. At the problem identification stage, an analysis is carried out regarding what health problems are found at the partner location. The results of problem identification show that many pilgrims suffering from diabetes and hypertension are still worried about how to manage their treatment regimens while performing the Hajj. After getting an overview of the problem situation analysis, the community service team and partners decided to jointly conduct a webinar as well as a discussion about all the obstacles that are likely to be faced during the pilgrimage and how to solve them.

The next stage is conducting webinar activities with the audience of pilgrims who will depart, the last stage is evaluation activities. Evaluation during the activity was carried out qualitatively using the interview method. This method was chosen so that the service team could find out the extent to which the pilgrims understood after being given education. this evaluation activity is needed to see how important this education is carried out and then monitoring is carried out during the pilgrimage by the health team.

The stages of community service activities can be seen in Figure 1 below:

Planning	Find problems and coordinate with relevant parties	
Target implementation	Medical Personnel	Pilgrims
Method implementation	Webinar and Discussion	
Evaluation	Interview	

**RESULTS AND DISCUSSION**

By implementing these proactive measures, healthcare providers can help ensure that diabetic and hypertensive pilgrims are well-equipped to safely navigate the unique challenges presented by the Hajj pilgrimage. Through comprehensive medical evaluations, tailored education, and the provision of essential medical resources, these individuals can be empowered to effectively manage their chronic conditions during the physically and environmentally demanding rituals of the Hajj.

This comprehensive approach, which addresses both the logistical and medical needs of these pilgrims, can ultimately enhance their overall experience and sense of well-being as they undertake this sacred journey, allowing them to focus on the spiritual and communal aspects of the pilgrimage without undue health concerns.

Furthermore, close collaboration between healthcare providers and organizers of the Hajj pilgrimage is crucial to ensure that all participants, regardless of their linguistic or cultural background, have access to the necessary medical support and resources. This may involve the use of mobile translation applications or the provision of basic language training to healthcare personnel to facilitate effective communication during emergencies, further improving the safety and well-being of these vulnerable pilgrims. To effectively mitigate the challenges faced by diabetic and hypertensive pilgrims during the Hajj, a comprehensive preparatory process is essential. Before embarking on the pilgrimage, these individuals should undergo thorough medical evaluations, including a complete biochemical assessment to determine their current health status and identify any potential issues that may require special attention. This evaluation should also inform the provision of tailored educational guidance to help the pilgrims better manage their conditions during the Hajj. (8) Furthermore, close collaboration between healthcare providers and organizers of the Hajj pilgrimage is crucial to ensure that all participants, regardless of their linguistic or cultural background, have access to the necessary medical support and resources. This may involve the use of mobile translation applications or the provision of basic language training to healthcare personnel to facilitate effective communication during emergencies, further improving the safety and well-being of these vulnerable pilgrims. By taking a holistic and multifaceted approach to patient management, healthcare providers can help mitigate the significant health risks faced by diabetic and hypertensive pilgrims. This collaborative effort should also focus on identifying and addressing any cultural or religious barriers that may prevent these individuals from seeking or adhering to the recommended medical interventions. (9) Furthermore, healthcare providers should work closely with Hajj organizers to develop comprehensive emergency response plans that can be quickly activated to provide timely and appropriate care for those experiencing medical complications during the pilgrimage. By fostering this close partnership and implementing a range of supportive measures, healthcare providers can empower diabetic and hypertensive pilgrims to safely navigate the unique challenges of the Hajj while maintaining their overall health and well-being(10).



Figure 1. presentation of material by an internal medicine specialist



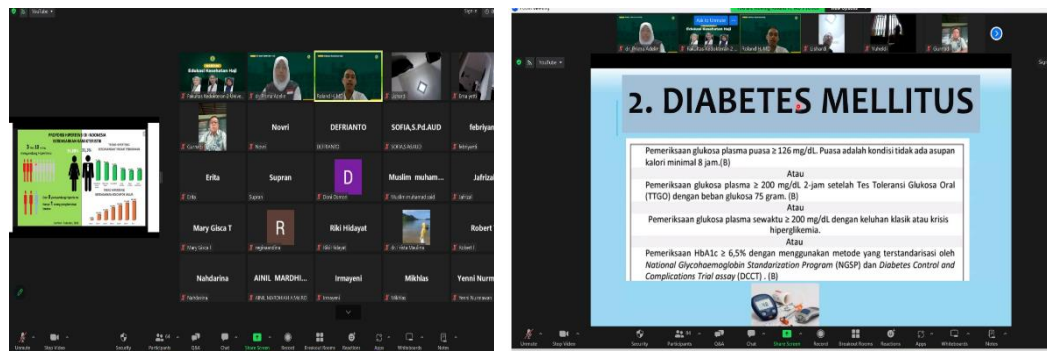


Figure 2. audience discussion and interview

## CONCLUSIONS & RECOMMENDATIONS

The primary objectives of pre-Hajj planning for individuals with diabetes and hypertension are to achieve good glycemic control, prevent complications, and optimize blood pressure control. This involves close monitoring, medication adjustments, patient education, and coordination with local healthcare providers. Effective health education and communication with pilgrims, religious authorities, and community leaders are crucial for managing these chronic conditions during the Hajj pilgrimage.

## ACKNOWLEDGEMENTS

Thank you to all those who have helped this activity run smoothly, especially to KEMENAG, TKHI, and pilgrims.

## REFERENCES

1. Ibrahim M, Abdelaziz SI, Abu Almagd M, Alarouj M, Annabi FA, Armstrong DG, et al. Recommendations for management of diabetes and its complications during Hajj (Muslim pilgrimage). *BMJ Open Diabetes Res Care*. 2018;6(1).
2. Model C. Standards of medical care in diabetes-2009. *Diabet Retin*. 2010;1–36.
3. Noh LMM, Mohammad NH, Zamri NAK, Yusof RM, Hussin H, Abdullah Z. Standard Operational Procedure in Health Quality for Hajj Pilgrims by Lembaga Tabung Haji. *Int J Acad Res Bus Soc Sci*. 2020;10(9):44–54.
4. 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 J Med Sci*. 2016;32(5):1092–6.
5. Almashaykhi A, Nooh RM, Almudarra SS, Almutari AS, Albudayri N, Alghamdi KM. AACE2021-A-1043: Pattern of Referral of Sick Omani Pilgrims from Omani Medical Mission During Hajj 2019. *Endocr Pract* [Internet]. 2021;27(12):S25–6. Available from: <https://doi.org/10.1016/j.eprac.2021.11.033>
6. Badri H. Genotoxicity and Cytotoxicity of Particulates-Dependence on Composition and Source. 2020; Available from: <https://search.proquest.com/openview/f0c445821fff5a25f5ef81815e7c2044/1?pq-origsite=gscholar&cbl=2026366&diss=y>
7. Shirah BH, Al Nozha FA, Zafar SH, Kalumian HM. Mass gathering medicine (Hajj pilgrimage in Saudi Arabia): The outcome of cardiopulmonary



- resuscitation during Hajj. *J Epidemiol Glob Health*. 2019;9(1):71–5.
8. Yezli S, Yassin Y, Mushi A, Balkhi B, Khan A. Insulin Knowledge, Handling, and Storage among Diabetic Pilgrims during the Hajj Mass Gathering. *J Diabetes Res*. 2021;2021.
  9. Safarpour H, Safi-Keykaleh M, Farahi-Ashtiani I, Bazayr J, Daliri S, Sahebi A. Prevalence of Influenza Among Hajj Pilgrims: A Systematic Review and Meta-Analysis. *Disaster Med Public Health Prep*. 2022;16(3):1221–8.
  10. Inam D. Khana,\*, Shahbaz A. Khanb, Bushra Asimac, Syed B. Hussainid, M. Zakiuddine,.pdf.

