

# The Construction of a Measuring Tool for the Health Management Research on Malaysian *Hajj* Pilgrim: The Focus Group Discussion (FGD) Approach

Nor Radhiah Mat Nor<sup>a\*</sup>, Rosminah Mohamed<sup>a</sup>, Suhaimi Ab.Wahab<sup>a</sup>, Omar Osman<sup>b</sup>

<sup>a\*</sup> School of Health Science (PPSK), Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

<sup>b</sup> Universiti Sains Malaysia, 11800, Pulau Pinang, Malaysia

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## Abstract

*Hajj* is an annual Muslim pilgrimage to Makkah that involved 2.5 million pilgrims from all around the world. It caused huge congestion that could lead to potential diseases outcomes and numerous problems during its performance. This study aimed to explore the pilgrims' experiences during the *Hajj*, particularly Malaysian pilgrims in order to construct quantitatively oriented surveys for data collection in Makkah. Focus group discussion (FGD) was used as a data collection method. Six groups of participants were selected based on inclusion and exclusion criteria. The total numbers of participants selected for FGD session was 36 participants. The questions covered the issues related to participants' *Hajj* journey. The data was then analyzed by Nvivo software version 10. Five themes were identified from the interview. These included the health related problems, the causes of the health problem, the location where the pilgrims perceived most of the health problems, the demand for the health care services, and finally the supply of health care services. Each theme comprises of sub-themes and theme that emerged. FGD is an important tool for the development of questionnaires. The information gathered from the five themes becomes the important components to construct the questionnaire and valuable for future studies.

**Keywords:** Healthcare demand, health management, *Hajj* management, focus group discussion (FGD).

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## 1. INTRODUCTION

According to Islamic teaching, Makkah is the most holy place on earth that attracted more than 2.5 million pilgrims from all over the world to perform *Hajj*, which falls in the month of *Dhu al-Hijjah*, the twelfth month in Muslim calendar (Mandourah *et al.*, 2012). *Hajj* is the fifth pillar in Islam. The Muslims from over 140 countries from different nationalities descent on the Saudi Arabian (Gaffar *et al.*, 2013), city of Makkah to perform this important ritual with an intention to earn great rewards for themselves. Pilgrims numbers have greatly increases every year. It has been reported that, the total number of pilgrims in 1920 was 58 584 (Ziad A Memish *et al.*, 2014) increased to 3.3 million in 2009 (Dupret and Pinto, 2012). However, the expansion project of Grand Mosque in Makkah has limited the number of pilgrims, thus led to reductions in number of pilgrims from 3.16 million in year 2012 (Ziad A Memish *et al.*, 2014) to 1.98 million in year 2013. Approximately 22,320 Malaysian *Hajj* pilgrims perform *Hajj* during the *Hajj* season 2013/2014.

The increasing number of visitors each year may cause the extreme congestion, which leads to the increase in the risk of communicable and non-communicable diseases among them (Deris *et al.*, 2010; Khamis, 2007; Madani *et al.*, 2006; Novelli *et al.*, 1987; Serafi and Alqasim, 2012; Yousof, 1999). These include cardiovascular diseases (Al Shimemeri, 2012), gastrointestinal problems (Ghaznawi and Khalil, 1988), and meningococcal diseases (Barlas *et al.*, 1993). Therefore, the considerable burden of illness on pilgrims during *Hajj* will increases the demand for health care services. In economics, as noted by Whelan *et al.* (2001), the meaning of the term "demand" is a consumer's needs and readiness to pay (Whelan *et al.*, 2001). In health economics, demand has been defined as how much literally the patient's desire on health care services to treat their illness. In this study,

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\*Corresponding author. Tel. +000-00000000; Fax. +000-00000000  
E-mail: norradhiahmatnor@gmail.com

the term demand refers to the pilgrim's need and want during *Hajj*. Since the *Hajj* become the largest assembly and the possibility of the origin for international spread of diseases, the pilgrims demand extraordinary health care services. The health care services were arguably the most important public services during *Hajj*. However, health care systems in all countries have the same problems of scarce resources to fulfill the patient unlimited demand and wants (Phillips, 2008) that is substantially subjective. Therefore, a suitable methodology needs to be applied in order to compile as much informations on the people expectations from the health care providers.

A focus group discussion (FGD) is a popular method to explore deeply on certain issues that require participants to express their opinion or share experiences related to the topic of discussion such as experience of diseases and health services (McKie, 1993; Murray *et al.*, 1994). FGD can also contribute to the development of questionnaires through the issues of those being studied (Nassar-McMillan and Borders, 2002). In case of knowing demand and need among people performing *Hajj* within the crowd and congestion, such as *Hajj* pilgrim, the combination of psychological, physical and environmental factors make the expression from the pilgrimage rather difficult and vague. So far, none of the systematic research finding was done to explore the pilgrim's experiences during the *Hajj*, particularly the Malaysian pilgrims. Therefore, we attempted to explore the mentioned above issue started with FGD session for us to construct a set of questionnaire that would be utilized as a data collection tool for a research titled "The Fundamental of *Hajj* Demand for Health Care Services within the Congestion in Makkah".

## 2. METHOD

FGD was held to obtain information on the perception, experience, opinion, insight or idea associated with *Hajj* issues from the participants. The participants were selected based on inclusion and exclusion criteria outlined below for the FGD. The inclusion criteria was those male and female Malaysian hujjaj, who performed *Hajj* within the past two years, from 1431H/2010M until 1433H/2012M under the management either *Muassasah* or private package and they were willing to share their experiences and giving opinion and/or suggestions for a better *Hajj* management. Six group of participants were selected with each group consists of six participants with two of them were disable persons with the purpose is to gain the richness of data based on the widely perspective on *Hajj* issues. Detail of the participant's category is tabulated below:

Table 1: Participant's criteria during focus group discussion (FGD)

FGD group	Gender	Age	No. of participants
1	Female	<40 years old	4 + 2*
2	Male	<40 years old	4 + 2*
3	Female	40-49 years old	4 + 2*
4	Male	40-49 years old	4 + 2*
5	Female	>49 years old	4 + 2*
6	Male	>49 years old	4 + 2*

\* Disable participants

The total number of participants selected for FGD sessions were 36 participants. FGD session was conducted by a researcher as a moderator. Each session was held separately for the strategy to create a homogenous group for this study. List of important points was prepared to assist the moderator in facilitating the session. The questions covered the issues related to participant's *Hajj* journey. Written informed consent was given to the participants prior to the discussion. Each FGD process lasted between one to two hours and only involved one-group participants in a day. During the discussion process, the researcher tried to achieve the objective by covers all aspects of *Hajj*. The discussion involved several aspect that should be covered, namely *Hajj* journey experienced including the problems they were facing during *Hajj*, the causes of the health problem, the locations where the pilgrims perceived most of their health problems and how they treated their illness during *Hajj*; and health care services that were demanded by the pilgrims as well as supply of health care services.

### 2.1 Data collection

The FGD sessions were held at a small meeting room at School of Health Sciences, Universiti Sains Malaysia (USM). The place was chosen to allow the participants to be comfortable and could freely answer the questions and discussing the *Hajj* issues. This session was conducted in Malay language and participants were guided with questions forwarded by the moderator. Each conversation was recorded using Sony Handycam camcorder. The recorded conversations from each group were checked to ensure that the main issues were well covered prior to transcription.

## 2.2 Data analysis

The recorded statements were replayed for few times to ensure all information were accurately interpreted. The data was then analyzed by Nvivo software version 10. The transcript had been studied several times in order to identify the appropriate statement that reflect the objective of the study and further coded into 'nodes', where the sub-themes were systematically identified. Therefore, 20 categories were found to be connected with one another. The themes were then noted, which were derived based on the connections between codes. This outcome would then apply in the construction of research questionnaire, to be tested on *Hajj* pilgrimage.

## 3. RESULTS

A total of 36 participants participated in the six groups of FGD sessions that were held. As a result, five themes were identified from the interview.

- The health related problems
- The causes of the health problem
- The location where the pilgrims perceived most of the health problems
- The demand for the health care services
- The supply of health care services

Each theme comprises of sub-themes and theme that emerged.

### 3.1 Theme 1: Health related problem

All the participants were asked about their health problem that they were facing during the *Hajj*. This included the exploration of health issues such as the communicable diseases and non-communicable diseases. Most of them suffered from communicable diseases such as respiratory diseases, fever and diarrhea. Signs and symptoms of respiratory diseases are cough, flu and asthma. Some of them also suffered from non-communicable diseases such as cracked lip, rehydration, ulcer, and hypertension during *Hajj*.

Among statements from the participants that related to this theme are as below:

*"The most serious problem is respiratory problem...and those who would be given attention to are patients with respiratory problem and asthma" (Fgd 3, 11)*

*"There were four young men stayed in the neighboring room.... They were always down with fever" (Fgd 3, 13)*

*"It is frequent as my mom and dad were coughing, I had diarrhea" (Fgd 5, 11)*

*"We had cracked lips in Makkah" (Fgd 1, 12)*

*"My mother was admitted in Mina due to dehydration.... She disliked to drink water.... just drink a little bit of water" (Fgd 3, 12)*

*"It was extremely hot ...can't eat anymore...cannot eat because of mouth ulcers" (Fgd 5, 11)*

*"Hypertension is due to the type of food" (Fgd 6, 11)*

### 3.2 Theme 2: Causes of health problem

Most of the participants indicated that the reason of the health problems during *Hajj* was due to the climate change and dust. Almost all participants either *muassasah* or private packages expressed the same answer. They highlighted that on-going construction was the main factor contributing to the dusty environment in Makkah.

Among statements from the participants that related to this theme are as below:

*"The effect of weather, torrid" (Fgd 3, 11)*

*" Because of climate change" (Fgd 4, 11)*

*"Hot condition, extremely hot.." (Fgd 6, 11,12)*

*“Due to construction inside and out it is dusty in Makkah” (Fgd 2, 11)*

*“The problem in Mina was dusty, many pilgrims developed asthma” (Fgd3, 14)*

*“It’s due to the construction outside” (Fgd5, 11)*

### **3.3 Theme 3: Location where the pilgrims perceived the most of their health problem**

Among the participants, some of them started having health problems during *sa’i* and *tawaf*.

These were justified from their statements as below:

*“Sa’i...because there were many people. We had to tiptoe” (Fgd 2, 13)*

*“It is tawaf, sa’i did not have any problem” (Fgd 6, 11)*

### **3.4 Theme 4: Demand**

There were other services demanded by the pilgrims that could be classified into two types of services such as human resource and infrastructure. Some of them expressed their opinion and described their experiences regarding health care services during his/her *Hajj*.

In term of human resource, most of the participants demanded for more doctors, hospital staff and Tabung Haji staff to be there to treat the pilgrims who seek for health care services.

This is based on the statement from participants as below:

*I think the number of doctors need to be increased....I think the doctor is the most important.” (Fgd 3, 11)*

*It is really short of attendance..I even help them because they really are short of staff” (Fgd 5, 11)*

*“If possible, TH should provide assistants (Tabung Haji staff) for pilgrims..to travel from Kaabah to hotel and to mosque....from mosque to hotel..then to go to Mina assistants are needed too” ” (Fgd 6, 11)*

*In term of infrastructure, the pilgrims were demanded for the wheelchair services, better accommodation, and more toilet.*

*“Wheelchairs are not provided by Tabung Haji, when it’s to perform tawaf, the pilgrims needed to buy it themselves” (Fgd 3, 13)*

*“We are disable people, the hotel should be near to Makkah (Masjidilharam)” (Fgd 6, 11)*

*“The toilet is not sufficient...because we shared with Thailand pilgrims” (Fgd5, 11)*

### **3.5 Theme 5: Supply**

Tabung Haji with the Ministry of Health has provided substantial health care services both in Makkah and Madinah that involves a number of doctors, nurses, pharmacist, medical assistant, medicines, and clinics. In order to increase efficient services of the *Hajj* pilgrim welfare, Tabung Haji staffs and an appointed *Mutawwifs* were well trained should be available when pilgrims need any assistance.

Statements from participants that are justifiable to the above are as below:

*“In Makkah, not to say that doctors are available on each floor, but there are doctors at upper and lower floors” (Fgd 4, 11)*

*“Yes, gone to the clinic twice ... in term of waiting time, not many patients, 10 patients for 15 minutes... Enough doctors, medicines are fine” (Fgd 3,14)*

*“There were nurses... MA (medical assistant) was there too... gave medicine, or anything else ... Everybody is there” (Fgd 4, I1)*

*“Only one pharmacist ... the rest were handled by pharmacy assistants” (Fgd 3, I1)*

*“Mutawwif will explain which direction that we will go” (Fgd 3, I1)*

Apart from that, Tabung Haji also has provided infrastructure including clinics, food services, and ambulances, briefing, and medicines. Almost all participants expressed their satisfaction towards the healthcare services provided by Tabung Haji such as number of clinics, food services, ambulances, medicines as well as the welfare services given to them.

These are justified from their statements below:

*“There had separate wards for those whose fatigue (in Mina)” (Fgd 1, I3)*

*“When Kak Zah was there, syukur Alhamdulillah...in Arafah TH gave nasi lemak....mostly maggi...hurmmmm” (Fgd 1, I3)*

*“If the pilgrims had health problems, Batutta will use an ambulance for Umrah and Hajj... that ambulance belongs to Tabung Haji but Batutta in charged” (Fgd 2, I1)*

*“They had ustazah, and counseling... It was open for all.. We can ask, ask for opinion, TH already did that” (Fgd 2, I3)*

*“The medicine was good. Fever and asthma medicines. Did not buy medicine outside” (Fgd 3, I4).*

#### **4. DISCUSSION**

Communicable diseases and non-communicable diseases are commonly experienced by the pilgrims in Makkah. This is supported by other studies (Ahmed *et al.*, 2006; Khamis, 2007; Z. A. Memish, 2010). In our study, most of the participants performed *Hajj* with pre-existing health problems. Most of them encountered more than one symptom of respiratory diseases during *Hajj* such as cough, flu and asthma. Cough, runny nose, fever and sore throat were commonly experienced among Malaysian *Hajj* pilgrims (Deris *et al.*, 2010). The major causes of health problem were the extreme crowds and close contact among pilgrim, all combine to increase the transmission of communicable diseases, such as the respiratory diseases (Gautret *et al.*, 2009). It is also possible that air pollution can lead to serious health consequences, an increased likelihood of heart diseases and respiratory diseases that indirectly increase the health risks (Habeebullah *et al.*). Other than that, the average length of stay among pilgrims could be another risk factor since some of them stayed in Makkah in a shorter period of time compared to Malaysian pilgrims. Moreover, Makkah particularly the area of Masjidilharam was then in the middle of massive construction (Habeebullah *et al.*) that contributing to the air pollution. There are participant's who felt their health problem was due to the climate change and dust. This is supported by the finding from previous study for Malaysian pilgrims, where the prevalence of pilgrims had respiratory diseases was 95.2% (Deris *et al.*, 2009). This finding is considerably high as compared to the pilgrims from other Arab countries such as Iran and Pakistan with the prevalence less than 50%.

The condition mentioned above probably due to the adaptation of Malaysian pilgrims with the weather in Makkah. Malaysia's climate is hot and wet throughout the year compared with the climate of Makkah city, which is extreme heat, dry (Habeebullah *et al.*; Sulaiman *et al.*, 2011) and dust (Deris *et al.*, 2010). Recorded temperature during *Hajj* range between 37°C and 45°C (Mimesh *et al.*, 2008). Diseases severity usually depends on the climate changes because climate changes plays a significant role in people's health, which may allow some diseases to spread more easily (Patz *et al.*, 2003).

Interestingly, most participants started having health problem during performing the ritual of *Tawaf* and *Sa'i*, which was towards the end of *Hajj* ritual. *Tawaf* and *Sa'i* represented the fourth and fifth step of *Hajj* ritual. The congestion and overcrowded conditions during *Tawaf* and *Sa'i* resulted a lot of stressful exercise (Afshin-Nia *et al.*, 1999) and impose great deal of physical and mental stress (Yousof, 1999). In general, horrific crowds during *Tawaf* become the most important causes for developing health problems. One study that have been conducted to evaluate the comparability of diseases among France pilgrims prior and during *Hajj* showed that 38.6% of them

were suffering from respiratory diseases after perform the Tawaf (Benkouiten *et al.*, 2013). In order to complete the *Hajj* activities, most of them were jostling one another and therefore created such a dangerous condition to the other pilgrims, especially to the elderly and less able pilgrims. Consequently, it can cause weariness and listlessness resulting in pain and discomfort among the pilgrims.

In this study, it is important to note that the pilgrims were demanded adequate and efficient health care services including human resource and infrastructure. *Hajj* rituals entail emotional, mental and physical stress as well as fatigue and inability to perform *Hajj* ritual that required a lot of perseverance and steadfastness especially for elderly and disable pilgrims. They are prone to variety of underlying health conditions particularly respiratory infections because most of them already have problems in their immune system (Sulaiman *et al.*, 2011). Therefore, these pilgrims seek early medical doctor to get the treatment as well as medical advice as soon as possible to avoid missing any of *Hajj* rituals (Shakir *et al.*, 2006). In addition, it is worth mentioning that the participants need Tabung Haji staff in managing and helping them if they have any difficulties during the *Hajj* ritual. In order to perform the rites of *Hajj*, the same path was used by those who walked, those who use wheelchair, those in motorbike and even by bus. So, the mixing of intense congestion and hot weather can worsen the health problems during *Hajj* especially heat stroke (Khogali, 1983; Yaqub *et al.*, 1986). Since Tabung Haji staff plays an important role to ensure the security and safety of the pilgrims as well as their well-being and convenience for the Malaysian pilgrims during *Hajj*, the pilgrims especially elderly pilgrims required them to help them during performing *Hajj* ritual. Appropriate infrastructure such as wheelchair services, proper accommodation, which is near to Masjidilharam and toilet services, which have been mentioned by the participants, should be taken into the action in order to ensure the accessibility of the pilgrims.

In an attempt to reduce the health problems among Malaysian pilgrims, Tabung Haji (TH) has provided several services. TH as an institution that managed the Malaysian *Hajj* pilgrims in holy land has allocated a lot of resources including health services, lodging services, food services, transportation services and general services (Wawaeni, 2009). For instance, TH has established 6 medical facilities to the pilgrims such as Syishah Medical Centre, Tabung Haji clinic in Makkah, Aziziah Medical Centre, Medina medical centre, Madinatul Hujjaj clinic in Jeddah, and Maktab clinics. Aziziah Medical Centre with 80 beds, Syishah Medical Centre with 98 beds and Al-Janadriah clinic with 41 beds. In Madinah, only one of the clinics has a transit ward consisting of 19 beds (Deris *et al.*, 2009). In term of medical facilities, Tabung Haji has provided medical personnel, physicians, pharmacist, dietitian, nurses and medical assistant in each maktab clinic and zone clinic to facilitate pilgrims in seeking treatment. These medical personnel's are from Kementerian Kesihatan Malaysia (KKM). Apart from that, TH also provided ambulance services in Makkah, Madinah and Mina and responsible to transport pilgrims between Arafah, Makkah, Madinah and Mina.

## 5. CONCLUSION

This study demonstrates an efficient way of FGD as a tool to dig in more information of certain issues (as for this study is the *Hajj* issues) from the participants. The willingness of participants to cooperate with us was mirrored from their meaningful expression in discussing the said issues. Experiences and opinions voiced out from them were greatly appreciated and indeed, very informative and valuable for our current and future studies. The information gathered from the five themes; the health related problems, the causes of the health problem, the location where the pilgrims perceived most of the health problems, the demand for the health care services, and the supply of health care services would be such an important components or building blocks for us to construct our questionnaire (measuring tool) to be applied for another health related *Hajj* research in the future. Hoping that the constructed questionnaire would substantially cover all *Hajj*-health related issues with a max reliability and validity measured.

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## REFERENCES

- Afshin-Nia, F., Dehkordi, H. M., Fadel, M. and Ghanei, M. (1999). How to reduce cardiovascular mortality and morbidity among hajj pilgrims: A multiphasic screening, intervention and assessment. *19*: 55-57.
- Ahmed, Q. A., Arabi, Y. M. and Memish, Z. A. (2006). Health risks at the hajj. *Lancet*, *367*: 1008-1015.
- Al Shimemeri, A. (2012). Cardiovascular disease in hajj pilgrims. *J Saudi Heart Assoc*, *24*: 123-127.

- Barlas, S., Safdar, M., Chaudhry, S., Ahamad, T. and Hashmi, I. (1993). Meningococcal disease: Clinical profile of 99 patients. *Ann Saudi Med*, 13: 237-241.
- Benkouiten, S., Charrel, R., Belhouchat, K., Drali, T., Salez, N., Nougairède, A., et al. (2013). Circulation of respiratory viruses among pilgrims during the 2012 hajj pilgrimage. 57: 992-1000.
- Deris, Z. Z., Hasan, H., Sulaiman, S. A., Wahab, M. S., Naing, N. N. and Othman, N. H. (2009). Preference of treatment facilities among Malaysian hajj pilgrims for acute respiratory symptoms. *Saudi Med J*, 30: 1103-1104.
- Deris, Z. Z., Hasan, H., Sulaiman, S. A., Wahab, M. S., Naing, N. N. and Othman, N. H. (2010). The prevalence of acute respiratory symptoms and role of protective measures among Malaysian hajj pilgrims. *J Travel Med*, 17: 82-88.
- Dupret, B. and Pinto, P. G. (2012). *Ethnographies of Islam: Ritual performances and everyday practices*: Oxford University Press.
- Gaffar, H. D., Achmadi, U. F. and Syamsu, I. P. (2013). Hajj health management focusing on the risk factors management. 92.
- Gautret, P., Yong, W., Soula, G., Gaudart, J., Delmont, J., Dia, A., et al. (2009). Incidence of hajj-associated febrile cough episodes among French pilgrims: A prospective cohort study on the influence of statin use and risk factors. *Clin Microbiol Infect*, 15: 335-340.
- Ghaznawi, H. I. and Khalil, M. H. (1988). Health hazards and risk factors in the 1406 h (1986) hajj season. *Saudi Med J*, 9: 274-282.
- Habeebullah, T. M., Munir, S., Ropkins, K., Morsy, E. A., Mohammed, A. M. and Seroji, A. R. A comparison of air quality in arid and temperate climatic conditions—a case study of Leeds and Makkah.
- Khamis, N. (2007). Epidemiological pattern of diseases and risk behaviors of pilgrims attending Mina hospitals, hajj 1427 h (2007 g). *J Egypt Public Health Assoc*, 83: 15-33.
- Khogali, M. (1983). Epidemiology of heat illnesses during the Makkah pilgrimages in Saudi Arabia. *Int J Epidemiol*, 12: 267-273.
- Madani, T. A., Ghabrah, T. M., Al-Hedaithy, M. A., Alhazmi, M. A., Alazraqi, T. A., Albarrak, A. M., et al. (2006). Causes of hospitalization of pilgrims in the hajj season of the Islamic year 1423 (2003). *Ann Saudi Med*, 26: 346-351.
- Mandourah, Y., Al-Radi, A., Ocheltree, A. H., Ocheltree, S. R. and Fowler, R. A. (2012). Clinical and temporal patterns of severe pneumonia causing critical illness during hajj. *BMC Infect Dis*; 12: 117.
- McKie, L. (1993). Women's views of the cervical smear test: Implications for nursing practice—women who have not had a smear test. *J Adv Nurs*, 18: 972-979.
- Memish, Z. A. (2010). The hajj: Communicable and non-communicable health hazards and current guidance for pilgrims. *Euro Surveill*, 15: 19671.
- Memish, Z. A., Zumla, A., Alhakeem, R. F., Assiri, A., Turkestani, A., Al Harby, K. D., et al. (2014). Hajj: Infectious disease surveillance and control. 383: 2073-2082.
- Mimesh, S. A., Al-Khenaizan, S. and Memish, Z. A. (2008). Dermatologic challenges of pilgrimage. 26: 52-61.
- Murray, S. A., Tapson, J., Turnbull, L., McCallum, J. and Little, A. (1994). Listening to local voices: Adapting rapid appraisal to assess health and social needs in general practice. 308: 698-700.
- Nassar-McMillan, S. C. and Borders, L. D. (2002). Use of focus groups in survey item development. 7: 1-12.
- Novelli, V., Lewis, R. and Dawood, S. (1987). Epidemic group A meningococcal disease in hajj pilgrims. 330: 863.
- Patz, J., Githeko, A., McCarty, J., Hussein, S., Confalonieri, U. and De Wet, N. (2003). Climate change and infectious diseases. 103-137.
- Phillips, C. J. (2008). *Health economics: An introduction for health professionals*: John Wiley & Sons.
- Serafi, A. S. and Alqasim, A. A. (2012). Cardiovascular diseases in Mina hospital during hajj (1429h) at Makkah, Saudi Arabia. *Life Sci J*, 9:
- Shakir, H. A., Gazzaz, Z. J., Dhaffar, K. O. and Shahbaz, J. (2006). Outpatient services during (1423h) hajj season. 6: 47.
- Sulaiman, S., Hasan, H., Deris, Z., Wahab, M., Yusof, R. and Naing, N. (2011). The benefit of tualang honey in reducing acute respiratory symptoms among Malaysian hajj pilgrims: A preliminary study. 3: 38-44.
- Wawaeni, K. (2009). *Customer satisfaction: A study on the services offered by lembaga urusan tabung haji (luth) in Makkah, Madinah and Mina*. Universiti Utara Malaysia (UUM), Unpublished master's thesis
- Whelan, J., Msefer, K. and Chung, C. V. (2001). *Economic supply & demand*: MIT.
- Yaqub, B. A., Al-Harathi, S. S., Al-Orainey, I. O., Laajam, M. A. and Obeid, M. T. (1986). Heat stroke at the Makkah pilgrimage: Clinical characteristics and course of 30 patients. *QJM*, 59: 523-530.
- Yousof, M. (1999). Pattern of respiratory diseases among hajj pilgrims visiting Madinah al-Munawarah. 5: 7-10.