

THE ISSUES OF FACEMASK AMONG HAJJ PILGRIMS: A CRITICAL REVIEW

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Abstract: Over 2 millions people congregate in Mecca every year to perform Hajj. Pilgrims are exposed to air-borne transmitted disease during this overcrowding period. Several measures have been practiced to reduce the spread of disease particularly the respiratory tract related infection. One of the preventive measures is by using face mask. Nevertheless, the use of face mask among pilgrims is shown to be only partially effective. This is attributed to the knowledge on the air borne transmitted disease, attitude towards wearing, technique of application, and to some extent the design of the face mask itself.

Keywords: Hajj, pilgrimage, respiratory, infection, face mask.

INTRODUCTION

The annual hajj pilgrimage to Mecca, Saudi Arabia brings over two million people to a small confined area. As one of the consequences, respiratory tract infection is the most common disease transmitted during this period¹. Air-borne transmission is the route of spread. The symptoms include cough, runny nose, sore throat, and fever. It was suggested that the face masks were equally effective in preventing spread detectable influenza virus when used by infected patients. It is also potentially effective at preventing respiratory virus acquisition by household contacts of infected persons when worn by healthy persons².

2.0 RESPIRATORY TRACT INFECTION AMONG HAJJ PILGRIMS

There is a serious issue on communicable disease especially in congested area such as during hajj. Communicable diseases are known complications of being in a very congested and highly densed population. A large outbreak of meningococcal meningitis has been reported in 1987 and 2000^{3,4}. Study showed that the respiratory diseases are a common illness during hajj

season and respiratory tract infections are the commonest cause of hospital admission during hajj. Pneumonia alone was the most common cause for hospital admission which accounted for 19.7% to 39.4% during hajj season⁵.

In 2004 hajj season, pulmonary diseases like pneumonia, pulmonary edema, chronic obstructive pulmonary disease (COPD), and bronchial asthma were the next commonest admission to intensive care units after myocardial infarction. Pneumonia contributed to 22.1% of intensive care admission⁶. Respiratory symptoms are one of the most common problems faced by pilgrims in Mecca, including from Malaysia. The respiratory infection is a communicable disease with high potential to spread among pilgrims especially those without precaution measures⁷. Acute respiratory infection (ARI) is the leading cause of admission to Saudi hospitals during the hajj⁸. Each year, at least 60% of them develop respiratory symptoms there or during outward or homebound transit⁹.

ARI transmission can be efficiently reduced by simple, low-cost physical measures, including use of face masks and hand hygiene. However, awareness and acceptability of these measures among pilgrims is limited¹⁰. This indicates the lack of preventive measure taken by the pilgrim during hajj. The precaution measure is highly suggested including for the pilgrims from Malaysia which are exposed to the same level of risk. The study also suggests the important of simple precaution measure and specifically recommends the use of face mask⁹. Thus, even though it is a simple and low cost measure, the use of mask is shown to decrease the risk of infection. Historically, face masks have been used to prevent or reduce nosocomial transmission of pandemic influenza since, at least the time of Spanish influenza in 1918. Nurses who wore specially designed face masks and changed them every 2 hours experienced lower infection rates than those who did not¹¹.

3.0 FACTOR INFLUENCING MASK EFFECTIVENESS

The use of face mask may reduce the risk of infection with a proper technique of usage. However, the appropriate design and quality of mask and the proper method to use the face mask is also critical to optimize its function. According to the data, most of the pilgrims, especially Malaysian pilgrim use surgical and N95 mask when perform the hajj⁹. Recent studies by Gatrad et al (2006), demonstrated that surgical and N95 masks were equally effective in preventing spread of PCR-detectable influenza virus when used by infected patients. These masks also were potentially effective at preventing respiratory virus acquisition by household contacts of infected persons when worn by healthy persons¹².

However, effectiveness depended largely on adherence to mask use. Thus, it is important for the user to use the face mask correctly and consistently to ensure the face mask more effective.

The unsuitable mask design or faulty use of mask for example reusing the mask, may lead to the unwanted effect by increasing the risk of transmission¹². According to others view, National Health Service (NHS), England does not advise the use of masks, considering compliance with this advice unlikely because many pilgrims believe that covering the face is prohibited, masks need to be of high quality and must change at least every 6 hours to remain effective¹². These factors need to be considered to ensure the objective of wearing mask is achieved. The mask used also must be of a certain standard of quality in order to achieve the desired effectiveness. Besides the usage techniques, the design of the mask itself can be improved¹². The demonstration of high acceptability of simple physical measures to prevent ARI encourages the education of pilgrims during the pre-travel encounter. The study results also support conclusion that masks, hand-rubs, and disposable handkerchiefs should be provided to pilgrims, along with strong advice about the risk for ARI, to increase adherence to prevention measures. This finding was in agreement with Al-Asmary et al. (2007) who found that using facemasks offered no significant protection against ARI. Intermittent usage of current design of facemasks carried more risk than using facemasks all the time. This proved the importance of facemask design in order to efficiently protect the user¹³. According to Deris et al. (2009), their findings showed that wearing facemasks was significantly associated with specific respiratory symptoms such as sore throat. It also showed that wearing facemask was associated with prolonged duration of sore throat and fever. This is because the pilgrims keep using the contaminated mask and it caused to their health¹⁴. This was against the findings of study by Al Mudmeigh et al. (2003) which stated the facemasks were the most important practical protective factor¹⁵. It was clear that the benefit of facemask to the users is affected by multiple factors. The factors include the design quality of the mask, the consistency of user and also the proper use of mask. It is very critical for the pilgrims understands and know the proper method to use the facemask.

According to the data from CDC Serogroup (2000), usual paper and surgical facemasks were not known to provide complete protection from influenza infection. Facemasks are not designed to protect against breathing in the very small particles and should be used only once⁴. However, the CDC recommendations for the prevention of influenza still include wearing a facemask. This is because although wearing a mask may not provide complete

protection from infection, it will reduce the incidence of infection by preventing droplet inhalation, which is considered one of the main modes of transmission of most URTIs. Using a facemask during hajj was found to be a major protective measure to decrease the risk of ARI among pilgrims. Mudaimagh et al. (2003), also recommend that use of a facemask should be encouraged during the hajj to reduce the incidence of ARI and health care providers should be advised not to use antibiotics for management of ARI without evidence of bacterial causation; and older people and diabetic patients should be informed about their high risk of ARI in order to adopt protective measures¹⁵. Deris et al. (2009) also stated that the hajj pilgrims tend to reuse the facemasks or not follow the proper guidelines using facemasks for optimum protection. There is a gap and issues to promote the hajj pilgrims to follow the guideline of using proper facemask. Its may can achieve trough proper design of the facemask. The current protective measures are inadequate to give protection. Future research should be aimed at finding other possible interventions which could reduce respiratory infections¹⁴. The study suggests the possible intervention to reduce respiratory infection should be done. This is also can be done through improvement of current protective but popular measures such as the facemask improvement.

Recent experiments confirm that surgical masks and respirators can filter influenza virus, although observational studies or clinical trials have not yet clearly demonstrated the effectiveness of plain surgical masks in household or healthcare settings¹³. One of these studies evaluated the role of face masks among pilgrims at the 2002 Hajj, when a protective effect was shown in men but not in women. The other study evaluated the use of face masks worn by healthcare workers at the 2005 Hajj in preventing acquisition of acute respiratory infection when protective effectiveness was non-significant¹³.

Another issue rose based on the previous study is the religious based assumption of mask usage among the pilgrims. Use of face masks varies according to the origin of Hajj pilgrims; in one study, only 15% of pilgrims from the Middle East, 17% from Europe and the United States, and 45% from Southeast Asia used a mask. Even though the Saudi authorities recommend the use of mask, it is shown that the pilgrim from Middle East including the Saudi themselves have a smallest percentage using face mask. It has been found that trough promotion and distribution of free masks increased their use from 34% to 81% in another cohort of Saudi pilgrim⁴. Facemasks were not officially recommended by the Saudi Ministry of Health but they are becoming used more frequently during the hajj, especially among

domestic hajjis and those from south-east Asia¹⁶. This includes the pilgrim from Malaysia and proved that the use of mask is popular method for Malaysian pilgrims

However, the data stated that the pilgrims from Southeast Asia, including the Malaysian pilgrims, had the highest percentages using face mask during hajj. The use of masks, considering compliance with this advice unlikely because many Muslims believe that covering the face during the Hajj is prohibited and because masks need to be of high quality and changed at least every 6 hours to remain effective.

This explains the different percentages of popularity of mask based on the religious view according to geographical factor of the pilgrims. We can interpreted that the some pilgrim highly concern about the Islamic rule or 'hukum' of covering face with mask during hajj even though their government recommended the use of face mask. The pilgrim from South East Asia likely show much concern about the measure of precaution to undertaken according to the percentage, they follow the recommendation to use the face mask. However, there is a concern on how effective and consistent the face mask used by the South East Asia pilgrims even though the data show the facemask popular among them.

In 2013 hajj season, there is outbreak of Middle East respiratory syndrome coronavirus (MERS-CoV) infection. According to Assiri et al (2013), MERS-CoV can cause severe or fatal disease, and there is no prophylaxis or specific treatment. If the form of transmission is not understood, health care professionals should adhere to the precautionary principle that reasonable steps to reduce risk should not await scientific certainty. However, the authors do not describe the infection-control measures used in the hospital, and they do not discuss the possibility of aerosol transmission of MERS-CoV, a coronavirus similar to the severe acute respiratory syndrome coronavirus (SARS-CoV)¹⁷. It is for this reason that the Centers for Disease Control and Prevention (CDC) recommended airborne precautions (the use of respirators rather than surgical masks), in addition to standard and contact precautions, for all patients with MERS-CoV. There is evidence that SARS-CoV was transmitted by respiratory aerosols¹⁸⁻²⁰. For this reason, the virus can also spread among the health worker that often use only surgical mask and properly designed mask is important to increase protection. According to Oberg T et al (2008), surgical masks do not provide adequate protection against inhalation of aerosols²¹. Health care workers have already been infected with MERS-CoV. It would be prudent for hospitals with the resources to do so to provide a higher level of protection (i.e., respirators) for their health care workers²².

4.0 CONCLUSION

In conclusion, respiratory symptoms were very common among hajj pilgrims. The current protective measures are inadequate to give protection. The available studies also suggest for the future research should be aimed at finding other possible interventions which could reduce respiratory infections. As the number of hajj pilgrims increases each year, these measures ought to be instituted soon. Thus, the studies on new design of mask for hajj pilgrims is timely important to identify the specific preferences for the pilgrims. The literature discuss several critical issues which is the needs of mask as precaution measures, the technical issues of mask design such as lack of quality, uncomfortable for both gender and inefficient design of mask. The pilgrims' knowledge, attitude and practice regarding the importance of wearing a proper mask in a proper way need to be enhanced. A new design of mask may be one of the solutions in order to achieve this objective.

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